Functional Servicing

And

Stormwater Management Report

Proposed Townhouse development at 221 Doyle Street

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1.0 Introduction

Municipal Development and Planning Services (MD&PS) Inc. was retained by Mr. Harvir Singh Khakh of 1000321467 Ontario Inc. to prepare a Functional Service and Stormwater Management Report (FSSMR) in support of a Zoning Bylaw Amendment application for a proposed 8 Unit back-to-back Townhouse building located in the 221 Doyal Street, Dundalk within Township of Southgate, Grey County. This is an infill development application which will add 8 rental townhouses under single ownership.

The purpose of this report is to identify the requirements for site servicing and stormwater management as it relates to current Town of Southgate design criteria. This report describes how the proposed development will function within the framework of existing infrastructure.

In preparing this report, the following documents were reviewed:

- Municipal Servicing Standards- Township of Southgate
- Site Plan
- Topography survey
- Record Drawings of White Rose Park Subdivision

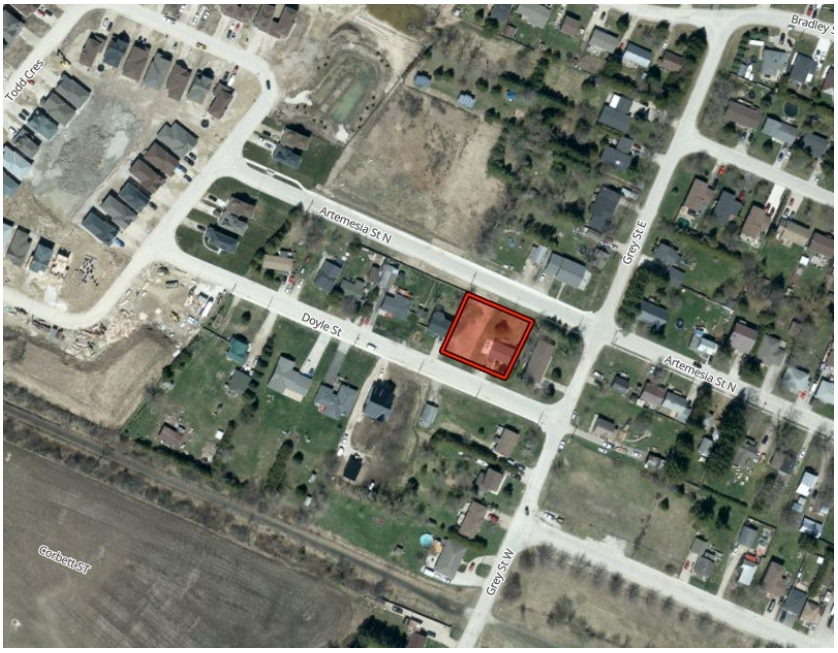

Figure 1: Location of Subject Property

2.0 Background

The subject area (herein referred as the "site") is approximately 1246 square metres. The subject site is bounded by residential dwellings to the East and West side and faces to Artemesia Street N on North and Doyle Street on South side. Currently, there is a two-storey brick single family building near the west side of the lot with a driveway access from Doyle Street. The site is relatively flat with slight slopes towards southwest.

The proposed development includes eight units of three storey back-to-back townhouse buildings with associated ground floor parking and landscaped areas. Four of the townhouses will front to Artemesia Street N and other four front onto Doyle Street. The townhouses will be rental units under single ownership.

3.0 Water Servicing

3.1 EXISTING WATER SERVICING

Doyle Street, Artemesia Street and surrounding areas went though road-reconstruction including installation of new services in the year 2017. There is an existing new 150mm WM along Artemesia Street N; existing 100mm WM on north side and new 150mm WM on south side along Doyle Street. The existing building is currently serviced by an existing 25 mm diameter service line off the 150mm diameter PVC watermain on the Doyal street. There is no service connection from Artemesia Street N watermain.

3.2 PROPOSED WATER SERVING

The proposed development townhouses are single-family residential therefore the existing service connection can be utilized for one of the townhouses. 3 new service connections off Doyle Street are proposed to service the other 3 townhouses. The northern 4 townhouses will need a new service connection from the 150mm WM along Artemesia Street N. It is acknowledged that the owner will be responsible for the installation of the service connections and also for any restoration works within the Town’s road right of way.

The water servicing will be designed and installed following Township Standards STD S2 and STD S5. Please refer to Figure SS-1.

The closest Fire Hydrant at Doyal Street is located 113m and Artemesia Street is 76m away from the most eastern Townhouse. These are two existing hydrants and are located within less than 150m distance of the proposed development. Therefore, the existing hydrants are sufficient to meet the firefighting needs of the site.

4.0 Sanitary Servicing

4.1 Existing Sanitary Servicing

Doyle Street has an existing 200mm Sanitary sewer closer to centreline of the road. The site is currently serviced by a standard 100mm service connection from this sewer. There is a second connection shown in the As-Constructed Drawing date November 28, 2017. We have an understanding that 2 service connections are already available to the site, which can be retained for future townhouse development.

Artemesia Street N has a newly installed 200mm sanitary sewer at centre of the roadways. Although the current building is not serviced by sanitary sewer along Artemesia Road N, there are 3 connections available to the site.

4.2 Proposed Sanitary Servicing

The development will retain existing 2 sanitary connections from Doyle Street and will need 2 new service connections to service all 4 Townhouses from Doyle Street sanitary sewer.

The development will retain 3 existing service connection and proposes one new service connection from ex 200 Sanitary sewer along Artemesia Road N. Proposed sanitary servicing has been depicted in Figure SS-1.

These service connections are as per the Township Standards S2 and S4.

4.3 Downstream Sanitary Capacity

The proposed development is a low to medium-density infill development. Since the water, storm and sanitary services along Doyle Street and Artemesia Street N were installed recently, it is our understanding that the existing infrastructure can accommodate the water and wastewater needs of the development without imposing any detrimental effects downstream.

5.0 Stormwater Management

5.1 Existing Condition

The proposed site currently generally slopes towards the southwest where it discharges to the roadside ditches through several culverts. All the storm of pre-development conditions is captured by the municipal system which discharges to the culvert crossing Doyle Street. Doyle Street and Artemesia Street N were reconstructed in 2016/17 where

new 300mm storm sewer along Doyle Street was installed. Artemesia Street N is a new road constructed to service subdivision on the west, where a new 600mm storm sewer was installed. Artemesia Street storm sewer crosses Doyle Street through a 450mm culvert and spills to the existing natural drainage route on the south.

Tabel 1 summarizes the pre-development runoff condition and the areas contributing to Doyle Street storm system.

Table 1- Pre-Development Drainage

Cathcment ID	Land use	Area (Sqm)	Runoff Coefficient (C)
101	Building and Driveway	214	0.9
102	Landscaped area	1032	0.25
Composite Runoff Coefficient			0.36

Pre-development catchment areas are illustrated in Figure SWM-1.

5.2 Proposed Condition

The proposed development has 4 townhouses fronting to Artemesia Road and will be graded towards the road. The other 4 Townhouses will front to Doyle Street and will be graded towards the Doyle Street grade. In post development scenario, there will be a drainage divide such that northern half discharges to Artemisia Street N sewer and southern half discharges to Doyle Street sewer. Please refer to Figure GP-1.

Table 2- Post Development Drainage

Cathcment ID	Land use	Area (Sqm)	Runoff Coefficient (C)
South Block			
201	Building and Driveway	455.7	0.9
202	Landscaped area	205	0.25
Composite Runoff Coefficient			0.74
North Block			
203	Building and Driveway	456	0.9
204	Landscaped area	129	0.25
Composite Runoff Coefficient			0.71

5.3 Proposed Stormwater Management

The proposed low to medium density has changed the site runoff coefficient from 0.36 to 0.73. Given that this is an infill development, it can be considered an insignificant development for stand-alone stormwater management requirements. The proposed

development is graded in such a way that total runoff divides half towards each of municipal roads. The runoff diversion adds some flow in Artemesia Street N, while reduces stress on Doyle Street.

Additionally, the proposed development will have rain gardens of approximately 37 sqm area with an average ponding depth of 0.125m. These Rain Gardens will account for managing approximately 2.1cum of roof runoff through downspouts. The Rain Gardens will be designed with appropriate plantings that can survive during drought and flooding events at root zones. Typical type of planting recommended for such Rain Garden are *Spotted joe-pyeweed, Black-eyed Susan, Little bluestem, Canada wild rye, showy tick-trefoil* etc. A typical cross-section is included in Figure SWM-2.

6.0 Conclusion

MD&PS believes that the proposed development can be serviced using existing Storm, Sanitary and Water infrastructures located in Doyle Street and Artemesia Street N.

Water Servicing

The site will be serviced through a combination of retained existing service connections and new connections. A total of 3 water connections will be required from Doyle Steet and 4 new connections from Artemesia Street.

The site is located within the 150m range of existing Fire Hydrants along Artemesia Street and Doyle Street, therefore no infrastructure upgrade is required.

Sanitary Servicing

The development will utilize existing 2 service connections and 2 new service connections from Doyle Street. It will require 1 new service connection from Artemesia Street N while 3 existing service connections can be retained.

Stormwater Management

The proposed low to medium density has changed the site runoff coefficient from 0.52 to 0.72. This change can be considered insignificant given that both the roads have new and upsized storm sewers installed. The development has proposed rain gardens in the landscaped area where the roof downspout will be diverted.

The storm runoff divide towards two roads improves the existing drainage condition of Doyle Street. The development does not impose a significant impact on the existing infrastructure. The development has introduced Rain Gardens in the landscaped area to take some of the roof runoff.

We trust the Functional Servicing Report inclusive of the Stormwater Management component will be accepted as a part of the requirement of the Zoning Bylaw Amendment application of the development. Please contact the undersigned if there are any questions or require additional information.

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