



MTE Consultants

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Manager of Engineering
Town of Midland
575 Dominion Avenue
Midland, Ontario L4R 1R2

RE: 786 William Street - Midland
Functional Servicing and Stormwater Management Brief

Background and Existing Conditions

MTE Consultants Inc. was retained by Fryett Turner Architects Inc. to prepare Site Grading and Servicing Plans and a Stormwater Management (SWM) Brief for the proposed residential development to be constructed at 786 William Street, located in the Town of Midland.

The site is currently vacant and is approximately 1.12 ha. It is bounded by William Street to the east, Midland Self Storage site to the south, an existing woodlot to the west, and Georgian Landing Condominiums to the north. For the exact location, refer to the key plan located on the enclosed engineering drawings.

The development consists of the construction of two five-storey apartment buildings complete with surface parking and two driveway entrances; one off of William Street and a second off of Bowling Green Estates.

As detailed in the report entitled “786 William Street Detailed Design Report Project #2018-009” prepared by Capes Engineering in October 2018, the site was previously owned by Georgian Landing Condominiums (778 William Street) and was to be developed as Phase 2 of their site. The original design was for an additional 43 residential units similar to what currently exists at Georgian Landing. Watermain, sanitary and storm sewers, an internal roadway, and a small stormwater management (SWM) facility were all installed on the subject site as part of the originally proposed Phase 2 development plan.

Servicing

With the 786 William Street site being severed from the Georgian Landing site and now under separate ownership, appropriate easements should be established over the shared services installed on the 786 William Street site.

Sanitary

There is an existing 200mm diameter sanitary sewer that runs from north to south within the site, and outlets at the south west corner of the property. As detailed in the report prepared by Capes Engineering, we understand the sanitary sewer extends west along the north edge of the Midland Self Storage site and ultimately connects with the municipal sanitary sewer on William Street. Based on the surveyed inverts and the information provided in the report prepared by

Capes Engineering, the existing sanitary sewer outlet is at a slope of approximately 2.0%, with a capacity of 46.3 L/s.

A new 200mm diameter sanitary sewer is proposed to connect to the existing 200mm diameter sanitary sewer installed on the site to service the two proposed apartment buildings. The proposed development consists of 86 units. Assuming 2.0 ppl/unit, this equates to a population of 172 people, and an anticipated peak sanitary flow rate of 4.04 L/s. From the information provided in the report prepared by Capes Engineering, the Georgian Landing development was calculated to have an anticipated peak sanitary flow rate of 2.05 L/s. The total peak sanitary flow rate being directed to the existing sanitary sewer outlet is calculated to be 6.09 L/s.

Therefore, the existing sanitary service connection has adequate capacity to convey the combined flow from the proposed development and the Georgian Landing site. Refer to the attached sanitary sewer design sheet for details.

Storm

A series of catch basins and storm sewers were installed on the site to collect runoff from not only the Georgian Landing site but also the subject site at 786 William Street under developed conditions. There is an existing 375mm diameter storm sewer on the site that discharges to the existing SWM facility within the south west corner of the site. There is also an existing 300mm diameter storm sewer on the site that runs parallel to the south property line and also discharges to the existing SWM facility.

As part of the re-development of the site, several new catch basins and storm sewers are proposed on site to collect runoff generated on the proposed parking lots and building rooftops. This runoff will be conveyed to the existing storm sewers outletting to the existing SWM facility. The on-site storm sewers have been sized to convey the 5 year design storm to the existing SWM facility. Refer to the attached storm sewer design sheet for details.

Water

There is an existing 150mm diameter watermain on the site the enters the property off of William Street and continues through the site to service the Georgian Landing site. There is also an existing fire hydrant installed on the site that is proposed to be re-located on the site to accommodate the proposed development plan. A new 150mm private watermain is proposed to be extended from the existing watermain network on the site to service the proposed buildings. The Town of Midland has requested that the existing valve on William Street, which is currently permanently in the closed position, is to be upgraded to a CLA-VAL check valve Model 81-02. Details for the valve are provided on drawing C2.3. It is assumed that adequate water supply is available to service the development. A fire flow analysis will be completed for the site to confirm available flow and pressure, if required by the Town.

Stormwater Management

As detailed in the stormwater management report prepared by Capes Engineering, the stormwater management criteria for the site is to ensure minimal or no negative impacts on the downstream landowner(s), and to adhere to the original design criteria of the existing SWM facility on the site. Through the recreation of a hydrological model for the existing SWM facility, Capes Engineering determined the total contributing drainage area to the existing SWM facility to be 2.49ha, including the Georgian Landing site and the 786 William subject site, with an overall allowable imperviousness of 56%.

The proposed development encompasses an area of 1.12ha with an imperviousness of 63%. The Georgian Landing site encompasses an area of 1.37ha with an imperviousness of 47%. The combined sites have a total drainage area of 2.49ha with a total imperviousness of 54.2%. Therefore, additional on-site water quantity and quality controls are not required. Refer to Figure 1.0 for an illustration of the stormwater catchment areas in the post development of the site.

Infiltration Water Balance

The Town of Midland has requested that a water balance analysis be completed for the proposed development to ensure post development infiltration volumes are maintained on site. A monthly water balance analysis was completed by HCS for the site under current and post-development conditions, to examine the impacts of the proposed development on infiltration. Refer to the Scoped Hydrogeological Investigation prepared by HCS for the results of the water balance analysis for the site.

In the post development condition, the infiltration target is to maintain or enhance the infiltration volume as compared to current conditions. Infiltration measures include passive infiltration across the site in pervious areas as well as active infiltration of roof drainage from the proposed buildings. The runoff generated from the Building 1 rooftop and half of the Building 2 rooftop is proposed to be directed to an infiltration gallery on the site. The gallery will be sized to accommodate runoff from a 30mm rainfall event.

The infiltration gallery is proposed to be installed below the proposed parking lot fronting Building 2. No groundwater was encountered in the borehole located within the vicinity of the proposed gallery, however a wet silt and sand seam was encountered at an approximate elevation of 213.20. The bottom of the infiltration gallery is proposed to be at an elevation of 214.30. The proposed gallery will be an ADS Stormtech system with a total depth of 1.7m. An overflow connection will be provided to the on-site storm sewer system.

Erosion and Sedimentation Control

In order to minimize the effects of erosion during the grading of the site, sediment control fencing will be installed, as shown on the enclosed engineering drawings, and around any stockpiles. Any sediment that is tracked onto the road way during the course of construction will be cleaned by the contractor.

Conclusions

Based on the foregoing analysis, it is concluded that:

- i) The existing sanitary, water, and storm sewers on the site have adequate capacity to service the proposed development;
- ii) The total drainage area being directed to the existing SWM facility is less than 56% imperviousness, and therefore no additional on-site water quantity or quality controls are required;
- iii) The proposed infiltration gallery will assist with the pre to post water balance across the site; and,
- iv) Upon completion of construction, the site will conform to the design criteria specified by the Town of Midland.

Recommendations

It is recommended that:

- i) The site grading be undertaken according to the proposed elevations, details and erosion control measures shown on the enclosed engineering drawings; and,
- ii) The proposed civil works be inspected by MTE Consultants Inc., during construction, and certified to the Town of Midland upon completion.

We trust that this information is satisfactory. Please contact the undersigned if you have any questions

Yours Truly,

MTE Consultants Inc.

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