PROJECT FOCUS

Eastgate Park, City of Mississauga

Cooksville SWMF #3603 – Eastgate Park Underground storage facility

Client: City of Mississauga

Contract Amount: $561,000

Project Duration: 2015 – August 2018

OVERVIEW

COLE was the Prime Consultant for the City of Mississauga, provided stormwater engineering, tender support and completing detailed design, contract administration, and site inspection for an underground stormwater management facility in Eastgate Park; as part of a flood reduction initiative. A Flood Evaluation Study through the Municipal Class EA process proposed the construction of thirteen detention facilities located within the Cooksville Creek watershed, one being Eastgate Park, for the purpose of mitigating riverine flooding experienced over the past several years. The proposed detention facilities would attenuate peak flows upstream during large storm events, therefore freeing up capacity in the drainage system downstream.

During the design phase, COLE's responsibilities included the stormwater design of two diversion weir structures from an existing 3.0m x 2.1m box culvert, an underground arch chamber system with a total storage volume of approximately 14,000m^3, and an outlet control manhole with orifice plate. COLE completed hydrologic/hydraulic modelling using EPA SWM 5.1 (SWMM) software to verify the performance of the proposed system and quantify the design peak flow reduction of the facility. In addition, COLE implemented water quality measures within the design by incorporating isolator rows within the underground storage system. The scope of work for the project also included topographic survey, geotechnical investigations, landscape architecture for park restoration, civil design for underground storage units and pipe connections to a trunk sewer. GEO Morphix Ltd. also worked with COLE on this project preparing a creek erosion analysis to identify potential impacts on the site of the proposed underground storage.

STORM SEWER SYSTEMS | STORMWATER INFRASTRUCTURE/MANAGEMENT FACILITIES | CROSS CONNECTIVITY WITH OTHER UTILITIES AND SERVICES | FIELD INSPECTIONS AND QUALITY IMPROVEMENTS | SIDEWALKS AND PEDESTRIAN FACILITIES | UTILITIES COORDINATION AND RELOCATION | GRADING DESIGN AND PREPARATION OF DRAWINGS | DETAILED DESIGN FOR ROAD RECONSTRUCTION AND/OR DRAINAGE IMPROVEMENTS | CONTRACT ADMINISTRATION AND PROJECT MANAGEMENT SERVICES | CONSTRUCTION INSPECTION AND QA/QC.

COLE

COLE ENGINEERING GROUP LTD.

T. 905 940 6161 | 416 987 6161 www.coleengineering.ca

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The proposed design was reviewed and approved by the City of Mississauga and MOECC prior to tendering of the project. In addition, COLE carried out a successful public information centre to inform the public of the design due to the sites proximity to neighbouring residential dwellings. During tendering of the project, COLE provided assistance to the City of Mississauga in addressing bidder's questions and concerns prior to the contract being awarded.

During construction of the SWM facility, COLE provided contract administration and site inspection services to oversee the construction of the facility on a daily basis. The inspector provided detailed field notes, daily photo records and bi-weekly progress reports to the City of Mississauga to provide progress updates throughout construction. COLE arranged weekly meetings to discuss construction progress and address all outstanding action items and conflicts that arose during the week.

As the project is located within a residential park, COLE worked cooperatively with the Contractor to keep the public informed during construction. COLE coordinated with local schools to ensure the safety of students, which included arranging the relocation of a bus pick up location away from the entrance of the construction site. Neighbourhood complaints were addressed by COLE in a timely manner, with all efforts being made to minimize the impact of construction to the local residents.

Throughout the design and construction phases of the project, complications arose that required COLE to make minor adjustments to the overall design and construction methodology. To address the presence of a high shale elevation within the excavation limit, determined during the preliminary geotechnical investigation and further verified during excavation, COLE proposed a multi-tier chamber design that would minimize the disturbance to the shale surface. In addition, contaminated soil was discovered to encompass the majority of the site based on soil sampling completed prior to excavation. COLE completed a risk assessment to evaluate the human and ecological risks associated with re-use of the material as backfill onsite. COLE revised the proposed final grades mid-construction to maximize the amount of impacted material that could remain onsite, therefore minimizing the amount requiring offsite disposal, as reuse of all contaminated material was not feasible based on the original grading plan.

The project was completed August 2018 and will serve to reduce downstream flooding experienced on Cooksville Creek in the future.