



Excellence Reliance Innovation

Pratt Construction Inc. (Bradley Homes)

Hewitt's Central Subdivision

Functional Servicing Report

July 2024

The Jones Consulting Group Ltd.

#1-229 Maplevue Drive East, Barrie ON L4N 0W5

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Disclaimer

This Report was prepared by **The Jones Consulting Group Ltd.** for **Pratt Construction Inc. (Bradley Homes)**. The material in the Report reflects **The Jones Consulting Group Ltd.'s** best judgment in light of the information available at the time of the Report preparation. Any use which a third party makes of this Report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **The Jones Consulting Group Ltd.** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Report. This Report has been prepared, in part based on the Subwatershed Impact Study (SIS) prepared by R.J. Burnside & Associates Ltd., dated September 2016.



Functional Servicing Report

Hewitt's Central Subdivision, Pratt Construction Inc.

(Bradley Homes), City of Barrie

1. Introduction

1.1 Appointment

The Jones Consulting Group Ltd. (TJCG) was retained by Pratt Construction Inc. (Bradley Homes) (Client) to provide engineering services in support of Draft Plan Approval for a proposed residential subdivision development located in the Hewitt's Secondary Plan Area north of Lockhart Road and 1.4km east of Yonge Street in the City of Barrie (City). The subdivision is to be known as Hewitt's Central Subdivision.

This *Functional Servicing Report* (FSR) has been prepared in support of the *Draft Plan of Subdivision* prepared by TJCG, dated July 16, 2024, and demonstrates how the lands will be serviced by the surrounding municipal infrastructure.

In particular, this report examines the property's servicing in relation to:

- Stormwater Servicing
- Water Servicing
- Sanitary Servicing
- Roads and Grading
- Utility Servicing

1.2 Property Description

The site is irregular in shape and comprises of approximately 28.04 hectares (ha) of land. The subject property is legally described as part of Lot 19, and Part of Lot 20, Concession 12, Former Township of Innisfil, now in the City of Barrie, County of Simcoe. A copy of the subject lands proposed *Draft Plan of Subdivision* prepared by The Jones Consulting Group (July 16, 2024), has been attached in **Appendix A**.

The site is situated Southeast of the intersection of Yonge Street and Maplevue Drive East. It is bound to the south by a proposed drainage channel (Special Defined Policy Area 2), to the west and east by Environmental Protection areas, and to the north by lands owned by the others and by the applicant. The approximate location of the subject property is shown in **Figure 1**.

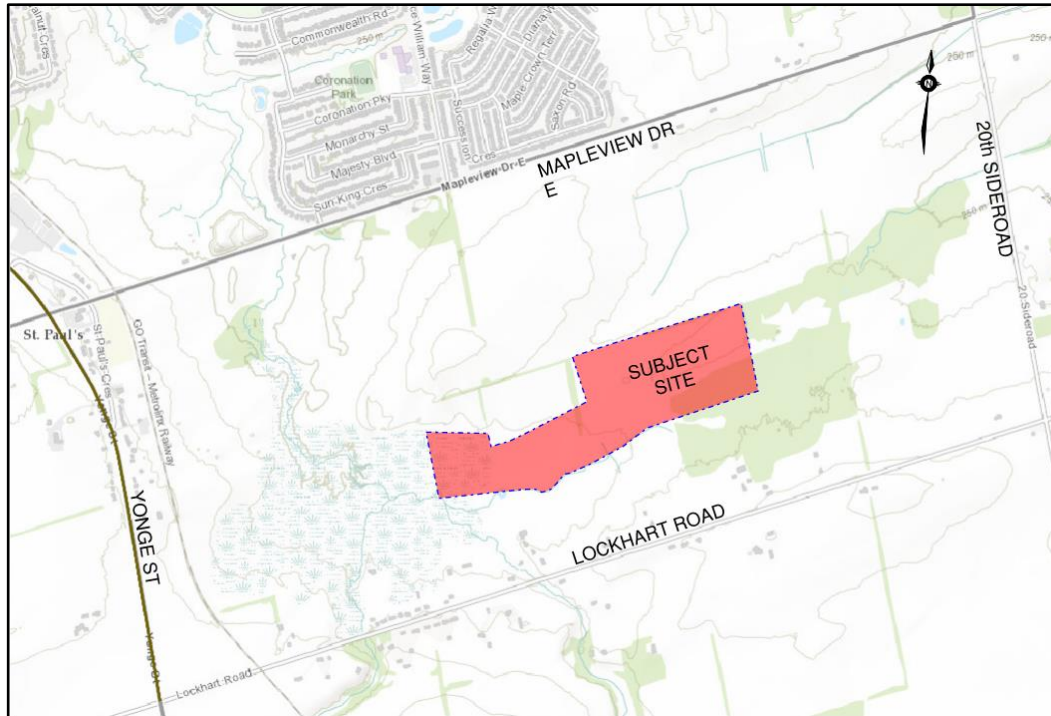


Figure 1 – Site Location

The site is comprised of mainly cultivated open space utilized for agriculture, with a portion of the property covered in mixed vegetation to the southeast and west, and an existing drainage channel traversing the property from east to west along the south boundary. There are currently no existing residences on the subject site.

The current Draft Plan proposes the development of 338 units based on single family residential units, street townhome units, future development block, open space and pedestrian connection, two stormwater management blocks, three environmental protection blocks, roads and reserves.

The developable limits of the subject site were established in connection with the *Hewitt's Secondary Plan* and the associated *Secondary Infrastructure Master Plans*, *The Hewitt's Secondary Plan Area Subwatershed Impact Study (SIS)* prepared by R.J. Burnside and Associates (September 2016), as well as Regional Flood Lines and Set Back requirements established by the Lake Simcoe Region Conservation Authority. The Hewitt's SIS has been utilized as a framework for developing a servicing strategy that is outlined in further detail in the next sections. As such, many of the assumptions noted in this Functional Servicing Report are based on the findings and recommendations of the Hewitt's Secondary Plan Area SIS.

The site topography ranges in elevation from a maximum elevation of 262 meters at the northeast portion of the site to a minimum elevation of 251 meters at the southwest corner at the property boundary adjacent to the existing drainage channel. The site drains generally from northeast to



west and southwest, with its northern portion draining north towards Bulut Lands and Maplevue South Subdivision, owned by others, where overland flow is conveyed to Sandy Cove Creek. Existing Slopes range from 0.5% to 10%.

The soils encountered on the subject lands are a combination of Guerin Sandy Loam (Gul) and Bondhead Sandy Loam (Bs). These soils belong predominantly to Group B of the SCS Hydrological Soils Group Classification system. Soil Series are determined from the *Soil Map of Simcoe County, Report No. 29 of the Ontario Soil Survey* produced by the Canada Department of Agriculture with the Ontario Department of Agriculture. An excerpt from the Simcoe County Soils Map has been included in **Appendix A**. Soil series, their respective hydrological soils group and their relative percentage of total land area are shown below in **Figure 2** and **Table 2** within **Section 2.2.1.** of this Report. Further geotechnical investigations have been completed by Peto MacCallum Ltd. and GEI Consultants, which are submitted under separate cover.

1.3 Existing and Proposed Land Use

The property is currently zoned as Residential with allocations provided for Stormwater Management, Open Space and Environmental Protection. A statistical breakdown of each land use is provided in **Table 1**.

Table 1 - Land Use Statistics

STATISTICS	Area (ha.)	Units
★ 13.7m Singles (LOTS 19, 35, 45, 57 & 58, 62 – 80, 117 & 119)	1.38 ha.	26 units
■ 11.0m Singles (LOTS 12, 52, 91, 115 & 118)	0.21 ha.	5 units
⊙ 10.4m Singles (LOTS 1 – 11, 13 – 16, 20 – 34, 36 – 44, 46 – 49, 53 – 56, 59 – 61, 81 – 90, & 92 – 114)	3.08 ha.	83 units
▼ 9.0m Singles (LOTS 17 & 18, 50 & 51, & 116)	0.19 ha.	5 units
Street Townhomes (6.0m/unit) (BLOCKS 120 – 156)	4.33 ha.	217 units
Open Space and Pedestrian Connection (BLOCKS 157 & 158)	0.92 ha.	
Stormwater Management (BLOCKS 159 & 160)	2.64 ha.	
Environmental Protection (BLOCKS 161 – 163)	10.35 ha.	
Future Development (BLOCK 164)	0.09 ha.	2 units
Roads & Reserves 0.3m Reserves Blocks 165 – 167 Major Collector – Street 'A' (Prince William Way) – Street 'B' (Terry Fox Drive) Minor Collector – Street 'C' (Lally Terrace) Local Roads – Streets 'D' – 'I'	4.85 ha.	
TOTAL	28.04 ha.	338 units



For further detail, refer to the proposed *Draft Plan of Subdivision* prepared by TJCG, dated July 16, 2024, which has been included in **Appendix A**.

1.4 Supporting Documents

The following documents have been referenced in the preparation of this report:

- Hewitt's Central Draft Plan of Subdivision, Jones Consulting Group Ltd., July 2024;
- Preliminary Stormwater Management Report, Jones Consulting Group Ltd., July 2024;
- Hewitt's Secondary Plan Area Subwatershed Impact Study, Lover's, Hewitt's and Sandy Cove Creeks, R.J. Burnside & Associates Ltd., September 2016;
- City of Barrie, Stormwater Infrastructure Design Standard, June 2023;
- City of Barrie, Sanitary Infrastructure Design Standard, April 2023;
- City of Barrie, Drinking Water Infrastructure Design Standard, July 2023;
- City of Barrie, Water Storage and Distribution Master Plan, July 2019;
- City of Barrie, Lot Grading and Drainage Infrastructure Design Standard, April 2023;
- Lake Simcoe Region Conservation Authority, Technical Guidelines for Stormwater Management Submissions, April 2022;
- Credit Valley Conservation Authority & Toronto Region Conservation Authority, Low Impact Development Stormwater Management Planning and Design Guide, 2010.
- Ministry of the Environment, Lake Simcoe Protection Plan, July 2009;
- Ministry of the Environment, Stormwater Management Planning and Design Manual, March 2003;
- Ministry of Transportation, Drainage Management Manual, February 2008;
- City of Barrie, Official Plans, April 2023;
- City of Barrie, Transportation Master Plan, June 2019;
- City of Barrie, Hewitt's Secondary Plan Transportation Improvements Municipal Class Environmental Assessment, Phases 3 & 4, adopted by council June 19, 2017;
- City of Barrie, Secondary Plan, Background Studies & Infrastructure Master Plan, Intensification and Annexed Lands, AMEC, October 2013;
- Hydrogeological Study in Support of Draft Plan – Hewitt's Gate East Phase 3 Subdivision, R.J. Burnside & Associates Limited, dated July 2024;



- Water Supply Analysis Report, Schaeffers Consulting Engineering, August 2022;
- Water Supply Modelling Analysis Memorandum, Schaeffers Consulting Engineering, June 11, 2024;
- Traffic Impact Study, JD Northcote Engineering, April 2023;
- Conformity Review Technical Memorandum, JD Northcote Engineering, August 2023;
- Geotechnical Investigation, Proposed Crisdawn Subdivision - Part 2, report 1, Peto MacCallum Ltd., dated June 2017;
- Supplemental Geotechnical Report, Proposed Crisdawn Subdivision Report 2, Peto MacCallum Ltd., dated Nov 20 2017;
- Supplemental Geotechnical Report, Proposed Crisdawn Subdivision Report 3, Peto MacCallum Ltd., dated April 12, 2017;
- Ground Water Level Monitoring, Proposed Crisdawn Subdivision, Report 4, Peto MacCallum Ltd., dated June 21, 2019;
- Geotechnical Investigation Proposed Storm Water Management Facility 9, GEI Consultants, dated July 11, 2022;
- Residential Floor Slab Assessment, HGE Residential Development – Phase 3, GEI Consultants, dated December 2, 2022;
- Test Pit Investigation & In-Situ Infiltration Testing, HGE Residential Subdivision, dated June 5, 2023;
- Stormwater Management Report, 883 Mapleview Drive East Proposed Residential Subdivision, Schaeffers Consulting Engineers, April 2022. Major System Storm Servicing Plan – Figure 2.3
- Hewitt's Gate East Phase B3, SWMF10/SWMF 9 Drainage Boundaries within B3 and B4 plan – Figure 2, RJ Burnside, August, 2022.

1.5 Overview of Municipal Infrastructure

1.5.1 Stormwater Servicing

Currently, there are no existing storm sewers or existing stormwater management facilities on the subject lands or within the areas immediately adjacent to the subject lands, and as such, a new storm sewer system and stormwater management facilities are required to be provided to support development of the subject lands.



The proposed storm sewer system and stormwater management facility will be designed and constructed in accordance with the latest standards issued by the City of Barrie, Lake Simcoe Region Conservation Authority, Ministry of Environment, Conservation and Parks, and recommendations provided in the Hewitt's Secondary Plan Area SIS. A traditional end-of-pipe SWM facility is proposed on the site to meet stormwater quantity and quality control requirements. A stormwater filtration device downstream from the SWMF is proposed to treat the Runoff Volume Control Target (RVCT) produced by the 25mm Water Quality Event.

A *Preliminary Stormwater Management Report (PSWMR)* has been completed by TJCG and submitted under separate cover. The PSWMR confirms that the new storm sewer system and stormwater management facility will be able to fully service the subject lands.

1.5.2. Water Servicing

According to the latest information, there is no water servicing infrastructure on site or surrounding areas yet. However, the subdivision will be serviced by the watermain pipe network currently being designed and constructed along Prince William Way and Lally Terrace, which are connected at the 600mmØ Transmission Watermain within Mapleview Drive East as part of the Infrastructure Improvements outlined in the City of Barrie's *Water Storage and Distribution Master Plan* (July 2019). The Transmission Watermain is intended to supply adequate water supply and fire flows to development lands in the Hewitt's Secondary Plan Area.

The City's *Water Infrastructure Map – September 2018* shows that the lands are located in *Zone 2 South*. A copy of the City's infrastructure map has been attached in **Appendix A**.

1.5.3. Sanitary Servicing

According to the As-recorded drawings and GIS mapping provided by the City of Barrie, until recently, there was no existing sanitary sewer in the immediate vicinity of the subject lands. However, in accordance with the SIS and further advanced through City project #EN-1137, the Hewitt's Creek Sanitary Trunk Sewer has been constructed to the future McAush Street within Hewitt's Gate East Subdivision and is approved for construction through the next phases, extending to the future intersection of Lally Terrace / Prince William Way. From this intersection, the trunk sewer will be extended south as part of the subject development, and eventually will extend to Lockhart Road.

The Hewitt's Central Subdivision internal sanitary collection system will consist of a local sanitary sewer system, collecting and conveying wastewater via the internal roads and subsequently draining into the proposed Hewitt's Creek Sanitary Trunk Sewer extension.



1.5.4. Road Network

The subject property is bound by Future Lally Terrace to the north and Future Prince William Way to West. The proposed internal road network makes provisions for the ultimate connections to Maplevue Drive East and Lockhart Road. Refer to **Section 5.2** for details on the proposed site entrances and internal road network. A copy of the *City of Barrie Official Plan Map 4b Mobility Network* (April 2023) has been included in **Appendix A**.



2. Stormwater Servicing

2.1. Stormwater Management Plan

The stormwater management plan is intended to provide an environmentally sound approach to stormwater issues. The issues can be divided into four main categories: stormwater quality control, stormwater quantity control, water balance, and erosion and sediment control.

In order to provide the development with the required stormwater quality and quantity control measures, one (1) extended detention wet pond is proposed complimented by a downstream stormwater filtration device. The proposed channel along the southern boundary will be the discharge location for the pond's treated stormwater and for other stormwater runoff from the site. A small portion of the subdivision at the northeast corner will drain to the Sandy Cove Creek subwatershed via the Mapleview South Subdivision owned by others.

A *Preliminary Stormwater Management Report (PSWMR)*, being submitted concurrently under separate cover, will outline the proposed design for the Hewitt's Central Subdivision stormwater management system to meet the compulsory post-development quantity and quality control requirements of the City, LSRCA, MOECP and Hewitt's SIS.

2.2. Existing Soils Information

2.2.1. Soil Survey of Simcoe County

The soils found on the subject site are a combination of Guerin Sandy Loam (Gul) and Bondhead Sandy Loam (Bs). These soils belong predominantly to Group B of the SCS Hydrological Soils Group Classification system. Soil Series are determined from the *Soil Map of Simcoe County, Report No. 29* of the *Ontario Soil Survey* produced by the Canada Department of Agriculture with the Ontario Department of Agriculture. Soil series, their respective hydrological soils group and their relative percentage of total land area are shown below in **Figure 2** and **Table 2**.



Figure 2 - Site Soils Identification

Table 2 - Soil Type Distribution

Soil Type	Soil Name	SCS Group	Total Area (ha)	Percentage Area (%)
Bs	Bondhead Sandy Loam	Group B	0.29	1.03
Gul	Guerin Sandy Loam	Group B	27.68	98.97

2.2.2. Geotechnical Investigation

The site soils were investigated initially under the *Hydrogeological Report* included as Appendix B of the SIS, which indicated that soils were predominantly HSG Group B with corresponding infiltration rates around 25mm/hr and the observed groundwater recharge areas covering most of the site. These results are shown on Figures 4 and 16 in the SIS which have been included in **Appendix A** for reference.

Subsequent Geotechnical Investigations were carried out by Peto MacCallum Ltd; which included 8 Boreholes within the subject development boundary, 3 completed with the installation of Piezometers and 3 completed with Groundwater Monitoring Wells. A topsoil 120 to 320mm thick mantle was found at the surface of all boreholes. Below this mantle, and localized fill layer, the subsurface stratigraphy is dominated by granular soils comprising sand/silty sand, and sand/silt till, with localized units of sandy silt and silty clay. In general, the soils were loose in the upper 1 to 2



m, becoming compact to very dense below 2 m depth. Moisture contents were typically in the 10 to 20% range, being moist to wet.

A Groundwater Monitoring program was also completed by PML with monthly readings being reported to better understand the groundwater regime for the subject lands. Findings from the monitoring program indicate a high groundwater level near or at the surface throughout a significant portion of the subject lands. Proposed grading for the site has been designed to maintain minimum separation required from underside of footings or structures, and as a result will require an average fill across the subject lands of approximately 2.0m.

A final copy of the Geotechnical Investigation is provided under separate cover.

2.3. Existing Drainage Conditions

The subject site consists of approximately 28.04 hectares of land which is primarily used for agricultural purposes. The site's topography contains average slopes ranging from 0.5-10%, generally draining towards the existing drainage channel in a west and southwest direction. The existing channel traverses along the south boundary of the property, flowing from east to west. The northern portion, approximately 6.13 hectares, drains towards Bulut Lands and Maplevue South Subdivision, owned by others, where subsequently, overland flow is conveyed by Sandy Cove Creek.

There is one significant external area of approximately 10.28 hectares that drains through the site along the northwest boundary. The overland flow follows the existing topography southwestwards until it is conveyed by the existing channel to the south, from which it flows westwards until merging with Hewitt's Creek. Hewitt's Creek then flows northerly, crossing Maplevue Drive East through a 4250mm (wide) x 1650mm (tall) Concrete Arch Box Culvert, continuing northerly towards Lake Simcoe.

There are no existing stormwater management facilities on the subject site and all flows are released uncontrolled to the existing channel. The Existing Conditions are depicted on **Drawing SWM-1 Stormwater Management Plan Pre-development Conditions** in **Appendix C**.

2.4. Proposed Drainage System

Development of the subject site will consist of low and medium density residential lots, an internal road network to be built to City of Barrie standards, three Environmentally Protected areas adjacent to the proposed channel, one Open Spaces for parkland, one Pedestrian Connections, one future development block, and two Stormwater Management blocks. Stormwater Management (SWM) Block 160 is reserved for a portion of a SWM facility located on the northeast boundary within Bulut Lands and being developed by Schaeffers Consulting Engineers, while SWM Block 159 is reserved



for an extended detention wet pond (SWMF#9 as identified in the SIS) being designed by Jones Consulting Group Ltd. and outlined in the Preliminary Stormwater Management Report, under separate cover.

Each individual lot will be developed with buildings, driveways or parking lots, and landscaped areas. The grading of the lots will direct stormwater runoff to the internal road network, which will contain a proposed storm sewer system to convey minor flow (5 Year event) to the proposed stormwater management facility. For more details, refer to the Storm Subcatchment Area Plan **STM-1** in **Appendix C** and the Storm Design Sheet in **Appendix B**.

The roads are also utilized to convey the major overland flow (>5 Year event) within the right-of-way to the same facility. The proposed end-of-pipe SWM facility is an extended detention wet pond, providing stormwater quantity and quality control for the site and external drainage areas.

The proposed SWM facility will also include a downstream stormwater filtration device to treat the volume produced by the 25mm Water Quality Event and achieve the Runoff Volume Control target, while providing additional Total Suspended Solids and Total Phosphorus removal.

The proposed grading and drainage design includes the construction of a storm sewer system and road right-of-ways to convey flows up to and including the 100-year storm event. The system encompasses almost the totality of the subdivision area and three major external areas to the north and northwest. The three major external areas are comprised of 3.26 hectares from Bulut Lands to the north, owned by others, and 10.38 hectares to the north and northwest owned by the applicant and known as Hewitt's Gate East Phase 2. These major external areas are illustrated on the Stormwater Management Plan Post-Development Conditions SWMF 9 Drainage Area Plan **Drawing SWM-2** included in **Appendix C**.

The two major external catchments 101 and 104 to the north are part of Bulut Lands Subdivision designed by Schaeffers Consulting Engineers. *Figure 2.3 Major System Storm Servicing Plan* included in **Appendix A** illustrates the storm drainage system for these catchments.

The major external catchment 103 from northwest is part of Hewitt's Gate East Phase 2 Subdivision designed by RJ Burnside. *Figure 2 SWMF10/SWMF 9 DRAINAGE BOUNDARIES WITHIN B3 AND B4* included in **Appendix A** illustrates the storm drainage system for this catchment.

There are six uncontrolled areas in total, two along the northern boundary draining to external lands and four along the east, south and west boundary draining onto three adjacent Environmental Protection Areas. In addition, the Environmental Protection area Block 162 to the south contains the proposed drainage channel.



Along the north boundary, one uncontrolled area is comprised of 0.16 hectare, also labeled Block 160 and part of an external SWM facility as described previously, and the second comprises 0.42 hectare and drains into the Maplevue South Subdivision, where it will be safely conveyed and treated in a SWM facility in the future (SWMF #17).

The proposed stormwater management facility will be designed to meet the quality and quantity requirements outlined in the *Hewitt's Secondary Plan Area Subwatershed Impact Study* prepared by RJ Burnside (September 2016), along with those of the City of Barrie, LSRCA and MOECP, before discharging to the proposed channel. Further design details are provided in *Preliminary Stormwater Management Report* submitted under separate cover.

The Stormwater Management Plan Post-Development Conditions SWMF #9 Drainage Area Plan **SWM-2** included **Appendix C** illustrates the proposed drainage scenario.

2.5. Proposed Drainage Channel (Block 162)

Along the south boundary of the subdivision, there is a proposed 60m wide drainage channel. This channel is the result of an Ontario Municipal Board (OMB) settlement and is known as Special Defined Policy Area 2 Section 9.3.3.2d. Refer to the OMB Minutes of Settlement provided in **Appendix A** for further specifics related to channel geometry, floodplain, ecology, etc. Phasing of the channel construction and/or interim channel works, where necessary, will be resolved at the detailed design phase.

2.6. Erosion and Sediment Control

The proposed works will require an *Erosion and Sediment Control (ESC) Plan* in order to provide adequate protection of downstream receiver systems throughout construction. The proposed ESC works are to be outlined as part of the detailed design stage of approvals and should include the construction and staging requirements at various phases of the development.

During construction, the majority of the development's natural features will be removed and the topsoil stripped within the development area. The exposed surface will be susceptible to erosion, increasing the potential for sediment runoff. To minimize local and downstream impacts from erosion and sedimentation during construction, the following measures have been recommended:

- Excess earth and topsoil is to be stockpiled away from the existing drainage channel limits and/or removed from site. Stockpiles shall be seeded or covered with erosion control if left for periods of greater than 30 days.



- Temporary sediment control fencing should be erected around the perimeter of all grading activities, including double silt fence along the NHS Buffer Boundary.
- Temporary sediment fabric and stone filters should be installed on catch basins until surface cover has been stabilized.
- Temporary rock flow check dams should be installed within drainage cut-off swales.
- A temporary construction access mud mat should be installed at the construction accesses to reduce the amount of materials that may be transported off site.
- Temporary erosion and sediment control basins are to be constructed, complete with a Hickenbottom outlet control structure and overflow weir. The basins' purpose is to detain runoff long enough to allow the majority of soil particles to settle out of suspension.
- Construction during drier months should be monitored for wind-borne transport of sediments. At the direction of the engineer, the contractor may be directed to water down exposed earth areas with an aqueous solution of calcium chloride.
- All disturbed areas not under immediate construction for 30 days, or not intended for building activities within a 3-month time period, should be stabilized with seeding.
- Phased removal of temporary sediment basins during building phase of the development to coincide with upstream stabilization (established vegetation) of catchment areas.
- A weekly monitoring program to ensure all ESC measures are in place and not damaged by vandalism or a significant storm event.

Through proper implementation of the detailed erosion and sediment control measures, off-site impacts are expected to be minimized during the construction phase of the project.



3. Water Servicing

3.1. Supply, Distribution Zone, External Watermain

The Hewitt's Central Subdivision is located within Pressure *Zone 2 South* of the City of Barrie Water Distribution Overview Map included in **Appendix A**. Pressure *Zone 2 South* generally operates between elevations of 237m and 273m with variations in static pressure from 344 kPa (50psi) to 690 kPa (100psi). Elevations for the subject property vary from 262m to 250m, well within the *Zone 2 South* operating pressure range.

For servicing the site, a proposed 300mmØ local trunk watermain is proposed along the future road Lally Terrace and Prince William Way as illustrated on Figure 12 of the SIS included in **Appendix A**. The proposed watermain pipe along Lally Terrace and Prince William Way is being designed to provide sufficient flow and pressure for all residential and institutional uses within the subject lands.

3.2. Proposed Watermain System

The development's projected design population and water supply flow rates are estimated based on the City of Barrie *Drinking Water Infrastructure Design Standard* (July 2023), and MOE *Design Guidelines for Drinking Water Systems* (2008). The following design criteria have been used for calculating the person per unit (PPU) for the two types of residential lots presented on the subdivision.

<u>Unit Type</u>	<u>Design Population</u>
Single Family Residential	3.13 persons/unit
Medium Density Residential	2.34 persons/unit

Based on the above design criteria and the proposed *Draft Plan* statistics, the total population has been calculated below.

<u>Unit Type</u>	<u>Design Population</u>
121 Single Residential units x 3.13 PPU	379 people
217 Medium Density Residential units x 2.34 PPU	508 people
Total projected population	887 people

In order meet the development's potable and fire water demands, the subject lands will be serviced by a future 300mmØ watermain running along the north portion of the site within Lally Terrace, traversing Phases I and II of Hewitt's Gate East Subdivision and connecting to the existing municipal system on Mapleview Drive East at Royal Jubilee. Internally, the subject lands will be serviced with watermain ranging from 150mm to 300mm diameter, including all appropriate appurtenances in accordance with City of Barrie standards. Operating pressures within the water



supply and distribution system must remain between 50 psi and 90 psi. A summary of the proposed demands for the development and scenarios is provided below.

Design Criteria:

- *Average Daily Flow (ADD) = 225 L/d/capita (City of Barrie Drinking Water Guideline, 2023)*
- *Peak Hour Demand Factor (PHD) = 4.13 (MOE Drinking Water Guideline, 2008)*
- *Max. Day Demand Factor (MDD) = 2.75 (MOE Drinking Water Guideline, 2008)*
- *Min. Hour Demand Factor (MHD) = 0.40 (MOE Drinking Water Guideline, 2008)*
- *Fire Flow – Residential = 7,000 L/min (Fire Underwriters Survey)*

Peak Hour Demand:

$$Q = \text{Pop.} \times \text{ADD} \times \text{PHD}$$

$$Q = (887 \text{ persons} \times 225 \text{ L/d/capita} \times 4.13) / 86,400$$

$$Q = 9.54 \text{ L/s}$$

Minimum Hour Demand:

$$Q = \text{Pop.} \times \text{ADD} \times \text{MHD}$$

$$Q = (887 \text{ persons} \times 225 \text{ L/d/capita} \times 0.40) / 86,400$$

$$Q = 0.92 \text{ L/s}$$

Max. Day Demand:

$$Q = \text{Pop.} \times \text{ADD} \times \text{MDD} + \text{FF}$$

$$Q = (887 \text{ persons} \times 225 \text{ L/d/capita} \times 2.75) / 86,400 + 7,000 \text{ L/min} / 60$$

$$Q = 123.02 \text{ L/s}$$

3.3. Water System Analysis

The SIS identifies that through the construction of the external watermain capital projects by City of Barrie, there will be sufficient supply at the required flow and pressures to adequately service the proposed development.

A detailed Water System Analysis (WSA) has been completed by Schaeffers Consulting Engineers for the development's proposed water distribution system. Schaeffers has been entrusted with the City's water model so that they can perform assessments on the watermain sizes for any developer / engineer in the Annexed Lands. The WSA demonstrates that the future lots are capable of achieving the minimum standards in the MOE and City of Barrie guidelines for water distribution



systems. The Schaeffer's reports titled, *Water Supply Analysis Report – Hewitt's Gate East – South Proposed Residential Subdivision*, dated August 2022 and *Water Supply Modelling Analysis Memorandum – Watermain Servicing for phasing of Hewitt's Central Development*, dated June 11, 2024, has been provided under separate cover.

3.4. Water Servicing for phasing of Hewitt's Central Development

Based on the study conducted by Schaeffers Consulting Engineers and referenced under **Section 1.4** as *Water Supply Modelling Analysis Memorandum*, the watermain network system will be phased into two interim scenarios before the ultimate scenario to provide enough water pressure and flow during domestic consumption and fire demands.

The first interim scenario encompasses the development of Hewitt's Central only with connection made at Prince William Way and Lally Terrace. Interim Scenario 2 includes the first scenario and future northern subdivisions, in specific, Bulut Lands being designed by Schaeffers (City project No. 2018-4692). In this phase, the service connections are also provided by Bulut Avenue and Terry Fox, besides the two connections from Interim Scenario 1.

Finally, the Ultimate Scenario extends the watermain network from Hewitt's Central towards Hewitt's South, 960 Lockhart Road and the future northern subdivision with service provided through Prince William Way, Lally Terrace, Bulut Avenue and Terry Fox.

Schematic figures from the *Water Supply Modelling Analysis Memorandum* illustrating each of these three phases are included in **Appendix A** for reference.



4. Sanitary Servicing

4.1 External Sanitary Servicing Framework

Given that there is no existing sanitary sewer infrastructure in the vicinity of the subject lands, the development will be serviced by the proposed Hewitt's Creek Sanitary Trunk Sewer extending from Mapleview Drive East, and running along Future Lally Terrace and Prince William Way as shown on Figure 14 of the SIS included in **Appendix A**. The connection on Lally Terrace and Prince William Way will allow the subdivision to be serviced efficiently by gravity. In accordance with the Lally Terrace Sanitary Trunk Sewer (City project #EN1137 Phase 2), sanitary allocation for the subject lands will be available following construction of the Trunk Sewer extension.

Additional external lands to the north and south of the subject lands are contained within the *Lally Terrace Sanitary Trunk Sewer* catchment area. These flows will be captured and conveyed to the Future Lally Terrace and subsequently, to Mapleview Drive East, ultimately discharging to the Hewitt's Creek Trunk Sewer Extension. External area EXT.3 is the only external sanitary area delineated for the subject lands. The limits of Area EXT.3 were derived the RJB Sanitary Drainage Plan for the Trunk Sewer. Refer to **Drawings SAN-TRUNK-1 & SAN-TRUNK-2** in **Appendix A** for the overall trunk sanitary catchment plan.

4.2 Allocated and Projected Sanitary Flows

The *Sanitary Infrastructure Design Standard* (April 2023) provides theoretical design criteria for future developments and their projected sanitary loading demands. Specifically, the guidelines provide design criteria for development based on the proposed use.

Peak Domestic Sewage Flow Equation:

$$Q_{tot} = Q_p + Q_i = \left[\frac{PQM}{86.4} \right] + [I \times A]$$

Where: Q_{tot} = Total peak sewage flow (L/s)

Q_p = Peak domestic sewage flow (L/s)

Q_i = Extraneous sewage flow (L/s)

P = Design population in thousands

Q = Average daily flow (225 L/person/day)

A = Area of Development (ha)



I = Units of extraneous flow (0.10 L/s/ha - Refer to the City of Barrie Sanitary Infrastructure Design Standard (2023))

M = Harmon Peaking Factor (to be used for larger scale sanitary calculations)

$$M = \text{Harmon Peaking Factor}; M = 1 + \frac{14}{\left(\frac{P}{1000}\right)^{0.5} + 4} \quad (M \geq 2.0)$$

$$\text{Therefore:} \quad M = 1 + \frac{14}{\left(\frac{887}{1000}\right)^{0.5} + 4}$$

$$M = 3.83$$

$$Q_{tot} = \frac{0.887 \times 225 \times 3.83}{86.4} + 0.10 \times 17.69$$

$$Q_{tot} = 10.62 \text{ L/s} \leftarrow \text{total peak sewage flow}$$

4.3 Proposed Sanitary Servicing Scenario

The proposed works involve the construction of an internal gravity sanitary collector sewer system that will collect the subject site's wastewater flows and convey them to the proposed trunk sanitary sewer on Lally Terrace and subsequently, Maplevue Drive East; described in **Section 4.1**.

The internal sanitary sewers will be constructed in accordance with the City's engineering standards and the MOE guidelines. The sewers would consist of PVC DR35 pipe with a minimum diameter of 200mm. The design has ensured that the minimum and maximum velocities are maintained under full flow conditions as well as the flushing velocities outlined in the City of Barrie standards.

Refer to **Drawing SAN-1** in **Appendix C** which illustrates the proposed drainage scenario for the subject lands and delineates the sanitary sewer subcatchments. A copy of the sanitary sewer design sheet is provided in **Appendix B**.



5. Transportation

5.1 External Road Network

The City of Barrie *Official Plan Map 4b Mobility Network (April 2023)* identifies Lally Terrace, Prince William Way and Terry Fox Drive as collector roads. A copy of the *OP Map 4b* has been attached in **Appendix A**. Prince William Way runs in a north/south direction along the western portion of the subdivision, while Terry Fox Drive runs in the same direction but along the eastern portion of the site, when it changes to an east/west direction on the northeast portion of the subdivision and traverses Maplevue South Subdivision, before turning north again to cross Maplevue Dr E and Big Bay Point Rd. Connecting these two Major Collector Roads, a Minor Collector road named Lally Terrace, starts at Maplevue Dr E and runs south, crossing Hewitt's Gate East Phases I and II, before changing direction to east/west and entering the subject lands, crossing the northern portion of the site and ending at Terry Fox Dr.

Other future development lands to the south of the subject lands are bound by Lockhart Road along their southern boundary. Lockhart Road will ultimately be connected to Maplevue Drive East through these other lands and the subject site by the extension of Prince William Way and Terry Fox Drive.

For a full description of the transportation requirements and recommendations, refer to the *Conformity Review Technical Memorandum* prepared by JD Northcote Engineering (August 2023), submitted under separate cover.

5.2 Proposed Site Entrances and Internal Road Network

The *Draft Plan* identifies that the development will consist of two (2) entrances, Prince William Way and Lally Terrace. The two proposed entrances are currently in the design phase and are located along the west and north boundaries of the subdivision, respectively.

The subject lands will consist of an internal road network of local roads, major and minor collector roads extending south from Lally Terrace and east from Prince William Way. Future development of lands to the south includes the extension of the proposed major collector roads, Prince William Way and Terry Fox Drive, to Lockhart Road.

Development Right-of-Way (ROW) cross-sections proposed within the Hewitt's Central Subdivision consists of 18.0m, 24.0m, and 27.0m widths. All proposed cross sections are in accordance with the City of Barrie's current ROW standards.

Refer to the *Draft Plan of Subdivision* (July, 2024) attached in **Appendix A** for the proposed entrance alignment, ROW widths and internal roadway networks.



6. Site Grading

The proposed grading conforms to the City of Barrie *Lot Grading and Drainage Infrastructure Design Standard* (2023). Road and Lot grading will generally be directed towards the proposed end-of-pipe SWM facility and uncontrolled areas (back of lots) drain towards the proposed drainage channel along the south boundary.

The lot grading plans (**Drawings GP-1** and **GP-2**) are provided in **Appendix C** for reference.

7. Utilities

The subdivision will be serviced by secondary utilities including Bell, hydro, gas and cable TV. There are no existing services on or surrounding the site. However, they will be provided in the future from Lally Terrace and Prince William Way utilities extensions.

The utility providers for the *Hewitt's Secondary Plan Area* are Enbridge Gas, Innpower, Bell Canada and Rogers Cable.

Utility Servicing coordination for the entire Hewitt's Secondary Plan Area has been undertaken by the Hewitt's Land Owner's Group (HLOG). The proposed development's electrical and utility design will be advanced during the detailed design stage following Draft Plan Approval.



8. Conclusions

This Functional Servicing Report identifies the recommended servicing design for the proposed Hewitt's Central Draft Plan of Subdivision. This Report, read in conjunction with the *Preliminary Stormwater Management Report*, outlines the proposed infrastructure required to service the lands with regards to stormwater management, water, wastewater, roads, grading, and conventional utilities.

This Report has been prepared based on the recommendations provided in the *Hewitt's Secondary Plan Area Subwatershed Impact Study* prepared by R.J. Burnside (September 2016). In particular, this Report has recommended the proposed development can be adequately serviced based on the following:

- The provision of storm sewers and an end-of-pipe stormwater management facility as outlined in **Section 2**. Further details on stormwater management and pond design are provided within the *Preliminary Stormwater Management Report* submitted under separate cover.
- The provision of watermain as outlined in **Section 3**.
- The provision of gravity sanitary sewers as outlined in **Section 4**.
- The provision of Transportation Infrastructure as outlined in **Section 5**.
- The provision of Site Grading as outlined in **Section 6**.
- The provision of Utility Infrastructure as outlined in **Section 7**.

In conclusion, it is recommended that the approval authorities support the application for the Hewitt's Central *Draft Plan of Subdivision*, dated July 16, 2024.

All of which is respectfully submitted,

THE JONES CONSULTING GROUP LTD.

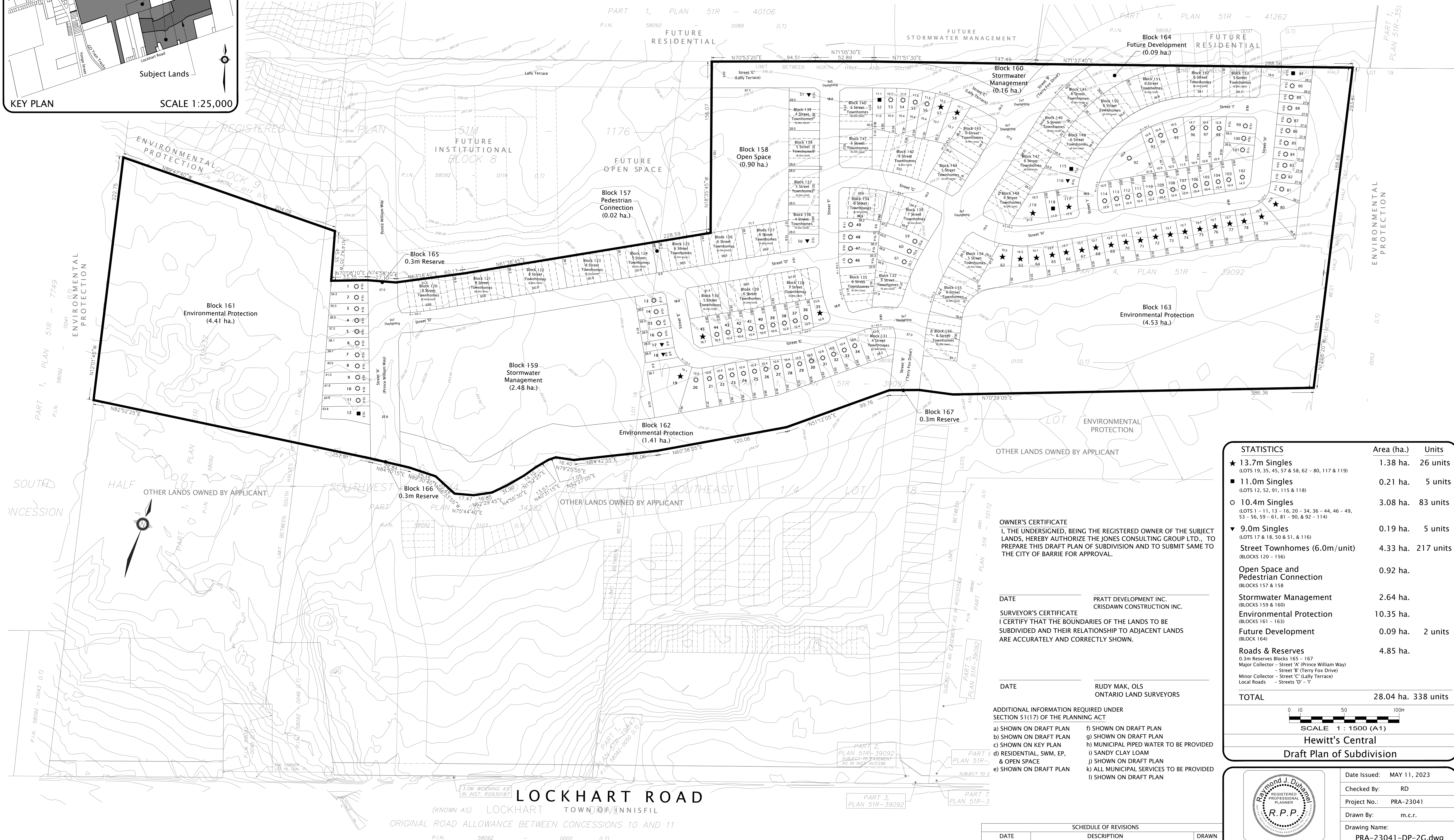
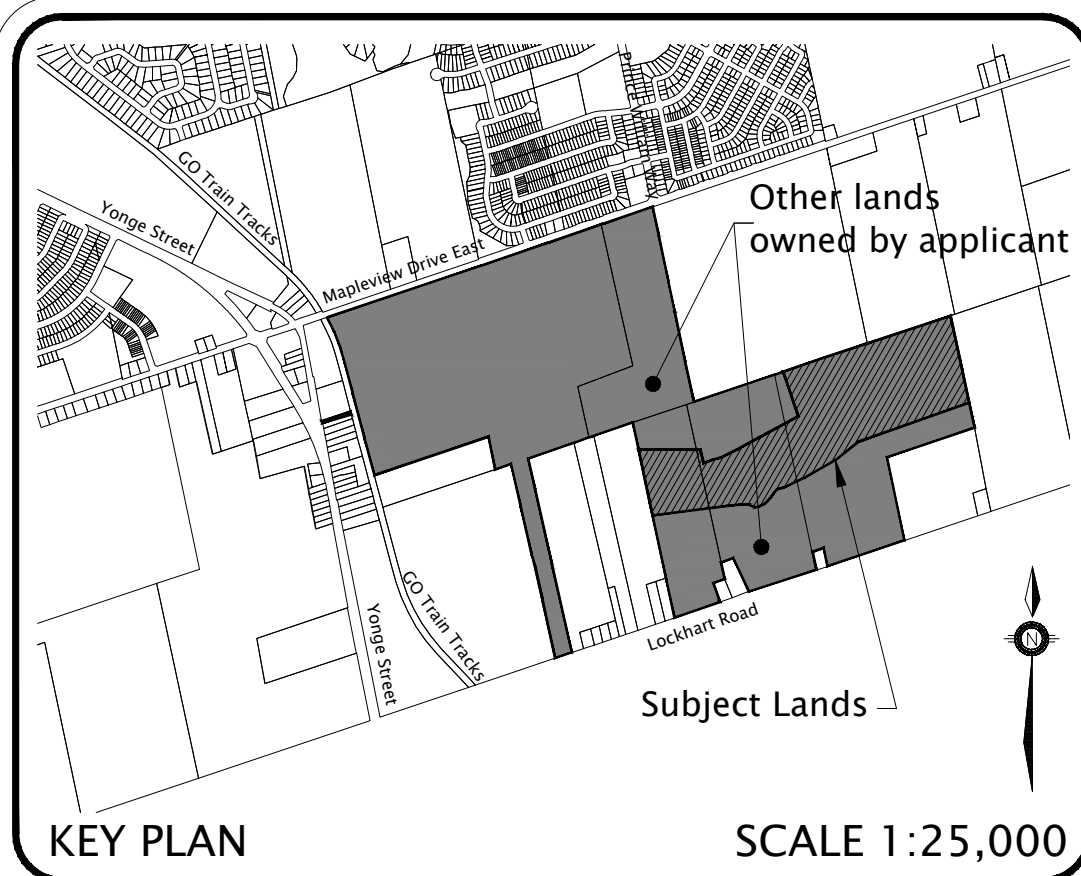


Appendix A

Planning and External Information

- Hewitt's Central Draft Plan of Subdivision – by Jones Consulting, dated July 16, 2024
- Hewitt's Secondary Plan Area SIS – Figure 4 – Soils and Shallow Infiltration Map
- Hewitt's Secondary Plan Area SIS – Figure 12 – Proposed Water Distribution Plan
- Hewitt's Secondary Plan Area SIS – Figure 14 – Proposed Sanitary Sewer Plan
- Hewitt's Secondary Plan Area SIS – Figures 16 – LID Constraint Plan
- Soil Map of Simcoe County South – Excerpt of Soil Survey Report No.29
- Official Plan – Map 2 – Land Use Designations;
- Official Plan – Map 3 – Natural Heritage Protection Overlays
- Official Plan – Map 4a – Mobility Network
- Official Plan – Map 4b – Mobility Network
- Official Plan – Map 5 – Right-of-Way Widths
- Official Plan – Map 7 – Drinking Water System Vulnerable Areas
- Water and Wastewater Master Plan – Water Distribution Overview Map
- Sanitary Map – City of Barrie
- Crisdawn Construction Inc. – Trunk Sanitary Catchment Area – SAN-TRUNK-1 & 2
- Watermain Interim and Ultimate Scenarios – Water Supply Modelling Analysis Memorandum
– Proposed by Schaeffers Consulting Engineers
- Minutes of Ontario Municipal Board (OMB) Settlement for Special Defined Policy Area 2
Section 9.3.3.2d
- Major System Storm Servicing Plan – Figure 2.3 – By Schaeffers Consulting Engineers
- SWMF 10/SWMF9 Drainage Boundaries within B3 and B4 plan – Figure 2 – By RJ Burnside

Part of Lot 19, and Part of Lot 20, Concession 12
Former Township of Innisfil,
Now in the
City of Barrie
2024



STATISTICS	Area (ha.)	Units
★ 13.7m Singles (LOTS 19, 35, 45, 57 & 58; 62 – 80, 117 & 119)	1.38 ha.	26 units
■ 11.0m Singles (LOTS 12, 52, 91, 115 & 118)	0.21 ha.	5 units
✧ 10.4m Singles (LOTS 1 – 11, 13 – 16, 20 – 34, 36 – 44, 46 – 49, 53 – 56, 59 – 61, 81 – 90, & 92 – 114)	3.08 ha.	83 units
▼ 9.0m Singles (LOTS 17 & 18, 50 & 51, & 116)	0.19 ha.	5 units
Street Townhomes (6.0m/unit) (BLOCKS 120 – 156)	4.33 ha.	217 units
Open Space and Pedestrian Connection (BLOCKS 157 & 158)	0.92 ha.	
Stormwater Management (BLOCKS 159 & 160)	2.64 ha.	
Environmental Protection (BLOCKS 161 – 163)	10.35 ha.	
Future Development (BLOCK 164)	0.09 ha.	2 units
Roads & Reserves 0.3m Reserves Blocks 165 – 167 Major Collector – Street 'A' (Prince William Way) – Street 'B' (Terry Fox Drive) Minor Collector – Street 'C' (Lally Terrace) Local Roads – Streets 'D' – 'I'	4.85 ha.	
TOTAL	28.04 ha.	338 units

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING GROUP LTD., TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE CITY OF BARRIE FOR APPROVAL.

DATE _____ PRATT DEVELOPMENT INC.
CRISDAWN CONSTRUCTION INC.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE _____ RUDY MAK, OLS
ONTARIO LAND SURVEYORS

ADDITIONAL INFORMATION REQUIRED UNDER
SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON DRAFT PLAN
b) SHOWN ON DRAFT PLAN
c) SHOWN ON KEY PLAN
d) RESIDENTIAL, SWM, EP,
AND OPEN SPACE
e) SHOWN ON DRAFT PLAN

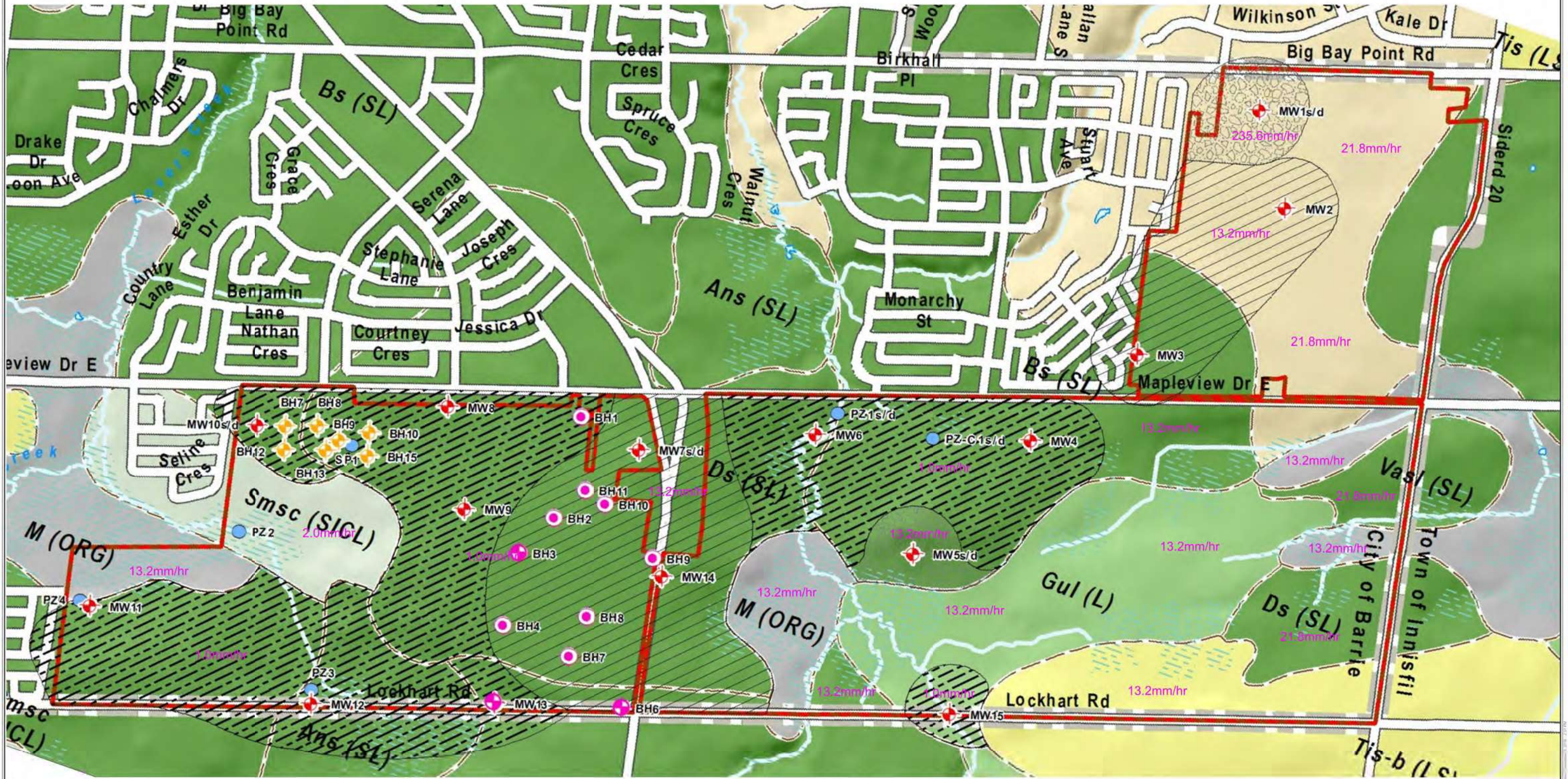
f) SHOWN ON DRAFT PLAN
g) SHOWN ON DRAFT PLAN
h) MUNICIPAL PIPED WATER TO BE PROVIDED
i) SANDY CLAY LOAM
j) SHOWN ON DRAFT PLAN
k) ALL MUNICIPAL SERVICES TO BE PROVIDED
l) SHOWN ON DRAFT PLAN

SCHEDULE OF REVISIONS		
DATE	DESCRIPTION	DRAWING NO.
AUG. 21, 2023	CHANGES AS PER COMMENTS	m.c.r.
AUG. 25, 2023	CHANGES AS PER COMMENTS	m.c.r.
SEPT. 14, 2023	CHANGES AS PER COMMENTS	m.c.r.
SEPT. 19, 2023	CHANGES AS PER COMMENTS	m.c.r.
MAY 8, 2024	CHANGES AS PER ENG COMMENTS	m.c.r.
MAY 29, 2024	CHANGES AS PER COMMENTS	m.c.r.
JULY 16, 2024	MINOR CORRECTION TO STATISTIC TABLE	m.c.r.

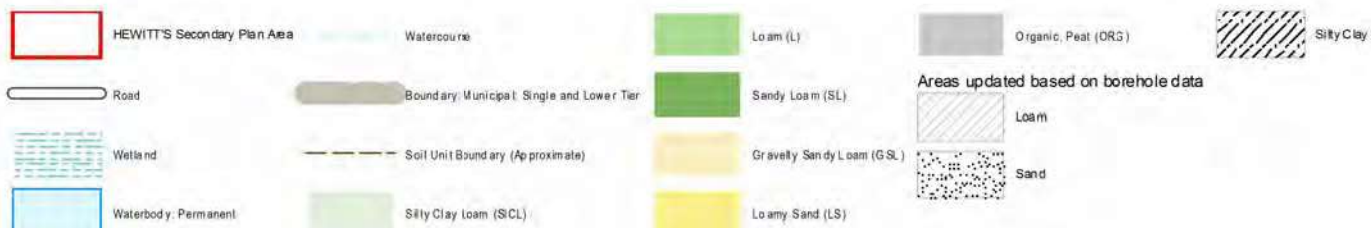
	Date Issued:	MAY 11, 2023
	Checked By:	RD
	Project No.:	PRA-23041
	Drawn By:	m.c.r.
	Drawing Name:	PRA-23041-DP-2G.dwg



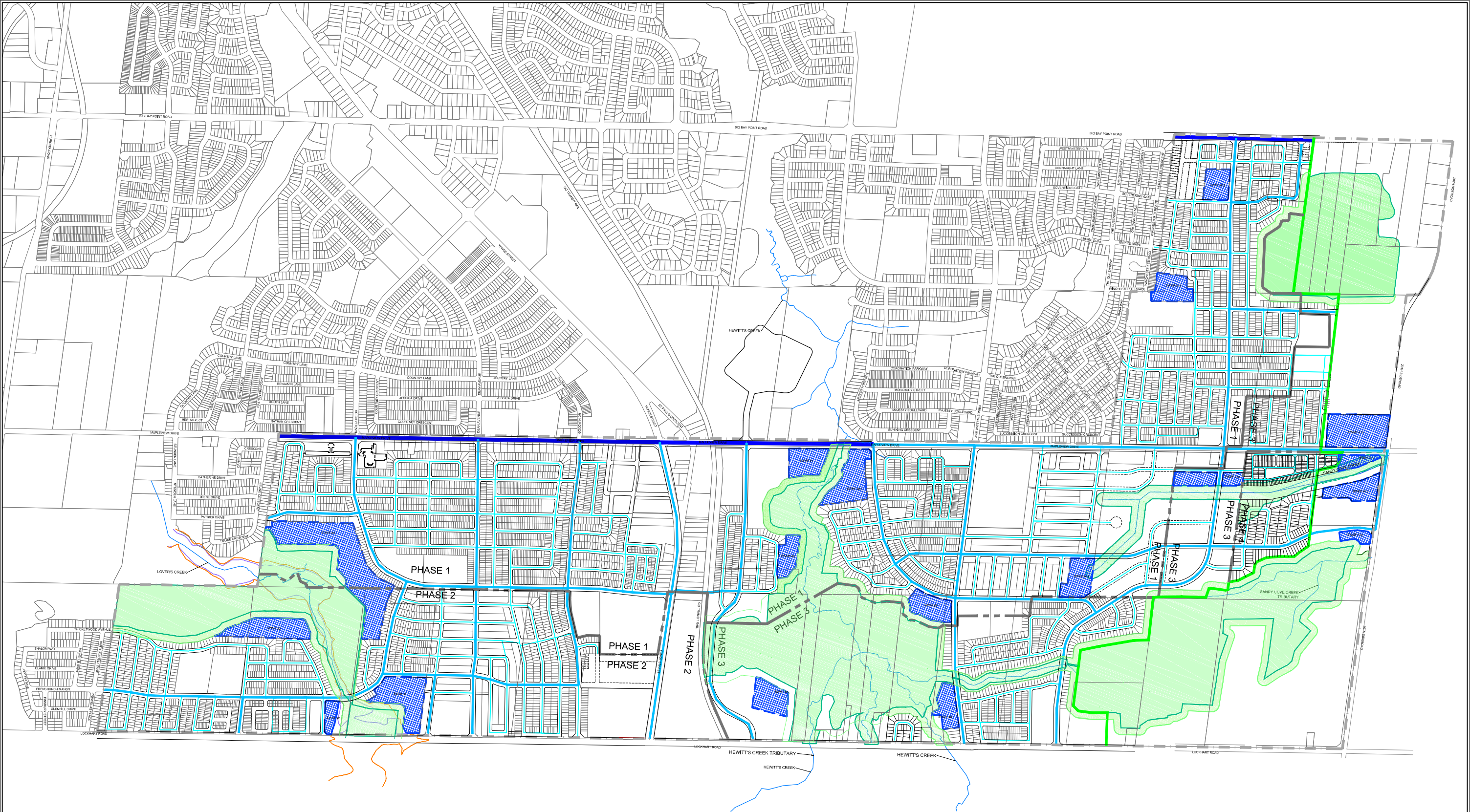
HEWITT'S CENTRAL
CITY OF BARRIE



LEGEND

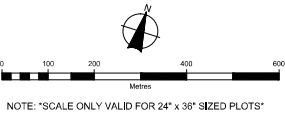


BURNSIDE		HEWITT'S SECONDARY PLAN AREA SUBWATERSHED IMPACT STUDY SOILS AND SHALLOW INFILTRATION MAP	
		Drawn: BH Scale: H 1:2,500	Checked: MZ Date: 10/09/07 Project No: 300032893
HEWITT'S CREEK LANDOWNERS GROUP INC.		FIG 4	



LEGEND

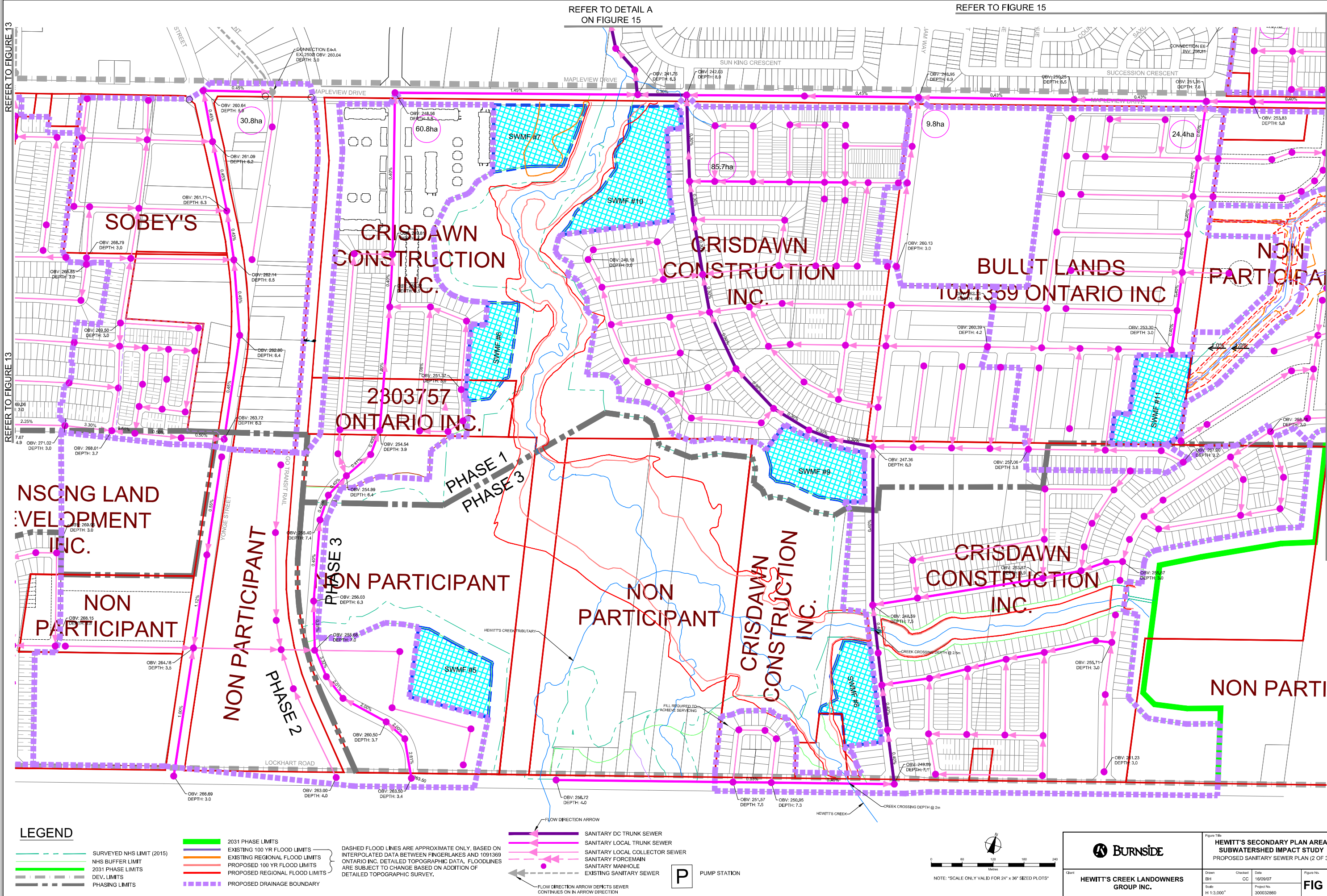
- | | | | |
|--|----------------------------|--|--|
| | DC TRUNK WATERMAIN | | 2031 PHASE LINE |
| | LOCAL TRUNK WATERMAIN | | PHASING LIMITS |
| | LOCAL WATERMAIN | | LIMIT OF HEWITT'S CREEK SECONDARY PLAN |
| | SURVEYED NHS LIMITS (2015) | | STAKED 2015 NHS LIMITS |
| | NHS BUFFER LIMITS | | NHS BUFFER LIMITS |



 BURNSIDE	Figure 18b: HEWITT'S SECONDARY PLAN AREA SUBWATERSHED IMPACT STUDY PROPOSED WATER DISTRIBUTION PLAN			Figure No. FIG 12	
	Client: HEWITT'S CREEK LANDOWNERS GROUP INC.	Drawn: AQ	Checked: BH		Date: 15/01/28
	Scale: H 1:4,000'	Project No.: 300032860			

REFER TO DETAIL A
ON FIGURE 15

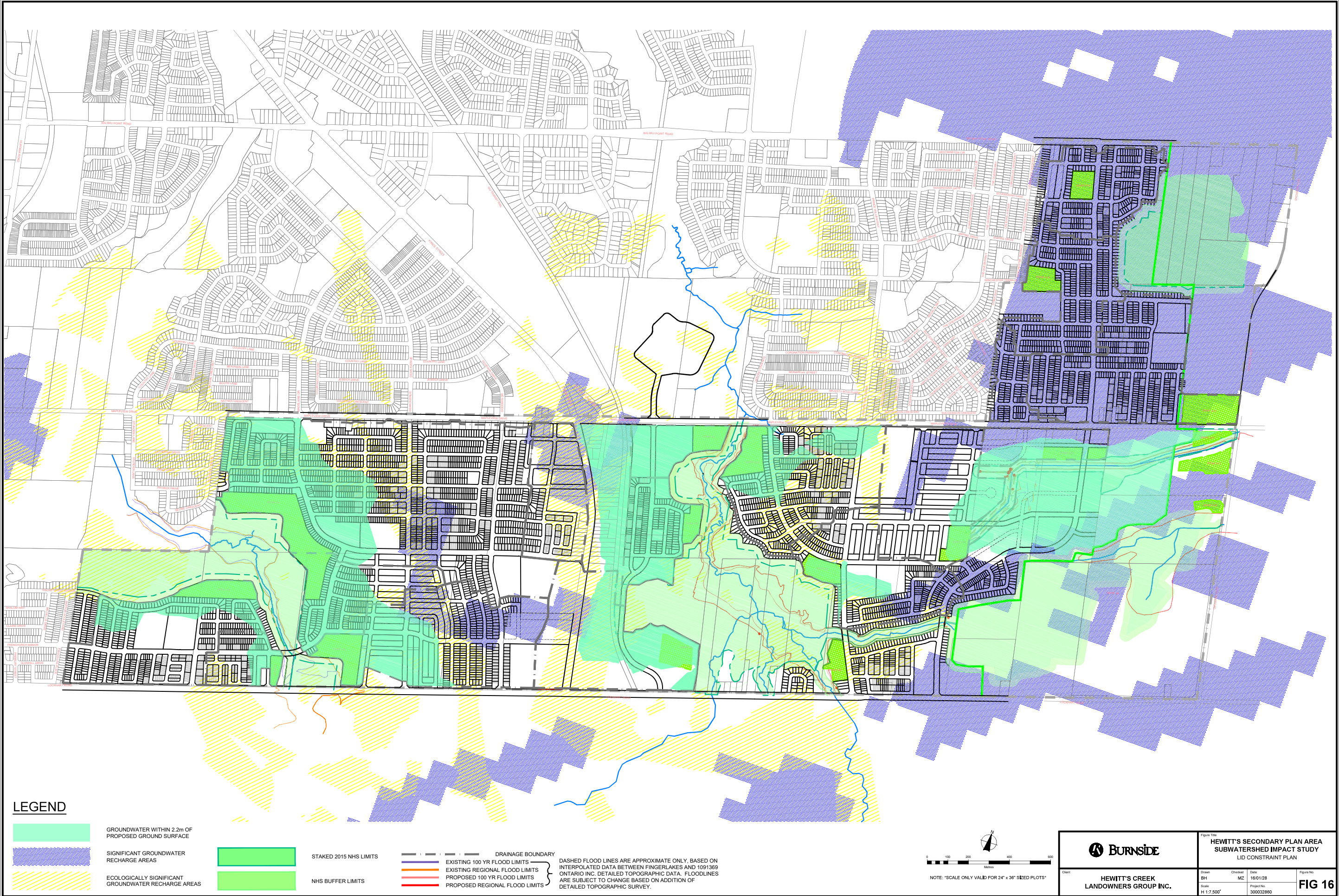
REFER TO FIGURE 15



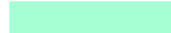
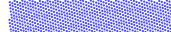
REFER TO FIGURE 13

REFER TO FIGURE 13

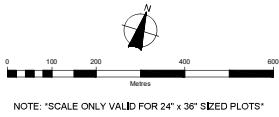
REFER TO FIGURE 15



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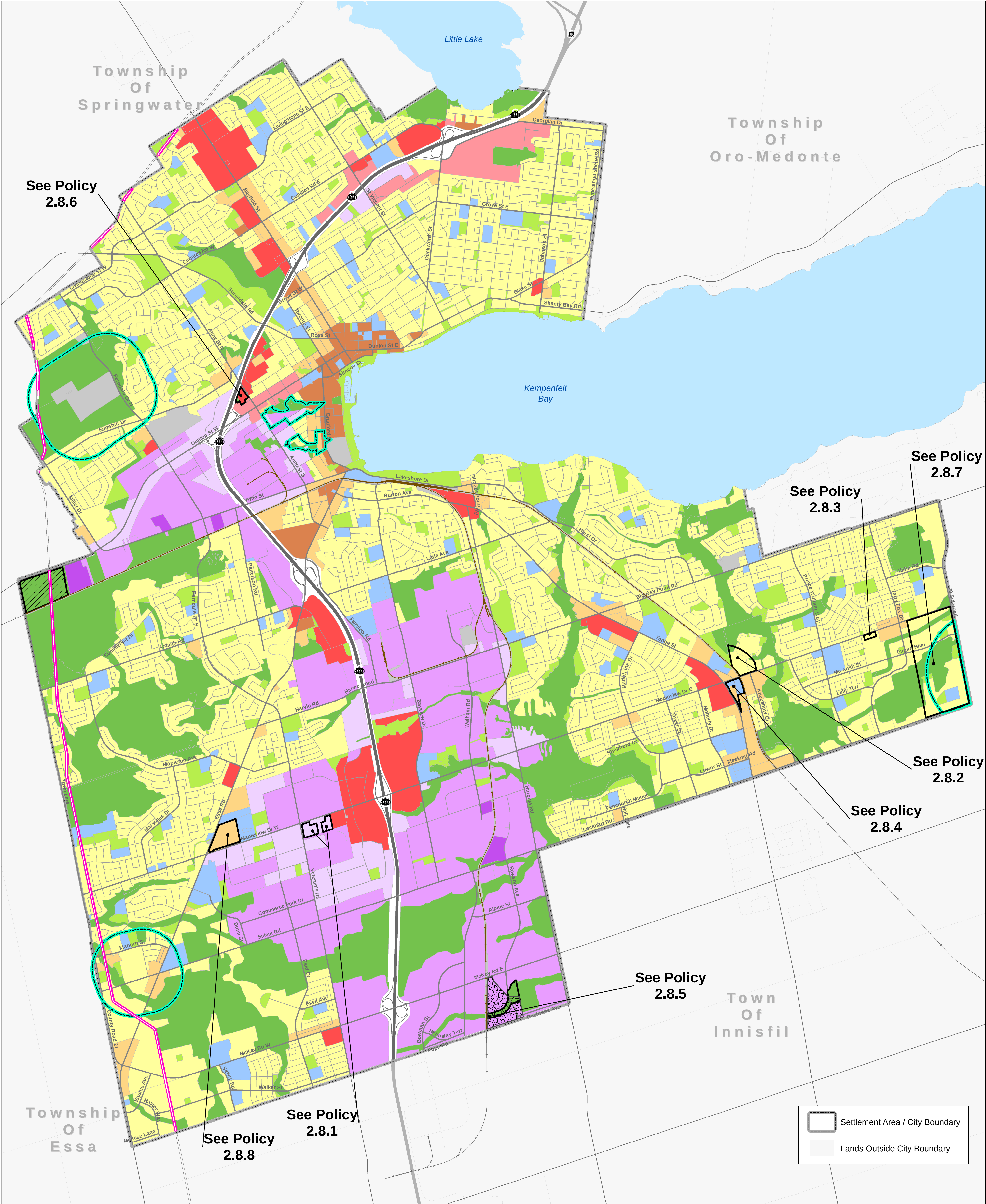
- | | | | | | |
|---|---|---|------------------------|---|--------------------------------|
|  | GROUNDWATER WITHIN 2.2m OF PROPOSED GROUND SURFACE |  | STAKED 2015 NHS LIMITS |  | DRAINAGE BOUNDARY |
|  | SIGNIFICANT GROUNDWATER RECHARGE AREAS |  | NHS BUFFER LIMITS |  | EXISTING 100 YR FLOOD LIMITS |
|  | ECOLOGICALLY SIGNIFICANT GROUNDWATER RECHARGE AREAS | | |  | EXISTING REGIONAL FLOOD LIMITS |
| | | | |  | PROPOSED 100 YR FLOOD LIMITS |
| | | | |  | PROPOSED REGIONAL FLOOD LIMITS |

DASHED FLOOD LINES ARE APPROXIMATE ONLY, BASED ON INTERPOLATED DATA BETWEEN FINGERLAKES AND 1091369 ONTARIO INC. DETAILED TOPOGRAPHIC DATA. FLOODLINES ARE SUBJECT TO CHANGE BASED ON ADDITION OF DETAILED TOPOGRAPHIC SURVEY.



NOTE: "SCALE ONLY VALID FOR 24" x 36" SIZED PLOTS"

		HEWITT'S SECONDARY PLAN AREA SUBWATERSHED IMPACT STUDY LID CONSTRAINT PLAN	
Client	HEWITT'S CREEK LANDOWNERS GROUP INC.	Drawn BH	Check MZ
		Date 16/01/28	Project No. 300032860
		Scale H 1:7,500'	Figure No. FIG 16



OFFICIAL PLAN

MAP 2

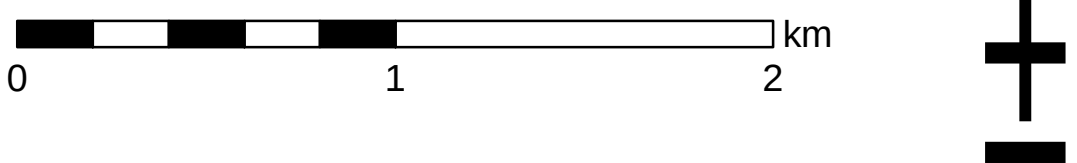
Land Use Designations

As Modified and Approved by
the Ministry of
Municipal Affairs and Housing
April 11, 2023

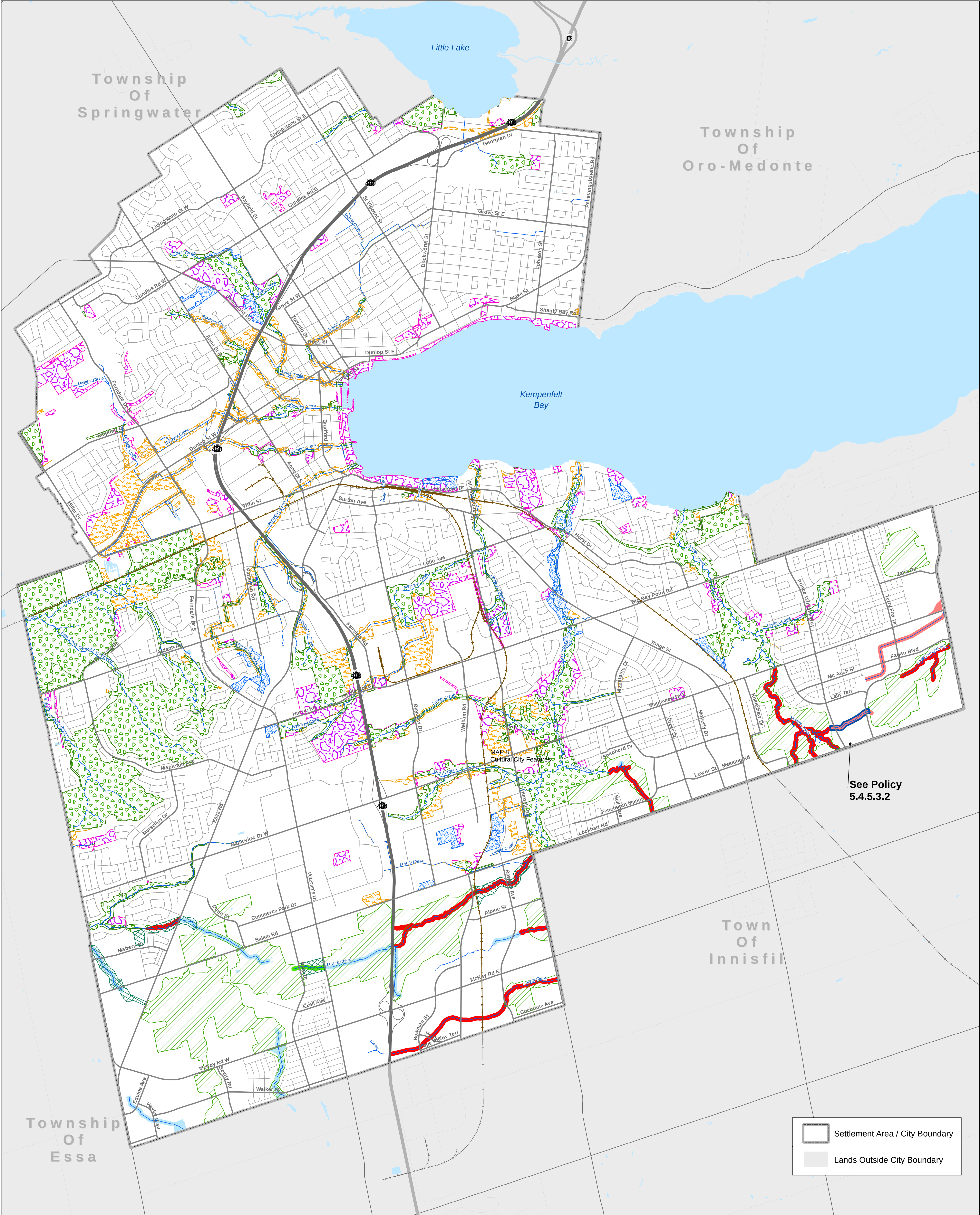
- | | | |
|---|--|--|
| Neighbourhood Area | Employment Area - Non Industrial | Waste Disposal Assessment |
| Medium Density | Employment Area - Industrial | Extractive Industrial |
| High Density | Employment Area - Restrictive Industrial | Defined Policy Area |
| Strategic Employment and Economic District (SEED) | Natural Heritage System | Application Before the Local Planning Appeal Tribunal (LPAT) |
| Commercial District | Greenspace | TransCanada Pipeline Right-of-way |
| Community Hub | Infrastructure and Utility | |

* All land use designations extend to the centre line of the right-of-way for streets. Land use designations, where applicable, extend to/terminate at the boundary of the right-of-way for provincial highways, rail corridors and utility corridors.

** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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OFFICIAL PLAN
MAP 3
Natural Heritage
Protection Overlays
As Modified and Approved by
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Municipal Affairs and Housing
April 11, 2023

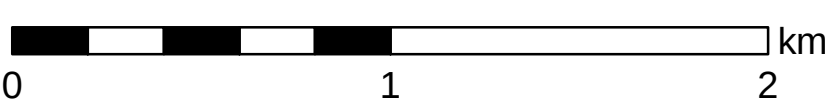
Environmental Protection Area
Classification

- EPA - Level 1
- EPA - Level 1 with Existing Development Designation Subject to 5.4.2.1.d
- EPA - Level 2
- EPA - Level 3

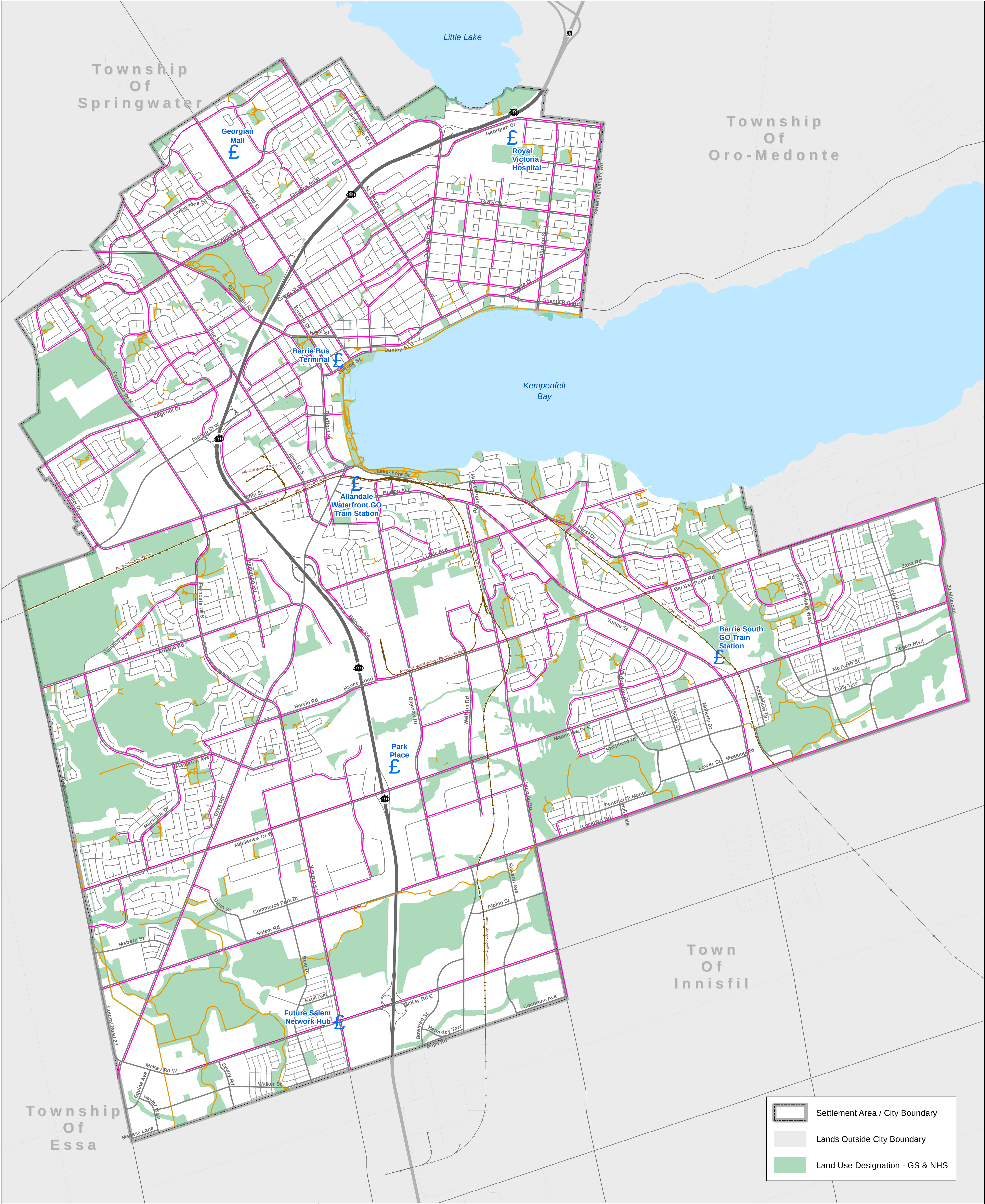
- High Constraint Stream Corridor Area
- High (S) Constraint Stream Corridor Area - Special
- Medium Constraint Stream Corridor Area
- Low Constraint Stream Corridor Area

- High (S) Constraint Stream Corridor –Special Policy Area
- Natural Core
- Natural Linkage Area
- Waterbody
- Watercourse

* Where natural heritage protection areas are shown, they are often interconnected and continue beyond the municipal boundary.
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OFFICIAL PLAN
MAP 4a
Mobility Network

As Modified and Approved by
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Municipal Affairs and Housing
April 11, 2023

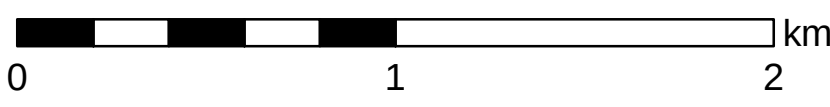
Road Network

- | | | | |
|--|---------|--|------------|
| | Highway | | Major Road |
| | Ramp | | Local Road |

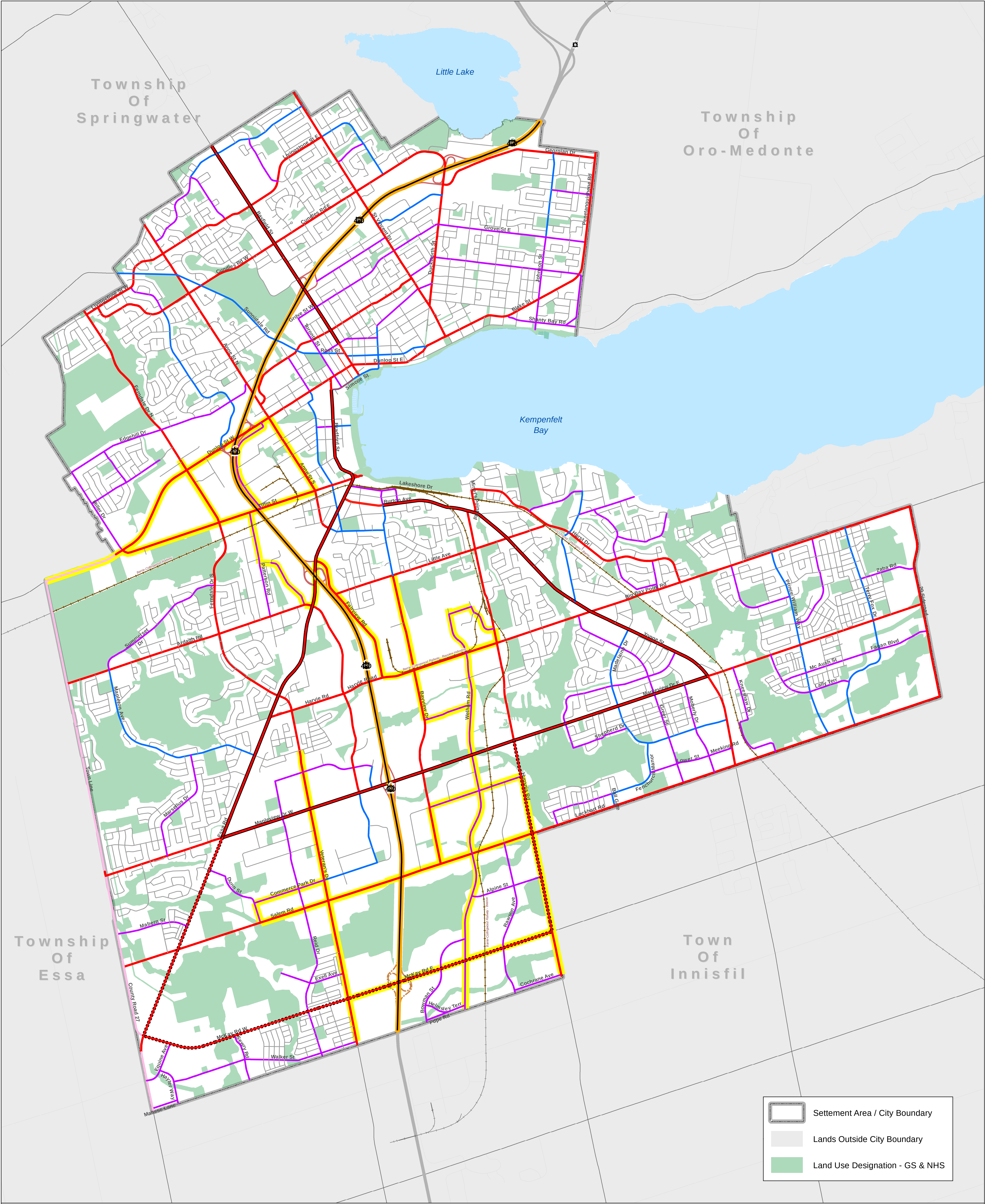
Alternative Transportation Networks

- | | | | |
|--|---------------------------------|--|-----------------|
| | Network Hub (approx. location) | | Cycling Network |
| | Multi-use Trail (within parks) | | Railway |

* Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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OFFICIAL PLAN
MAP 4b
Mobility Network

As Approved by the Ministry
of Municipal Affairs and Housing
April 11, 2023

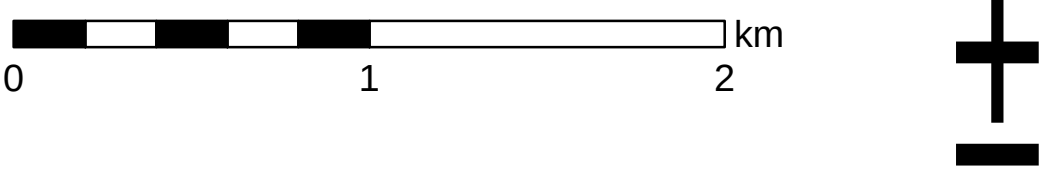
Road Classification

- Provincial Highway
- Existing Highway Interchange
- Proposed Highway Interchange
- County Road
- Arterial
- Major Collector
- Minor Collector
- Parkway
- Local Road
- Freight Supportive Corridor

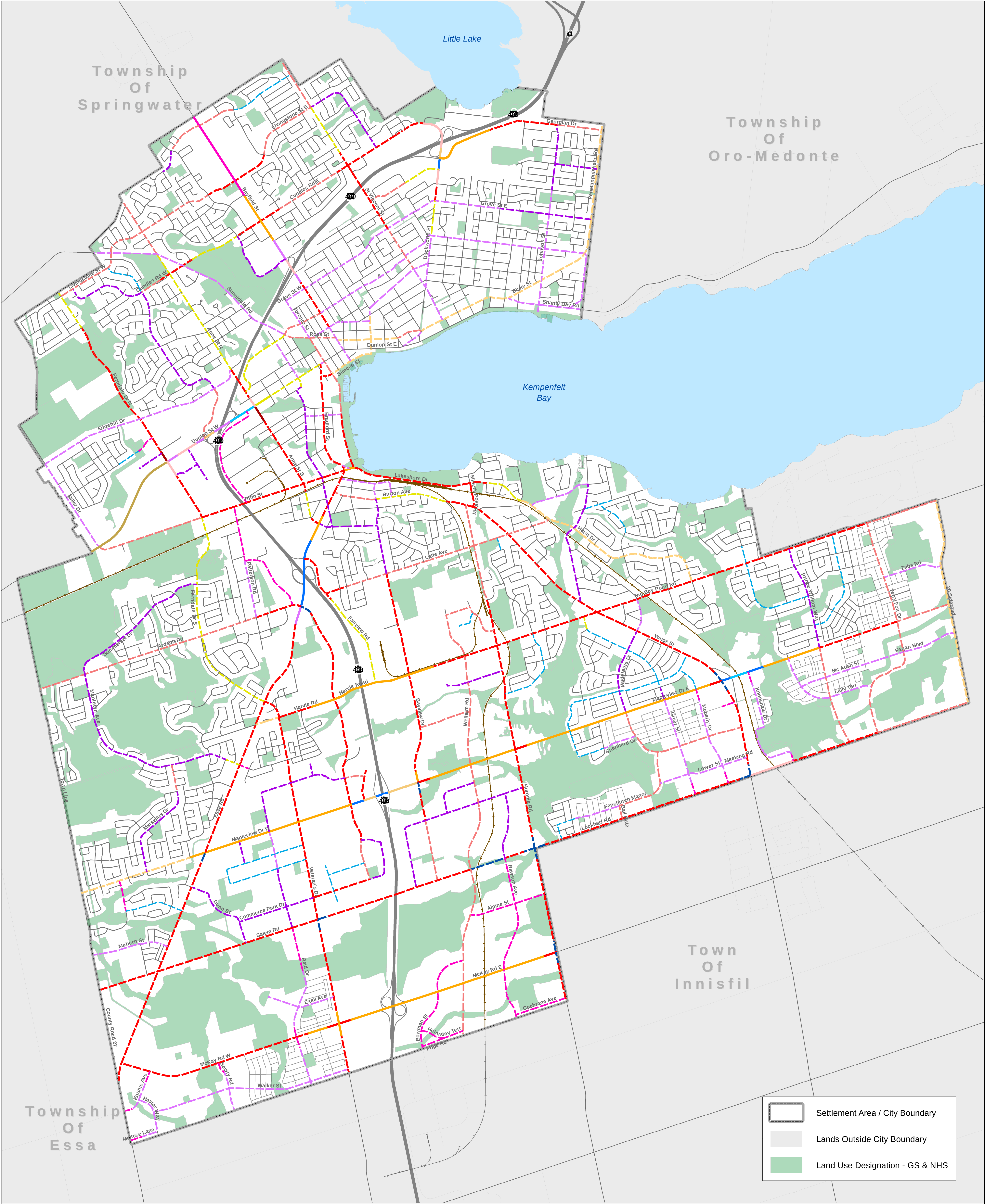
Transportation Features HOV

- Transit Priority Features
- HOV (leftmost lane) (MTO 2017 Transportation Environmental Study Report)
- HOV (rightmost lane)
- Protected HOV beyond 2041 (rightmost lane)

* Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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Settlement Area / City Boundary

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MAP 5

Right-of-Way Widths

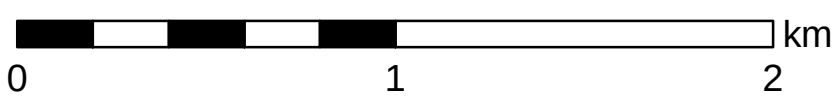
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April 11, 2023

Maximum Right-of-Way Width

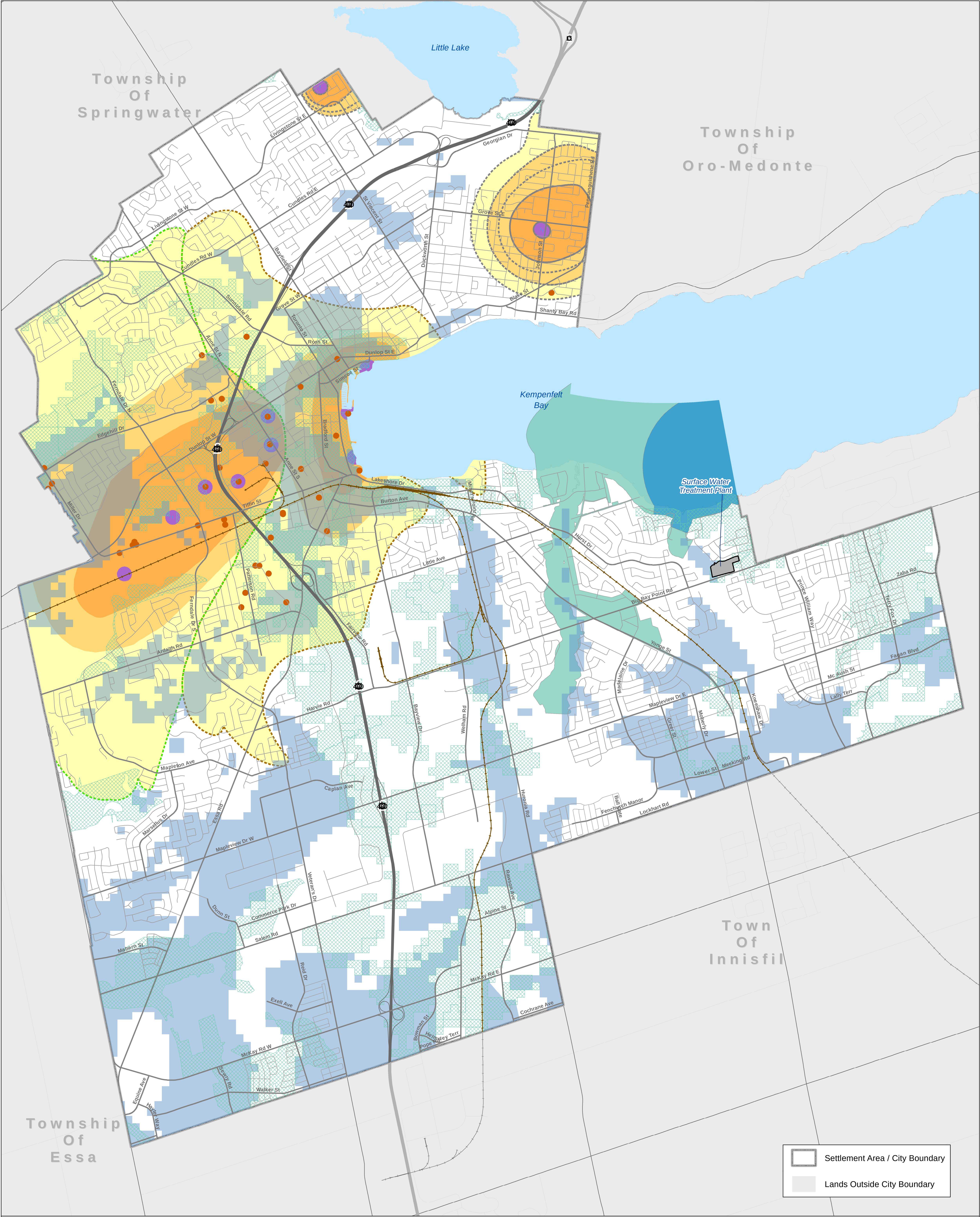
	18 m		25 m		30 m		41 m		47 m		54 m
	20 m		26 m		34 m		43 m		48 m		56 m
	23 m		27 m		38 m		45 m		49 m		60 m
	24 m		29 m		40 m		46 m		50 m		

* Additional right-of-way widths may be required to accommodate intersection improvements and other corridor enhancements; refer to Official Plan Section 4 for additional information.

** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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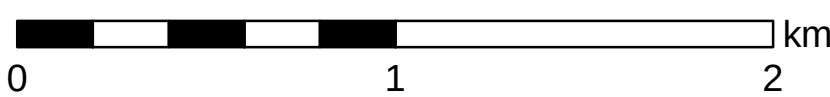
OFFICIAL PLAN
MAP 7
Drinking Water System
Vulnerable Areas
As Modified and Approved by
the Ministry of
Municipal Affairs and Housing
April 11, 2023

- Municipal Water Supply Well
- Transportation Pathway
- Intake Protection Zones**
- Intake Protection Zone 1
- Intake Protection Zone 2

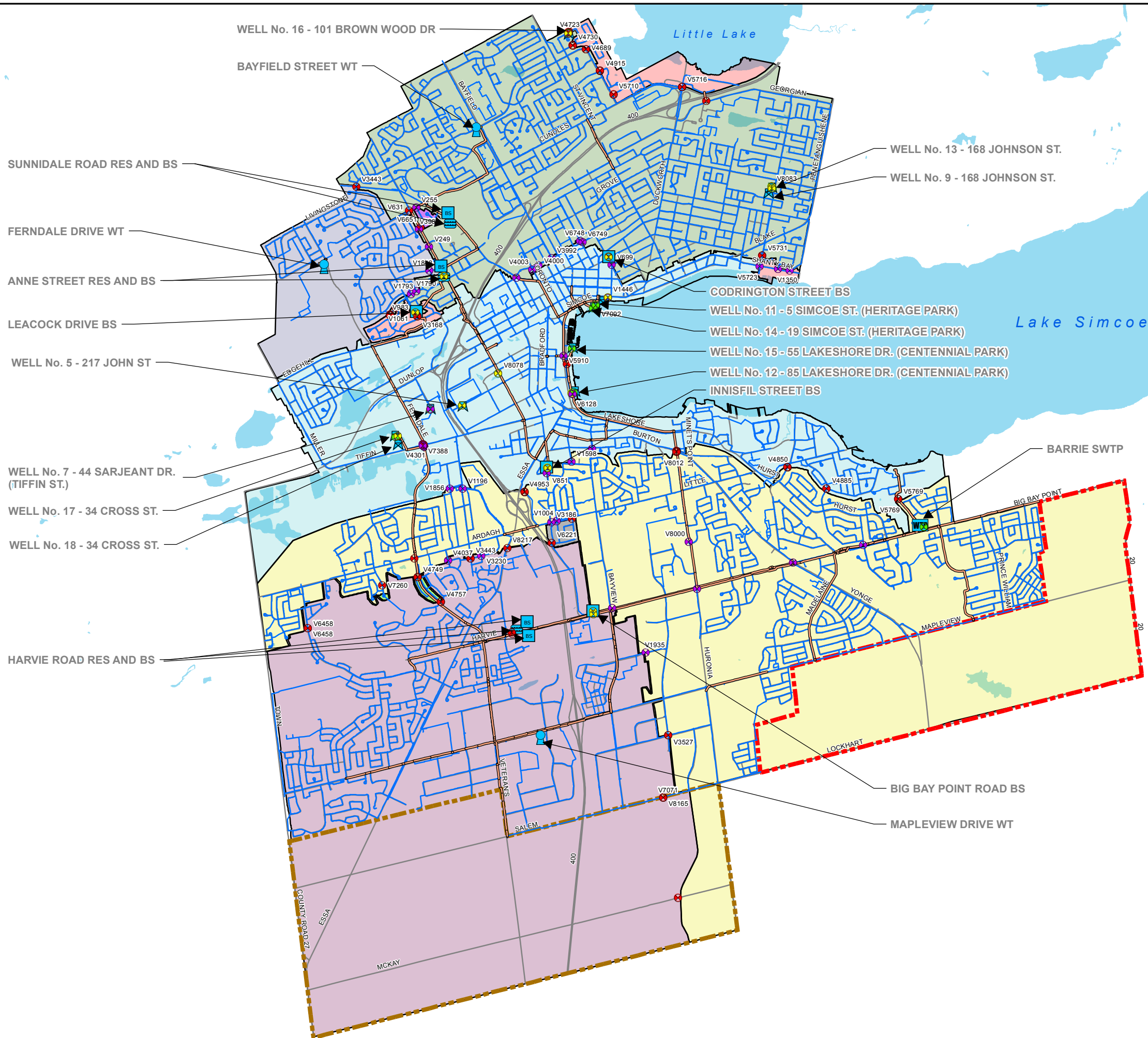
- Wellhead Protection Areas (WHPA)**
- WHPA - A (100m radius offset from operational municipal well)
- WHPA - B (2 year capture zone)
- WHPA - C (5-10 year capture zone)
- WHPA - D (25 year capture zone)

- Issues Contributing Areas**
- Issue Contributing Area Well 11, 12, 14 Chloride and Sodium
- Issue Contributing Area Well 3A Chloride
- Adjacent Well Field WHPA
- Significant Groundwater Recharge Areas (SGRAs)
- Highly Vulnerable Aquifers

* Where vulnerable areas are shown, they are often interconnected and continue beyond the municipal boundary. The location of these policy areas should be confirmed with the appropriate municipality and / or conservation authority.
** Roads, parks and other features within the undeveloped designated greenfield area are conceptual and subject to change.



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For information please contact Service Barrie at 705-726-4242 or ServiceBarrie@barrie.ca



1224 GARDINERS RD, SUITE 201
KINGSTON, ONTARIO,
CANADA, K7P 0G2
WWW.WSP.COM



CITY OF BARRIE
P.O. BOX 400
BARRIE, ONTARIO

Legend

- BOOSTER STATION
- WATER RESERVOIR
- ELEVATED STORAGE TANK
- WELL PUMP HOUSE
- WATER TREATMENT PLANT
- Hewitt Secondary Plan Area
- Salem Secondary Plan Area
- WATER MAIN > 350
- WATER MAIN
- ROADS
- WATERBODY
- WATER PRESSURE ZONE**
 - 1
 - 2N
 - 2N REDUCED
 - 2S
 - 3N
 - 3N REDUCED
 - 3S
 - 3S REDUCED
 - CHIEFTAIN DECREASED PRESSURE
- VALVE**
 - PRESSURE REDUCING VALVE
 - PRESSURE SUSTAINING VALVE
 - FLOW CONTROL VALVE
 - THROTTLE CONTROL VALVE
 - OTHER

Data Source: Ontario Base Mapping, Ministry of Natural Resources, August 2013. Engineering Department, City of Barrie 2017.

Scale:
0 320640 1,280 Meters
1:55,000



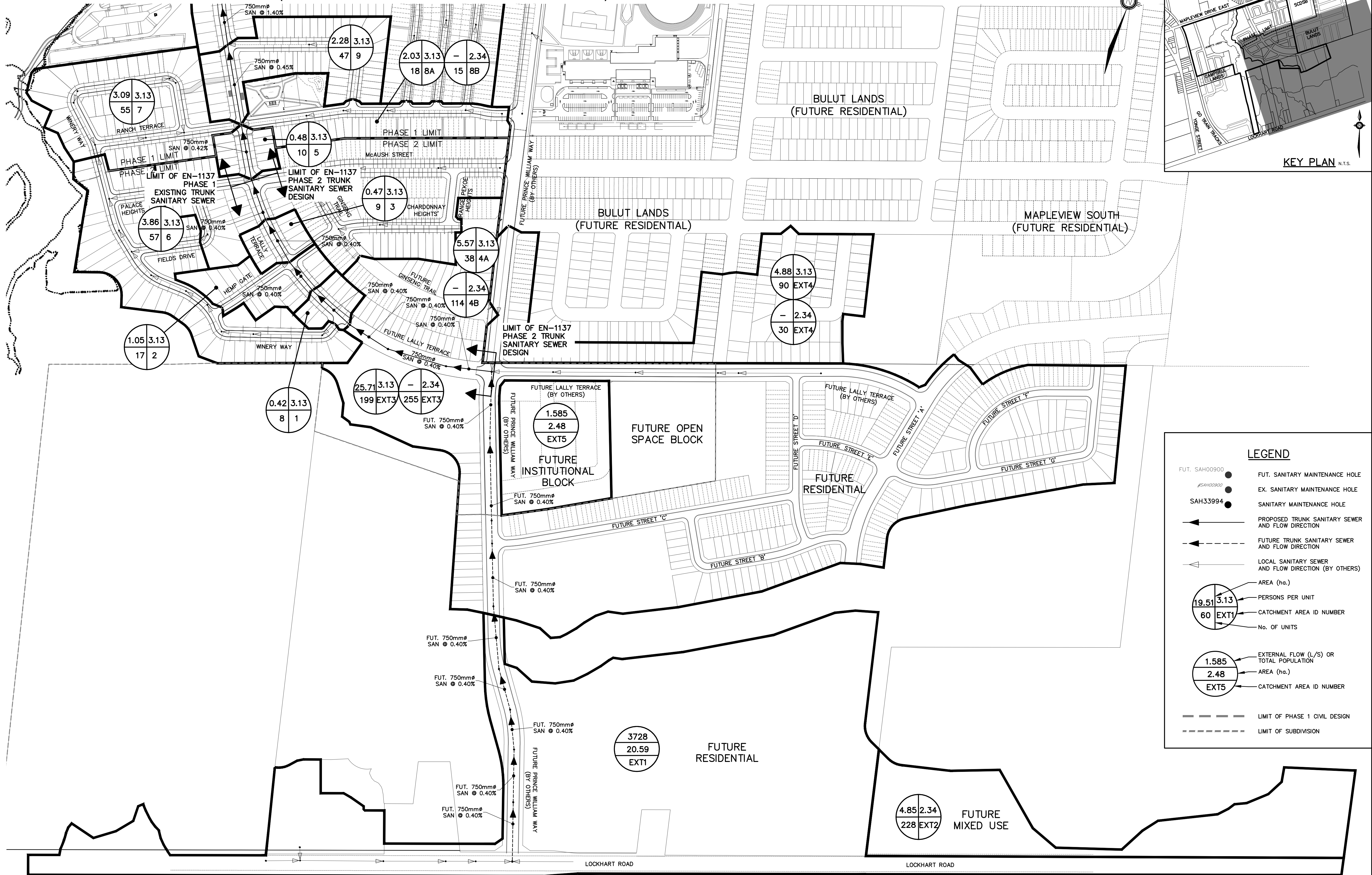
Project:
Water and Wastewater Master Plan Updates

City of Barrie, Ontario

Title:
WATER DISTRIBUTION OVERVIEW MAP

Project No.: 171-07636-03		Date: SEPTEMBER 2018	
Drawn By: RJ	Checked By: MF	Code: MP	Figure No.: 2 -2

REFER TO EN-1137 PHASE 1 SANITARY DRAINAGE PLANS (HEWITT'S GATE EAST PHASE B1 AS-RECORDED DRAWING SET)



LEGEND

FUT. SAH00900 ● FUT. SANITARY MAINTENANCE HOLE
#SAH00900 ● EX. SANITARY MAINTENANCE HOLE
SAH33994 ● SANITARY MAINTENANCE HOLE

← PROPOSED TRUNK SANITARY SEWER AND FLOW DIRECTION
- - - FUTURE TRUNK SANITARY SEWER AND FLOW DIRECTION
◀ LOCAL SANITARY SEWER AND FLOW DIRECTION (BY OTHERS)

AREA (ha.)
PERSONS PER UNIT
CATCHMENT AREA ID NUMBER
No. OF UNITS

EXTERNAL FLOW (L/S) OR TOTAL POPULATION
AREA (ha.)
CATCHMENT AREA ID NUMBER

- - - LIMIT OF PHASE 1 CIVIL DESIGN
- - - - - LIMIT OF SUBDIVISION

BENCHMARK:

BENCHMARK NO. 01019885454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.65M EAST OF HURONIA ROAD. TABLE IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF BRIDGE, 110M TOP OF CORNER. NAD83/89 ELEV 250.508

BENCHMARK NO. 03120030029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLE IS ON THE SOUTHWEST CORNER OF THE FLAGPOLE BASE. NAD83/89 ELEV 250.508

BENCHMARK NO. 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. NAD83/89 ELEV 250.508

BENCHMARK NO. 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. NAD83/89 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
3.	FINAL SUBMISSION	JULY 2023	MF
2.	2ND SUBMISSION	MAY 2023	MF
1.	1ST SUBMISSION	MAR.2023	MF



THE CITY OF BARRIE
ACCEPTED AS TO FORM IN
RELIANCE UPON THE
PROFESSIONAL SKILL AND
ABILITY OF THE JONES
CONSULTING GROUP LTD. AS
TO DESIGN AND
SPECIFICATION
August 9, 2023

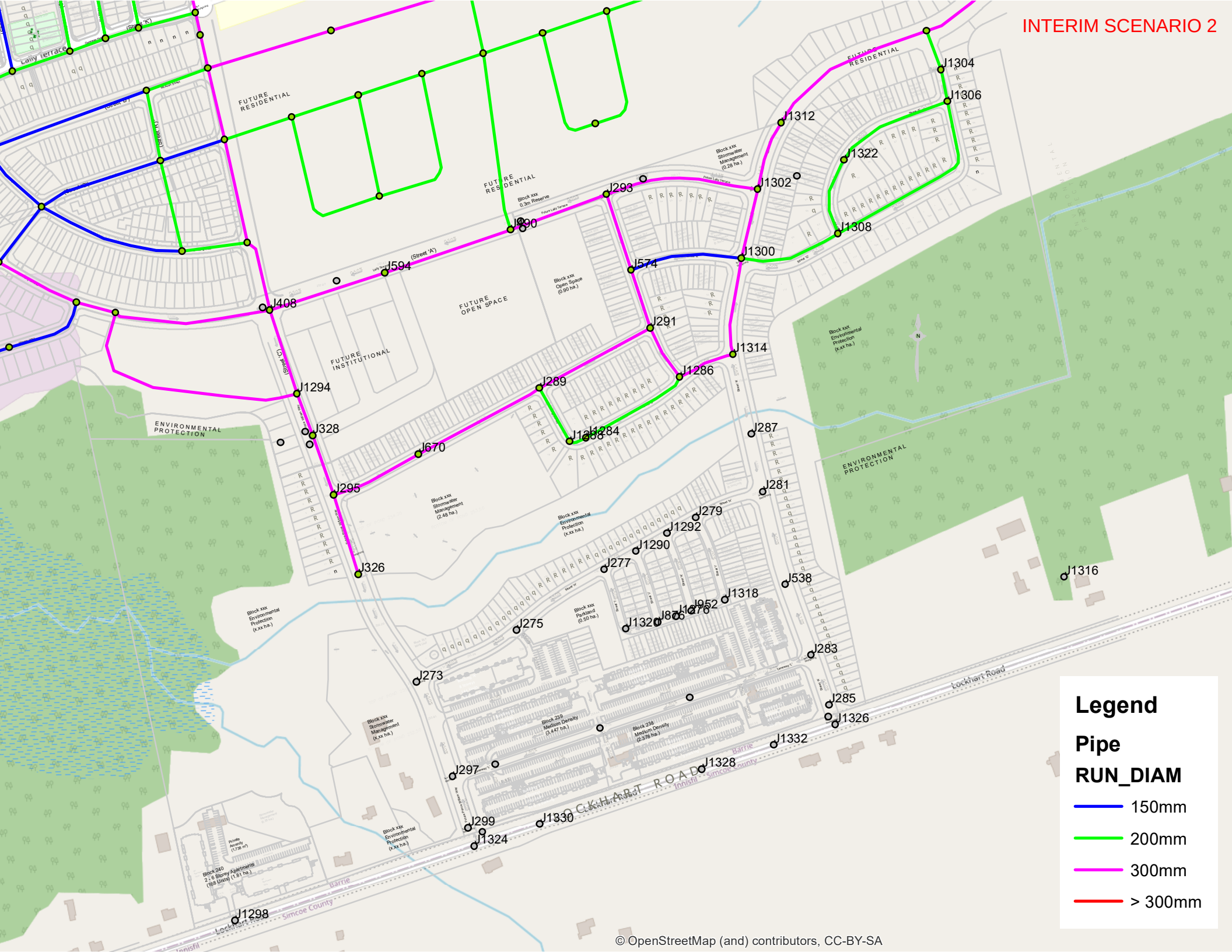
CRISDAWN CONSTRUCTION INC.
HEWITTS GATE EAST SUBDIVISION
EN-1137 - PHASE 2, CITY OF BARRIE
OVERALL TRUNK
SANITARY CATCHMENT PLAN

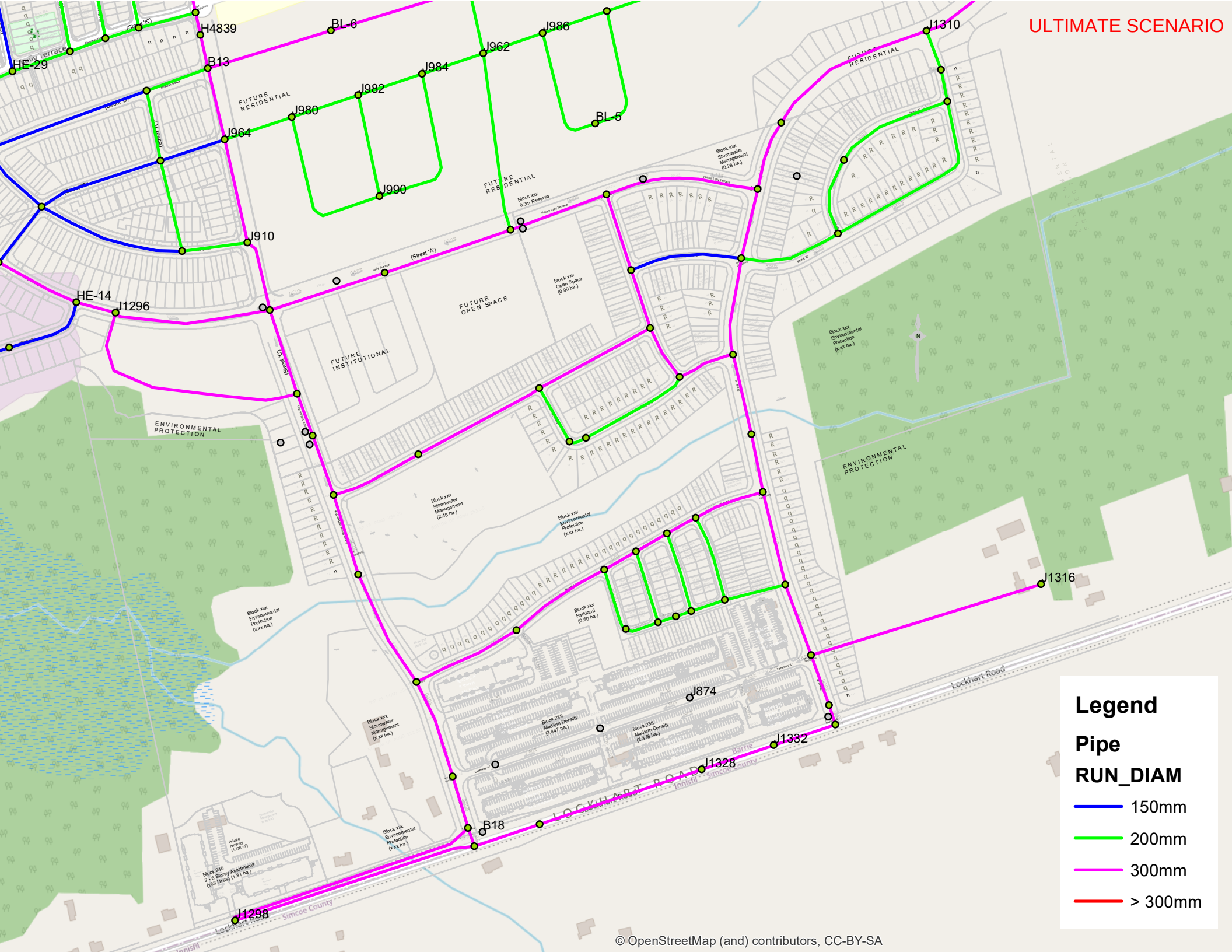


229 Mapleview Dr. E. Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	MF	SCALE: 1:2500	DATE	FEBRUARY 2023
DRAWN	KS	PROJECT	DWG. NO.	
CHECKED	DR	PRA-12160	SAN-TRUNK-2	

ACCEPTED FOR CONSTRUCTION





Legend

Pipe

RUN_DIAM

- 150mm
- 200mm
- 300mm
- > 300mm

PL140770
PL140771
PL140772

ONTARIO MUNICIPAL BOARD

IN THE MATTER OF subsection 17(24) of the *Planning Act*, R.S.O. 1990, c. P. 13, as amended

Appellant:	Crisdawn Construction Inc.
Appellant:	1580532 Ontario Limited
Appellant:	Ministry of Municipal Affairs and Housing
Appellant:	Simcoe County District School Board; and others
Subject:	Proposed Official Plan Amendment No. 39
Municipality:	City of Barrie
OMB Case No.:	PL140771
OMB File No.:	PL140771

IN THE MATTER OF subsection 17(24) of the *Planning Act*, R.S.O. 1990, c. P. 13, as amended

Appellant:	War Horse Holdings Limited
Appellant:	Trans Canada Pole Ltd.
Appellant:	Finger Lakes Estates Inc.
Appellant:	Crisdawn Construction Inc.; and others
Subject:	Proposed Official Plan Amendment No. 40
Municipality:	City of Barrie
OMB Case No.:	PL140772
OMB File No.:	PL140772

MINUTES OF SETTLEMENT

B E T W E E N:

**CRISDAWN CONSTRUCTION INC.
("CRISDAWN")**

- and -

**THE CORPORATION OF THE CITY OF BARRIE
(the "CITY")**

WHEREAS, on July 16, 2014, Crisdawn appealed (Appeal #7) the City's proposed Official Plan Amendments No. 39 and 40 with respect to the Natural Heritage System ("NHS") designation and related policies on the portions of its lands referred to as Areas 1 and 2;

AND WHEREAS Crisdawn and the City's expert witnesses have met to try to reduce and resolve issues, without the need for a contested hearing;

AND WHEREAS those experts have reached agreement to recommend appropriate policy language and mapping for both Area 1 and Area 2 which Crisdawn and the City have agreed will resolve Crisdawn Appeal #7;

AND WHEREAS Crisdawn has also filed a supportive appeal, Appeal #19, which is not affected by this settlement;

NOW THEREFORE, in consideration of the payment by each Party to the other Party of the sum of two dollars (\$2.00), the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. The Recitals above are true.
2. The parties agree to ask the Board to:
 - (a) allow Crisdawn Appeal #7 to the extent that the Board will modify the text and schedules of Official Plan Amendment 39 and Official Plan Amendment 40 in accordance with what is set out in the attached Schedules A and B;
 - (b) approve those instruments as they relate to Areas 1 and 2; and
 - (c) dismiss the balance of Crisdawn Appeal #7.
3. The parties have also agreed upon the provisions of the Memorandum of Agreement attached as Schedule C.
4. Upon execution of these Minutes of Settlement, Crisdawn and the City will advise the Board and other parties involved in the NHS hearing that they have reached a settlement of Crisdawn's site-specific appeal (Appeal #7).
5. Subject to the direction of the Board, the City will call witnesses as it determines appropriate at the hearing starting on July 20, 2015 to give evidence in support of this settlement. Crisdawn will also call such witnesses as may be necessary to support the settlement.
6. If difficulties arise with respect to implementing this settlement, the parties agree that the Board may be spoken to.
7. These Minutes of Settlement constitute the entire agreement between the Parties with respect to the matters set out herein, and supersede all prior agreements, negotiations and understandings with respect thereto.

8. These Minutes of Settlement may be executed in one or more counterparts, which together shall constitute a complete set of these Minutes of Settlement, and executed counterparts may be delivered by e-mail or facsimile transmission. A PDF or facsimile copy of these Minutes of Settlement will have the same force and effect as an original.

IN WITNESS WHEREOF the Parties have executed these Minutes of Settlement as of the date(s) indicated below:

Date: July 15, 2015

) **Crisdawn Construction Inc.**
)
)
)
)
)
)



Per: Don Ratti

I have authority to bind the Corporation.

Date: July , 2015

) **The Corporation of the City of Barrie**
)
)
)
)
)
)

Per: Jeff Lehman, Mayor

Per: Dawn McAlpine, City Clerk

Schedule "A"

Modifications to Official Plan Amendment 39 policies in respect of Area 1:

9.3.3.2 High (S) Constraint, Medium and Low Constraint Stream Corridor Areas

c) High (S) Constraint Stream Corridor Areas – Special Defined Policy Area 1

The High (S) Constraint Stream Corridor Area –Special Defined Policy Area 1 shown on Schedule 9B, the location and boundaries of the High (S) Constraint Stream Corridor Area designation may be modified and shall be determined based on satisfaction of the following tests:

- i) Hydrologic connection to Hewitt's Creek will be maintained or enhanced; and,
- ii) Enhancements or ecological offsetting will be completed within the Hewitt's Creek Subwatershed and/or Lake Simcoe Region Conservation Authority Watershed within the City of Barrie to provide an overall net benefit or net gain for the removal of any features and functions of this Natural Heritage System area.

Ecological offsetting will consider the following compensatory measures through the preparation of an Ecological Offsetting Strategy (EOS) to the satisfaction of the City and LSRCA:

- Replacement of woodland feature at a ratio of 2:1 (replacement : loss)
- Replacement of wetland feature at a ratio of 3:1 (replacement : loss)
- Creation or enhancement of watercourse corridors using natural channel design principles
- NHS compensation based on a Natural Capital Assessment or Ecological Goods and Services (EGS) Evaluation

The implementation of the ecological offsetting will be concurrent with the removal of the features and will be completed within one (1) year of the commencement of their removal. Monitoring will be required as part of the EOS in order to ensure the effectiveness of the ecological offset.

Provided that both the City of Barrie, and the Lake Simcoe Region Conservation Authority with respect to its own legislative and regulatory powers, are satisfied that the above tests have been met, and that the proposal fulfills the provisions of the federal Fisheries Act, residential development may be permitted without an amendment to the Official Plan. This may include, where the tests are met, all the lands in the Defined Policy Area 1 shown on Schedule 9B.

Subject to the satisfaction of the above tests, the lands or a portion of the lands adjacent to Mapleview Drive between Prince William Way and Royal Jubilee Drive (approximately 4 hectares) shall be developed for Medium Density Residential, in accordance with Section 9.5.8 for affordable housing in conformity with the provisions of Section 3.3. The remainder of the Defined Policy Area shall be developed as a "Residential Area" in accordance with Section 9.5.7.

Modifications to Official Plan Amendment 39 policies in respect of Area 2:

9.3.3.2 High (S) Constraint, Medium and Low Constraint Stream Corridor Areas

d) High (S) Constraint Stream Corridor Area –Special Defined Policy Area 2

In addition to the requirements of Sections 9.3.2.3 c) and 9.3.3.2 b), for the High (S) Constraint Stream Corridor Area –Special Defined Policy Area 2 shown on Schedule 9B, the location and boundaries of the floodplain related to the Stream Corridor Area shall be modified and/or relocated such that the floodplain area, meander belt width and related features, including channel and required setbacks are accommodated within the High (S) Constraint Stream Corridor Area designation which will have a width of 60 metres. As part of the redesign of the floodplain area, cut/fill will be permitted on the adjacent residential land, such that the relocated floodplain area occurs within the 60 metre Corridor Area. Further, any proposed road crossings through the Corridor Area will be subject to road ecology principles in order to maintain corridor function objectives and connectivity.

Schedule "B"

**Modifications to Official Plan Amendment 39 and Official Plan Amendment 40 schedules
in respect of Areas 1 and 2:**



Schedule 9A

Community Structure

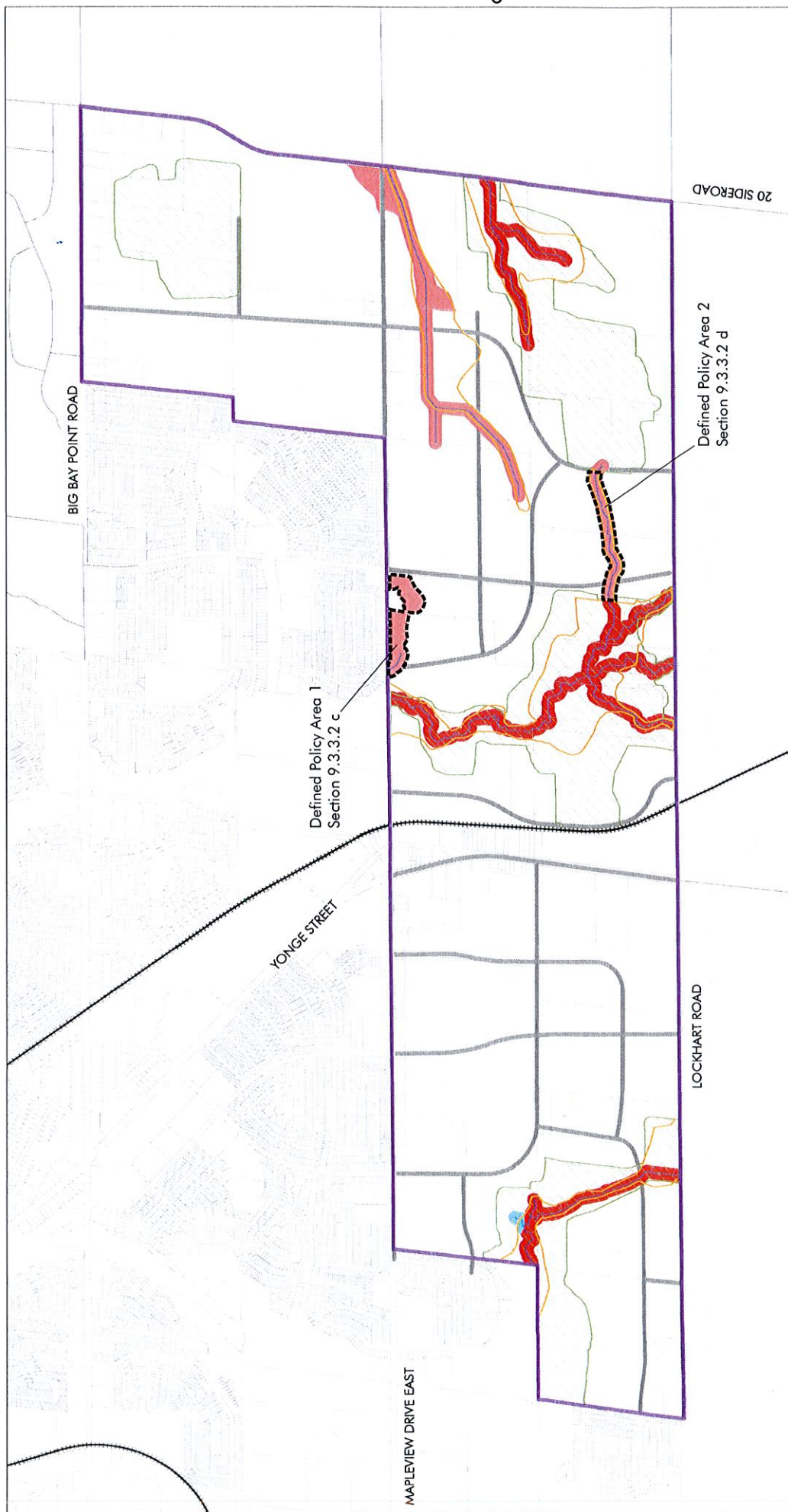
City of Barrie

Hewitt's Secondary Plan

July 2015



101



Schedule 9B

Natural Heritage System Components

City of Barrie

Hewitt's Secondary Plan

July 2015

61



Schedule 9C

Land Use

City of Barrie

Hewitt's Secondary Plan

July 2015

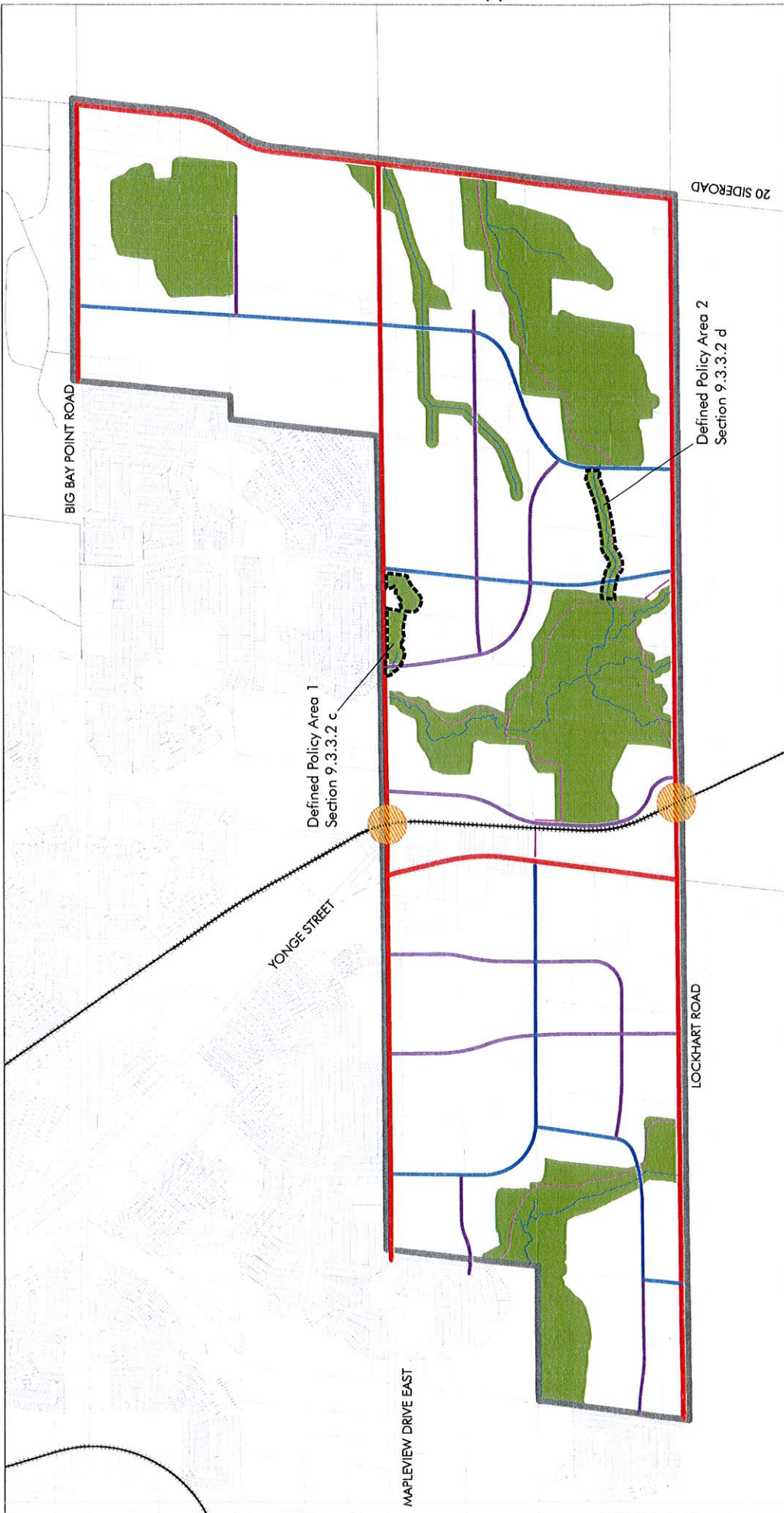
0 0.25 0.5 1 km

- City Boundary - Secondary Plan Boundary - Settlement Area Boundary - Existing Parcel Fabric - Railway - Stream	- Existing and Proposed Roads - Pathway System - Geotechnical Study Area - Waste Disposal Assessment Area - Stormwater Management Facility - Stormwater Management Facility (Optional)	- Natural Heritage System - Residential Area - Med/High Density Residential Area - Yonge Street Mixed Use Corridor - Neighbourhood Mixed Use Node	- Special Rural Area - Defined Policy Area - Secondary School - Recreation Centre/Community Park/School - School/Neighbourhood Park Area - Village Square
---	---	--	--

60A



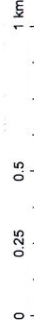
101



Schedule 9D-2
Street Widening Plan

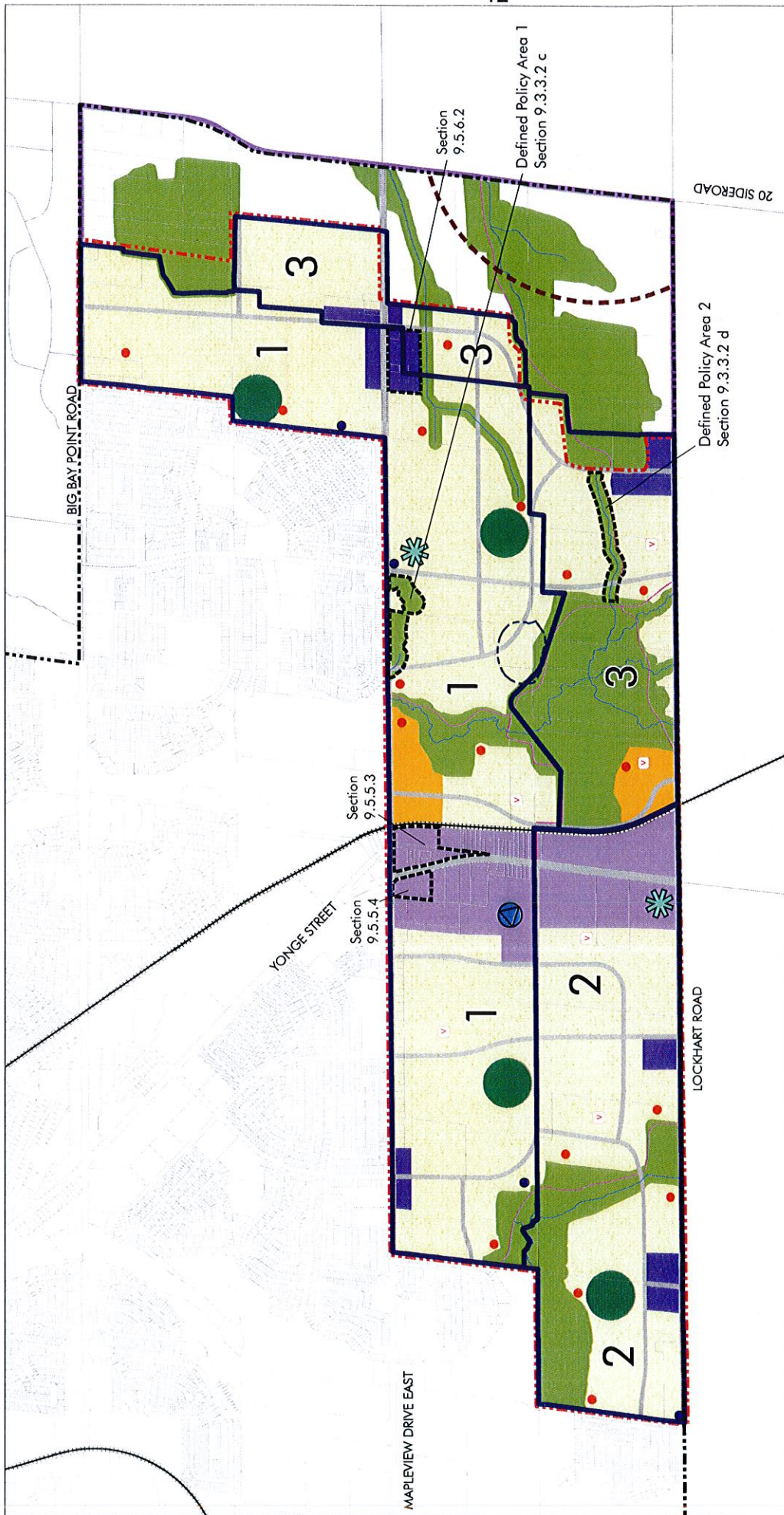
City of Barrie
Hewitt's Secondary Plan

July 2015



Maximum Width (m)
41
27
24

61



Schedule 9E

Development Phases

City of Barrie

Hewitt's Secondary Plan

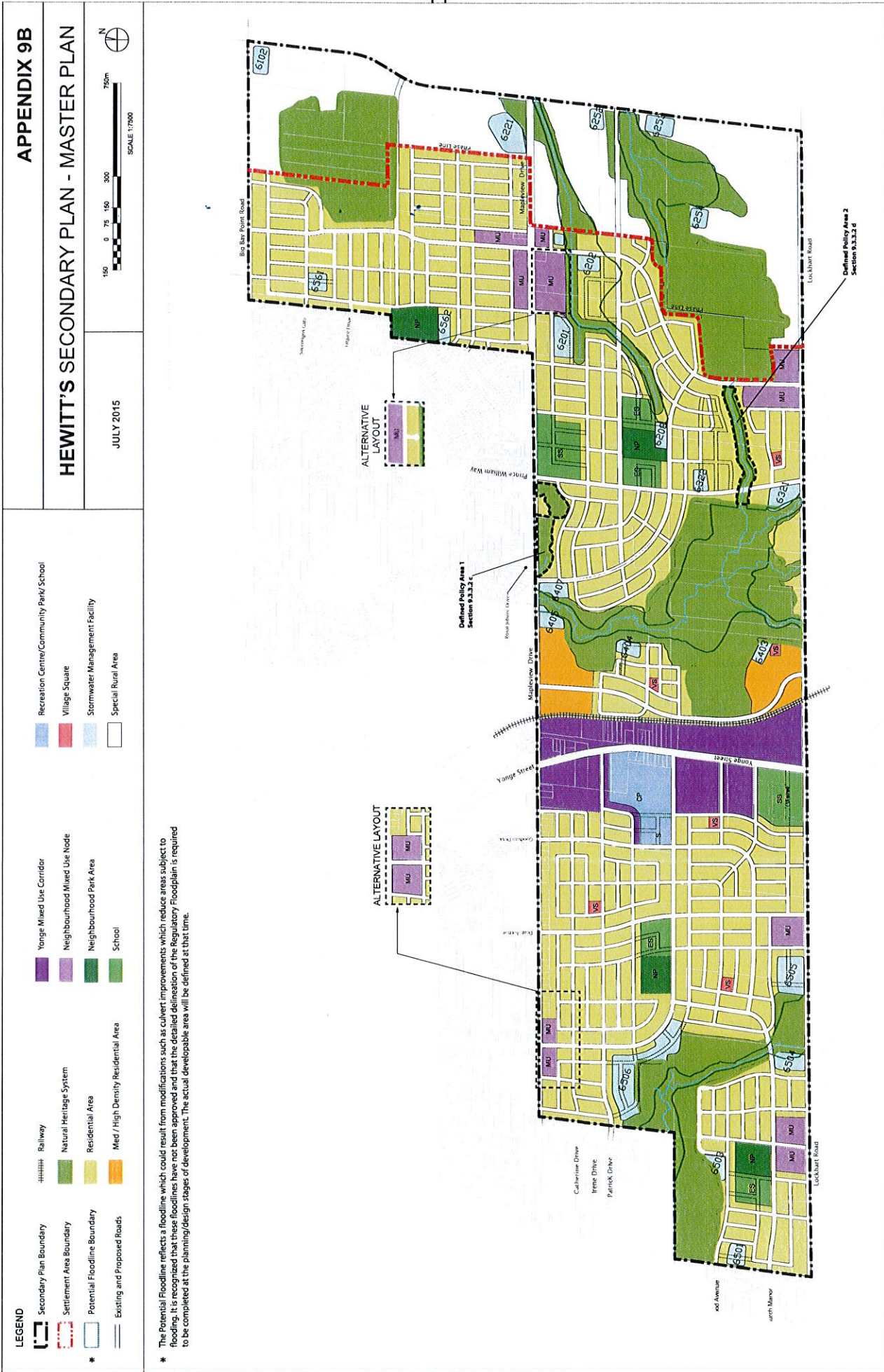
July 2015



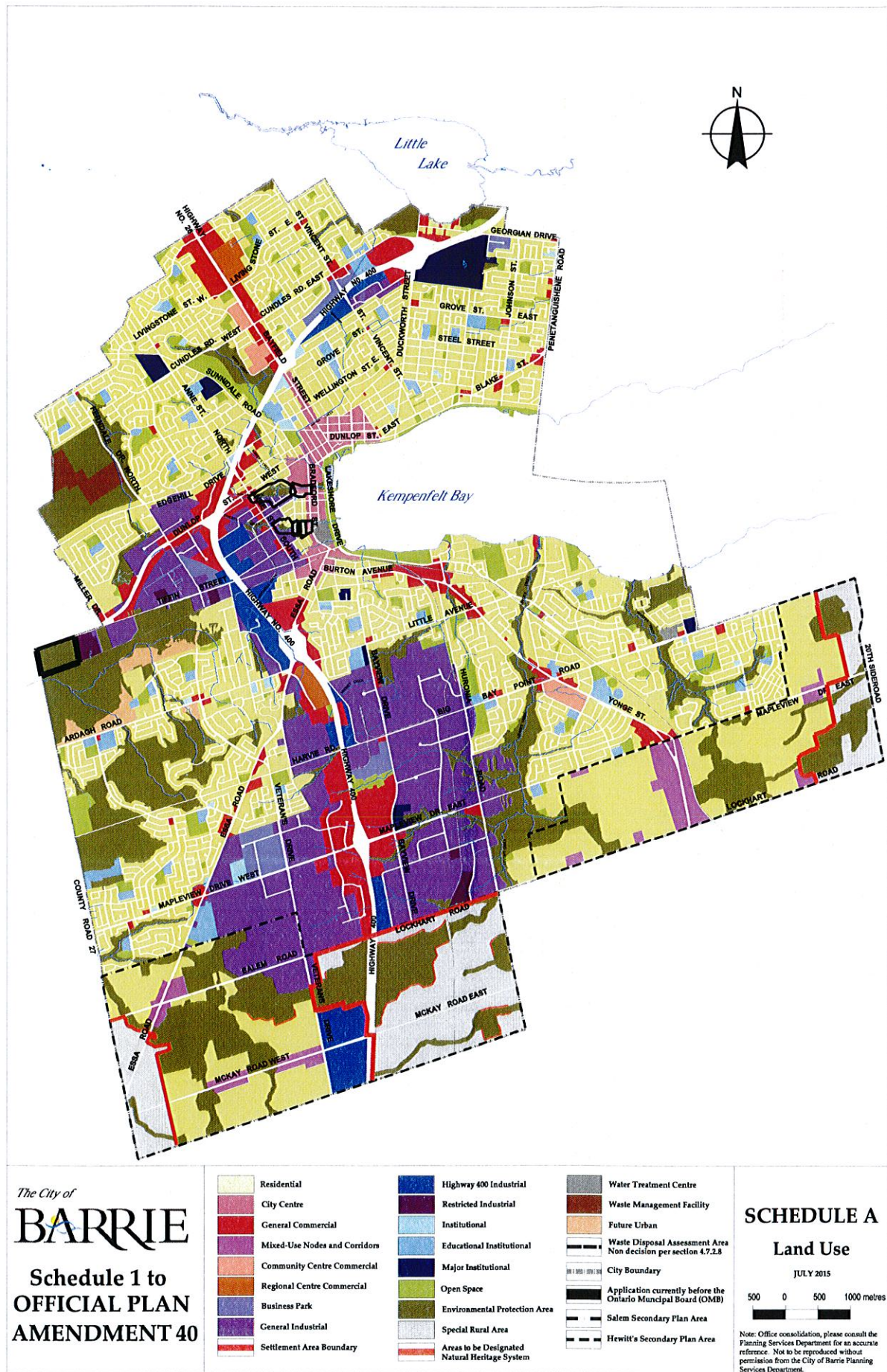
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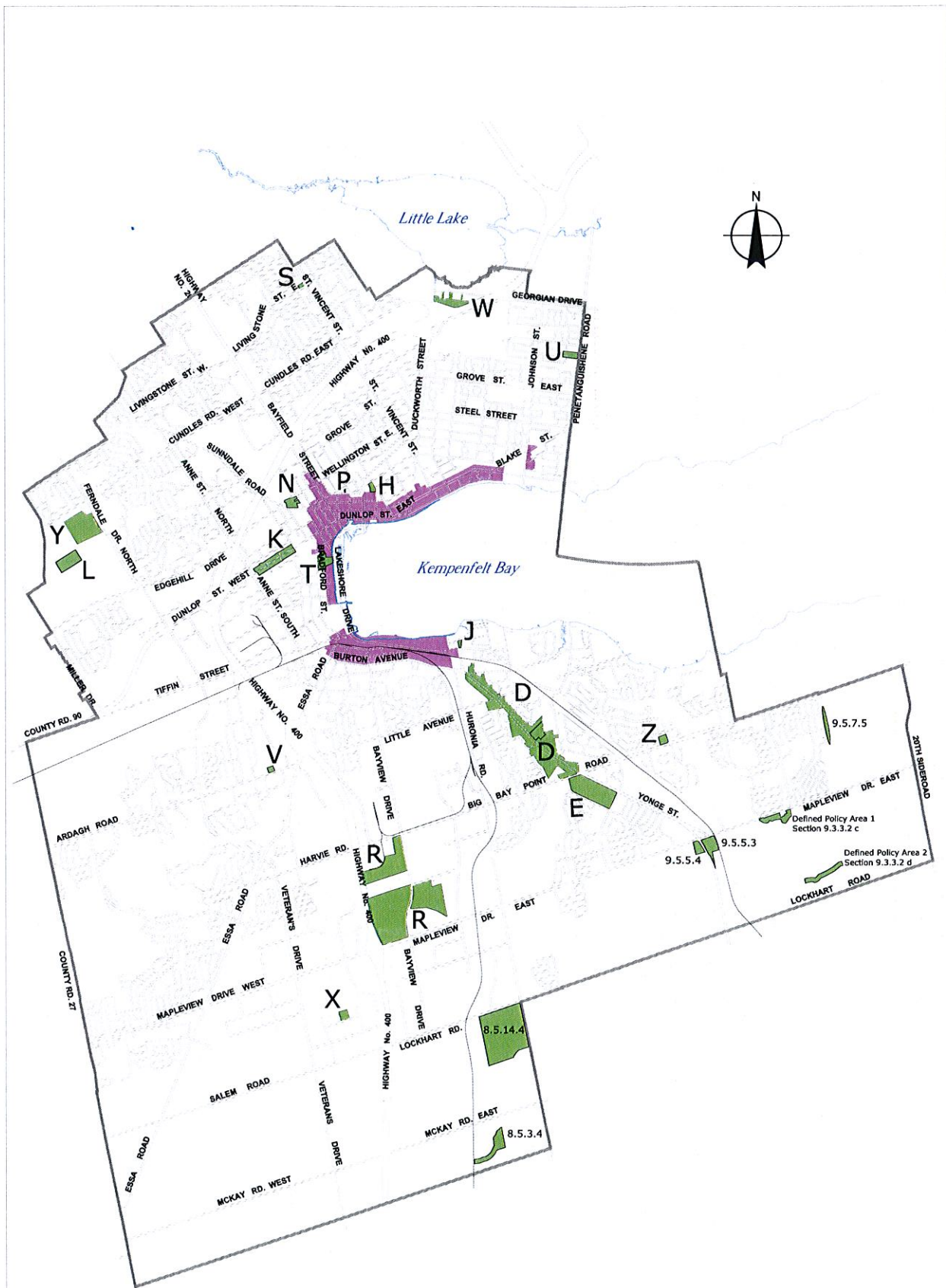
9A



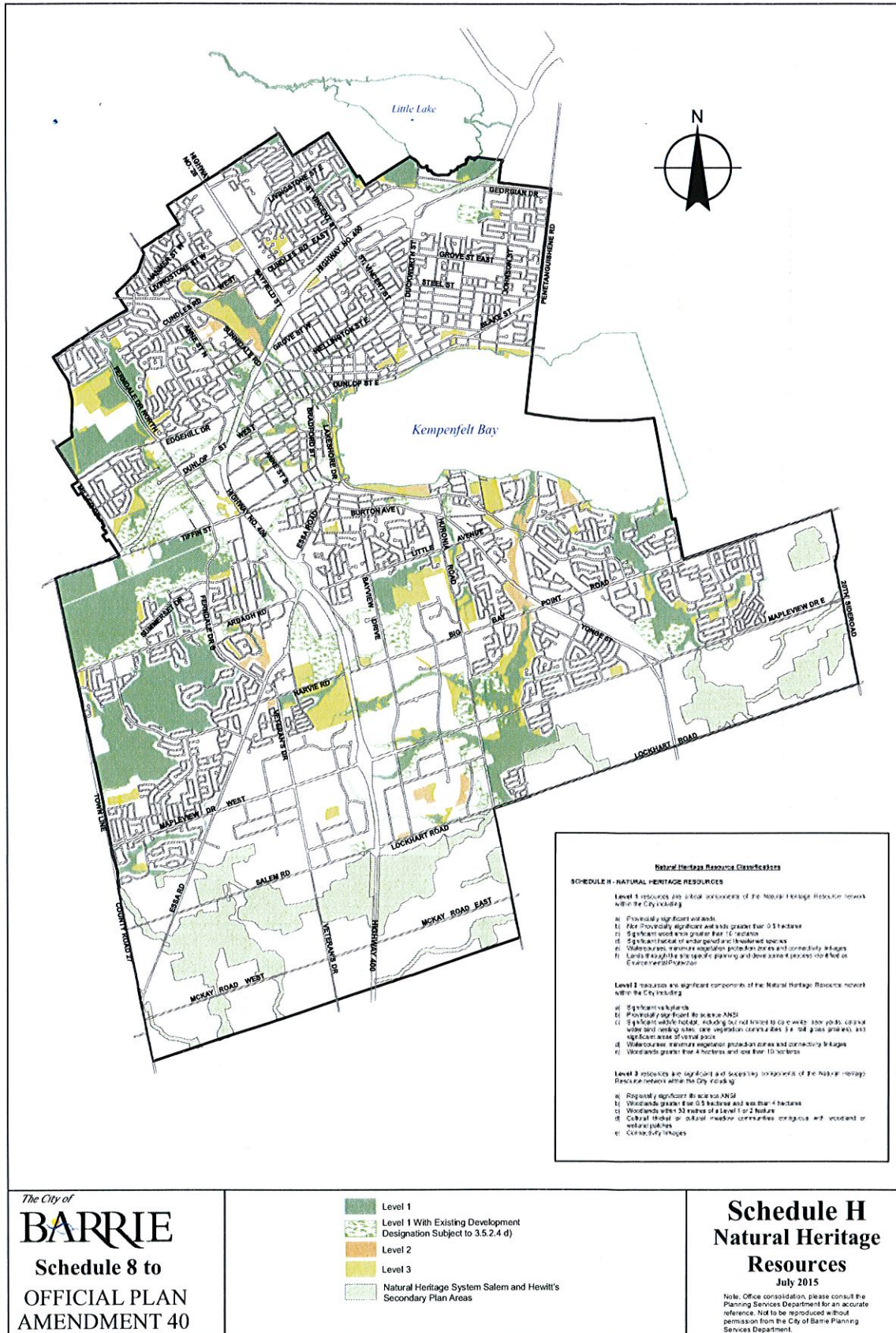
9



CSA



07



Schedule "C"

MEMORANDUM OF AGREEMENT

BETWEEN:

**CRISDAWN CONSTRUCTION INC.
("CRISDAWN")**

- and -

**THE CORPORATION OF THE CITY OF BARRIE
(the "CITY")**

In conjunction with the text and schedule modifications that form part of the resolution of Crisdawn Appeal #7, Crisdawn and the City (the "Parties") also agree, in relation to Area 2, that:

1. The Regulatory Floodlines for the 60m corridor as shown on Drawing FL1, attached as Schedule 1, define the approximate extent of floodplain within the corridor subject to detailed grading and final approved hydrologic and hydraulic calculations.
2. Floodplain storage calculations have been completed balancing system storage over the length of the corridor based on future land use compared to existing conditions. The floodplain storage calculations include fill to be placed within the existing floodplain for construction of the proposed north south collector roads.
3. The fill area will be developed for residential development.
4. On Drawing FL1, attached as Schedule 1, the typical section includes a 60 m corridor. The corridor will include a constructed low flow channel (with a geometry to be determined at detailed design), a 36 m +/- constructed meander belt, side slopes varying from 7(h):1(v) to 4(h):1(v) with an average of 5(h):1(v) and a 6m wide erosion access on both the north and south sides. The edge of the 60m corridor will define the setback from the Regulatory Floodline. The principles of natural channel and bio-engineering shall be considered in the final design of the constructed channel.
5. The detailed design of the channel shall generally conform to the geometry and configuration shown on Drawing FL1, attached as Schedule 1. This configuration will need to demonstrate that it can safely convey proposed Regulatory flows from the east.
6. The elevations along the edge of the corridor may be adjusted to facilitate grading on adjacent lands so long as these adjustments do not impact the Regulatory Floodline.
7. The design of the culvert(s) at the collector roads is to consider hydraulics, terrestrial passage and stream stability and is to be completed at the detailed design stage.

8. Subject to addressing the above requirements the City and LSRCA shall issue any required permits / approvals to allow for the construction of the channel within the 60m corridor and the placement of fill within the area designated residential.

IN WITNESS WHEREOF the Parties have executed this Memorandum of Agreement as of the date(s) indicated below:

Date: July 15, 2015

) **Crisdawn Construction Inc.**
)
)
)
)
)

) 
) _____
) **Per:** Don Rebert

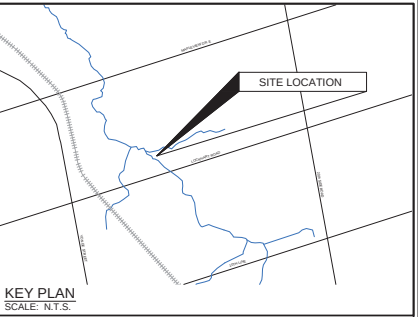
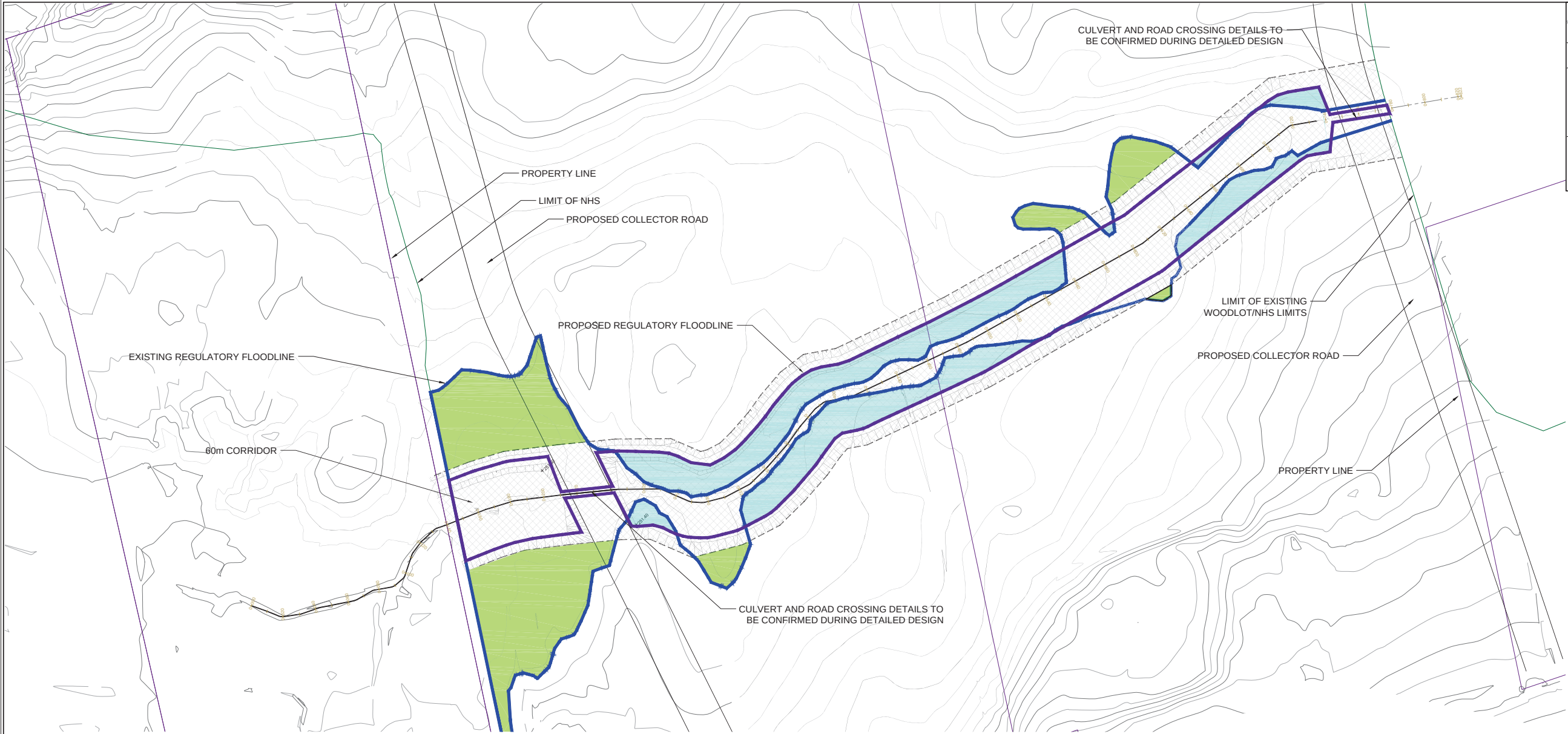
I have authority to bind the Corporation.

Date: July , 2015

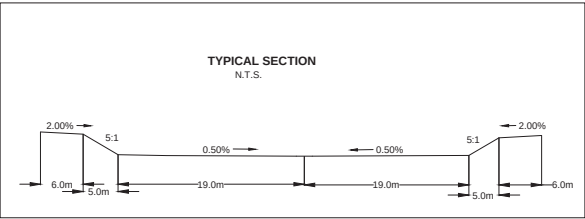
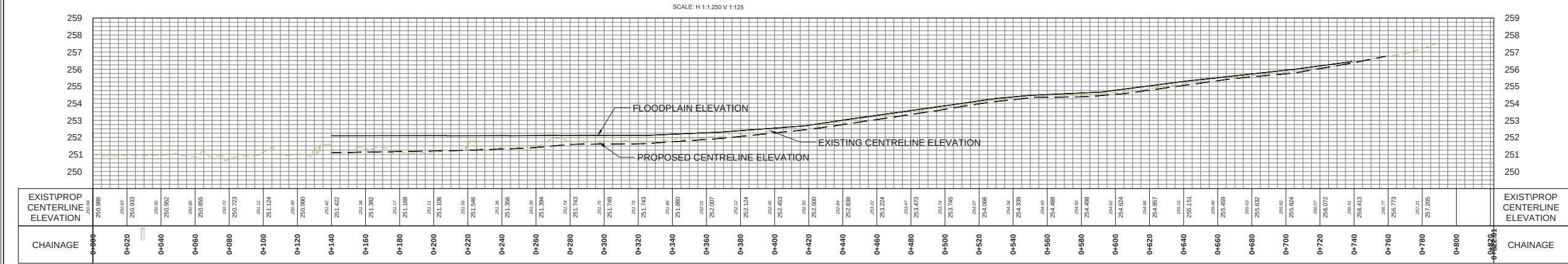
) **The Corporation of the City of Barrie**
)
)
)
)
)

) _____
) **Per: Jeff Lehman, Mayor**
)
)
)

) _____
) **Per: Dawn McAlpine, City Clerk**



- LEGEND**
- PRO. FLOODPLAIN LIMIT
 - EX. FLOODPLAIN LIMIT
 - 60m CORRIDOR
 - 60m CORRIDOR BETWEEN HEWITT'S CREEK & WOODLOT
 - FILL WITHIN EXISTING FLOODPLAIN
 - CUT TO CREATE ADDITIONAL FLOODPLAIN



- Notes:
- This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
 - The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
 - This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.

BURNSIDE
R.J. Burnside & Associates Limited
3 Ronell Crescent,
Collingwood, Ontario, L9Y 4J6
telephone (705) 446-0515
fax (705) 446-2399
web www.rjburnside.com

Client:
CHRIS DAWN
300-27 CLAPPERTON STREET
BARRIE, ON
L4M 3E6

Crossing Title:
HEWITT'S CREEK
AREA 2 FLOODPLAIN STORAGE COMPENSATION
CUT AND FILL ANALYSIS

Drawn CAS	Checked TRL	Designed CAS	Checked TRL	Date 15/07/06	Drawing No.
Project No. 300035595	Contract No.	Revision No. 0			FL1
Scale 1:1,250					

EAST ANNEXATION LANDS MAPVIEW DRIVE EAST

LEGEND



SUBJECT SITE



PROPOSED STORM SEWERS



DENOTES 100-YEAR
MAJOR SYSTEM FULL CAPTURE



28.0ha
I = 60%
DRAINAGE AREA
IMPERVIOUSNESS



26.52ha FROM 883 MAPVIEW
DRIVE EAST PROPOSED
SUBDIVISION



3.63ha OF EXISTING SANDY
COVE CREEK TO DRAIN TO
HEWITT'S CREEK DUE TO
GRADING CONSTRAINTS



7.53ha EXTERNAL DRAINAGE
AREA FROM REINO MAPVIEW
SOUTH DEVELOPMENT



1.19ha UNCONTROLLED
BACKYARD TO WATERCOURSE



0.99ha EXTERNAL DRAINAGE
AREA FROM AWAN GROUP
RESIDENTIAL DEVELOPMENT



7.30ha EXTERNAL DRAINAGE
AREA FROM MAPVIEW DR E
RAOD WIDENING AND
RESIDENTIAL SUBDIVISION
NORTH OF MAPVIEW DR E

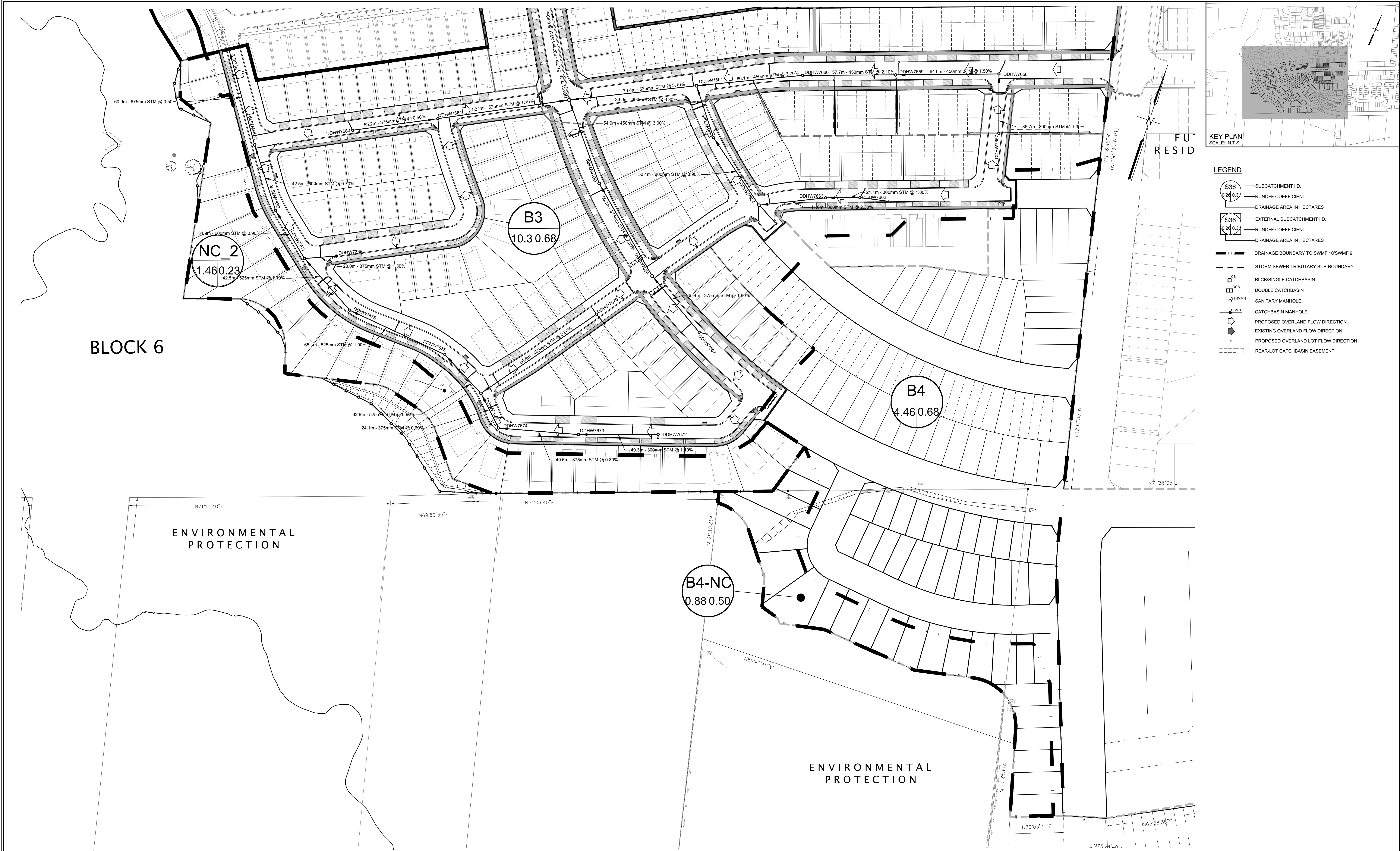


SCHAEFFERS
CONSULTING ENGINEERS

6 Ronrose Drive, Concord, Ontario L4K 4R3
Tel: (905) 738-6100 Email: general@schaeffers.com

www.schaeffers.com

FIGURE 2.3
MAJOR SYSTEM
STORM SERVICING PLAN



Notes

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- The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
- This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR FIRST SUBMISSION	23/01/09	SW

Drawn
MH

Checked
SW

Designed
MH

Checked
SW

Date
22/06/18

Project No.
055281

Contract No.
D12-426

Revision No.
0

Scale
1:1,000

Drawing No.

FIG2

NOT FOR CONSTRUCTION

Barrie
ENGINEERING DEPARTMENT

BURNSIDE

Client
PRATT CONSTRUCTION INC.
7862 YONGE STREET
INNSFILL, ON
L9S 1L5

Drawing Title
HEWITT'S GATE EAST PHASE B3
SWMF10/SWMF 9 DRAINAGE BOUNDARIES WITHIN B3 AND B4

Drawn	Checked	Designed	Checked	Date	Drawing No.
MH	SW	MH	SW	22/06/18	

Project No.
055281

Contract No.
D12-426

Revision No.
0

Scale
1:1,000



Appendix B

Drainage Design Sheets Supporting Calculation

- Storm Sewer Design Sheet
- Storm Land Use Breakdown
- Sanitary Sewer Design Sheet

STORM SEWER DESIGN - 5 YEAR DESIGN STORM - MINOR SYSTEM



Design flow in (m³/s) Q= C·I·A / 360
Site specific runoff coefficient C
Rainfall intensity (mm/hr) I = A/(T.C. + B) ^ C
function of the local intensity-duration data A= 843.019
function of the local intensity-duration data B= 4.582
function of the local intensity-duration data C= 0.763
Max. time of concentration (min) T.C.= 10
Drainage area (ha) A

Pipe capacity (m³/s) Q
Manning roughness value n=0.013
Cross sectional area of pipe (m²) A
Hydraulic Radius (m) R_h
Sewer pipe slope (m/m) S
Velocity of flow (m/s) V

Client: Pratt Construction Inc. (Bradley Homes)
Project: Hewitt's Central Subdivision
Address: -
File No: PRA-12160-BH-PH-3
Design: VBS
Check: MF/MG
Date: July 2024
Design sheet: DS-1



AREAS	Street	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
		FROM	TO		C	A	CA		TO	IN							
401	STREET I	STM 1	STM 2	82.0	0.66	0.20	0.13	0.13	10.00	1.41	109	0.040	0.50	300	0.068	1.0	58.2
	STREET I	STM 2	STM 3	28.6				0.13	11.41	0.49	102	0.037	0.50	300	0.068	1.0	54.2
402	STREET I	STM 3	STM 4	34.2	0.62	0.56	0.34	0.48	11.91	0.45	99	0.131	0.50	450	0.202	1.3	65.1
403	STREET I	STM 4	STM 5	42.5	0.64	0.33	0.21	0.69	12.36	0.56	97	0.186	0.50	450	0.202	1.3	92.3
	STREET I	STM 5	STM 6	23.3				0.69	12.91	0.31	95	0.182	0.50	450	0.202	1.3	90.1
404	STREET I	STM 6	STM 10	19.4	0.64	0.39	0.25	0.94	13.22	0.23	94	0.245	0.50	525	0.304	1.4	80.5
405	STREET H	STM 7	STM 8	11.0	0.63	0.26	0.16	0.16	10.00	0.19	109	0.050	0.50	300	0.068	1.0	72.8
	STREET H	STM 8	STM 9	74.9				0.16	10.19	1.29	108	0.049	0.50	300	0.068	1.0	72.1
406	STREET H	STM 9	STM 10	71.1	0.60	1.09	0.65	0.82	11.48	0.74	101	0.230	0.80	450	0.255	1.6	90.1
407	STREET H	STM 10	STM 11	54.9	0.61	0.33	0.20	1.96	13.45	0.55	93	0.505	0.50	675	0.594	1.7	84.9
	STREET H	STM 11	STM 12	32.9				1.96	14.00	0.33	91	0.493	0.50	675	0.594	1.7	83.0
408	STREET H	STM 12	STM 13	36.2	0.64	0.47	0.30	2.26	14.33	0.36	89	0.561	0.50	675	0.594	1.7	94.4
409	TERRY FOX DR	STM 14	STM 15	69.2	0.74	0.29	0.22	0.22	10.00	0.77	109	0.066	1.20	300	0.106	1.5	62.1
410	TERRY FOX DR	STM 15	STM 13	43.6	0.70	0.66	0.46	0.68	10.77	0.48	105	0.199	0.70	450	0.239	1.5	83.3
411	TERRY FOX DR	STM 13	STM 16	56.7	0.72	0.23	0.17	3.11	14.69	0.50	88	0.761	0.50	825	1.015	1.9	75.0
412	TERRY FOX DR	STM 16	STM 17	44.3	0.72	0.14	0.10	3.20	15.19	0.39	86	0.770	0.50	825	1.015	1.9	75.8
413	STREET E	STM 17	STM 24	22.9	0.74	0.25	0.19	3.39	15.58	0.20	85	0.803	0.50	825	1.015	1.9	79.1
414	STREET E	STM 24	STM 25	42.4	0.70	0.24	0.17	3.56	15.78	0.37	85	0.837	0.50	825	1.015	1.9	82.4
415	STREET E	STM 25	STM 26	38.4	0.67	0.19	0.13	3.69	16.15	0.34	83	0.856	0.50	825	1.015	1.9	84.3
416	STREET E	STM 26	STM 27	97.2	0.62	0.47	0.29	3.98	16.49	0.85	82	0.912	0.50	825	1.015	1.9	89.8
	STREET E	STM 27	STM 28	11.6				3.98	17.34	0.10	80	0.884	0.50	825	1.015	1.9	87.1
417	LALLY TERRACE	STM 18	STM 19	55.2	0.73	0.24	0.17	0.17	10.00	0.95	109	0.052	0.50	300	0.068	1.0	76.4
418	LALLY TERRACE	STM 19	STM 20	58.1	0.65	0.31	0.20	0.38	10.95	0.86	104	0.108	0.50	375	0.124	1.1	87.4
EXT.1					0.56	0.39	0.22										
419	LALLY TERRACE	STM 37	DDHW6665	59.3	0.50	0.56	0.28	0.50	10.00	0.78	109	0.151	0.50	450	0.202	1.3	75.0
EXT.2	BULUT AVENUE	DDSC6462	DDHW6665	95.9	0.62	0.98	0.61	0.61	10.00	1.26	109	0.185	0.50	450	0.202	1.3	91.6
	LALLY TERRACE	DDHW6665	STM 39	61.0				1.11	11.26	0.66	102	0.315	0.50	600	0.434	1.5	72.6
EXT.3	LALLY TERRACE				0.56	0.07	0.04										
420	LALLY TERRACE	STM 39	STM 20	42.9	0.46	0.35	0.16	1.31	11.92	0.47	99	0.360	0.50	600	0.434	1.5	83.0
EXT.4	LALLY TERRACE				0.56	0.19	0.10										
421	STREET F	STM 20	STM 22	98.7	0.63	0.92	0.58	2.36	12.39	0.92	97	0.638	0.50	750	0.787	1.8	81.0
422	STREET G	STM 21	STM 22	42.0	0.68	0.75	0.51	0.51	10.00	0.55	109	0.154	0.50	450	0.202	1.3	76.4
423	STREET F	STM 22	STM 23	70.1	0.56	0.65	0.36	3.24	13.31	0.62	93	0.839	0.50	825	1.015	1.9	82.6
424	STREET D	STM 23	STM 31	68.1	0.63	0.52	0.33	3.56	13.93	0.60	91	0.900	0.50	825	1.015	1.9	88.6
425	STREET D	STM 31	STM 32	75.2	0.68	0.18	0.12	3.68	14.52	0.66	89	0.908	0.50	825	1.015	1.9	89.5
426	Blk.157-Ped.Conn	STM 46	STM 47	42.1	0.20	2.15	0.43	0.43	10.00	0.55	109	0.130	0.50	450	0.202	1.3	64.6
427	STREET D	STM 47	STM 32	13.1	0.74	0.07	0.06	0.49	10.55	0.17	106	0.143	0.50	450	0.202	1.3	70.9
428	STREET E	STM 32	STM 28	71.5	0.65	0.67	0.43	4.60	15.18	0.59	87	1.105	0.50	900	1.280	2.0	86.4
429	E SWM EASE / EL	STM 28	OGS 2	44.2	0.65	0.53	0.35	8.93	17.45	0.30	80	1.976	0.50	1,200	2.757	2.4	71.7
EAST FOREBAY	E SWM EASE / EL	OGS2	HW2	28.7				8.93	17.75	0.20	79	1.955	0.50	1,200	2.757	2.4	70.9

STORM SEWER DESIGN - 5 YEAR DESIGN STORM - MINOR SYSTEM																	
		Design flow in (m³/s)		Q= C·I·A / 360		Pipe capacity (m³/s)		Q		Client: Pratt Construction Inc. (Bradley Homes)							
		Site specific runoff coefficient		C		Manning roughness value		n=0.013		Project: Hewitt's Central Subdivision							
		Rainfall intensity (mm/hr)		I = A/(T.C. + B) ^ C		Cross sectional area of pipe (m²)		A		Address: -							
		function of the local intensity-duration data		A= 843.019		Hydraulic Radius (m)		R _h		File No: PRA-12160-BH-PH-3							
		function of the local intensity-duration data		B= 4.582		Sewer pipe slope (m/m)		S		Design: VBS							
		function of the local intensity-duration data		C= 0.763		Velocity of flow (m/s)		V		Check: MF/MG							
		Max. time of concentration (min)		T.C.= 10						Date: July 2024							
		Drainage area (ha)		A						Design sheet: DS-1							
AREAS	Street	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
		FROM	TO		C	A	CA		TO	IN							
EXT.5	FUT. LALLY TERRACE	MH 271	DDHW6669	25.5	0.64	0.53	0.34	0.34	10.00	0.38	109	0.103	0.50	375	0.124	1.1	82.8
EXT.6	FUT. GINSENG TRAIL				0.62	2.18	1.35										
EXT.7	P. WILLIAM WAY	MH 234	DDHW6669	93.1	0.72	1.05	0.76	2.11	10.00	0.74	109	0.640	0.80	675	0.752	2.1	85.1
EXT.8	LALLY TERRACE				0.56	0.58	0.33										
430	LALLY TERRACE	STM 40	DDHW6669	97.3	0.75	0.42	0.31	0.64	10.00	1.15	109	0.194	0.50	525	0.304	1.4	63.7
431	P. WILLIAM WAY	DDHW6669	STM 051	73.4	0.83	0.14	0.11	3.20	11.15	0.43	103	0.916	1.50	675	1.030	2.9	89.0
EXT.9	RIDGEHILL WAY	STM 050	STM 051	21.0	0.63	2.00	1.26	1.26	10.00	0.23	109	0.382	0.50	600	0.434	1.5	87.9
	P. WILLIAM WAY	STM 051	STM 042	13.1				4.46	11.58	0.10	101	1.250	0.60	900	1.402	2.2	89.2
SCH.N	FUT. SCHOOL	STM 044	STM 042	20.2	0.75	0.82	0.62	0.62	10.00	0.27	109	0.187	0.50	450	0.202	1.3	92.8
432	P. WILLIAM WAY / EL	STM 042	STM 043	100.0	0.80	0.29	0.23	5.31	11.68	0.75	100	1.481	0.50	1,050	1.931	2.2	76.7
SCH.S	FUT. SCHOOL	STM 041	STM 043	21.0	0.75	1.65	1.24	1.24	10.00	0.23	109	0.375	0.50	600	0.434	1.5	86.4
433	P. WILLIAM WAY / EL	STM 043	STM 036	47.8	0.75	0.27	0.20	6.75	12.43	0.36	97	1.819	0.50	1,050	1.931	2.2	94.2
434	P. WILLIAM WAY	STM 045	STM 036	78.1	0.76	0.37	0.28	0.28	10.00	1.50	109	0.084	0.30	375	0.096	0.9	87.6
435	STREET D / EL	STM 036	STM 038	42.8	0.70	0.33	0.23	7.26	12.78	0.29	95	1.925	0.50	1,200	2.757	2.4	69.8
436	STREET D / EL	STM 034	STM 038	42.2	0.68	0.42	0.28	0.28	10.00	0.63	109	0.086	0.50	375	0.124	1.1	69.3
	STREET D / EL	STM 038	OGS1	10.3				7.54	13.08	0.07	94	1.974	0.50	1,200	2.757	2.4	71.6
WEST FOREBAY	SWM / EL	OGS1	HW1	17.2				7.54	13.15	0.12	94	1.968	0.50	1,200	2.757	2.4	71.4
EL = ELLIPTICAL / EQUIVALENT DIAMETER TO CIRCULAR PIPES																	

	Project:	Hewitt's Central Subdivision	Date:	Jul-24
	File No.:	PRA-12160-BH-PH-3	Designed:	VBS
	Subject:	Land Use Breakdown	Checked:	MF
	Revisions:			

Storm Subcatchments

(As per Drawing STM-1 : Storm Subcatchment Area Plan)

areas in m²

formula

	Catchment Area			Pervious	Impervious		TOTAL		SWM parameters		
	STM-1	SWM-2		Grass	Building	Paved	Area	Runoff coef	IMP	XIMP	SAR
	401	102		738	563	689	1,989	0.66	62.9%	34.6%	45.0%
	402	102		2,320	2,184	1,055	5,559	0.62	58.3%	19.0%	67.4%
	403	102		1,303	1,450	569	3,321	0.64	60.8%	17.1%	71.8%
	404	102		1,560	1,411	977	3,948	0.64	60.5%	24.8%	59.1%
	405	102		1,063	822	722	2,606	0.63	59.2%	27.7%	53.3%
	406	102		4,761	4,049	2,051	10,860	0.60	56.2%	18.9%	66.4%
	407	102		1,429	1,212	649	3,290	0.61	56.6%	19.7%	65.1%
	408	102		1,844	1,752	1,097	4,692	0.64	60.7%	23.4%	61.5%
	409	102		770	794	1,367	2,931	0.74	73.7%	46.6%	36.7%
	410	102		2,080	2,467	2,095	6,642	0.70	68.7%	31.5%	54.1%
	411	102		668	698	956	2,322	0.72	71.2%	41.2%	42.2%
	412	102		403	384	568	1,354	0.72	70.3%	41.9%	40.3%
	413	102		663	678	1,194	2,535	0.74	73.9%	47.1%	36.2%
	414	102		759	762	917	2,438	0.70	68.9%	37.6%	45.4%
	415	102		696	480	767	1,943	0.67	64.2%	39.4%	38.5%
	416	102		1,954	1,837	903	4,694	0.62	58.4%	19.2%	67.0%
	417	102		651	440	1,272	2,362	0.73	72.5%	53.8%	25.7%
	418	102		1,165	904	1,050	3,118	0.65	62.6%	33.7%	46.3%
	419	102		3,172	82	2,355	5,609	0.50	43.5%	42.0%	3.4%
	420	102		2,162	59	1,235	3,456	0.46	37.4%	35.7%	4.5%
	421	102		3,724	2,520	2,916	9,160	0.63	59.3%	31.8%	46.4%
	422	102		2,599	3,052	1,827	7,478	0.68	65.2%	24.4%	62.6%
	423	102		3,225	2,321	950	6,496	0.56	50.4%	14.6%	71.0%
	424	102		2,122	1,879	1,167	5,169	0.63	58.9%	22.6%	61.7%
	425	102		603	634	542	1,779	0.68	66.1%	30.5%	53.9%
	426	102		20,425	645	430	21,500	0.20	5.0%	2.0%	60.0%
	427	102		201	29	516	746	0.74	73.1%	69.2%	5.3%
	428	102		2,517	2,932	1,215	6,664	0.65	62.2%	18.2%	70.7%
	429	102		2,012	1,588	1,723	5,323	0.65	62.2%	32.4%	48.0%
	430	105		1,044	9	3,118	4,171	0.75	75.0%	74.8%	0.3%
	431	105		211	0	1,170	1,381	0.83	84.8%	84.8%	0.0%
	432	105		550	165	2,185	2,899	0.80	81.0%	75.4%	7.0%
	433	105		677	495	1,499	2,670	0.75	74.7%	56.1%	24.8%
	434	105		857	440	2,357	3,653	0.76	76.5%	64.5%	15.7%
	435	105		1,035	986	1,240	3,261	0.70	68.3%	38.0%	44.3%
	436	105		1,423	1,522	1,223	4,168	0.68	65.9%	29.3%	55.4%
	SCH.N	105		2,057	2,469	3,703	8,229	0.75	75.0%	45.0%	40.0%
	SCH.S	105		4,125	4,950	7,425	16,500	0.75	75.0%	45.0%	40.0%
	EXT.1	101		1,948	1,948	0	3,896	0.56	50.0%	0.0%	100.0%
	EXT.2	101		4,046	3,941	1,836	9,823	0.62	58.8%	18.7%	68.2%
	EXT.3	101		362	362	0	723	0.56	50.0%	0.0%	100.0%
	EXT.4	101		926	926	0	1,852	0.56	50.0%	0.0%	100.0%
	EXT.5	103		2,050	1,673	1,571	5,294	0.64	61.3%	29.7%	51.6%
	EXT.6	103		9,207	9,318	3,323	21,848	0.62	57.9%	15.2%	73.7%
	EXT.7	104		3,050	2,476	4,986	10,512	0.72	71.0%	47.4%	33.2%
	EXT.8	104		2,915	2,915	0	5,829	0.56	50.0%	0.0%	100.0%
	EXT.9	103		8,128	6,569	5,284	19,981	0.63	59.3%	26.4%	55.4%
	EXT.10	205		1,762	1,998	468	4,228	0.62	58.3%	11.1%	81.0%
	SWM	106		23,830	1,695	481	26,006	0.23	8.4%	1.9%	77.9%
	Total			137,790	83,479	75,639	296,908				

	Project:	Hewitt's Central Subdivision	Date:	Jul-24
	File No.:	PRA-12160-BH-PH-3	Designed:	VBS
	Subject:	Land Use Breakdown	Checked:	MF
	Revisions:			

Overall Catchments

(As per Drawing SWM-2: Post-Development Drainage Area Plan)

areas in m²

formula

	Catchment Area			Pervious	Impervious		TOTAL		SWM parameters		
SIS	Type	SWM-2		Grass	Building	Paved	Area	Runoff_coef	IMP	XIMP	SAR
9	Controlled	101		7,282	7,176	1,836	16,294	0.60	55.3%	11.3%	79.6%
9	Controlled	102		67,587	38,626	33,771	139,984	0.57	51.7%	24.1%	53.4%
9	Controlled	103		19,385	17,560	10,177	47,123	0.63	58.9%	21.6%	63.3%
9	Controlled	104		5,965	5,390	4,986	16,341	0.66	63.5%	30.5%	51.9%
9	Controlled	105		11,978	11,034	23,919	46,932	0.75	74.5%	51.0%	31.6%
9	Controlled	106		23,830	1,695	481	26,006	0.23	8.4%	1.9%	77.9%
Conveyed to SWMF #9			Subtotal	136,027	81,481	75,171	292,680	0.58	53.5%	25.7%	52.0%
8A,8C,9A	Uncontrolled	201		9,780	0	0	9,780	0.16	0.0%	0.0%	0.0%
8A,8C,9A	Uncontrolled	202		730	0	0	730	0.16	0.0%	0.0%	0.0%
8A,8C,9A	Uncontrolled	203		5,033	0	0	5,033	0.16	0.0%	0.0%	0.0%
8A,8C,9A	Uncontrolled	204		4,315	0	0	4,315	0.16	0.0%	0.0%	0.0%
			Subtotal	19,858	0	0	19,858	0.16	0.0%	0.0%	0.0%
Total Area for SIS Catchment 9			Total	155,885	81,481	75,171	312,538	0.56	50.1%	24.1%	52.0%
	External	205		1,762	1,998	468	4,228	0.62	58.3%	11.1%	81.0%
Development Area			Total	157,648	83,479	75,639	316,766	0.56	50.2%	23.9%	52.5%

Forebay - Water Quality Calculation, Sediment Stroage & Cleanout Calculation

	Catchment Area			Pervious	Impervious		TOTAL		SWM parameters		
				Grass	Building	Paved	Area	Runoff_coef	IMP	XIMP	SAR
	East forebay inlet - 101 ~ 102			74,869	45,802	35,607	156,278	0.57	52.1%	22.8%	56.3%
	West forebay inlet - 103 ~ 105			37,329	33,984	39,083	110,396	0.68	66.2%	35.4%	46.5%
			Total	112,197	79,787	74,690	266,674	0.62	57.9%	28.0%	51.6%

TSS & TP - Water Quality Calculation

	Catchment Area			Pervious	Impervious		TOTAL		SWM parameters		
	TSS & TP			Grass	Building	Paved	Area	Runoff_coef	IMP	XIMP	SAR
	SWMF			136,027	81,481	75,171	292,680	0.58	53.5%	25.7%	52.0%
	REAR YARD			19,858	0	0	19,858	0.16	0.0%	0.0%	0.0%
			Total	155,885	81,481	75,171	312,538	0.56	50.1%	24.1%	52.0%

SANITARY SEWER DESIGN - LOCAL SEWER																											
Development Details Basis																											
 		Numbers in blue or text in red are equations (Harmon or Babbitt peaking factor where; M ≥ 2), the greater of the two is used in the spreadsheet. Please refer to Section 3.3.1.1 of the Barrie Sanitary Design Guidelines for additional guidance on which peaking factor to use. (Peak population flow where; q = 225 L/day/person; P = population in thousands) (Peak extraneous flow: I= 0.1L/s/ha over development area) (Total peak flow as the sum of peak population flow and peak extraneous flow) See Note 1.										$n \geq 0.013$ $M = 5/P^{0.2}$ Babbitt $M=1+[14/(4+P^{0.5})]$ Harmon $Q_p = P*q*M/86.4$ $Q_i = I*A$ $Q_{tot} = Q_p + Q_i$ $Q_{commercial}=28m^3/ha/day$					FILE NO PRA-12160-BH-PH-3 CLIENT Pratt Construction Inc. (Bradley Homes) PROJECT Hewitt's Central Subdivision DATE July 2024 CALCULATED BY VBS CHECKED BY MF										
		AREA	STREET	MAINTENANCE HOLE		DWELL UNITS	DWELL (ACC) UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR BABBIT	M PEAKING FACTOR HARMON	Max PEAKING FACTOR	Q_p (l/s)	AREA (ha)	AREA (ACC) (ha)	Q_i (l/s)	Q_{tot} (l/s)	L (m)	D (mm)	S (%)	Q_f FULL (l/s)	d/D ⁽²⁾	d/D ⁽³⁾ <0.5 or <0.7	Velocity FULL (m/s)	Velocity Partial ⁽¹⁾ (m/s)	Velocity ⁽⁴⁾ > 0.6 (m/s)
				FROM	TO																						
2	-	STREET 'H'	SAN 1A	SAN 2A	4	4	3.13	13	13	12.007	4.405	12.007	0.391	0.19	0.19	0.019	0.410	32.0	200	2.00	46.384	0.066	Ok	1.476	0.450	Check	
3	-	STREET 'H'	SAN 2A	SAN 3A	10	14	3.13	31	44	9.346	4.326	9.346	1.067	0.44	0.63	0.063	1.130	70.6	200	1.90	45.210	0.108	Ok	1.439	0.595	Ok	
4	-	STREET 'H'	SAN 3A	SAN 4A	2	16	3.13	6	50	9.100	4.315	9.100	1.187	0.18	0.81	0.081	1.268	14.4	200	1.80	44.004	0.116	Ok	1.401	0.604	Ok	
5	-	STREET 'H'	SAN 4A	SAN 5A	12	28	3.13	38	88	8.136	4.259	8.136	1.857	0.56	1.37	0.137	1.994	78.4	200	1.20	35.929	0.159	Ok	1.144	0.601	Ok	
6	-	STREET 'H'	SAN 5A	SAN 6A	11	39	3.13	34	122	7.615	4.219	7.615	2.421	0.55	1.92	0.192	2.613	69.0	200	1.00	32.798	0.190	Ok	1.044	0.609	Ok	
7A	-	STREET 'I'			3		3.13	9																			
7B	-	STREET 'I'	SAN 2A	SAN 7A	12	15	2.34	28	37	9.643	4.338	9.643	0.941	0.53	0.53	0.053	0.994	85.2	200	2.00	46.384	0.101	Ok	1.476	0.585	Check	
8A	-	STREET 'I'			2		3.13	6																			
8B	-	STREET 'I'	SAN 7A	SAN 8A	5	22	2.34	12	55	8.917	4.305	8.917	1.287	0.27	0.80	0.080	1.367	29.4	200	1.70	42.764	0.122	Ok	1.361	0.609	Ok	
9A	-	STREET 'I'			1		3.13	3																			
9B	-	STREET 'I'	SAN 8A	SAN 9A	6	29	2.34	14	73	8.449	4.279	8.449	1.597	0.22	1.02	0.102	1.699	35.0	200	1.40	38.808	0.142	Ok	1.235	0.606	Ok	
10A	-	STREET 'I'			2		3.13	6																			
10B	-	STREET 'I'	SAN 9A	SAN 10A	6	37	2.34	14	93	8.042	4.252	8.042	1.946	0.38	1.40	0.140	2.086	43.7	200	1.20	35.929	0.163	Ok	1.144	0.610	Ok	
11	-	STREET 'I'	SAN 10A	SAN 11A	1	38	3.13	3	96	7.989	4.248	7.989	1.998	0.11	1.51	0.151	2.149	24.3	200	1.20	35.929	0.165	Ok	1.144	0.615	Ok	
12	-	STREET 'I'	SAN 11A	SAN 6A		38			96	7.989	4.248	7.989	1.998	0.02	1.53	0.153	2.151	17.1	200	3.30	59.581	0.129	Ok	1.897	0.875	Ok	
13	-	STREET 'H'	SAN 6A	SAN 12A	6	83	3.13	19	237	6.669	4.120	6.669	4.114	0.29	3.74	0.374	4.488	52.1	200	0.70	27.441	0.273	Ok	0.873	0.627	Ok	
14	-	STREET 'H'	SAN 12A	SAN 13A	4	87	3.13	13	249	6.601	4.112	6.601	4.287	0.32	4.06	0.406	4.693	32.1	200	0.60	25.406	0.291	Ok	0.809	0.601	Ok	
15	-	STREET 'H'	SAN 13A	SAN 14A		87			249	6.601	4.112	6.601	4.287	0.06	4.12	0.412	4.699	38.2	200	0.60	25.406	0.291	Ok	0.809	0.601	Ok	
16	-	TERRY FOX DR	EX.SAN 20A	SAN 15A	10	10	2.34	23	23	10.596	4.371	10.596	0.646	0.38	0.38	0.038	0.684	70.6	200	2.00	46.384	0.084	Ok	1.476	0.522	Check	
17	-	TERRY FOX DR	SAN 15A	SAN 14A	24	34	2.34	56	80	8.295	4.269	8.295	1.719	0.76	1.14	0.114	1.833	101.6	200	1.30	37.396	0.150	Ok	1.190	0.602	Ok	
18	-	TERRY FOX DR	SAN 16A	SAN 17A	5	5	2.34	12	12	12.171	4.408	12.171	0.371	0.18	0.18	0.018	0.389	26.6	200	2.00	46.384	0.064	Ok	1.476	0.441	Check	
19	-	TERRY FOX DR	SAN 17A	SAN 18A	11	16	2.34	26	37	9.645	4.339	9.645	0.940	0.36	0.54	0.054	0.994	47.6	200	2.00	46.384	0.101	Ok	1.476	0.585	Check	
20A	-	TERRY FOX DR			3		3.13	9																			
20B	-	TERRY FOX DR	SAN 18A	SAN 14A	6	25	2.34	14	61	8.752	4.297	8.752	1.387	0.42	0.96	0.096	1.483	59.4	200	1.60	41.487	0.129	Ok	1.321	0.610	Ok	
21	-	STREET 'G'	SAN 14A	SAN 22A	3	149	2.34	7	397	6.015	4.024	6.015	6.216	0.14	6.36	0.636	6.852	41.0	200	0.50	23.192	0.372	Ok	0.738	0.625	Ok	
22	-	STREET 'G'	SAN 22A	SAN 23A	14	163	2.34	33	430	5.920	4.007	5.920	6.624	0.42	6.78	0.678	7.302	47.7	200	0.50	23.192	0.385	Ok	0.738	0.636	Ok	
23	-	STREET 'G'	SAN 23A	SAN 24A	4	167	2.34	9	439	5.895	4.003	5.895	6.739	0.14	6.92	0.692	7.431	40.2	200	0.50	23.192	0.389	Ok	0.738	0.640	Ok	
24A	-	STREET 'F'			1		3.13	3																			
24B	-	STREET 'F'	SAN 21A	SAN 24A	20	21	2.34	47	50	9.105	4.315	9.105	1.184	0.61	0.61	0.061	1.245	93.7	200	2.00	46.384	0.112	Ok	1.476	0.629	Ok	
25A	-	STREET 'F'			4		3.13	13																			
25B	-	STREET 'F'	SAN 24A	SAN 25A	8	200	2.34	19	520	5.698	3.965	5.698	7.719	0.42	7.95	0.795	8.514	70.4	200	0.40	20.744	0.446	Ok	0.660	0.611	Ok	
26	-	STREET 'D'	SAN 25A	SAN 32A	3	203	2.34	7	527	5.683	3.962	5.683	7.802	0.11	8.06	0.806	8.608	33.4	250	0.40	37.611	0.325	Ok	0.766	0.604	Ok	
27	-	STREET 'D'	SAN 32A	SAN 33A	32	235	2.34	75	602	5.534	3.931	5.534	8.676	0.79	8.85	0.885	9.561	110.0	250	0.40	37.611	0.343	Ok	0.766	0.622	Ok	
28A	-	STREET 'F'			1		3.13	3																			
28B	-	STREET 'F'	SAN 25A	SAN 26A	4	5	2.34	9	12	12.013	4.405	12.013	0.391	0.18	0.18	0.018	0.409	35.9	200	2.00	46.384	0.066	Ok	1.476	0.450	Check	
29	-	STREET 'F'	SAN 26A	SAN 28A	2	7	2.34	5	17	11.272	4.389	11.272	0.504	0.08	0.26	0.026	0.530	31.6	200	2.00	46.384	0.075	Ok	1.476	0.484	Check	

SANITARY SEWER DESIGN - LOCAL SEWER																											
Development Details Basis																											
 		Numbers in blue or text in red are equations (Harmon or Babbitt peaking factor where; M ≥ 2), the greater of the two is used in the spreadsheet. Please refer to Section 3.3.1.1 of the Barrie Sanitary Design Guidelines for additional guidance on which peaking factor to use. (Peak population flow where; q = 225 L/day/person; P = population in thousands) (Peak extraneous flow: I= 0.1L/s/ha over development area) (Total peak flow as the sum of peak population flow and peak extraneous flow) See Note 1.										$n \geq 0.013$ $M = 5/P^{0.2}$ Babbitt $M = 1 + [14/(4+P^{0.5})]$ Harmon $Q_p = P*q*M/86.4$ $Q_i = I*A$ $Q_{tot} = Q_p + Q_i$ $Q_{commercial} = 28m^3/ha/day$					FILE NO PRA-12160-BH-PH-3 CLIENT Pratt Construction Inc. (Bradley Homes) PROJECT Hewitt's Central Subdivision DATE July 2024 CALCULATED BY VBS CHECKED BY MF										
		AREA	STREET	MAINTENANCE HOLE		DWELL UNITS	DWELL (ACC) UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR BABBIT	M PEAKING FACTOR HARMON	Max PEAKING FACTOR	Q_p (l/s)	AREA (ha)	AREA (ACC) (ha)	Q_i (l/s)	Q_{tot} (l/s)	L (m)	D (mm)	S (%)	Q_f FULL (l/s)	d/D ⁽²⁾	d/D ⁽³⁾ <0.5 or <0.7	Velocity FULL (m/s)	Velocity Partial ⁽¹⁾ (m/s)	Velocity ⁽⁴⁾ > 0.6 (m/s)
				FROM	TO																						
30A	- STREET 'E'			1		3.13	3																				
30B	- STREET 'E'	SAN 27A	SAN 28A	4	5	2.34	9	12	12.013	4.405	12.013	0.391	0.21	0.21	0.021	0.412	44.1	200	2.00	46.384	0.066	Ok	1.476	0.450	Check		
31	- STREET 'E'	SAN 28A	SAN 29A	5	17	3.13	16	45	9.284	4.323	9.284	1.095	0.22	0.69	0.069	1.164	36.1	200	1.90	45.210	0.110	Ok	1.439	0.603	Ok		
32	- STREET 'E'	SAN 29A	SAN 30A	19	36	3.13	59	105	7.851	4.238	7.851	2.142	0.82	1.51	0.151	2.293	99.5	200	1.10	34.399	0.174	Ok	1.095	0.609	Ok		
33	- STREET 'E'	SAN 30A	SAN 31A	2	38	3.13	6	111	7.760	4.231	7.760	2.244	0.23	1.74	0.174	2.418	17.0	200	1.00	32.798	0.183	Ok	1.044	0.597	Ok		
34	- STREET 'E'	SAN 31A	SAN 33A	6	44	3.13	19	130	7.521	4.211	7.521	2.543	0.28	2.02	0.202	2.745	62.0	200	1.00	32.798	0.195	Ok	1.044	0.619	Ok		
35	- STREET 'D'	SAN 33A	SAN 34A	16	295	2.34	37	769	5.269	3.871	5.269	10.556	0.50	11.37	1.137	11.693	110.0	250	0.60	46.063	0.343	Ok	0.938	0.761	Ok		
36	- STREET 'D'	SAN 34A	SAN 35A	18	313	2.34	42	811	5.213	3.857	5.213	11.016	0.52	11.89	1.189	12.205	110.0	250	0.60	46.063	0.351	Ok	0.938	0.769	Ok		
37	- STREET 'D'	SAN 35A	SAH34422	4	317	2.34	9	821	5.201	3.854	5.201	11.118	0.15	12.04	1.204	12.322	47.1	250	0.60	46.063	0.353	Ok	0.938	0.772	Ok		
EXT.1	- PWW						3728						20.59														
EXT.2	- PWW	SAN 104A	SAH34423	228	228	2.34	534	4262	3.742	3.309	3.742	41.523	4.85	25.44	2.544	44.067	88.8	750	0.40	704.098	0.169	Ok	1.594	0.870	Ok		
TRUNK	- PWW	SAH34423	SAH34422		228			4262	3.742	3.309	3.742	41.523		25.44	2.544	44.067	98.0	750	0.40	704.098	0.169	Ok	1.594	0.870	Ok		
1	- PWW	SAH34423	SAH34422	8	8	3.13	25	25	10.453	4.367	10.453	0.682	0.60	0.60	0.060	0.742	98.0	200	2.00	46.384	0.088	Ok	1.476	0.530	Check		
38	- PWW	SAH34059	SAH34422	10	10	3.13	31	31	9.997	4.352	9.997	0.815	0.70	0.70	0.070	0.885	110.0	200	2.00	46.384	0.095	Ok	1.476	0.562	Check		
TRUNK	- PWW	SAH34422	SAH34059		563			5139	3.604	3.234	3.604	48.230		38.78	3.878	52.108	110.0	750	0.40	704.098	0.184	Ok	1.594	0.911	Ok		
40	- PWW	SAH34059	SAH34420		563			5139	3.604	3.234	3.604	48.230	0.13	38.91	3.891	52.121	51.4	750	0.40	704.098	0.184	Ok	1.594	0.911	Ok		
EXT.6	- RIDGEHILL WAY	MH (290)	SAH34420	29	29	3.13	91	91	8.079	4.255	8.079	1.910	1.62	1.62	0.162	2.072	73.3	200	1.20	35.929	0.162	Ok	1.144	0.605	Ok		
48	- PWW	SAH34420	SAH 34438		592			5229	3.592	3.227	3.592	48.910		40.53	4.053	52.963	68.2	750	0.40	704.098	0.185	Ok	1.594	0.914	Ok		
41	- Lally Terrace	SAN 15A	SAN 19A	1	1	3.13	3	3	15.844	4.452	15.844	0.129	0.20	0.20	0.020	0.149	68.3	200	2.00	46.384	0.041	Ok	1.476	0.317	Check		
42	- Lally Terrace	SAN 19A	SAN 20A	4	5	3.13	13	16	11.483	4.394	11.483	0.468	0.32	0.52	0.052	0.520	50.0	200	2.00	46.384	0.074	Ok	1.476	0.472	Check		
EXT.3	- Bullut Lands	EXTERNAL	SAN 20A	42	42	3.13	131	131	7.503	4.209	7.503	2.568	2.08	2.08	0.208	2.776	72.0	200	2.00	46.384	0.165	Ok	1.476	0.791	Ok		
43	- Lally Terrace	SAN 20A	SAN 21A	7	54	3.13	22	169	7.135	4.174	7.135	3.140	0.38	2.98	0.298	3.438	63.4	200	1.30	37.396	0.204	Ok	1.190	0.721	Ok		
44	- Lally Terrace	SAN 21A	SAN 37A	6	60	3.13	19	188	6.986	4.158	6.986	3.417	1.32	4.30	0.430	3.847	104.1	200	1.10	34.399	0.225	Ok	1.095	0.697	Ok		
EXT.4A	- Bullut Lands			12		3.13	38																				
EXT.4B	- Bullut Lands	EXTERNAL	SAN 37A	16	28	2.34	37	75	8.394	4.276	8.394	1.639	0.92	0.92	0.092	1.731	92.7	200	2.00	46.384	0.132	Ok	1.476	0.692	Ok		
45	- Lally Terrace	SAN 37A	SAN 38A	6	94	3.13	19	282	6.442	4.090	6.442	4.724	2.49	7.71	0.771	5.495	110.0	375	0.90	166.333	0.124	Ok	1.506	0.660	Ok		
46	- Lally Terrace	SAN 38A	SAN 39A	9	103	3.13	28	310	6.321	4.072	6.321	5.099	0.58	8.29	0.829	5.928	110.0	375	0.80	156.820	0.132	Ok	1.420	0.649	Ok		
Future Institutional Block. Area = 2.48ha; Commercial Flow = 28,000l/ha/day / Equivalent population ->												31	10.016	4.352	10.016	0.809											
INST	- Lally Terrace	STUB	SAN 39A									0.804	2.48	2.48	0.248	1.052	22.0	250	2.00	84.100	0.078	Ok	1.713	0.542	Check		
47	- Lally Terrace	SAN 39A	SAH 34438	3	106	3.13	9	350	6.168	4.049	6.168	5.624	0.29	11.06	1.106	6.730	82.0	375	0.80	156.820	0.141	Ok	1.420	0.668	Ok		
EXT.5A	- Lally Terrace	SAN 003	SAH 34438	13		3.13	41																				
EXT.5B	- PWW	SAN 003	SAH 34438	14	27	2.34	33	73	8.429	4.278	8.429	1.612	1.18	1.18	0.118	1.730	76.0	200	2.00	46.384	0.132	Ok	1.476	0.688	Ok		
TRUNK	- Lally Terrace	SAH 34438	EXTERNAL					5653	3.536	3.195	3.536	52.055		52.77	5.277	57.332	61.4	750	0.40	704.098	0.192	Ok	1.594	0.933	Ok		

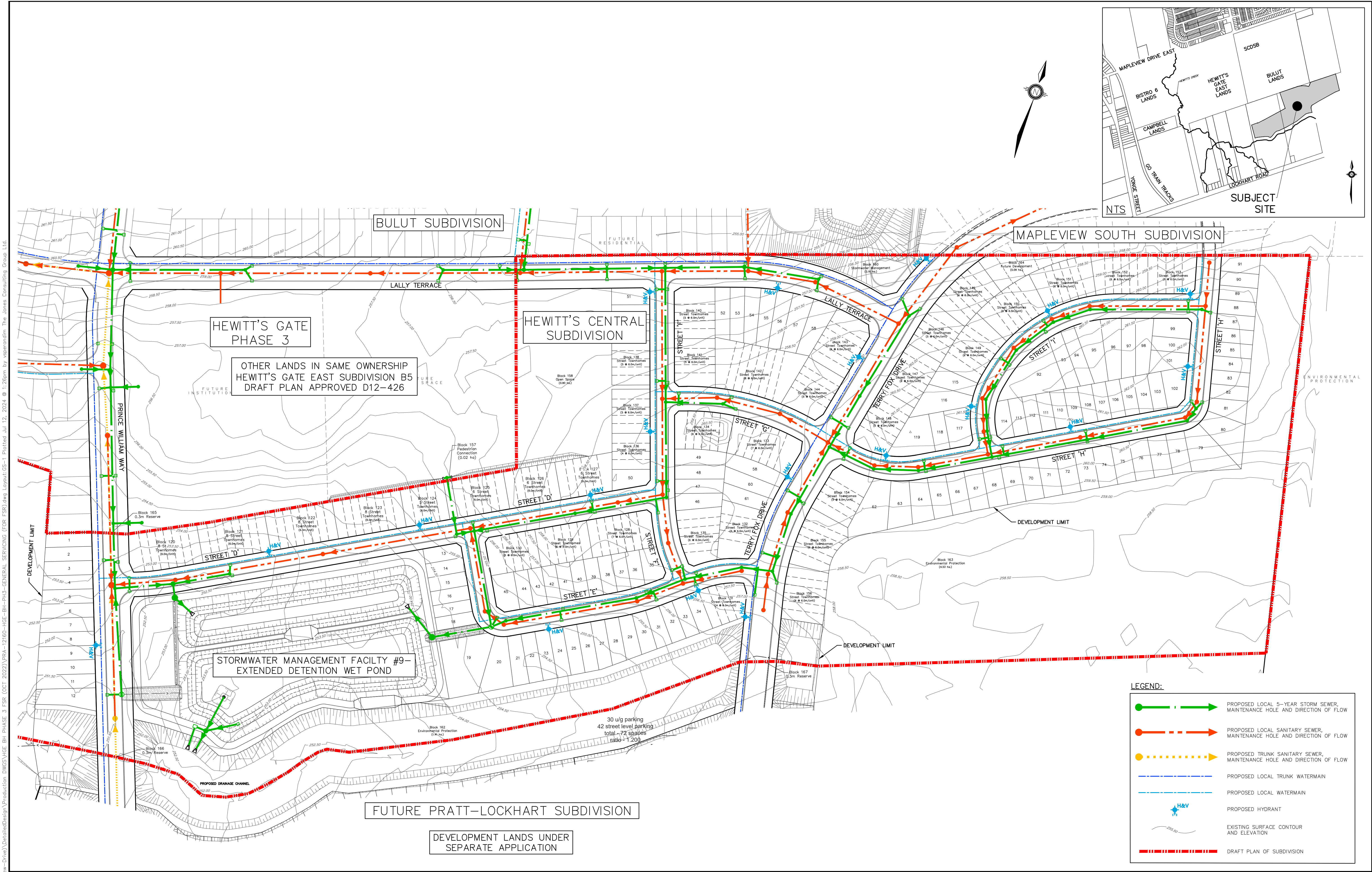
(1) without extraneous flow
(2) with extraneous flow
(3) $d/D < 0.5$ for pipes 375 and less, $d/D < 0.7$ for pipes greater than 375
(4) Velocity check based on the lesser of full flow or partial velocity
Numbers in Blue are cell formulas



Appendix C

Engineering Drawings

- GS-1 General Servicing Plan
- GP-1 to GP-2 Conceptual Grading Plans
- STM-1 Storm Subcatchment Area Plan
- SAN-1 Sanitary Subcatchment Area Plan
- DS-1 Storm Sewer Design Sheet
- DS-2 Sanitary Sewer Design Sheet
- SWM-1 Stormwater Management Plan Pre-Development Conditions
- SWM-2 Stormwater Management Plan Post-Development Conditions
SWMF 9 Drainage Area Plan
- PP-1 Profile Prince William Way Sta. 0+045 to Sta. 0+330
- PP-2 Profile Lally Terrace Sta. 0+060 to Sta. 0+240
- PP-3 Profile Lally Terrace Sta. 0+240 to Sta. 0+600
- PP-4 Profile Terry Fox Drive Sta. 0+400 to Sta. 0+795



G:\Eng_3D\PR-12160\Maplevue-Drive\DetailedDesign\Production DWG\HGE BH PHASE 3 FSR (OCT 2022)\PRA-12160-HGE-BH-PH3-General Servicing (FOR FSR).dwg Layout:CS-1 Plotted Jul 12, 2024 @ 1:26pm by vaseradm The Jones Consulting Group Ltd.

BENCHMARK:
BENCHMARK NO: 0101986454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE
E OVER LOWER'S CREEK, 0.60M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY
IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE
NORTHEAST END OF BRIDGE, 100M TOP OF CORNER. N491078.889 E507254.100
ELEV 241.861
BENCHMARK NO: 03120030029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER
DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE
FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON
THE SOUTHSIDE OF THE FLAGPOLE BASE. N491078.889 E507254.100
ELEV 248.996
BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE
BOULEVARD, APPROXIMATELY 1.02M WEST OF THE YONGE STREET AND HURONIA ROAD
INTERSECTION N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUL.2024	MF
1.	FSR SUBMISSION	DEC.2023	MF



PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

GENERAL SERVICING PLAN

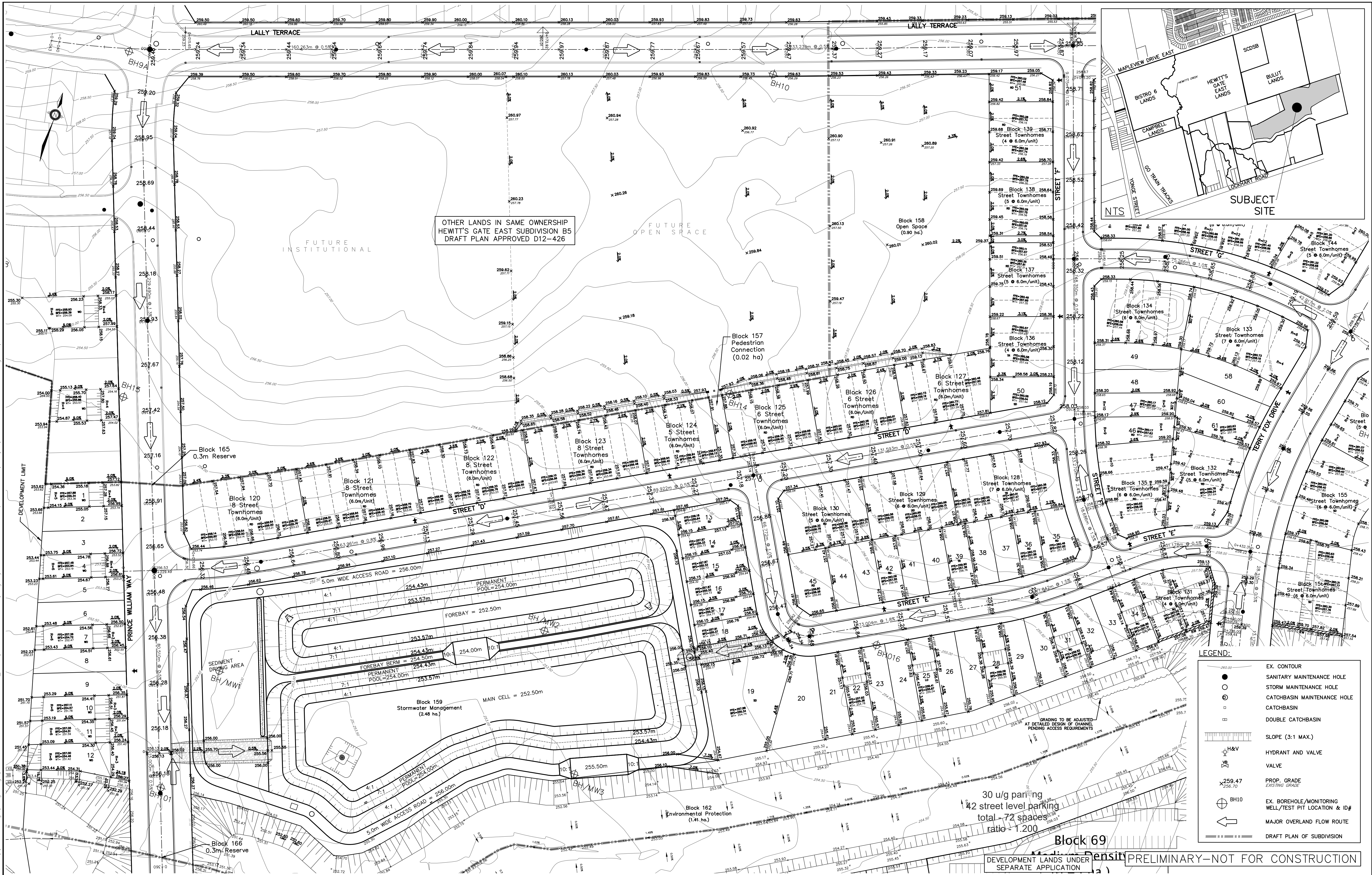
JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

DESIGN MF/KS
DRAWN KS
CHECKED DR

SCALE: 1:1250
PROJECT
PRA-12160

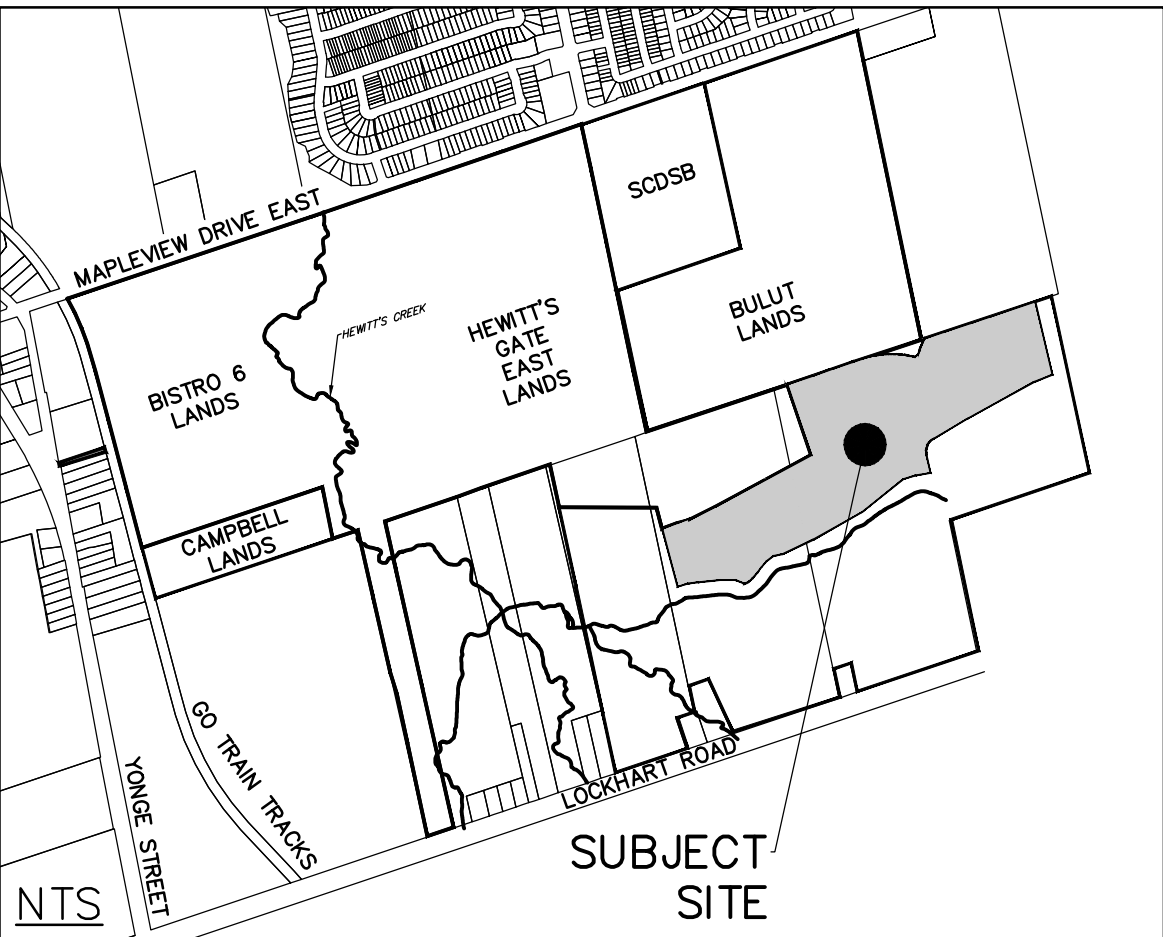
DATE AUGUST 2023
DWG. NO
GS-1

229 Mapleview Dr. E. Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056



BENCHMARK: BENCHMARK NO: 0101986454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOWER'S CREEK, 0.60M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF BRIDGE, 100M TOP OF CORNER. N491076.889 E507254.100 ELEV 241.861 BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON THE SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508 BENCHMARK NO: 0312008054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 14m EAST OF HURONIA ROAD. N491076.812 E507601.062 ELEV 248.996 BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.257 E608733.580 ELEV 252.807				4. SUBMISSION FOR DRAFT PLAN APPROVAL JUL.2024 MF							PRATT CONSTRUCTION INC. HEWITT'S CENTRAL SUBDIVISION		 JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS 229 Mapleview Dr. E, Unit 1 Barrie, ON L4N 0W5 P : 705.734.2538 F : 705.734.1056
3. FSR SUBMISSION DEC.2023 MF							CONCEPTUAL GRADING						
2. ISSUED TO LSA OCT.2023 DR													
1. ISSUED TO RJB HYDROGEOLOGICAL JUN.2023 DR													
NO. REVISIONS DATE INITIAL													

G:\Eng_3D\12160\Mapleview-Drive\Draws\PRA-12160-HGE-BH-PH3-Grading-Base (ADJUSTED 23-03-23)13.dwg Layout:GP-1 Plotted Jul 15, 2024 @ 3:21pm by vaspandrom The Jones Consulting Group Ltd.



LEGEND:	
	EX. CONTOUR
	SANITARY MAINTENANCE HOLE
	STORM MAINTENANCE HOLE
	CATCHBASIN MAINTENANCE HOLE
	CATCHBASIN
	DOUBLE CATCHBASIN
	SLOPE (3:1 MAX.)
	HYDRANT AND VALVE
	VALVE
	PROP. GRADE
	EX. BOREHOLE/MONITORING WELL/TEST PIT LOCATION & ID#
	MAJOR OVERLAND FLOW ROUTE
	DRAFT PLAN OF SUBDIVISION

PRELIMINARY—NOT FOR CONSTRUCTION

BENCHMARK:			
BENCHMARK NO. 01019885454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOWE'S CREEK, 0.60M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF THE FLAGPOLE BASE. N49101610 ELEV 250.508			
BENCHMARK NO. 03120030029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON THE SOUTHWEST CORNER OF THE FLAGPOLE BASE. N49101610 ELEV 250.508			
BENCHMARK NO. 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 14m EAST OF HURONIA ROAD. N49101610 ELEV 250.508			
BENCHMARK NO. 03120100113 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.00M WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N49009870.257 ELEV 252.807			
NO.	REVISIONS	DATE	INITIAL
4.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUL.2024	MF
3.	FSR SUBMISSION	DEC.2023	MF
2.	ISSUED TO LSA	OCT.2023	DR
1.	ISSUED TO RJB HYDROGEOLOGICAL	JUN.2023	DR



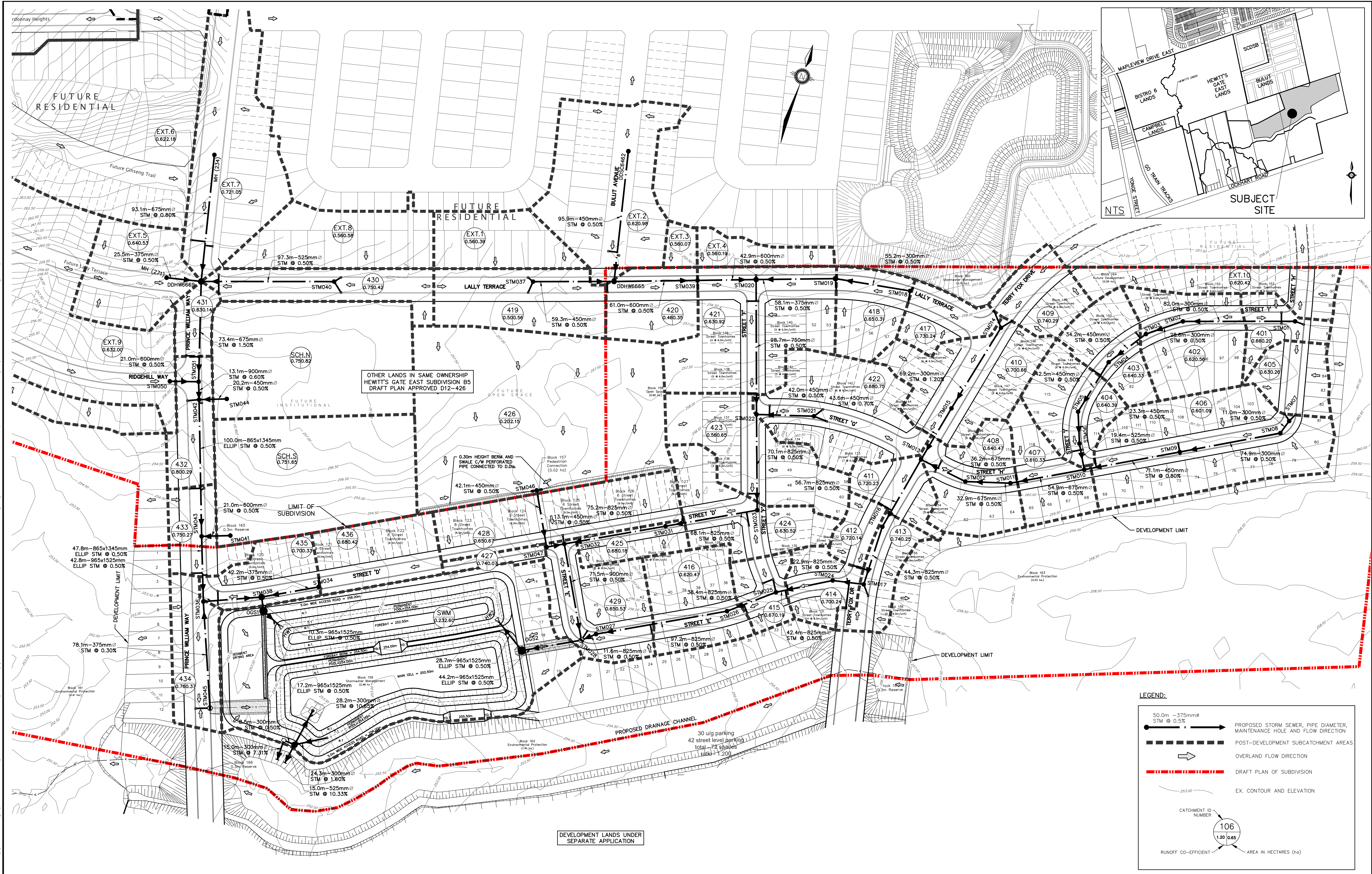
PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

CONCEPTUAL GRADING



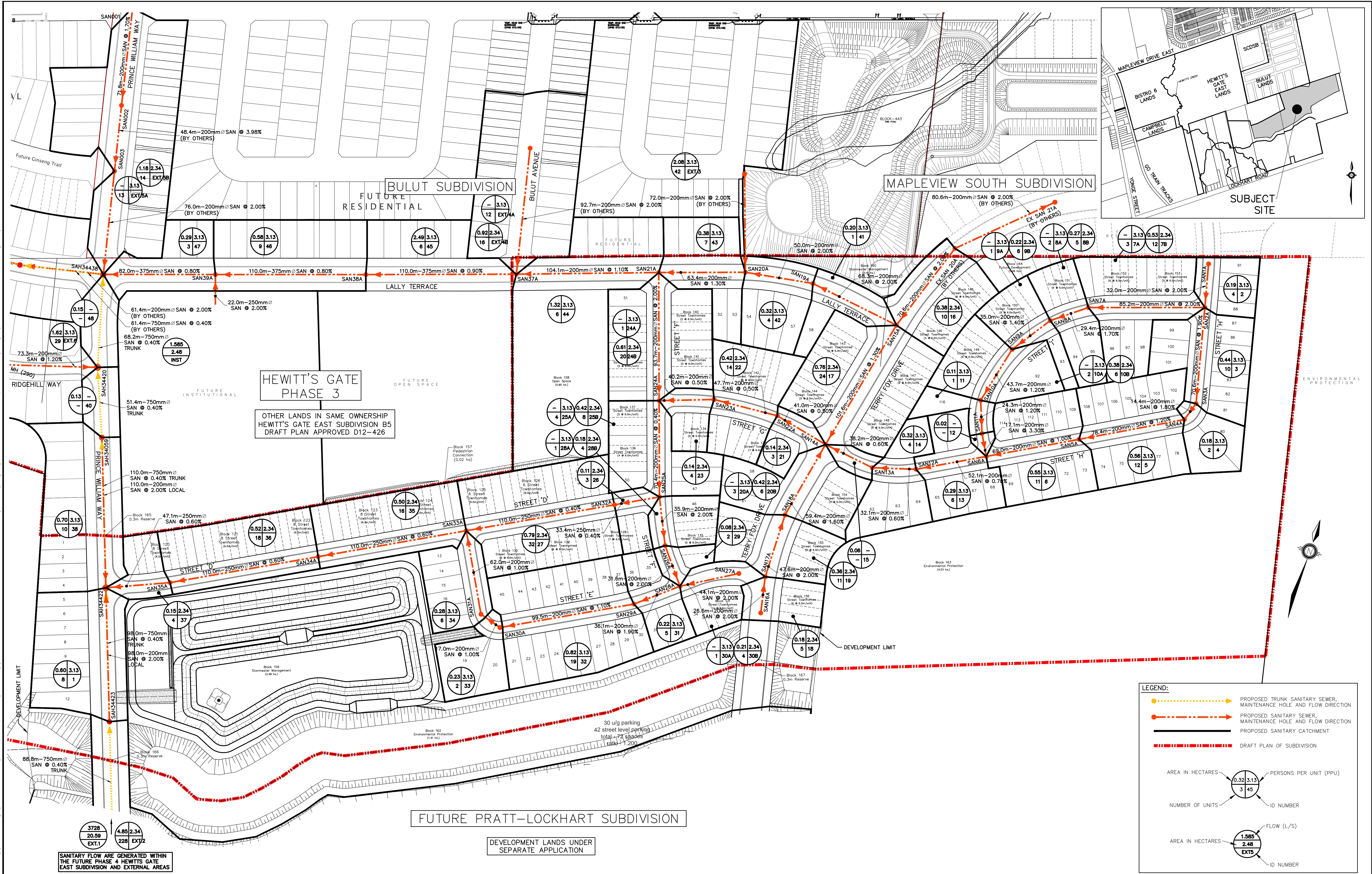
229 Mapleview Dr. E. Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	KS/VS	SCALE: 1:750	DATE	NOVEMBER 2023
DRAWN	KS	PROJECT	DWG. NO.	GP-2
CHECKED	MF	PRA-12160		



BENCHMARK: BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 4.5M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. NAD83/1119 ELEV 250.58 BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON THE SOUTHWEST OF THE FLAGPOLE BASE. NAD83/1119 ELEV 250.58 BENCHMARK NO: 0312008054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 10m EAST OF HURONIA ROAD. NAD83/1119 ELEV 248.996 BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02M WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. NAD83/1119 ELEV 252.807		2. SUBMISSION FOR DRAFT PLAN APPROVAL JUL.2024 MF		1. FSR SUBMISSION DEC.2023 MF		NO. REVISIONS DATE INITIAL		PRATT CONSTRUCTION INC. HEWITT'S CENTRAL SUBDIVISION STORM SUBCATCHMENTS AREA PLAN		DESIGN VB DRAWN VB CHECKED MF		SCALE: 1:1250 PROJECT PRA-12160		DATE AUGUST 2023 DWG. NO STM-1	
NO. REVISIONS DATE INITIAL		DATE INITIAL		DATE INITIAL		DATE INITIAL		DATE INITIAL		DATE INITIAL		DATE INITIAL		DATE INITIAL	

G:\Eng_3D\12160(Mapleview-Drive)\DetailedDesign\Production DWG\HGE-BH-Phase 3 FSR (OCT 2022)\PRA-12160-HGE-BH-FH3-STORM CATCHMENT AREAS.dwg Layout:STM-1 Plotted Jul 16, 2024 @ 7:56am by vespardim The Jones Consulting Group Ltd.



BENCHMARK: BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.60M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF BRIDGE, 10CM TOP OF CORNER. NAD83/85 ELEV 250.508 BENCHMARK NO: 03120030029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. NAD83/85 ELEV 250.508 BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 16M EAST OF HURONIA ROAD. NAD83/85 ELEV 248.996 BENCHMARK NO: 03120100113 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02M WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. NAD83/85 ELEV 252.807		2. SUBMISSION FOR DRAFT PLAN APPROVAL JUL.2024 MF		1. FSR SUBMISSION DEC.2023 MF		NO. REVISIONS DATE INITIAL		PRATT CONSTRUCTION INC. HEWITT'S CENTRAL SUBDIVISION SANITARY SUBCATCHMENT AREA PLAN		JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS 229 Mapleview Dr. E. Unit 1 Scarborough, ON M1S 1B5 P. 705.734.2538 F. 705.734.1056		DESIGN MF/KS SCALE: 1:1250 DATE AUGUST 2023	DRAWN KS PROJECT PRA-12160 DWG. NO SAN-1
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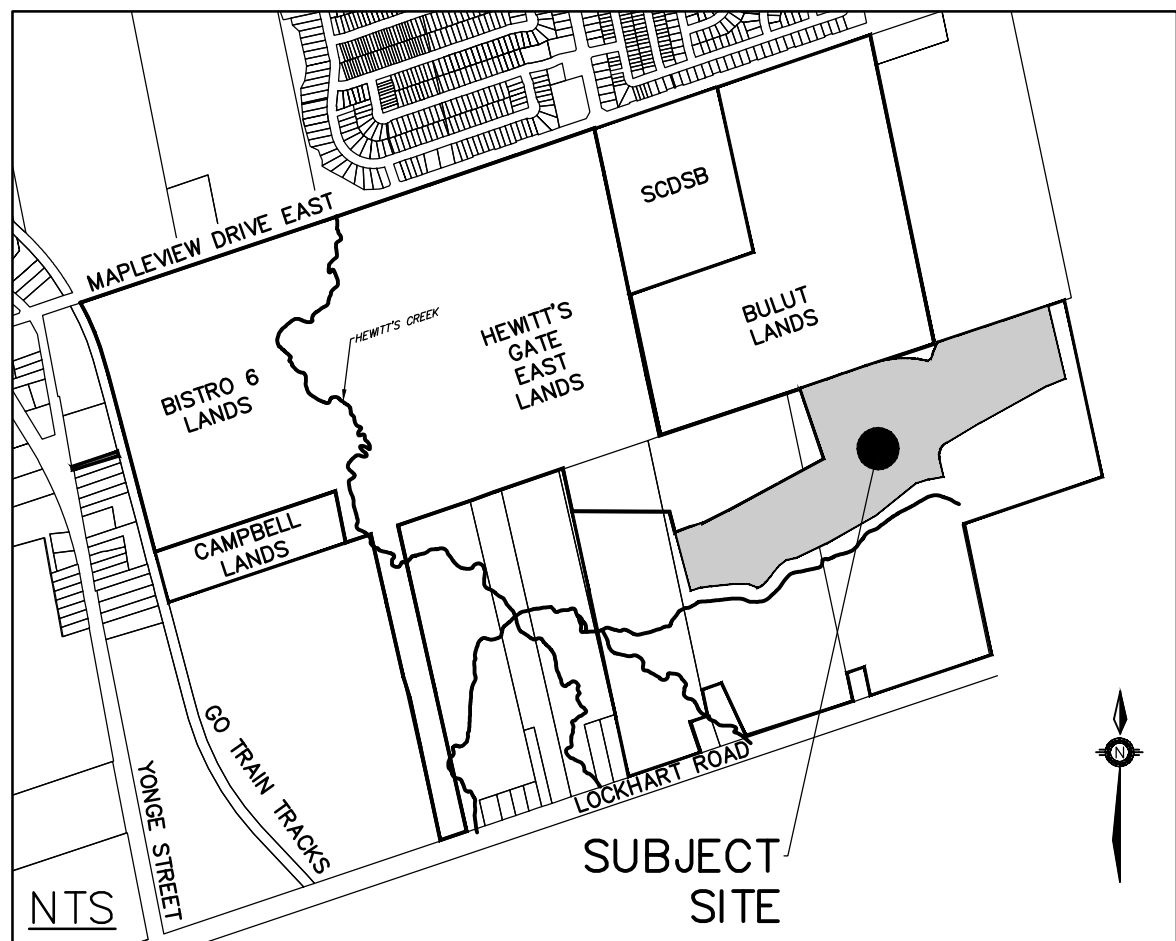
G:\Eng_3D\PR-12160\HGE-BH-PH3-DESIGN SHEETS (FOR FSR)\DetailedDesign\Production DWG\HGE-BH-PH3-DESIGN SHEETS (FOR FSR).dwg Layout:DS-1 Plotted Jul 15, 2024 @ 2:35pm by vspendram The Jones Consulting Group Ltd.

STORM SEWER DESIGN - 5 YEAR DESIGN STORM - MINOR SYSTEM																	
		Design flow in (m³/s)				Q= C I A / 360		Pipe capacity (m³/s)				Q		Client: Pratt Construction Inc. (Bradley Homes) Project: Hewitt's Central Subdivision Address: PRA-12160-BH-PH-3 File No: VBS Design: MF/MG Date: July 2024 Design sheet: DS-1 			
		Site specific runoff coefficient				C		Manning roughness value				n=0.013					
		Rainfall intensity (mm/hr)				I = A / (T.C. + B) ^ C		Cross sectional area of pipe (m²)				A					
		function of the local intensity-duration data				A= 843.019		Hydraulic Radius (m)				R _h					
		function of the local intensity-duration data				B= 4.582		Sewer pipe slope (m/m)				S					
		function of the local intensity-duration data				C= 0.763		Velocity of flow (m/s)				V					
		Max. time of concentration (min)				T.C.= 10											
		Drainage area (ha)				A											
AREAS	Street	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
		FROM	TO		C	A	CA		TO	IN							
401	STREET I	STM 1	STM 2	82.0	0.66	0.20	0.13	0.13	10.00	1.41	109	0.040	0.50	300	0.068	1.0	58.2
	STREET I	STM 2	STM 3	28.6				0.13	11.41	0.49	102	0.037	0.50	300	0.068	1.0	54.2
402	STREET I	STM 3	STM 4	34.2	0.62	0.56	0.34	0.48	11.91	0.45	99	0.131	0.50	450	0.202	1.3	65.1
403	STREET I	STM 4	STM 5	42.5	0.64	0.33	0.21	0.69	12.36	0.56	97	0.186	0.50	450	0.202	1.3	92.3
	STREET I	STM 5	STM 6	23.3				0.69	12.91	0.31	95	0.182	0.50	450	0.202	1.3	90.1
404	STREET I	STM 6	STM 10	19.4	0.64	0.39	0.25	0.94	13.22	0.23	94	0.245	0.50	525	0.304	1.4	80.5
405	STREET H	STM 7	STM 8	11.0	0.63	0.26	0.16	0.16	10.00	0.19	109	0.050	0.50	300	0.068	1.0	72.8
	STREET H	STM 8	STM 9	74.9				0.16	10.19	1.29	108	0.049	0.50	300	0.068	1.0	72.1
406	STREET H	STM 9	STM 10	71.1	0.60	1.09	0.65	0.82	11.48	0.74	101	0.230	0.80	450	0.255	1.6	90.1
407	STREET H	STM 10	STM 11	54.9	0.61	0.33	0.20	1.96	13.45	0.55	93	0.505	0.50	675	0.594	1.7	84.9
	STREET H	STM 11	STM 12	32.9				1.96	14.00	0.33	91	0.493	0.50	675	0.594	1.7	83.0
408	STREET H	STM 12	STM 13	36.2	0.64	0.47	0.30	2.26	14.33	0.36	89	0.561	0.50	675	0.594	1.7	94.4
409	TERRY FOX DR	STM 14	STM 15	69.2	0.74	0.29	0.22	0.22	10.00	0.77	109	0.066	1.20	300	0.106	1.5	62.1
410	TERRY FOX DR	STM 15	STM 13	43.6	0.70	0.66	0.46	0.68	10.77	0.48	105	0.199	0.70	450	0.239	1.5	83.3
411	TERRY FOX DR	STM 13	STM 16	56.7	0.72	0.23	0.17	3.11	14.69	0.50	88	0.761	0.50	825	1.015	1.9	75.0
412	TERRY FOX DR	STM 16	STM 17	44.3	0.72	0.14	0.10	3.20	15.19	0.39	86	0.770	0.50	825	1.015	1.9	75.8
413	STREET E	STM 17	STM 24	22.9	0.74	0.25	0.19	3.39	15.58	0.20	85	0.803	0.50	825	1.015	1.9	79.1
414	STREET E	STM 24	STM 25	42.4	0.70	0.24	0.17	3.56	15.78	0.37	85	0.837	0.50	825	1.015	1.9	82.4
415	STREET E	STM 25	STM 26	38.4	0.67	0.19	0.13	3.69	16.15	0.34	83	0.856	0.50	825	1.015	1.9	84.3
416	STREET E	STM 26	STM 27	97.2	0.62	0.47	0.29	3.98	16.49	0.85	82	0.912	0.50	825	1.015	1.9	89.8
	STREET E	STM 27	STM 28	11.6				3.98	17.34	0.10	80	0.884	0.50	825	1.015	1.9	87.1
417	LALLY TERRACE	STM 18	STM 19	55.2	0.73	0.24	0.17	0.17	10.00	0.95	109	0.052	0.50	300	0.068	1.0	76.4
418	LALLY TERRACE	STM 19	STM 20	58.1	0.65	0.31	0.20	0.38	10.95	0.86	104	0.108	0.50	375	0.124	1.1	87.4
EXT.1					0.56	0.39	0.22										
419	LALLY TERRACE	STM 37	DDHW6665	59.3	0.50	0.56	0.28	0.50	10.00	0.78	109	0.151	0.50	450	0.202	1.3	75.0
EXT.2	BULUT AVENUE	DDSC6462	DDHW6665	95.9	0.62	0.98	0.61	0.61	10.00	1.26	109	0.185	0.50	450	0.202	1.3	91.6
	LALLY TERRACE	DDHW6665	STM 39	61.0				1.11	11.26	0.66	102	0.315	0.50	600	0.434	1.5	72.6
EXT.3	LALLY TERRACE				0.56	0.07	0.04										
420	LALLY TERRACE	STM 39	STM 20	42.9	0.46	0.35	0.16	1.31	11.92	0.47	99	0.360	0.50	600	0.434	1.5	83.0
EXT.4	LALLY TERRACE				0.56	0.19	0.10										
421	STREET F	STM 20	STM 22	98.7	0.63	0.92	0.58	2.36	12.39	0.92	97	0.638	0.50	750	0.787	1.8	81.0
422	STREET G	STM 21	STM 22	42.0	0.68	0.75	0.51	0.51	10.00	0.55	109	0.154	0.50	450	0.202	1.3	76.4
423	STREET F	STM 22	STM 23	70.1	0.56	0.65	0.36	3.24	13.31	0.62	93	0.839	0.50	825	1.015	1.9	82.6
424	STREET D	STM 23	STM 31	68.1	0.63	0.52	0.33	3.56	13.93	0.60	91	0.900	0.50	825	1.015	1.9	88.6
425	STREET D	STM 31	STM 32	75.2	0.68	0.18	0.12	3.68	14.52	0.66	89	0.908	0.50	825	1.015	1.9	89.5
426	Bik. 157-Ped. Conn	STM 46	STM 47	42.1	0.20	2.15	0.43	0.43	10.00	0.55	109	0.130	0.50	450	0.202	1.3	64.6
427	STREET D	STM 47	STM 32	13.1	0.74	0.07	0.06	0.49	10.55	0.17	106	0.143	0.50	450	0.202	1.3	70.9
428	STREET E	STM 32	STM 28	71.5	0.65	0.67	0.43	4.60	15.18	0.59	87	1.105	0.50	900	1.280	2.0	86.4
429	E SWM EASE / EL	STM 28	OGS 2	44.2	0.65	0.53	0.35	8.93	17.45	0.30	80	1.976	0.50	1,200	2.757	2.4	71.7
EAST FOREBAY	E SWM EASE / EL	OGS2	HW2	28.7				8.93	17.75	0.20	79	1.955	0.50	1,200	2.757	2.4	70.9

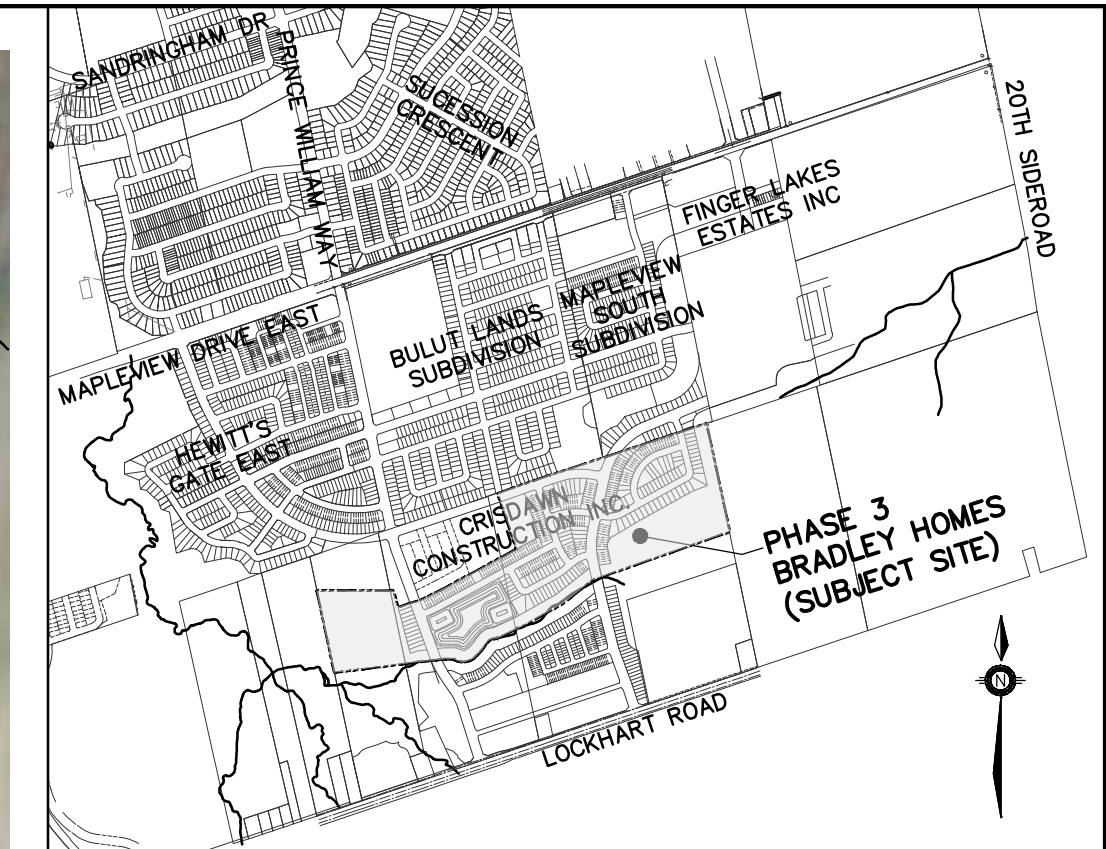
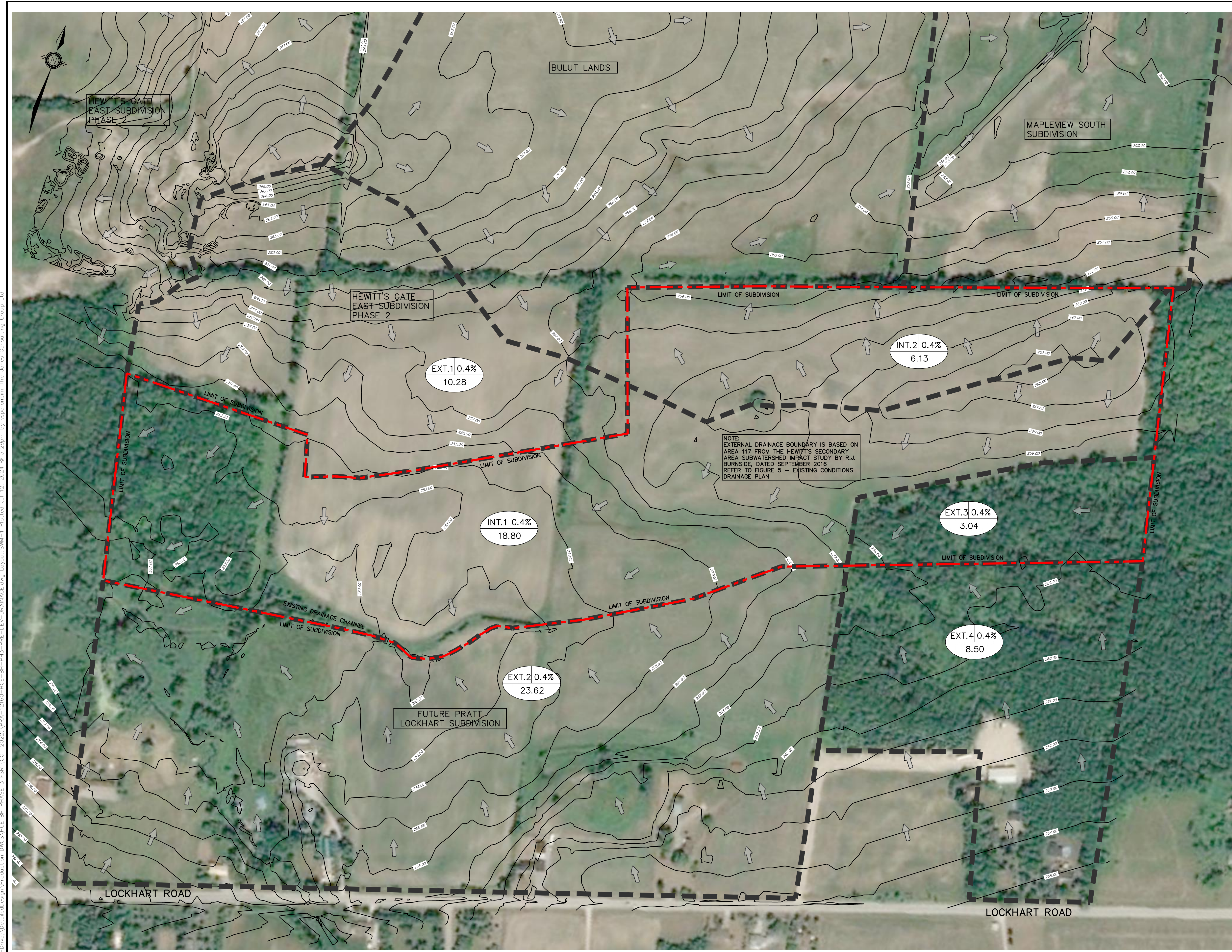
STORM SEWER DESIGN - 5 YEAR DESIGN STORM - MINOR SYSTEM																							
		Design flow in (m³/s) Site specific runoff coefficient Rainfall intensity (mm/hr) function of the local intensity-duration data function of the local intensity-duration data function of the local intensity-duration data Max. time of concentration (min) Drainage area (ha)				Q = C I A / 360 C I = A / (T.C. + B) ^ C A = 843.019 B = 4.582 C = 0.763 T.C. = 10				Pipe capacity (m³/s) Manning roughness value Cross sectional area of pipe (m²) Hydraulic Radius (m) Sewer pipe slope (m/m) Velocity of flow (m/s)				Q n = 0.013 A R _h S V				Client: Pratt Construction Inc. (Bradley Homes) Project: Hewitt's Central Subdivision Address: File No: PRA-12160-BH-PH-3 Design: VBS Check: MF/IMG Date: July 2024 Design sheet: DS-1					
		AREAS	Street	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL				
				FROM	TO		C	A	CA		TO	IN											
		EXT.5	FUT. LALLY TERRACE	MH 271	DDHW6669	25.5	0.64	0.53	0.34	0.34	10.00	0.38	109	0.103	0.50	375	0.124	1.1	82.8				
		EXT.6	FUT. GINSENG TRAIL				0.62	2.18	1.35														
		EXT.7	P. WILLIAM WAY	MH 234	DDHW6669	93.1	0.72	1.05	0.76	2.11	10.00	0.74	109	0.640	0.80	675	0.752	2.1	85.1				
		EXT.8	LALLY TERRACE				0.56	0.58	0.33														
		430	LALLY TERRACE	STM 40	DDHW6669	97.3	0.75	0.42	0.31	0.64	10.00	1.15	109	0.194	0.50	525	0.304	1.4	63.7				
431	P. WILLIAM WAY	DDHW6669	STM 051	73.4	0.83	0.14	0.11	3.20	11.15	0.43	103	0.916	1.50	675	1.030	2.9	89.0						
EXT.9	RIDGEHILL WAY	STM 050	STM 051	21.0	0.63	2.00	1.26	1.26	10.00	0.23	109	0.382	0.50	600	0.434	1.5	87.9						
	P. WILLIAM WAY	STM 051	STM 042	13.1				4.46	11.58	0.10	101	1.250	0.60	900	1.402	2.2	92.8						
SCH.N	FUT. SCHOOL	STM 044	STM 042	20.2	0.75	0.82	0.62	0.62	10.00	0.27	109	0.187	0.50	450	0.202	1.3	89.2						
432	P. WILLIAM WAY / EL	STM 042	STM 043	100.0	0.80	0.29	0.23	5.31	11.68	0.75	100	1.481	0.50	1,050	1.931	2.2	76.7						
SCH.S	FUT. SCHOOL	STM 041	STM 043	21.0	0.75	1.65	1.24	1.24	10.00	0.23	109	0.375	0.50	600	0.434	1.5	86.4						
433	P. WILLIAM WAY / EL	STM 043	STM 036	47.8	0.75	0.27	0.20	6.75	12.43	0.36	97	1.819	0.50	1,050	1.931	2.2	94.2						
434	P. WILLIAM WAY	STM 045	STM 036	78.1	0.76	0.37	0.28	0.28	10.00	1.50	109	0.084	0.30	375	0.096	0.9	87.6						
435	STREET D / EL	STM 036	STM 038	42.8	0.70	0.33	0.23	7.26	12.78	0.29	95	1.925	0.50	1,200	2.757	2.4	69.8						
436	STREET D / EL	STM 034	STM 038	42.2	0.68	0.42	0.28	0.28	10.00	0.63	109	0.086	0.50	375	0.124	1.1	69.3						
	STREET D / EL	OGS1		10.3				7.54	13.08	0.07	94	1.974	0.50	1,200	2.757	2.4	71.6						
WEST FOREBAY	SWM / EL	OGS1	HW1	17.2				7.54	13.15	0.12	94	1.968	0.50	1,200	2.757	2.4	71.4						
EL = ELLIPTICAL / EQUIVALENT DIAMETER TO CIRCULAR PIPES																							

G:\Eng_3D\PR12160\Mapleview-Drive\DetailedDesign\Production DWG\HGE-BH-PH3-DESIGN SHEETS (FOR FSP).dwg Layout:DS-2 Plotted Jul 15, 2024 @ 2:24pm by vespereidm The Jones Consulting Group Ltd.

SANITARY SEWER DESIGN - LOCAL SEWER Development Details Basis																									
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS Barrie		Numbers in blue or text in red are equations (Harmon or Babbitt peaking factor where; $M \geq 2$), the greater of the two is used in the spreadsheet. Please refer to Section 3.3.1.1 of the Barrie Sanitary Design Guidelines for additional guidance on which peaking factor to use. (Peak population flow where; $q = 225$ L/day/person; $P =$ population in thousands) (Peak extraneous flow; $I = 0.1$ L/s/ha over development area) (Total peak flow as the sum of peak population flow and peak extraneous flow) See Note 1.										$n \geq 0.013$ $M = 5/P \wedge 0.2$ Babbitt $M = 1 + [14/(4 + P \wedge 0.5)]$ Harmon $Q_p = P * q * M / 86.4$ $Q_t = I * A$ $Q_{tot} = Q_p + Q_t$ $Q_{commercial} = 28m^3/ha/day$					FILE NO: PRA-12160-BH-PH-3 CLIENT: Pratt Construction Inc. (Bradley Homes) PROJECT: Hewitt's Central Subdivision DATE: July 2024 CALCULATED BY: VBS CHECKED BY: MF								
		AREA	STREET	MAINTENANCE HOLE		DWELL UNITS	DWELL (ACC) UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR BABBITT	M PEAKING FACTOR HARMON	Max PEAKING FACTOR	Q_p (l/s)	AREA (ha)	AREA (ACC) (ha)	Q_t (l/s)	Q_{tot} (l/s)	L (m)	D (mm)	S (%)	Q_f FULL (l/s)	$d/D^{(2)}$	$d/D^{(3)}$ <0.5 or <0.7	Velocity FULL (m/s)
		FROM	TO																						
2	- STREET 'H'	SAN 1A	SAN 2A	4	4	3.13	13	13	12.007	4.405	12.007	0.391	0.19	0.19	0.019	0.410	32.0	200	2.00	46.384	0.066	Ok	1.476	0.450	Check
3	- STREET 'H'	SAN 2A	SAN 3A	10	14	3.13	31	44	9.346	4.326	9.346	1.067	0.44	0.63	0.063	1.130	70.6	200	1.90	45.210	0.108	Ok	1.439	0.595	Ok
4	- STREET 'H'	SAN 3A	SAN 4A	2	16	3.13	6	50	9.100	4.315	9.100	1.187	0.18	0.81	0.081	1.268	14.4	200	1.80	44.004	0.116	Ok	1.401	0.604	Ok
5	- STREET 'H'	SAN 4A	SAN 5A	12	28	3.13	38	88	8.136	4.259	8.136	1.857	0.56	1.37	0.137	1.994	78.4	200	1.20	35.929	0.159	Ok	1.144	0.601	Ok
6	- STREET 'H'	SAN 5A	SAN 6A	11	39	3.13	34	122	7.615	4.219	7.615	2.421	0.55	1.92	0.192	2.613	69.0	200	1.00	32.798	0.190	Ok	1.044	0.609	Ok
7A	- STREET 'I'			3		3.13	9																		
7B	- STREET 'I'	SAN 2A	SAN 7A	12	15	2.34	28	37	9.643	4.338	9.643	0.941	0.53	0.53	0.053	0.994	85.2	200	2.00	46.384	0.101	Ok	1.476	0.585	Check
8A	- STREET 'I'			2		3.13	6																		
8B	- STREET 'I'	SAN 7A	SAN 8A	5	22	2.34	12	55	8.917	4.305	8.917	1.287	0.27	0.80	0.080	1.367	29.4	200	1.70	42.764	0.122	Ok	1.361	0.609	Ok
9A	- STREET 'I'			1		3.13	3																		
9B	- STREET 'I'	SAN 8A	SAN 9A	6	29	2.34	14	73	8.449	4.279	8.449	1.597	0.22	1.02	0.102	1.699	35.0	200	1.40	38.808	0.142	Ok	1.235	0.606	Ok
10A	- STREET 'I'			2		3.13	6																		
10B	- STREET 'I'	SAN 9A	SAN 10A	6	37	2.34	14	93	8.042	4.252	8.042	1.946	0.38	1.40	0.140	2.086	43.7	200	1.20	35.929	0.163	Ok	1.144	0.610	Ok
11	- STREET 'I'	SAN 10A	SAN 11A	1	38	3.13	3	96	7.989	4.248	7.989	1.998	0.11	1.51	0.151	2.149	24.3	200	1.20	35.929	0.165	Ok	1.144	0.615	Ok
12	- STREET 'I'	SAN 11A	SAN 6A		38			96	7.989	4.248	7.989	1.998	0.02	1.53	0.153	2.151	17.1	200	3.30	59.581	0.129	Ok	1.897	0.875	Ok
13	- STREET 'H'	SAN 6A	SAN 12A	6	83	3.13	19	237	6.669	4.120	6.669	4.114	0.29	3.74	0.374	4.488	52.1	200	0.70	27.441	0.273	Ok	0.873	0.627	Ok
14	- STREET 'H'	SAN 12A	SAN 13A	4	87	3.13	13	249	6.601	4.112	6.601	4.287	0.32	4.06	0.406	4.693	32.1	200	0.60	25.406	0.291	Ok	0.809	0.601	Ok
15	- STREET 'H'	SAN 13A	SAN 14A		87			249	6.601	4.112	6.601	4.287	0.06	4.12	0.412	4.699	38.2	200	0.60	25.406	0.291	Ok	0.809	0.601	Ok
16	- TERRY FOX DR	EX SAN 20A	SAN 15A	10	10	2.34	23	23	10.596	4.371	10.596	0.646	0.38	0.38	0.038	0.684	70.6	200	2.00	46.384	0.084	Ok	1.476	0.522	Check
17	- TERRY FOX DR	SAN 15A	SAN 14A	24	34	2.34	56	80	8.295	4.269	8.295	1.719	0.76	1.14	0.114	1.833	101.6	200	1.30	37.396	0.150	Ok	1.190	0.602	Ok
18	- TERRY FOX DR	SAN 16A	SAN 17A	5	5	2.34	12	12	12.171	4.408	12.171	0.371	0.18	0.18	0.018	0.389	26.6	200	2.00	46.384	0.064	Ok	1.476	0.441	Check
19	- TERRY FOX DR	SAN 17A	SAN 18A	11	16	2.34	26	37	9.645	4.339	9.645	0.940	0.36	0.54	0.054	0.994	47.6	200	2.00	46.384	0.101	Ok	1.476	0.585	Check
20A	- TERRY FOX DR			3		3.13	9																		
20B	- TERRY FOX DR	SAN 18A	SAN 14A	6	25	2.34	14	61	8.752	4.297	8.752	1.387	0.42	0.96	0.096	1.483	59.4	200	1.60	41.487	0.129	Ok	1.321	0.610	Ok
21	- STREET 'G'	SAN 14A	SAN 22A	3	149	2.34	7	397	6.015	4.024	6.015	6.216	0.14	6.36	0.636	6.852	41.0	200	0.50	23.192	0.372	Ok	0.738	0.625	Ok
22	- STREET 'G'	SAN 22A	SAN 23A	14	163	2.34	33	430	5.920	4.007	5.920	6.624	0.42	6.78	0.678	7.302	47.7	200	0.50	23.192	0.385	Ok	0.738	0.636	Ok
23	- STREET 'G'	SAN 23A	SAN 24A	4	167	2.34	9	439	5.895	4.003	5.895	6.739	0.14	6.92	0.692	7.431	40.2	200	0.50	23.192	0.389	Ok	0.738	0.640	Ok
24A	- STREET 'F'			1		3.13	3																		
24B	- STREET 'F'	SAN 21A	SAN 24A	20	21	2.34	47	50	9.105	4.315	9.105	1.184	0.61	0.61	0.061	1.245	93.7	200	2.00	46.384	0.112	Ok	1.476	0.629	Ok
25A	- STREET 'F'			4		3.13	13																		
25B	- STREET 'F'	SAN 24A	SAN 25A	8	200	2.34	19	520	5.698	3.965	5.698	7.719	0.42	7.95	0.795	8.514	70.4	200	0.40	20.744	0.446	Ok	0.660	0.611	Ok
26	- STREET 'D'	SAN 25A	SAN 32A	3	203	2.34	7	527	5.683	3.962	5.683	7.802	0.11	8.06	0.806	8.608	33.4	250	0.40	37.611	0.325	Ok	0.766	0.604	Ok
27	- STREET 'D'	SAN 32A	SAN 33A	32	235	2.34	75	602	5.534	3.931	5.534	8.676	0.79	8.85	0.885	9.561	110.0	250	0.40	37.611	0.343	Ok	0.766	0.622	Ok
28A	- STREET 'F'			1		3.13	3																		
28B	- STREET 'F'	SAN 25A	SAN 26A	4	5	2.34	9	12	12.013	4.405	12.013	0.391	0.18	0.18	0.018	0.409	35.9	200	2.00	46.384	0.066	Ok	1.476	0.450	Check
29	- STREET 'F'	SAN 26A	SAN 28A	2	7	2.34	5	17	11.272	4.389	11.272	0.504	0.08	0.26	0.026	0.530	31.6	200	2.00	46.384	0.075	Ok	1.476	0.484	Check



JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS Barrie		Numbers in blue or text in red are equations (Harmon or Babbitt peaking factor where; $M \geq 2$), the greater of the two is used in the spreadsheet. Please refer to Section 3.3.1.1 of the Barrie Sanitary Design Guidelines for additional guidance on which peaking factor to use. (Peak population flow where; $q = 225$ L/day/person; $P =$ population in thousands) (Peak extraneous flow; $I = 0.1$ L/s/ha over development area) (Total peak flow as the sum of peak population flow and peak extraneous flow) See Note 1.										$n \geq 0.013$ $M = 5/P \wedge 0.2$ Babbitt $M = 1 + [14/(4 + P \wedge 0.5)]$ Harmon $Q_p = P * q * M / 86.4$ $Q_t = I * A$ $Q_{tot} = Q_p + Q_t$ $Q_{commercial} = 28m^3/ha/day$										FILE NO PRA-12160-BH-PH-3 CLIENT Pratt Construction Inc. (Bradley Homes) PROJECT Hewitt's Central Subdivision DATE July 2024 CALCULATED BY VBS CHECKED BY MF									
		AREA	STREET	MAINTENANCE HOLE		DWELL UNITS	DWELL (ACC) UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR BABBITT	M PEAKING FACTOR HARMON	Max PEAKING FACTOR	Q_p (l/s)	AREA (ha)	AREA (ACC) (ha)	Q_t (l/s)	Q_{tot} (l/s)	L (m)	D (mm)	S (%)	Q_f FULL (l/s)	$d/D^{(2)}$	$d/D^{(3)}$ <0.5 or <0.7	Velocity FULL (m/s)	Velocity Partial ⁽¹⁾ (m/s)	Velocity ⁽⁴⁾ > 0.6 (m/s)				
		FROM	TO																												
30A	- STREET 'E'			1		3.13	3																								
30B	- STREET 'E'	SAN 27A	SAN 28A	4	5	2.34	9	12	12.013	4.405	12.013	0.391	0.21	0.21	0.021	0.412	44.1	200	2.00	46.384	0.066	Ok	1.476	0.450	Check						
31	- STREET 'E'	SAN 28A	SAN 29A	5	17	3.13	16	45	9.284	4.323	9.284	1.095	0.22	0.69	0.069	1.164	36.1	200	1.90	45.210	0.110	Ok	1.439	0.603	Ok						
32	- STREET 'E'	SAN 29A	SAN 30A	19	36	3.13	59	105	7.851	4.238	7.851	2.142	0.82	1.51	0.151	2.293	99.5	200	1.10	34.399	0.174	Ok	1.095	0.609	Ok						
33	- STREET 'E'	SAN 30A	SAN 31A	2	38	3.13	6	111	7.760	4.231	7.760	2.244	0.23	1.74	0.174	2.418	17.0	200	1.00	32.798	0.183	Ok	1.044	0.597	Ok						
34	- STREET 'E'	SAN 31A	SAN 33A	6	44	3.13	19	130	7.521	4.211	7.521	2.543	0.28	2.02	0.202	2.745	62.0	200	1.00	32.798	0.195	Ok	1.044	0.619	Ok						
35	- STREET 'D'	SAN 33A	SAN 34A	16	295	2.34	37	769	5.269	3.871	5.269	10.566	0.50	11.37	1.137	11.693	110.0	250	0.60	46.063	0.343	Ok	0.938	0.761	Ok						
36	- STREET 'D'	SAN 34A	SAN 35A	18	313	2.34	42	811	5.213	3.857	5.213	11.016	0.52	11.89	1.189	12.205	110.0	250	0.60	46.063	0.351	Ok	0.938	0.769	Ok						
37	- STREET 'D'	SAN 35A	SAH34422	4	317	2.34	9	821	5.201	3.854	5.201	11.118	0.15	12.04	1.204	12.322	47.1	250	0.60	46.063	0.353	Ok	0.938	0.772	Ok						
EXT.1	- PWW						3728						20.59																		
EXT.2	- PWW	SAN 104A	SAH34423	228	228	2.34	534	4262	3.742	3.309	3.742	41.523	4.85	25.44	2.544	44.067	88.8	750	0.40	704.098	0.169	Ok	1.594	0.870	Ok						
TRUNK	- PWW	SAH34423	SAH34422		228			4262	3.742	3.309	3.742	41.523		25.44	2.544	44.067	98.0	750	0.40	704.098	0.169	Ok	1.594	0.870	Ok						
1	- PWW	SAH34423	SAH34422	8	8	3.13	25	25	10.453	4.367	10.453	0.682	0.60	0.60	0.060	0.742	98.0	200	2.00	46.384	0.088	Ok	1.476	0.530	Check						
38	- PWW	SAH34059	SAH34422	10	10	3.13	31	9.997	4.352	9.997	0.815	0.70	0.70	0.070	0.865	110.0	200	2.00	46.384	0.095	Ok	1.476	0.562	Check							
TRUNK	- PWW	SAH34422	SAH34059		563			5139	3.604	3.234	3.604	48.230		38.78	3.878	52.108	110.0	750	0.40	704.098	0.184	Ok	1.594	0.911	Ok						
40	- PWW	SAH34059	SAH34420		563			5139	3.604	3.234	3.604	48.230	0.13	38.91	3.891	52.121	51.4	750	0.40	704.098	0.184	Ok	1.594	0.911	Ok						
EXT.6	- RIDGEHILL WAY	MH (29D)	SAH34420	29	29	3.13	91	91	8.079	4.255	8.079	1.910	1.62	1.62	0.162	2.072	73.3	200	1.20	35.929	0.162	Ok	1.144	0.605	Ok						
48	- PWW	SAH34420	SAH 34438		592			5229	3.592	3.227	3.592	48.910		40.53	4.053	52.963	68.2	750	0.40	704.098	0.185	Ok	1.594	0.914	Ok						
41	- Lally Terrace	SAN 15A	SAN 19A	1	1	3.13	3	3	15.844	4.452	15.844	0.129	0.20	0.20	0.020	0.149	68.3	200	2.00	46.384	0.041	Ok	1.476	0.317	Check						
42	- Lally Terrace	SAN 19A	SAN 20A	4	5	3.13	13	16	11.483	4.394	11.483	0.468	0.32	0.52	0.052	0.520	50.0	200	2.00	46.384	0.074	Ok	1.476	0.472	Check						
EXT.3	- Bullitt Lands	EXTERNAL	SAN 20A	42	42	3.13	131	131	7.503	4.209	7.503	2.568	2.08	2.08	0.208	2.776	72.0	200	2.00	46.384	0.165	Ok	1.476	0.791	Ok						
43	- Lally Terrace	SAN 20A	SAN 21A	7	54	3.13	22	169	7.135	4.174	7.135	3.140	0.38	2.98	0.298	3.438	63.4	200	1.30	37.396	0.204	Ok	1.190	0.721	Ok						
44	- Lally Terrace	SAN 21A	SAN 37A	6	60	3.13	19	188	6.986	4.158	6.986	3.417	1.32	4.30	0.430	3.847	104.1	200	1.10	34.399	0.225	Ok	1.095	0.697	Ok						
EXT.4A	- Bullitt Lands			12		3.13	38																								
EXT.4B	- Bullitt Lands	EXTERNAL	SAN 37A	16	28	2.34	37	75	8.394	4.276	8.394	1.639	0.92	0.92	0.092	1.731	92.7	200	2.00	46.384	0.132	Ok	1.476	0.692	Ok						
45	- Lally Terrace	SAN 37A	SAN 38A	6	94	3.13	19	282	6.442	4.090	6.442	4.724	2.49	7.71	0.771	5.495	110.0	375	0.90	166.333	0.124	Ok	1.506	0.660	Ok						
46	- Lally Terrace	SAN 38A	SAN 39A	9	103	3.13	28	310	6.321	4.072	6.321	5.099	0.58	8.29	0.829	5.928	110.0	375	0.80	156.820	0.132	Ok	1.420	0.649	Ok						
Future Institutional Block. Area = 2.48ha; Commercial Flow = 28.00m ³ /ha/day / Equivalent population ->										31	10.016	4.352	10.016	0.809																	
INST	- Lally Terrace	STUB	SAN 39A						0.804			0.804	2.48	2.48	0.248	1.052	22.0	250	2.00	84.100	0.078	Ok	1.713	0.542	Check						
47	- Lally Terrace	SAN 39A	SAH 34438	3	106	3.13	9	350	6.168	4.049	6.168	5.624	0.29	11.06	1.106	6.730	82.0	375	0.80	156.820	0.141	Ok	1.420	0.668	Ok						
EXT.5A	- Lally Terrace	SAN 003	SAH 34438	13		3.13	41																								
EXT.5B	- PWW	SAN 003	SAH 34438	14	27	2.34	33	73	8.429	4.278	8.429	1.612	1.18	1.18	0.118	1.730	76.0	200	2.00	46.384	0.132	Ok	1.476	0.688	Ok						
TRUNK	- Lally Terrace	SAH 34438	EXTERNAL					5663	3.536	3.195	3.536	52.055		52.77	5.277	67.332	61.4	750	0.40	704.098	0.192	Ok	1.594	0.933	Ok						



KEY PLAN
NTS

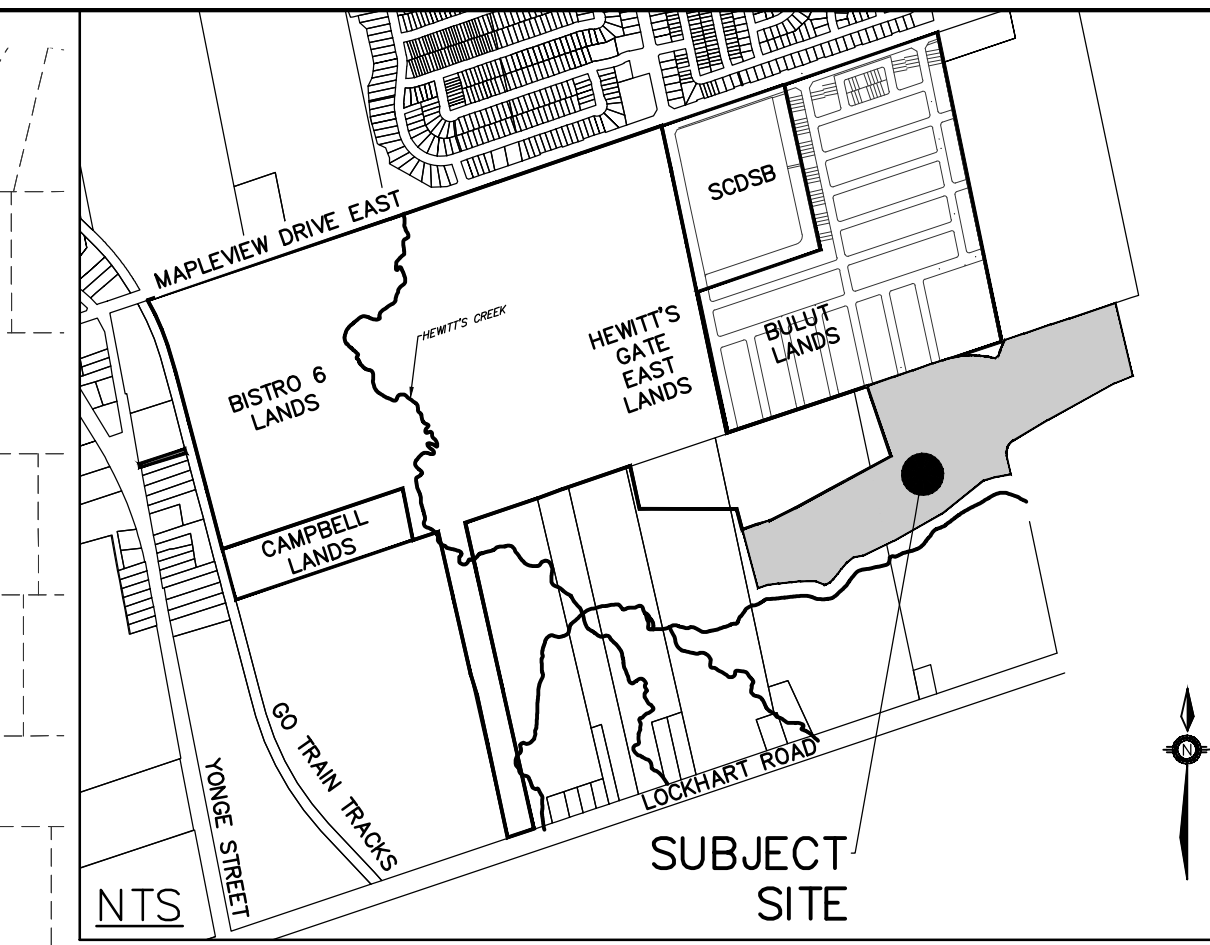
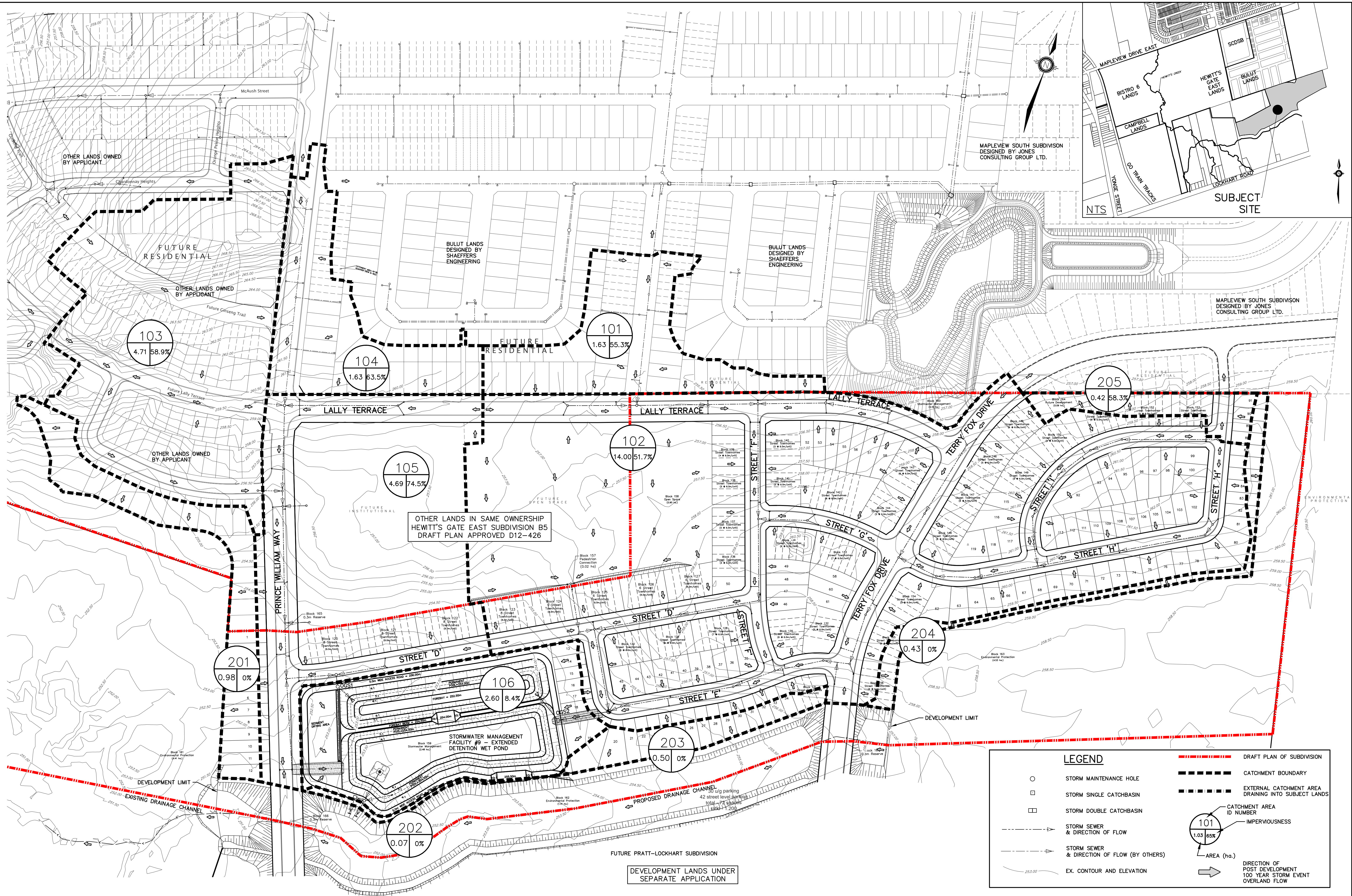
LEGEND

- LIMIT OF SUBDIVISION
- EXISTING PRE-DEVELOPMENT STORM DRAINAGE
- EX. CONTOUR AND ELEVATION
- CATCHMENT BOUNDARY

CATCHMENT AREA ID NUMBER
IMPERVIOUSNESS %
AREA (ha.)

128 0.4%
19.03

REFERENCES:			BENCHMARK: BENCHMARK NO: 01010865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.85KM EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 0.45M NORTH OF CENTRELINE OF ROAD, 202M WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF COPING. N4910788.889 E607264.100 ELEV 241.881 BENCHMARK NO: 03120030209 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE PLACPOLE BASE 4.7m SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST CORNER OF THE PLACPOLE BASE. N4911610 E607799 ELEV 250.508 BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996 BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009070.257 E606733.580 ELEV 252.807					
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LEGEND

- STORM MAINTENANCE HOLE
- STORM SINGLE CATCHBASIN
- ▢ STORM DOUBLE CATCHBASIN
- > STORM SEWER & DIRECTION OF FLOW
- > STORM SEWER & DIRECTION OF FLOW (BY OTHERS)
- EX. CONTOUR AND ELEVATION
- DRAFT PLAN OF SUBDIVISION
- CATCHMENT BOUNDARY
- EXTERNAL CATCHMENT AREA DRAINING INTO SUBJECT LANDS
- CATCHMENT AREA ID NUMBER
- IMPERVIOUSNESS
- AREA (ha.)
- DIRECTION OF POST DEVELOPMENT 100 YEAR STORM EVENT OVERLAND FLOW

BENCHMARK:
BENCHMARK NO. 03120100113 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.69M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 3.45M NORTH OF CENTRELINE OF ROAD, 26CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER, N4910788.889 E607284.100 ELEV 241.861
BENCHMARK NO. 03120000029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE, 4.7m SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST CORNER OF THE FLAGPOLE BASE, N4911610 E607798 ELEV 250.508
BENCHMARK NO. 03120000054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE, WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607601.062 ELEV 248.098
BENCHMARK NO. 03120100113 LOCATED ON LOOKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION, N49098970.257 E606733.580 ELEV 252.807

3.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUL.2024	MF
2.	FSR SUBMISSION	DEC.2023	MF
1.	DESIGN CHARETTE	JUN 2023	MF
NO.	REVISIONS	DATE	INITIAL

PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

STORMWATER MANAGEMENT PLAN
POST-DEVELOPMENT CONDITIONS
SWM9 DRAINAGE AREA PLAN

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

229 Mapleview Dr. E. Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

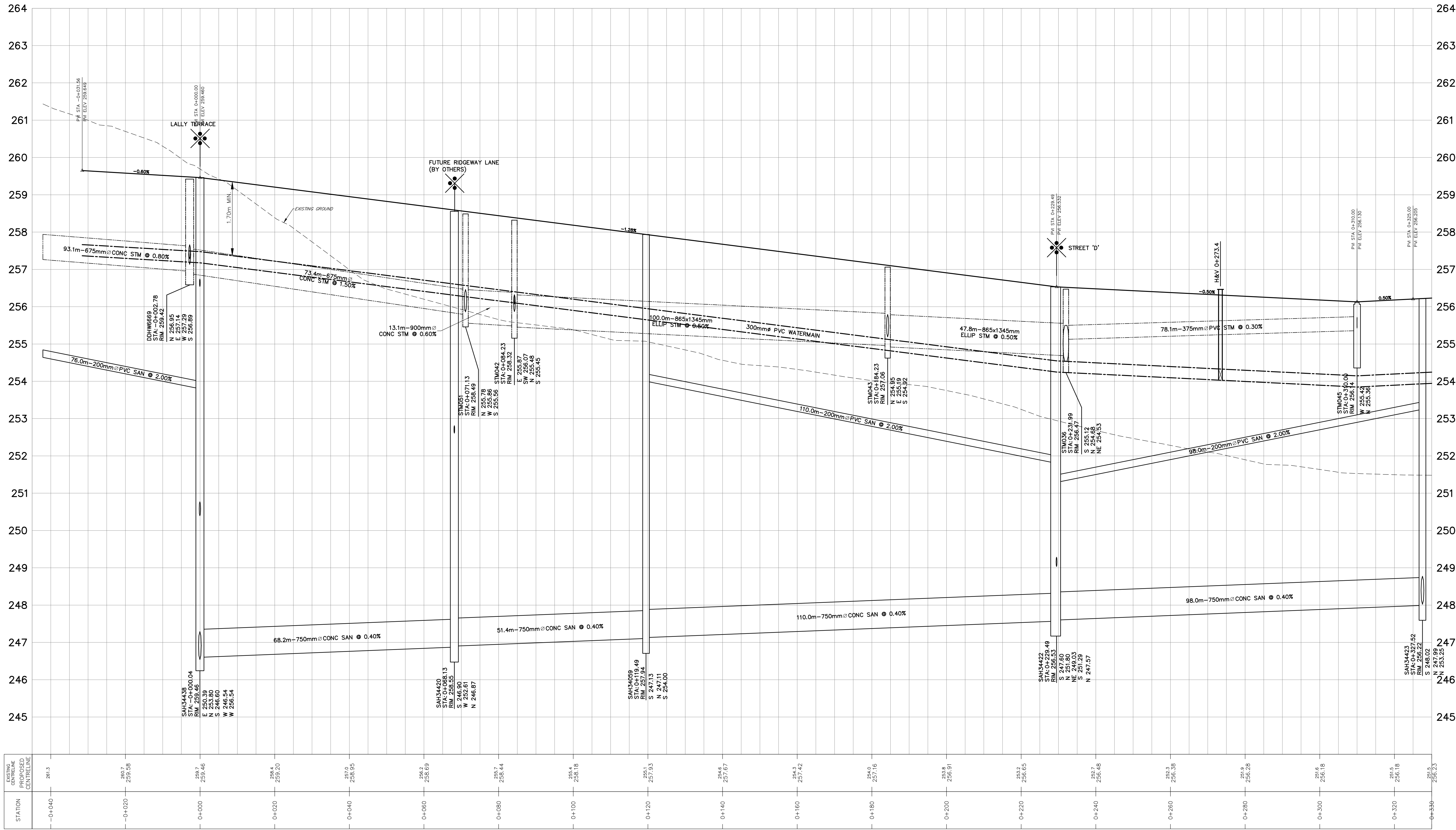
DESIGN MG/VS
DRAWN VS
CHECKED MF

SCALE: 1:1500
PROJECT PRA-12160

DATE NOVEMBER 2023
DWG. NO SWM-2

G:\Eng_3D\Mapleview-Drive\DetailedDesign\Production\DWG\HGE-BH-PHASE 3 FSR (OCT 2022)\PRA-12160-HGE-BH-PH3-POST-DEV-DRAINAGE.dwg Layout:SWM-2 Plotted Jul 12, 2024 @ 3:35pm by aspradim The Jones Consulting Group Ltd.

PRINCE WILLIAM WAY



BENCHMARK:			
BENCHMARK NO: 0101986454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOWER'S CREEK, 0.65M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF BRIDGE, 10CM TOP OF CORNER. N491078.889 E507284.100 ELEV 241.861			
BENCHMARK NO: 03120030029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON THE SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.58			
BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 16M EAST OF HURONIA ROAD. N4910876.122 E607601.062 ELEV 248.996			
BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.03M WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807			
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUL.2024	MF
1.	FSR SUBMISSION	DEC.2023	MF
NO.	REVISIONS	DATE	INITIAL



PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

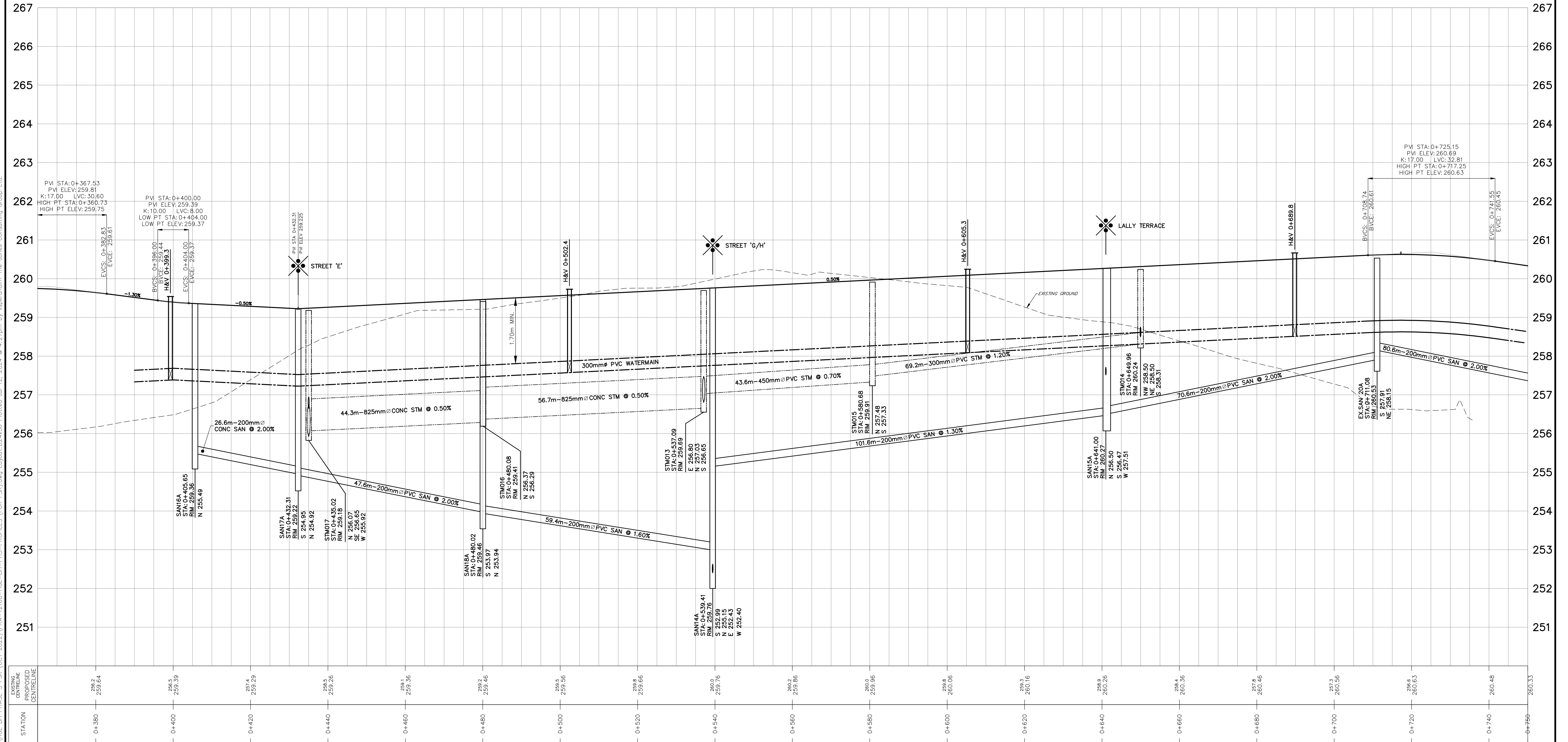
PROFILE
PRINCE WILLIAM WAY
STA. 0-045 TO STA. 0+330



229 Mapleview Dr. E. Unit 1
Barrie, ON L4N 0W6
P. 705.734.2538
F. 705.734.1056

DESIGN	VB/KS	SCALE: H:1:500 V:1:50	DATE	NOVEMBER 2023
DRAWN	KS	PROJECT	DWG. NO	
CHECKED	MF	PRA-12160	PP-1	

TERRY FOX DR



BENCHMARK:					
BENCHMARK NO: 0101865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVEN'S CREEK, 0.505W EAST OF HURONIA ROAD. TARGET IS SET HORIZONTALLY IN THE NORTH FACE, 4.54M NORTH OF CENTRELINE OF ROAD, 252W WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF COPING. N4910788.989 E607284.100 ELEV 241.981					
BENCHMARK NO: 0312020029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180' ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH OF THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TARGET IS ON THE SOUTHSIDE OF THE FLAGPOLE BASE. N4916180 E607799 ELEV 235.508		2. SUBMISSION FOR DRAFT PLAN APPROVAL		JUL 24, 2024	MF
BENCHMARK NO: 0312030604 LOCATED ON THE SOUTH LANE OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910876.122 E607601.062 ELEV 246.996		1. FSR SUBMISSION		DEC 23, 2023	MF
BENCHMARK NO: 0312011013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD APPROXIMATELY 1.02km WEST OF 50TH AVE. 50TH STREET AND HURONIA ROAD INTERSECTION. N49009870.257 E608733.580 ELEV 252.807					
NO.	REVISIONS	DATE	INITIAL		



PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

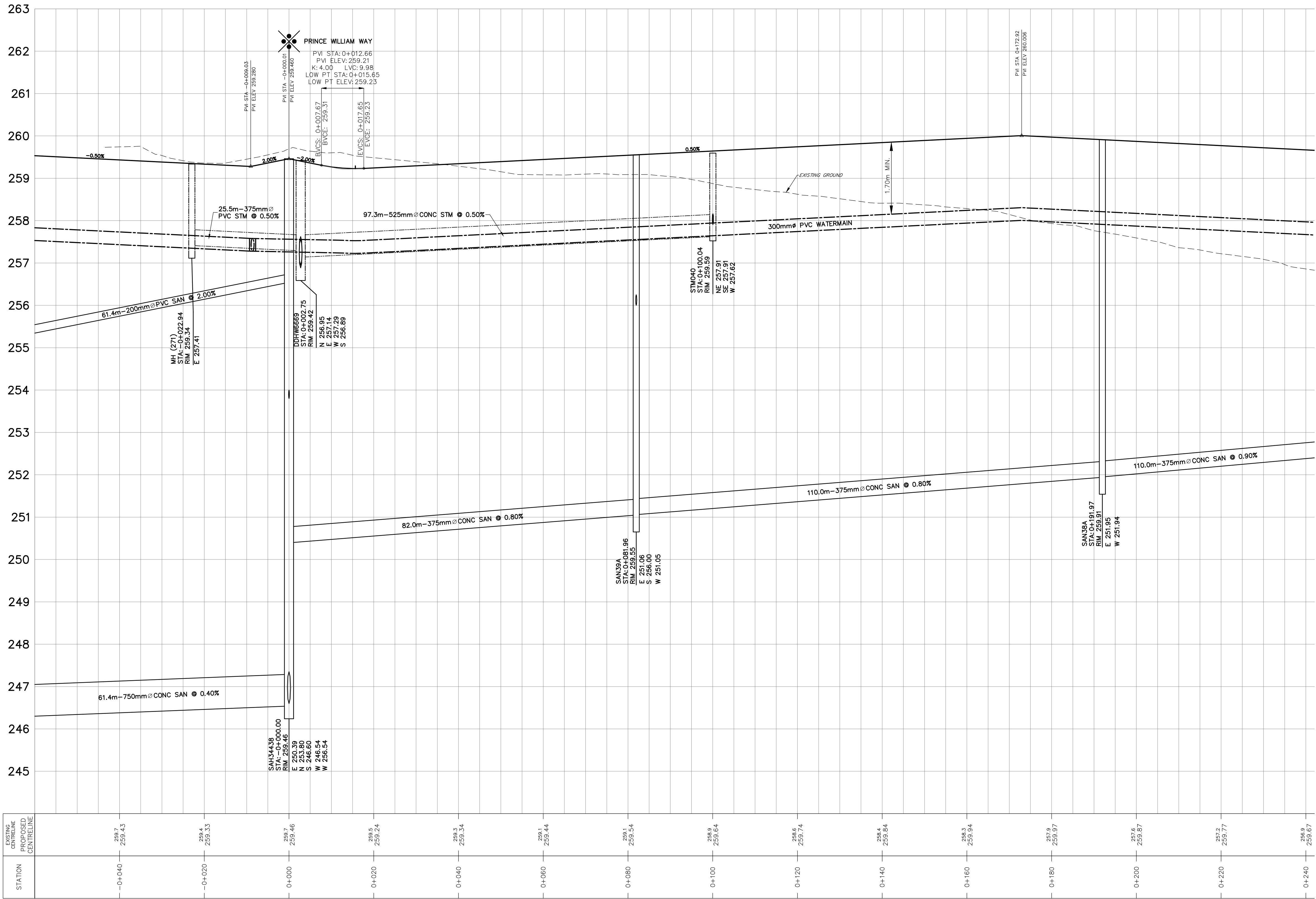
PROFILE
TERRY FOX DRIVE
STA. 0+390 TO STA. 0+770



**229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056**

DESIGN	VB/KS	SCALE: H.1:500 V.1:50	DATE	NOVEMBER 2023
DRAWN	KS	PROJECT PRA-12160	DWG. № PP-2	
CHECKED	MF			

LALLY TERRACE



BENCHMARK:

BENCHMARK NO: 01019885454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE
E. OVER LOWE'S CREEK, 0.45M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY
IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE
NORTHEAST END OF BRIDGE, 10CM TOP OF CORNER. N491078.889 E807284.100
ELEV 241.861

BENCHMARK NO: 03120030029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER
DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH
FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON
THE SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E807799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST
APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910876.122 E807601.062 ELEV 248.996

BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE
BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD
INTERSECTION N49009870.257 E808733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUL.2024	MF
1.	FSR SUBMISSION	DEC.2023	MF



PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

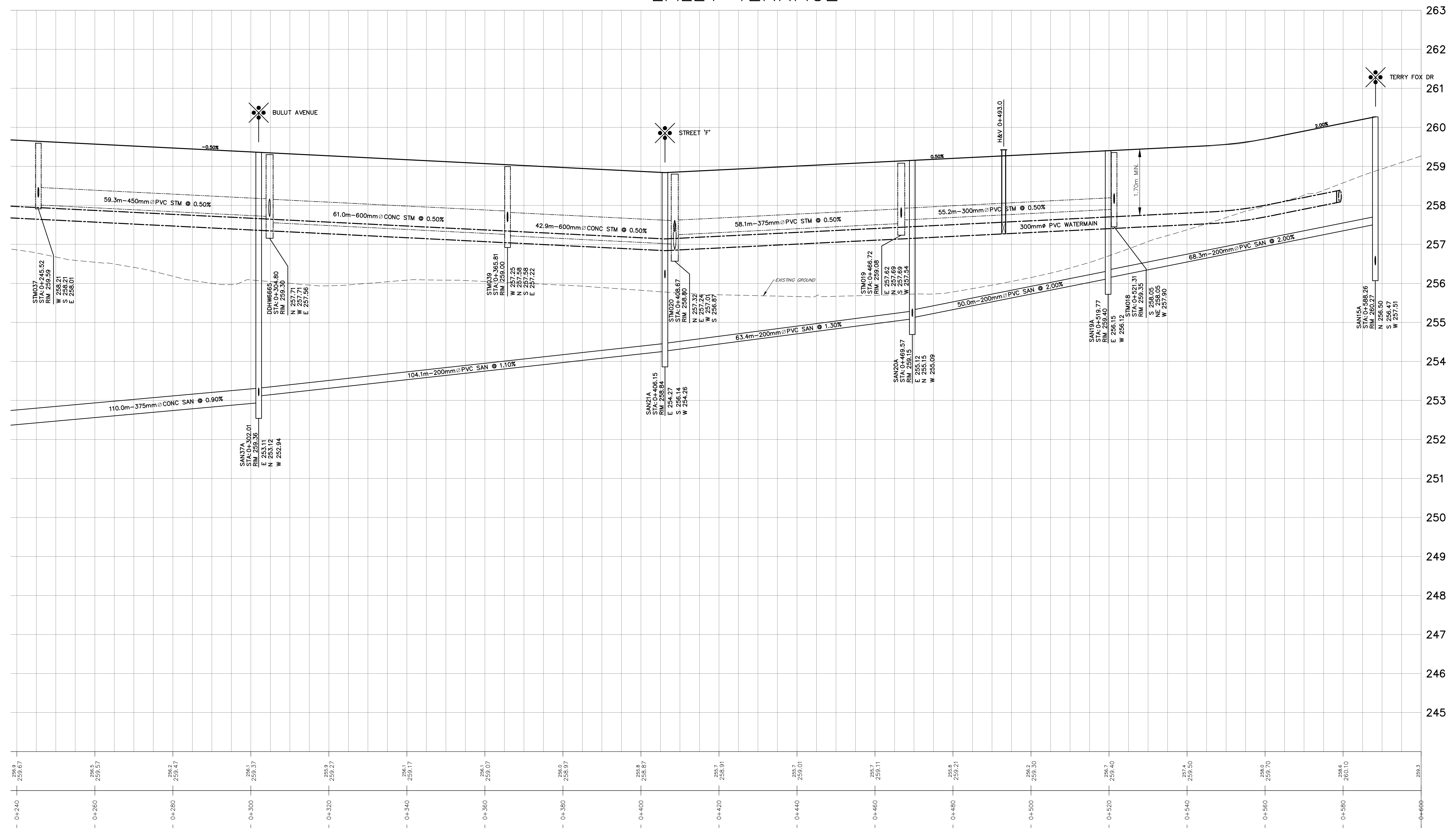
PROFILE
LALLY TERRACE
STA. -0+060 TO STA. 0+240



229 Mapleview Dr. E. Unit 1
Barrie, ON L4N 0W6
P. 705.734.2538
F. 705.734.1056

DESIGN	VB/KS	SCALE: H:1:500 V:1:50	DATE	NOVEMBER 2023
DRAWN	KS	PROJECT	DWG. NO	
CHECKED	MF	PRA-12160	PP-3	

LALLY TERRACE



BENCHMARK:		DATE	MF
BENCHMARK NO: 0101865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVEN'S CREEK, 0.505M EAST OF HURONIA ROAD. TARGET IS SET HORIZONTALLY IN THE NORTH FACE, 0.45M NORTH OF CENTRELINE OF ROAD, 252M WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF COPING. N4910788.989 E607284.100 ELEV 241.981			
BENCHMARK NO: 0312020029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH OF THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TARGET IS ON THE SOUTHSIDE OF THE FLAGPOLE BASE. N4916180 E607799 ELEV 235.508			
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUL 2024	MF
	FSR SUBMISSION	DEC 2023	MF
BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02M WEST OF THE SOUTHWEST CORNER OF LOCKHART ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807			
NO.	REVISIONS	DATE	INITIAL



PRATT CONSTRUCTION INC.
HEWITT'S CENTRAL SUBDIVISION

PROFILE
LALLY TERRACE
STA. 0+240 TO STA. 0+600



DESIGN VB/KS	SCALE: H.1:500 V.1:50	DATE NOVEMBER 2023
DRAWN KS	PROJECT PRA-12160	DWG. № PP-4
CHECKED MF		