



## **Civil Design Narrative CHEO Parking Garage 401 Smyth Road, Ottawa, ON**

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**Date:** November 1, 2022

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## 1 Introduction

The following design narrative provides a description of the civil design that is being completed for the CHEO Parking Garage located at 401 Smyth Road, in Ottawa, Ontario. It includes a description of the sanitary sewer design, storm sewer design, watermain design, and stormwater management design. It will also address Sediment and Control Measures that will need to be implemented for this project.

A more detailed Site Servicing and Stormwater Management Report will be submitted as part of the Site Plan Control Application and will be in accordance with the City of Ottawa's guidelines for servicing studies for development applications.

## 2 Sanitary Sewer Design

The existing sanitary sewer system within the Ottawa Health Sciences Centre (OHSC) campus consists of sewers ranging in size between 200mm and 381mm with smaller diameter services for various buildings. The Parking Garage is proposed to be serviced by new sanitary sewers that will be connected to an existing 350 mm diameter sewer located north-west of the new Parking Garage. Please refer to the attached Site Servicing drawing C100.

Previous servicing studies completed on the OHSC campus have identified that the existing sanitary sewer network does not have any capacity issues and will be able to accommodate the new development.

## 3 Storm Sewer Design

The existing storm sewer system within the OHSC campus consists of three main sewer networks. All three sewer networks are connected to the 1350mm main trunk sewer at the north-west corner of the campus property. The Parking Garage is proposed to be serviced by a new storm sewer that will be connected to the existing 750 mm diameter storm sewer located north-west of the new Parking Garage. Please refer to the attached Site Servicing drawing C100.

Previous servicing studies completed on the OHSC campus have identified that the existing storm sewer network does have capacity issues. The post-development release rate for this development will be in accordance with recommendations outlined in the Stormwater Master Plan Study prepared by Morrison Hershfield dated July 2019, to ensure this development does not adversely affect the downstream system. The stormwater management measures proposed for this site are discussed further in Section 5 Stormwater Management.

## 4 Watermain Design

The existing water supply system at the OHSC campus consists of two major watermains: (i) A 203mm watermain feed from the 305mm municipal watermain on Smyth Road and (ii) A 305mm watermain loop feed from the 305mm municipal watermain on Smyth Road that connects at two locations. The Parking Garage is proposed to be serviced by the existing 300 mm diameter watermain located to the east of the new Parking Garage. Two water services will be provided to the Parking Garage for redundancy. Please refer to the attached Site Servicing drawing C100.

A watermain analysis will be undertaken after the boundary conditions required for the analysis are provided by the City. A request has been submitted to the City. The analysis will determine whether the existing watermain network has adequate flow and pressure to meet the domestic and fire flow demands for the proposed garage.

## 5 Stormwater Management

As mentioned in Section 3, the existing storm sewer network has capacity issues. The Stormwater Master Plan Study prepared by Morrison Hershfield dated July 2019 outlines the existing stormwater management scheme of the Ottawa Health Sciences campus, the issues with the existing conditions, and corresponding measures to address the issues.

In accordance with the above-mentioned report, the allowable post-development release rate, up to the 100-year storm event, shall not exceed the pre-development peak flow during 2-year storm event. The allowable peak flow shall be determined by estimating the pre-development average runoff coefficient or 0.5, whichever is less. The 100-year post development peak flow rate shall be attenuated by means of Inlet Control Devices (ICDs). A combination of surface and underground storage will be used for on-site stormwater storage.

It is understood that the existing private storm sewer network already has quality control measures in place at the downstream end of the system before it outlets into the municipal sewer network. Therefore, quality control shall not be required at this site.

## 6 Sediment and Erosion Control

Sediment and Erosion Control works will be required during construction and are expected to be maintained throughout the various stages of construction. Sediment and Erosion Control measures shall be controlled by the following techniques:

- Extent of exposed soils shall be limited at any given time;
- Exposed areas shall be re-vegetated as soon as possible;
- Minimize the area to be cleared and disruption of adjacent areas;

- Filter cloth shall be installed between frame and cover of all catch basins, catch basin manholes, and storm manholes as identified on the site grading and erosion control plan;
- Visual inspection shall be completed daily on sediment control barriers and any damage repaired immediately. Care will be taken to prevent damage during construction operations;
- In some cases, barriers may be removed temporarily to accommodate the construction operations. The affected barriers will be reinstated at night when construction is completed;
- Sediment control devices will be cleaned of accumulated silt as required;
- During the course of construction, if the engineer believes that additional prevention methods are required to control erosion and sedimentation, the contractor will install additional silt fences or other methods as required to the satisfaction of the engineer; and,
- Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification (OPSS) 805.