

**FUNCTIONAL SERVICING REPORT
BARBERTOWN HOUSE
MISSISSAUGA ROAD
PROPOSED TOWNHOUSE DEVELOPMENT
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL**

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FIGURE NO.

1 - KEY PLAN

DRAWING NO.

215-M72-2 STORM DRAINAGE PLAN (in envelope)

215-M72-3 CONCEPT SITE SERVICING PLAN (in envelope)

215-M72-4 CONCEPT SITE GRADING PLAN (in envelope)

215-M72-5 UTILITY PLAN (in envelope)

1.0 INTRODUCTION

The purpose of this report is to define the existing municipal services to the subject parcel of land and the proposed servicing in support of the proposed sixteen (16) unit townhouse residential development including single Heritage building (Barber House) renovation and four (4) single residential houses along Barbertown Road.

The proposed development is part of Streetsville Planning District located on east side of Mississauga Road, north of Barbertown Road.

The site is part of Lot 1, Conc. 4 W.H.S.

The proposed development is surrounded by existing residential single family homes to the north and east. Mississauga Road is on the west side of the subject lands.

Refer to Figure 1 Key Plan.

It is intended that this functional servicing report will result in approval in principal, of the design proposal by the City of Mississauga, Regional Municipality of Peel and any other relevant authorities.

2.0 STUDY AREA INFORMATION

The subject site is part of Lot 1, Conc. 4 W.H.S.in the City of Mississauga and Regional Municipality of Peel.

The subject site is located on the east side of Mississauga Road, north of Barbertown Road. This site is part of the Streetsville Planning District.

The proposed development consists of approximately 0.516Ha (1.27 ac.)

The majority of the site is relatively flat in topography with gentle slope towards the southwest with grade differential of approximately 1.0m. The site is a heritage building used for a restaurant. The restaurant building is to remain.

3.0 TRANSPORTATION SYSTEM

The site is in a good location to be serviced by existing local roads. Mississauga Road will provide good access north and south to Eglinton Avenue and Britannia Road. The existing road system will provide good access to major highways, such as Highway No. 401.

The access to the site will be via proposed single driveway to Mississauga Road. Four (4) dwellings fronting Barbertown Road will be provided with individual driveways to municipal road. Barbertown North Boulevard will be reconstructed with proper curb and gutter to City of Mississauga municipal standards.

4.0 STORM DRAINAGE SYSTEM

The proposed development will be serviced to the existing 450mm diameter storm sewer on Barbertown Road.

Currently the site drains through the existing 450mm storm traversing the site. The existing 450mm diameter storm is located within a municipal storm easement. We are proposing to reconstruct the existing storm sewer and realign municipal easement to allow and fit configuration of the new development.

The site is currently developed and existing coverage consists of large surface parking structures and restaurant building known as Barber House. The site is draining towards the existing storm on the easement through a series of catchbasins. The existing runoff weighted coefficient calculated at $C = 0.66$.

$$Q_{EX} = 0.6978 \times 0.66 \times 99.18/360 = 0.1268 \text{ m}^3/\text{s}$$

Existing Site Statistics

Site Area	=	0.6978 Ha
Ex. Building	=	0.0709 Ha (C = 0.95)
Ex. Interlock	=	0.0508 Ha (C = 0.50)
Ex. Asphalt	=	0.3510 Ha (C = 0.90)
Ex. Landscape	=	0.2171 Ha (C = 0.25)

The developer proposes to construct, as previously described, a condominium townhouse development on private road including Heritage building and four (4) residential dwellings.

Proposed site statistics are as follows:

Site Area	=	0.6978 Ha
Prop. Building	=	0.2318 Ha (C = 0.95)
Prop. Asphalt	=	0.1587 Ha (C = 0.90)
Ex. Landscape	=	0.3073 Ha (C = 0.25)

The weighted runoff coefficient is $C_W = 0.63$.

The proposed discharge from the site is: $Q_{PROP} = 0.6978 \times 0.63 \times 99.18/36 = 0.1211 \text{ m}^3/\text{s}$

The proposed site discharge is less than the existing discharge for the site.

Therefore, the existing 450mm diameter storm sewer along Barbertown Road has the capacity to accommodate the storm drainage runoff from the proposed development. The new storm sewer easement layout has been presented on our concept servicing plan and storm drainage figure.

External drainage from the rear yards of the lots to the north will be accommodated in the storm easement capacity.

Refer to Dwg. No. 215-M72-2 Storm Drainage Plan (in envelope) and storm sewer design chart.

Quality Control and 5mm Runoff Retention

All **roof downspouts** will discharge onto landscape surfaces via splash pads and will be directed to the rear of the lots to promote infiltration and natural filtration of the runoff.

Permeable Paving gravel layers act as natural filter promoting improvement of quality control of runoff for townhouse and single dwellings. Driveway and parking surfaces will be treated with permeable paving.

Bioswales will be introduced in the landscape areas fronting Mississauga Road to further promote bioretention and quality control improvement. Barber House downspouts will be directed toward the bioswale.

All **road catchbasins** will be equipped with **gosstraps**. Gosstraps reversed flow and extended sump will contribute to quality control. Road overland flow will be directed to Mississauga Road.

5.0 SANITARY DRAINAGE SYSTEM

The proposed development will be serviced to the existing 250mm sanitary sewer on Mississauga Road.

Municipal 250mm diameter sanitary sewer will be required along the Barbertown Road east of Mississauga Road to provide outlet for the four (4) single dwellings fronting right-of-way. Connections will be provided for each unit to the property line. The proposed sanitary sewer will have sufficient depth for gravity flow from proposed dwellings.

The internal sixteen (16) units will be serviced by a new proposed 200mm diameter sanitary sewer (connection) construction along private condo road. Individual connections will be provided to each unit from the main sanitary sewer line. Barber House will be converted to 4 residential units, part of condo complex and provided separate connections to each unit. **Refer to Dwg. No. 215-M72-2** Concept Site Servicing Plan.

The sewage flows from the proposed development were established as follows:

Residential Development:

$$\text{Row dwelling - } 0.5391 \times 175 \text{ persons/hectare} = 94.3 \text{ population}$$

$$\text{Peak Factor} = 1 + \frac{14}{4 + P^{0.5}}$$

Where P = population in thousands

$$= 1 + \frac{14}{4 + 0.0943^{0.5}}$$

$$= 1 + 3.25 = \mathbf{4.25} \quad (\text{Max.} = 4.0)$$

$$\text{Expected Peak Flow} = 302.8 \times 94.3 \times 4.0 \text{ (peak factor)} = 114,216 \text{ L/days} \quad (\mathbf{1.32 \text{ L/s}})$$

$$\text{Total Expected Maximum Flow} = 0.330 \text{ l/s}$$

6.0 WATER DISTRIBUTION SYSTEM

The proposed development will be serviced to the existing watermain on Mississauga Road and Barbertown Road. The existing 400mm and 150mm watermain will provide sufficient water supply to service the development. Fire protection will be off the existing hydrants on Mississauga Road and Barbertown Road. **Refer to Dwg. No. 215-M72-2 Concept Site Servicing Plan.**

Detached residences will be supplied with individual 25mm connection off existing 150mm watermain on Barbertown Road. Proposed 150mm watermain will be constructed along private condo road and 25mm connection to each townhouse residence will be provided. Any existing water services will be removed and capped at main.

Water Demand Calculations

Proposed Unit (20 townhouse dwellings) = 94.3 population

$$\begin{aligned}\text{Total Expected Peak Flow Rate} &= 280 \times 94.3 \times 3.0 \\ &= 79212 \text{ L/day} \\ &= \mathbf{0.917 \text{ L/s}}\end{aligned}$$

Refer to hydrant flow test report attached herein.

Fire Hydrant Flow Required based on Fire underwriters survey 1999 using formula:

$$F = 220 \times C \times \sqrt{A}$$

C = Construction co-efficient combustible 1.5
A = Total Floor Area of Building – largest building considered excluding basement

$$F = 220 \times 1.5 \times \sqrt{1204} = 11450 \text{ L/min} = 109.84 \text{ L/s}$$

1. Combustible material - no change

$$\mathbf{\text{Total Peak Flow} = 109.84 \text{ L/s} + 0.92 \text{ L/s} = 110.76 \text{ L/s}}$$

$$\mathbf{\text{Total Expected Maximum Daily Flow} = 280 \times 94.3 \times 2.0 = 52808 \text{ L/day} = 0.611 \text{ L/s}}$$

$$\mathbf{\text{Site Average Flow} = 280 \times 94.3 = 26404 \text{ L/day} = 0.306 \text{ L/s}}$$

7.0 SUMMARY

Our findings reveal that the proposed townhouse residential development can be fully serviced to the existing available and proposed services on Mississauga Road and Barbertown Road.

We respectfully submit this report with the intention of obtaining approval in principal of the recommendations herein, which will be implemented in detail design during engineering submission, site plan process and building permits.

Yours truly,

SKIRA & ASSOCIATES LTD.



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NOTE: Limitation of Report

This report was prepared by **Skira & Associates Ltd.** for **City Park Homes** for review and approvals by government agencies only.

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