



WMI & Associates Limited
119 Collier Street, Barrie, Ontario, L4M 1H5
P (705) 797-2027 F (705) 797-2028

September 29, 2022

Via: Email

**The City of Barrie
70 Collier Street
Barrie, ON
L4M 4T5**

**Attention: Justin MacDonald, C.E.T.
Senior Transportation Technologist- Transportation Planning**

**Re: 500 Salem Road Subdivision
Traffic Impact Brief
City File D28-072-2021
WMI File No.: 21-652**

Dear Justin,

WMI & Associates Limited has been retained by LSR Salem Inc. (002527943 ON Inc.) to prepare a Traffic Impact Brief in support of Draft Plan approval of the proposed residential subdivision development located at 500 Salem Road in the City of Barrie.

The site is located within lands that were previously annexed from the Town of Innisfil, within the Salem Secondary Plan area. A review of transportation planning aspects and basic road geometry was previously undertaken by the City through the Conformity Review Application Process; and conformity review approval has since been granted by the City.

The development plan is based on a Draft Plan of Subdivision, prepared by Innovative Planning Solutions, dated September 9, 2022. This plan, along with a Site Location Plan (Figure 1), is appended to this Brief for reference.

This Traffic Impact Brief is based on the previously prepared conformity review submission, City of Barrie transportation related design guidelines, the Institute of Transportation Engineers (ITE) Trip Generation Manual, and good engineering practice.

Study Area & Context

The subject site comprises 3.32ha and is located on the north side of Salem Road, immediately to east of the County Road 27 and Salem Road intersection. It is located in a rural area that is adjacent to low-density residential, industrial and undeveloped properties. It currently contains a single residential dwelling on the west side, and vacant/ grassed areas throughout the remainder of the property.

The portion of the site that is proposed for development is situated on the east side of the property and is to consist of 34 townhome units within 6 blocks that are to front onto a new municipal road (Street 'A') that is to intersect Salem Road to the south, and connect through to a new subdivision development to the north. The Salem Road & Street 'A' intersection, which is proposed to be a full-move tee intersection, is located approximately 360m to the east of the Salem Road/ County Road 27 intersection and 440m to the west of the Essa Road and Salem Road intersection.

The currently-vacant lands to the north (known as the DiPoce lands) are also slated for residential and commercial development. The southern portion of this development that borders the subject site is also proposed to consist of townhomes, in a similar built-form to that of the subject development. A detailed Transportation Impact Study (TIS) has been undertaken for this development, by Nextrans Consulting Engineers, dated December 2018. This report studied traffic impacts to a large area that includes Salem Road from County Road 27 to Essa Road, and which includes the connection of the DiPoce subdivision to Salem road, via Street 'A'.

Salem Road to the south is also proposed to be reconstructed to facilitate these developments and other planned developments in the Salem Secondary Plan area. It is currently a 2-lane rural roadway consisting of a 7.0m asphalt width, gravel shoulders and drainage ditches. It is proposed to be widened and reconstructed as an arterial road with a 34m right-of-way width, which is to consist of 4 through lanes, a two-way left turn lane, as well as cycling lanes, and pedestrian sidewalks. The posted speed limit on Salem Road is currently 80km/hr but it is anticipated that the posted and design speeds of the road will be altered with the proposed reconstruction. Based on other arterial roads within the City of Barrie, it is anticipated that the posted and design speeds will be 50km/hr and 80km/hr, respectively.

Based on the relatively small size of the proposed development (34 units; less than 50 peak hour trips) and its context within an area where the overall traffic impacts have recently been recently studied, the content within this Traffic Impact Brief is limited to detailing the anticipated number of peak hour trips, and assessing operational & site access impacts.

Traffic Volume Impacts

Trip generation rates were estimated using data from the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 10th Edition. The multi-family housing datasets for low-rise buildings (up to 2 stories) were utilized to determine a viable trip generation rate for the proposed townhome units. The data for the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' time period, and the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm' time period were utilized since these data sets typically best represent the peak travel periods in residential neighborhoods.

Using the fitted curve equation from the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' and 'One Hour Between 4pm and 6pm' reports, eighteen (18) and twenty three (23) total vehicular trips (entering and exiting) are expected to be generated by this development under the peak AM and PM timeframes, respectively.

From a review of the local road network and likely travel destinations such as shopping centers, schools, employment lands and recreation facilities/attractions relative to the location of Salem Road, it is estimated that the majority of vehicular trips generated from this development as well as the southern portion of the DiPoce subdivision will travel to/from Salem Road. The TIS prepared by Nextrans for the adjacent DiPoce subdivision determines that a simple stop-control at the local road (Street 'A') leg of the intersection with Salem road is warranted. Based on the relatively low volume of additional peak hour trips from the subject development, it is anticipated that this proposed stop controlled configuration will remain sufficient.

Refer to the Trip Generation Spreadsheets appended to this Brief.

Turning Lane Warrants

The warrant for a left turn lane on the minor road approach at an intersection is based on an intersection capacity analysis, in particular when opposing traffic volumes on the major road are such that left-turning vehicles become queued on the minor road while waiting for a sufficient time-gap to make the turn. It is noted that the Salem Road reconstruction design incorporates a two-way left turn lane, which- based on the proposed tee intersection configuration- will act as a merging lane for left turning traffic out of Street 'A' onto Salem Road. This design will inherently minimize left-turn queues on Street 'A' due to vehicles that would otherwise be waiting for gaps in traffic travelling eastbound on Salem Road.

From a traffic volume perspective, it is anticipated that traffic volumes entering the intersection from Street 'A' will be low due to the minimal peak hour trips associated with the subject development. Also, based on the configuration of the adjacent DiPoce development to the north, it is anticipated that those peak hour traffic volumes would be minimal as well since the development mass is focused primary around a proposed east-west collector road (Maburn Street, located approximately 450m north of Salem Road), that will direct traffic to the adjacent arterial roads, County Road 27 and Essa Road.

Based on these factors, it is anticipated that a left turn lane on Street 'A' at the Salem Road intersection will not be required. It is recommended, however, that left-turn lane warrants be re-assessed at the detailed design stage in conjunction with the Salem Road reconstruction project once the anticipated Salem Road traffic volumes are known, to confirm these findings.

Sight-Distance Review

The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads outlines specific sight distance criteria to ensure safe vehicular movement to and from site accesses and intersecting roadways and to ensure that through traffic on the adjacent roadway will have adequate time and space for maneuverability and braking. From a desktop review of existing site conditions and sight-lines from the vantage point of the proposed Street 'A' & Salem Road Intersection, visibility is noted to be adequate in the western direction, however visibility is somewhat inhibited in the eastern direction, due to the presence of a vertical curve in Salem Road that is located just to the east of the Street 'A' intersection. Through coordination with City staff, it is understood that the vertical profile geometry of Salem Road is to be altered as a part of the widening and reconstruction project, so that adequate sight-distances are provided at this intersection. It is noted that the required sight-distance from the minor road in the western direction is 145m, which is case B2- Right turn from stop- based on table 9.9.6 of the TAC Geometric Design Guide.

Vehicular Circulation & Property Access

The new municipal roadway and the intersection at Salem Road will consist of horizontal and vertical geometry that will be in accordance with City standard requirements, in order to facilitate turning movements from emergency vehicles (fire trucks, in particular). The road is to be 18.0m in width and comprise an 8.0m wide urbanized road that is to contain sidewalks on both sides, in accordance with the City's standard 18.0m Local road cross-section.

The townhome units are to contain private driveways to accommodate all parking needs; additional street parking will inherently be provided at the roadside in accordance with City requirements. No additional parking facilities are proposed.

Traffic Impact Summary

This Traffic Impact Brief demonstrates that the proposed 500 Salem Road subdivision development can be accommodated within the Salem Secondary Plan area of the City of Barrie without adverse impacts on existing & proposed transportation systems. In particular, it is determined that Street 'A' at Salem road should not need a left turn lane, that the Street 'A' and Salem Road intersection will accommodate the anticipated peak hourly trips and that sight-lines will be adequate, and that the internal road geometry will be sufficient for the movement of traffic and accommodation of emergency vehicles.

Should you have any questions or require additional information, please contact the undersigned.

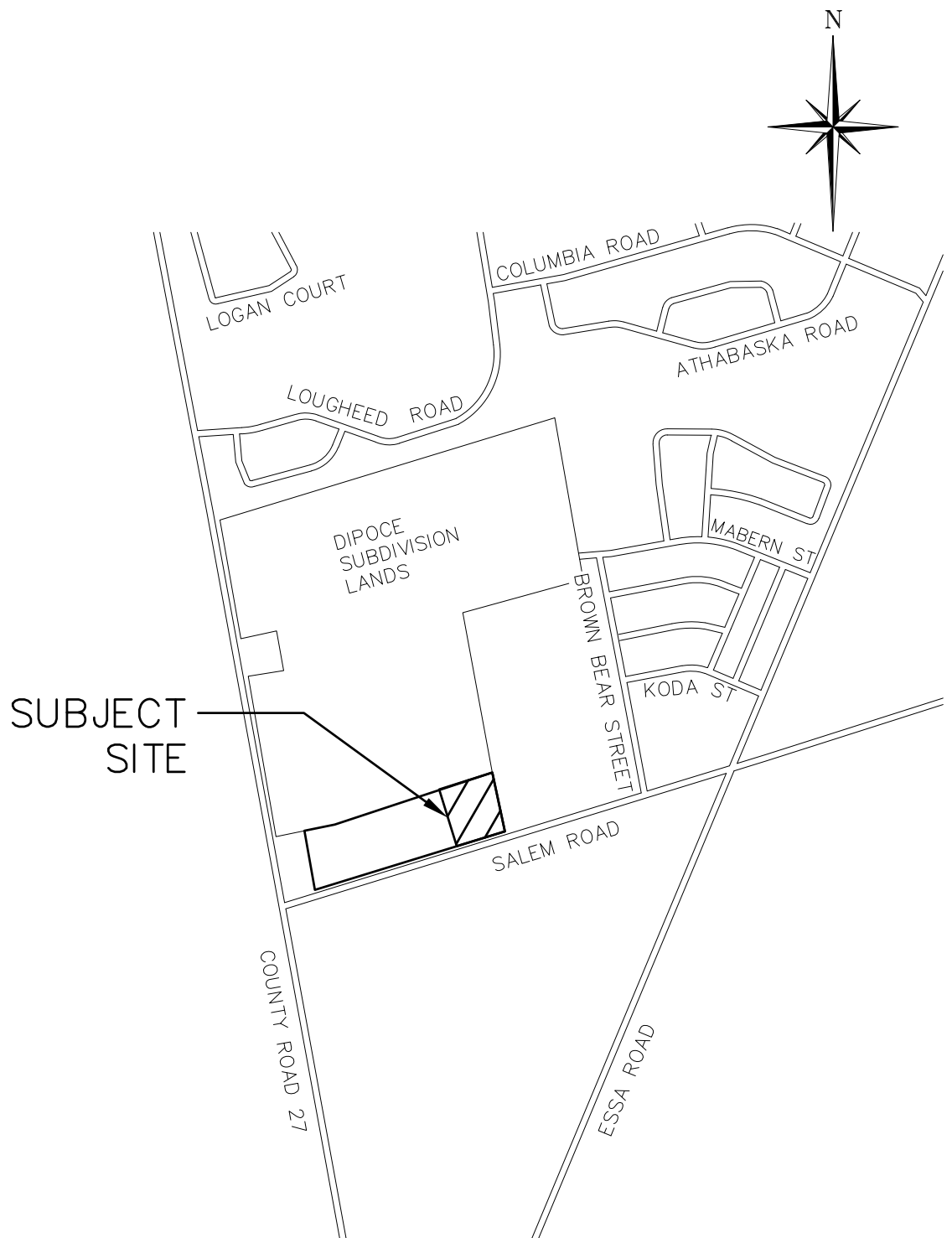
Yours truly,

WMI & Associates Limited



Jonathan Reimer, P. Eng.





Drawing Title
SITE LOCATION PLAN

Project Title
500 SALEM ROAD

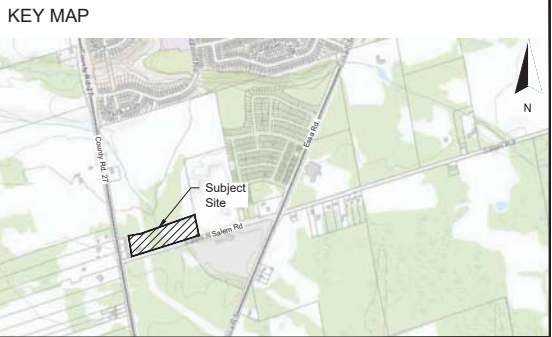
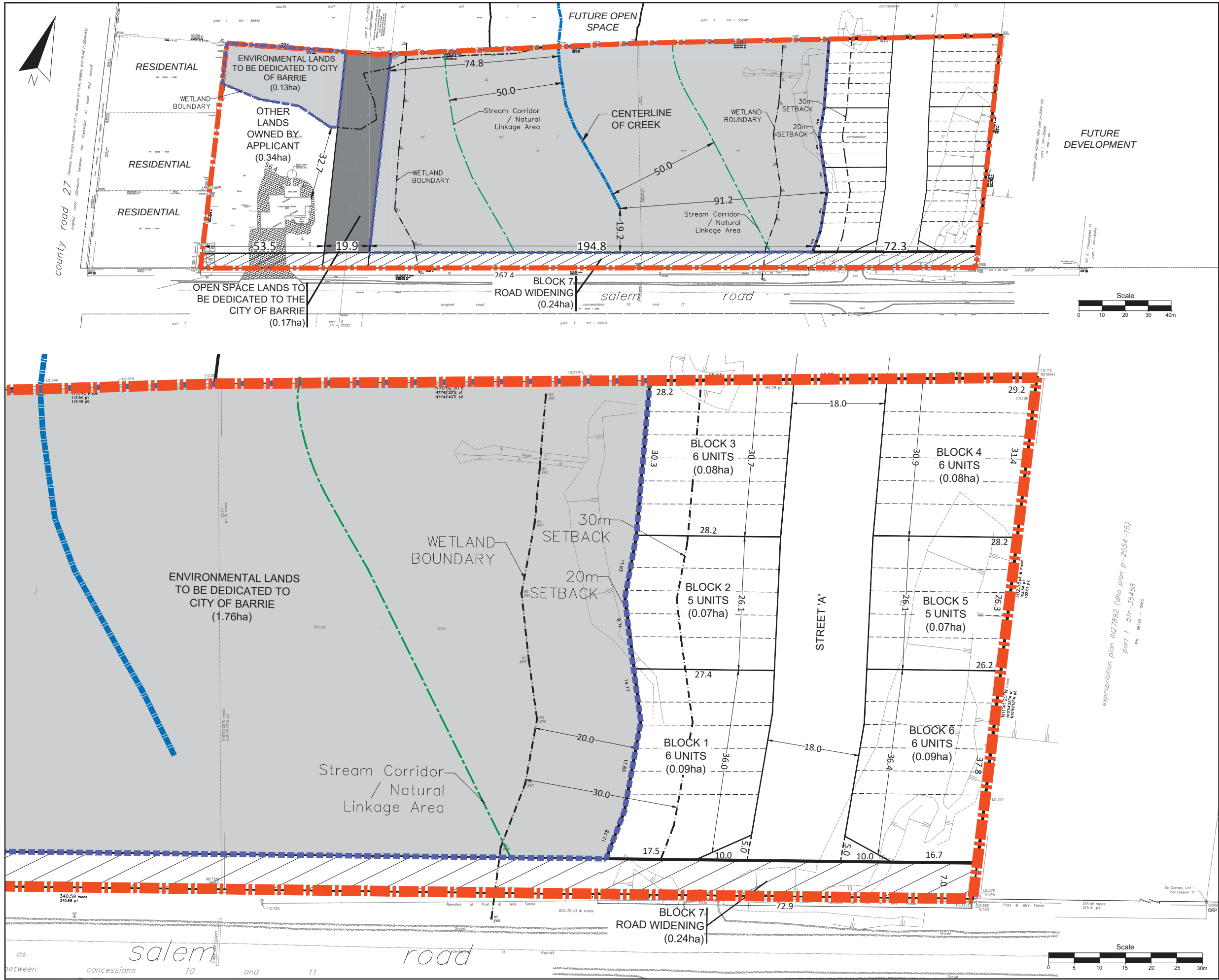


WMI & Associates Limited
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Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By
JB
Scale
N.T.S.

Checked By
JR
Project No.
21-652

Figure No.
FIG1



DRAFT PLAN OF SUBDIVISION

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE

- LEGEND**
- SUBJECT LANDS
 - AREA: 3.32ha
 - FRONTAGE: 340.5m (incl. develop. limit)
 - DEVELOPMENT LIMIT (AREA:0.68ha excluding road widening)
 - WETLAND BOUNDARY
 - WETLAND SETBACK
 - STREAM CORRIDOR / NATURAL LINKAGE AREA
 - ENVIRONMENTAL LANDS TO BE DEDICATED TO THE CITY OF BARRIE
 - OPEN SPACE LANDS TO BE DEDICATED TO THE CITY OF BARRIE

OWNER'S CERTIFICATE
I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE: OWNER'S NAME:

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: NEIL A. LEGROW, O.L.S.

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

- | | |
|------------------|-----------------------------|
| a) SHOWN ON PLAN | g) SHOWN ON PLAN |
| b) SHOWN ON PLAN | h) MUNICIPAL WATER |
| c) SEE KEY PLAN | i) SAND, SILT, CLAY |
| d) RESIDENTIAL | j) SHOWN ON PLAN |
| e) SHOWN ON PLAN | k) MUNICIPAL WATER & SEWAGE |
| f) SHOWN ON PLAN | l) NONE |

LAND USE STATISTICS			
LAND USE	LOT / BLK No.	UNITS	AREA (ha)
Residential - Townhouse	1 - 6	34	0.48
Street 'A'			0.20
TOTAL	7	34	0.68ha



INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	Sept. 9, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



WMI & Associates Limited
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p (705) 797-2027 f (705) 797-2028

TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS

ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 7AM AND 9AM

Date: 27-Sep-22

Project No.: 21-652

Project: 500 Salem Road

Prepared By: CJ

References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [$\ln(T) = 0.95\ln(X) - 0.51$]		
			Total Trips:	Entering (23%)	Exiting (77%)
500 Salem Road Development	220: Multifamily Housing (Low Rise)	34 units	18	4	14

Notes:

This analysis is based on the Draft Plan 500 Salem Road (Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe) dated September 9, 2022.

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TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS

ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 4PM AND 6PM

Date: 27-Sep-22

Project No.: 21-652

Project: 500 Salem Road

Prepared By: CJ

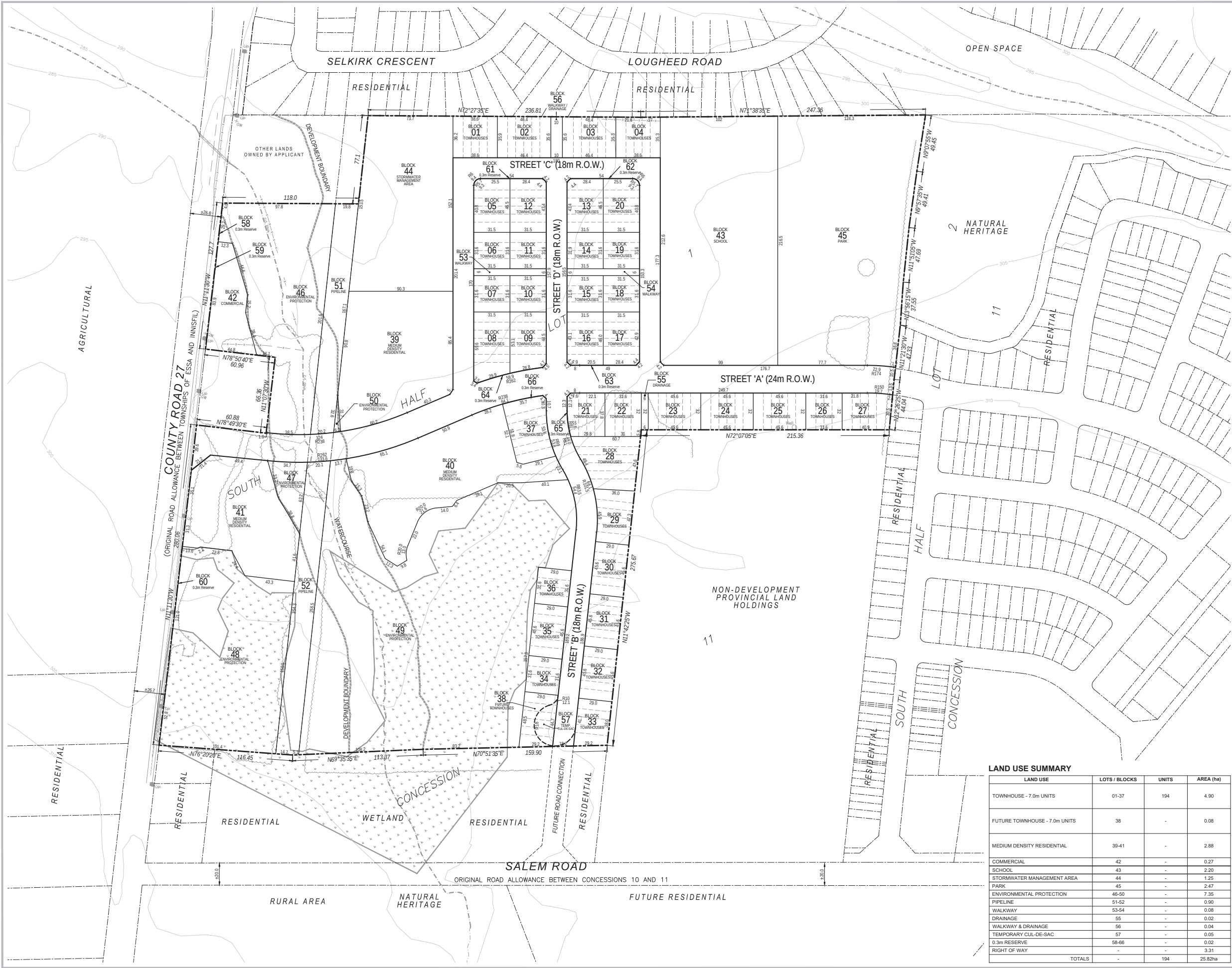
References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [$\ln(T) = 0.89\ln(X) - 0.02$]		
			Total Trips:	Entering (63%)	Exiting (37%)
500 Salem Road Development	220: Multifamily Housing (Low Rise)	34 units	23	14	9

Notes:

This analysis is based on the Draft Plan 500 Salem Road (Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe) dated September 9, 2022.

Z:\Projects\2021\21-652\Design\Traffic\220927_TripGen.xlsx]PM



LEGAL DESCRIPTION

PART OF SOUTH HALF LOT 1
CONCESSION 11
GEOGRAPHIC TOWNSHIP OF INNISFIL
TOWN OF INNISFIL
COUNTY OF SIMCOE

OWNER'S CERTIFICATE

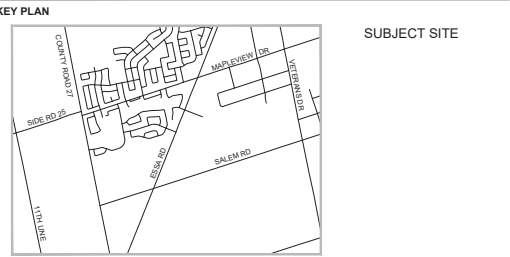
I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: _____ JOHN DIPOCE
DIPOCE (INNISFIL) INC.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____ RODNEY H. GEYER - O.L.S.
GEYER SURVEYS



LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- BLOCK LINE
- LOT LINE
- PARCEL FABRIC

REVISION No.	DATE	ISSUED / REVISION	BY
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990 C.P.13 AS AMENDED			
A. AS SHOWN	F. AS SHOWN	K. ALL SERVICES AS REQUIRED	
B. AS SHOWN	G. AS SHOWN	(WATER, SANITARY, STORMWATER, HYDRO)	
C. AS SHOWN	H. MUNICIPAL WATER SUPPLY	L. SILT LOAM	
D. AS SHOWN	I. AS SHOWN	J. AS SHOWN	
E. AS SHOWN			



113 COLLIER STREET
BARRIE, ON, L4M 1H2
P: 705 728 0045 F: 705 728 2010
WWW.MHBCPLAN.COM

PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
MHBC PLANNING

STAMP	DATE October 24, 2019
FILE No.	0853F
SCALE	1:1,500 (ARCH D)
DRAWN BY	M.M./L.M.
CHECKED BY	D.A.
OTHER	

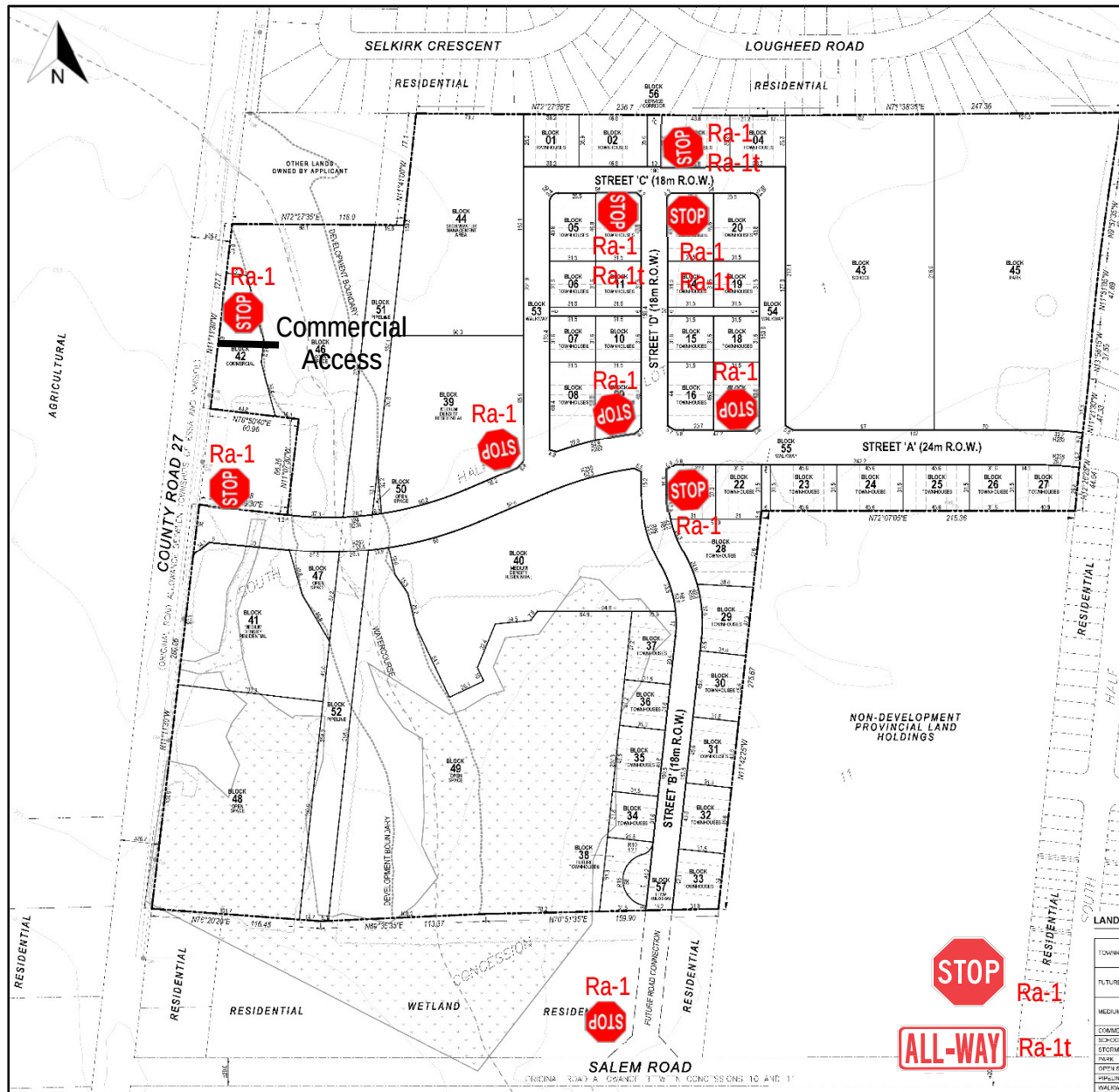
PROJECT	DIPOCE BARRIE DIPOCE (INNISFIL) INC.
FILE NAME	DRAFT PLAN OF SUBDIVISION
SCALE BAR	DWG No. 1 of 1

LAND USE SUMMARY			
LAND USE	LOTS / BLOCKS	UNITS	AREA (ha)
TOWNHOUSE - 7.0m UNITS	01-37	194	4.90
FUTURE TOWNHOUSE - 7.0m UNITS	38	-	0.08
MEDIUM DENSITY RESIDENTIAL	39-41	-	2.88
COMMERCIAL	42	-	0.27
SCHOOL	43	-	2.20
STORMWATER MANAGEMENT AREA	44	-	1.25
PARK	45	-	2.47
ENVIRONMENTAL PROTECTION	46-50	-	7.35
PIPELINE	51-52	-	0.90
WALKWAY	53-54	-	0.08
DRAINAGE	55	-	0.02
WALKWAY & DRAINAGE	56	-	0.04
TEMPORARY CUL-DE-SAC	57	-	0.05
0.3m RESERVE	58-66	-	0.02
RIGHT OF WAY	-	-	3.31
TOTALS	-	194	25.82ha

6.1.3. Internal Road Intersection Traffic Controls

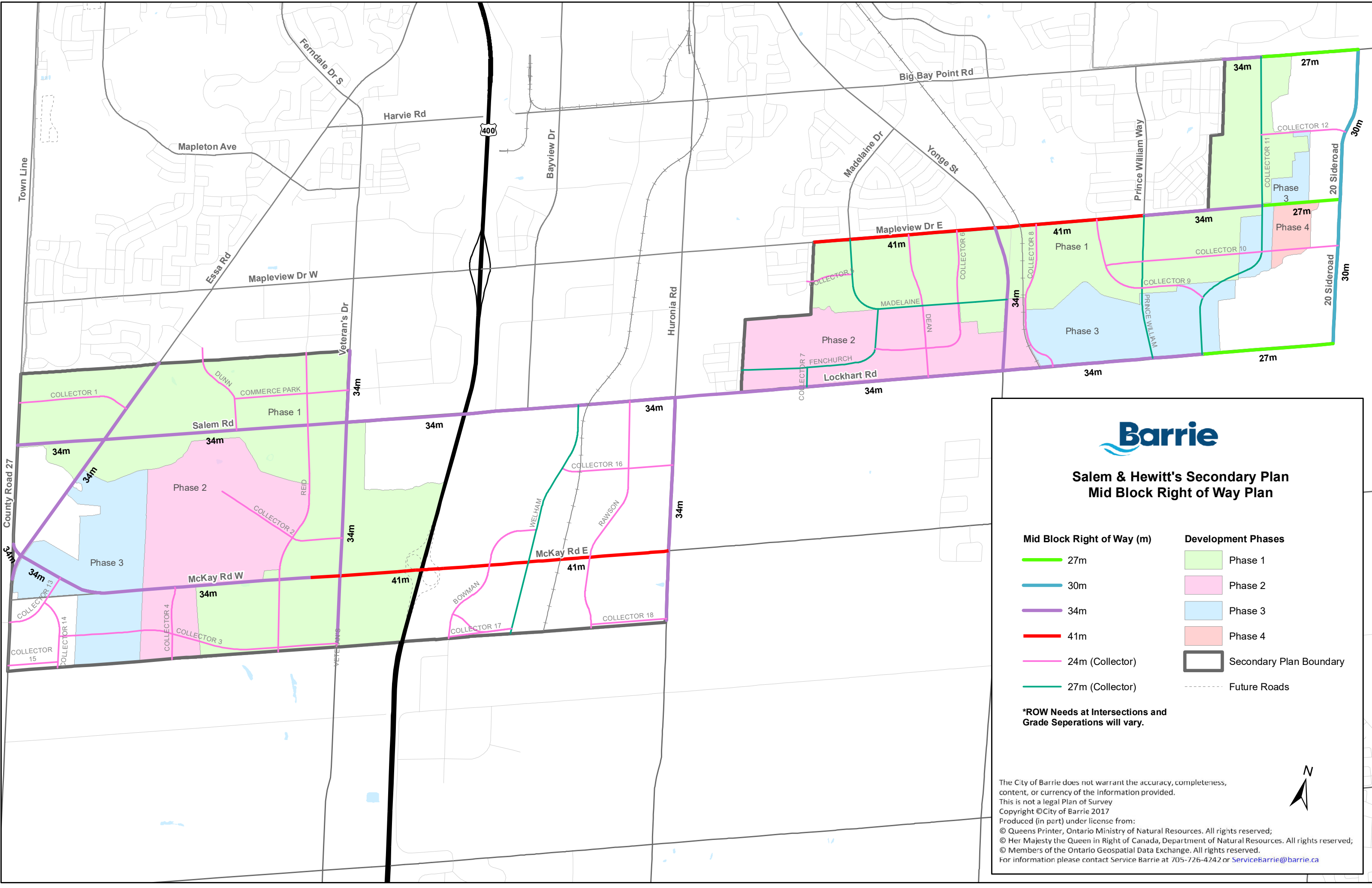
The proposed internal road intersection lane configurations and traffic control are illustrated in Figure 23, based on the forecast traffic volumes and intersection functionality. It should be noted that these intersection lane configurations and traffic controls can be further reviewed and fine-tuned in the subsequent phase of the proposed development.

Figure 23 – Internal Road Intersection Traffic Controls



6.2. Active Transportation Network for the Proposed Development

The communities within the Salem Secondary Plan Area will be developed based on a modified grid street system and related off-street pathway system, designed to provide for a full range of transportation options with a focus on maximizing the potential for transit service and active transportation. Figure 24 illustrates the proposed active transportation network based on the principles outlined in the Salem Secondary Plan Area, Salem Transportation Plan, the City of Barrie's Multi-Modal Active Transportation Master Plan, as well as Nextrans' review of the proposed development context.



Salem & Hewitt's Secondary Plan Mid Block Right of Way Plan

- Mid Block Right of Way (m)**
 - 27m
 - 30m
 - 34m
 - 41m
 - 24m (Collector)
 - 27m (Collector)
- Development Phases**
 - Phase 1
 - Phase 2
 - Phase 3
 - Phase 4
 - Secondary Plan Boundary
 - Future Roads

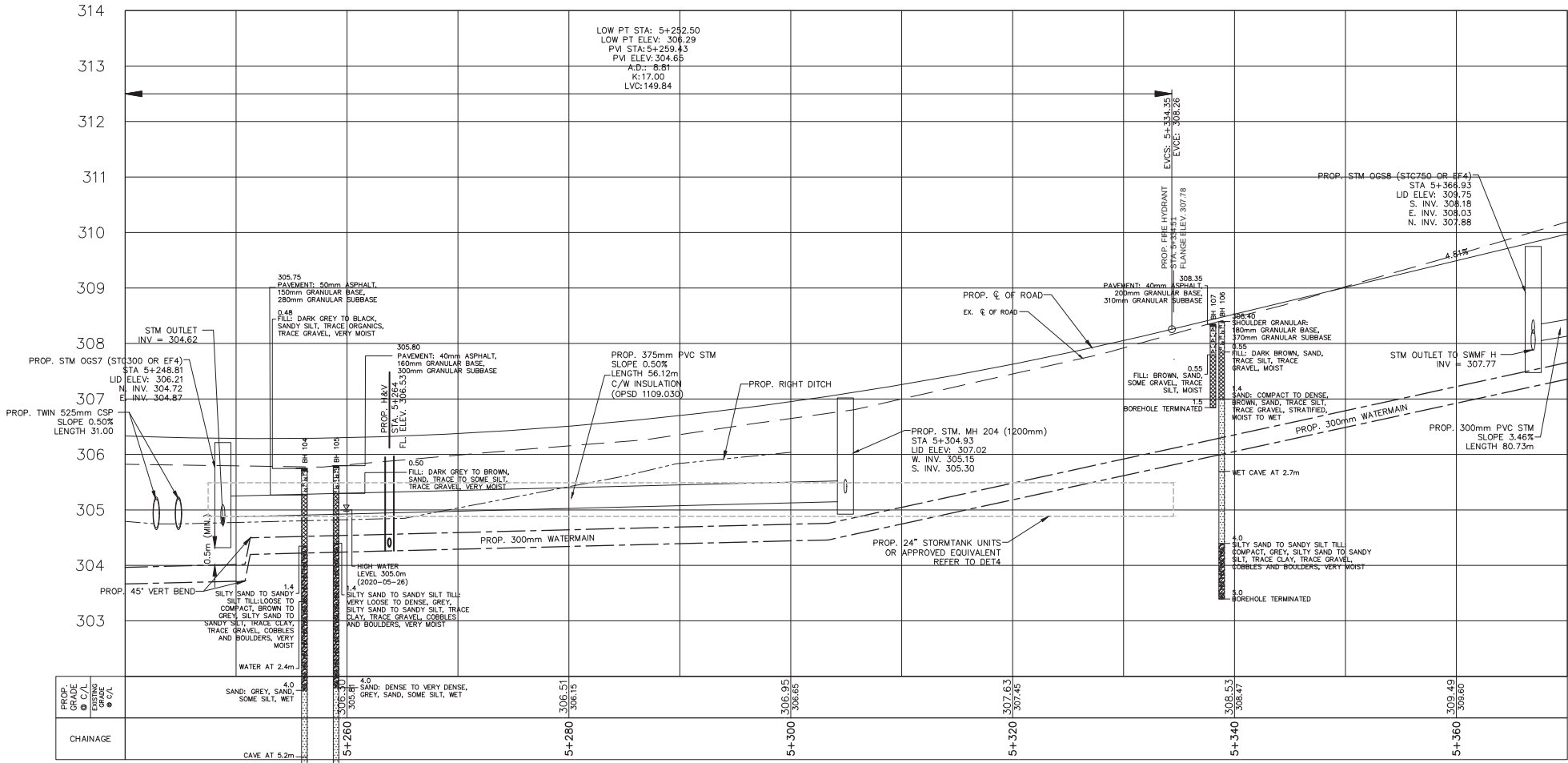
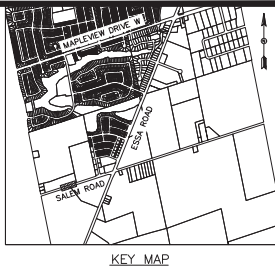
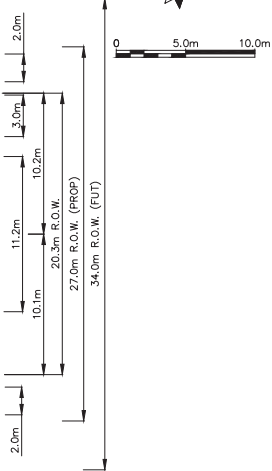
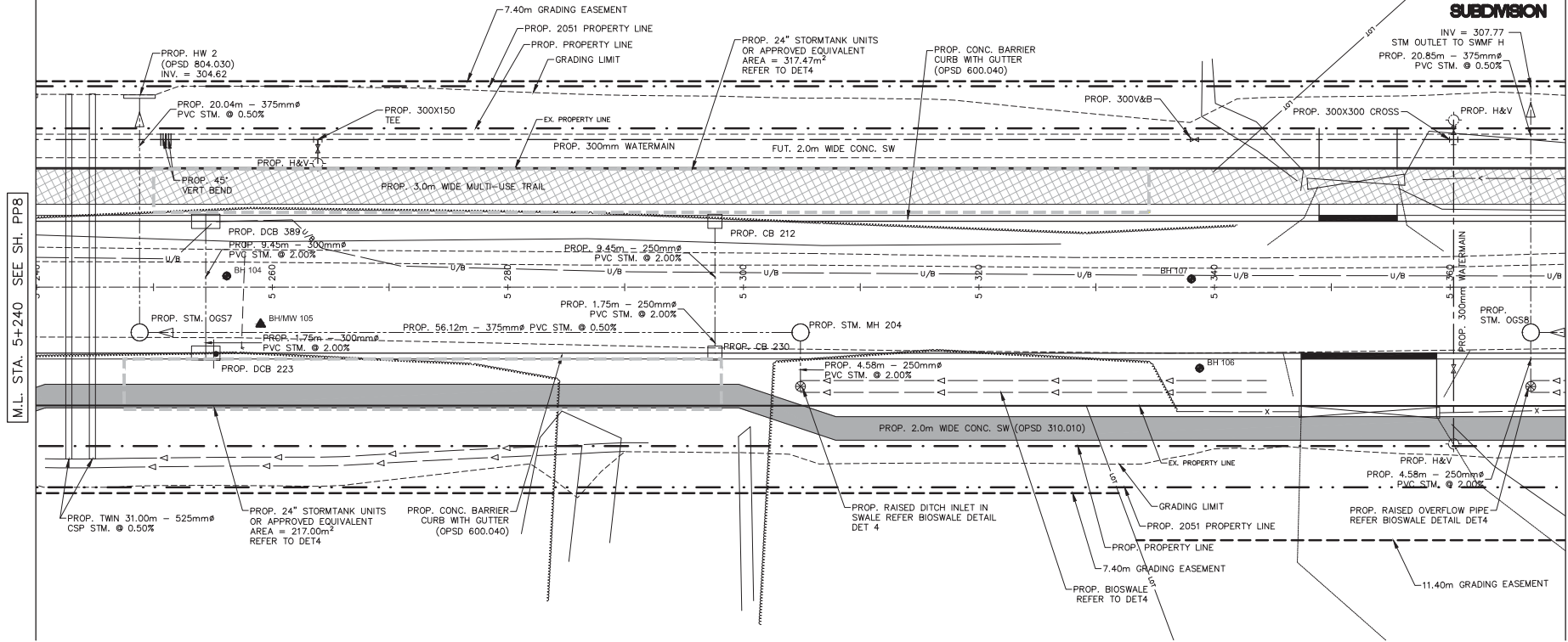
***ROW Needs at Intersections and
Grade Separations will vary.**

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



SALEM ROAD

FUTURE ROAD
CONNECTION
TO DIPOCE
RESIDENTIAL
SUBDIVISION



GENERAL NOTES
REFER TO CURRENT CITY OF BARRIE STANDARDS FOR APPLICABLE GENERAL NOTES.

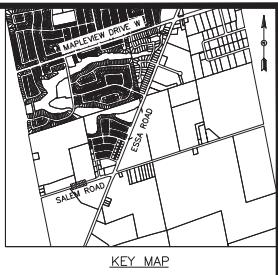
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DISTANCE NOTE
DISTANCES SHOWN HEREON ARE GRID DISTANCES AND CAN BE CONVERTED TO GROUND DISTANCES BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 1.0003.

NO.	REVISIONS	DATE	APPROVED
1	ISSUED FOR 30% SUBMISSION	191129	DD
2	ISSUED FOR 60% SUBMISSION	21XXXX	DD

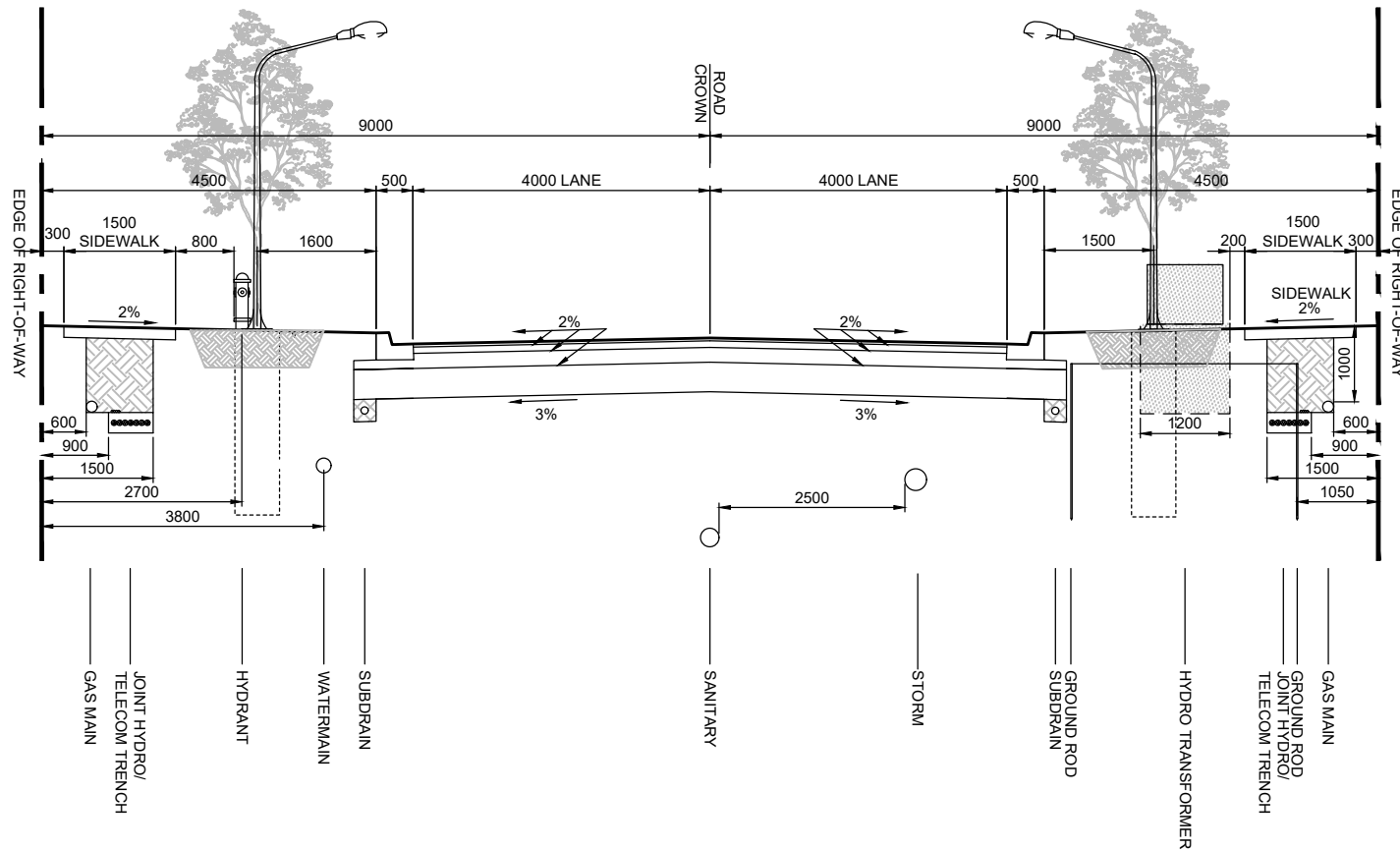
CITY OF BARRIE
ACCEPTED
DATE:
DIRECTOR OF INFRASTRUCTURE

ESSA ROAD AND
SALEM ROAD WIDENING
EN1276
PLAN & PROFILE
STA. 5+240 TO STA. 5+370

Barrie
INFRASTRUCTURE DEPARTMENT
SCALE HOR. 1:250 SCALE VER. 1:50 CONTRACT NO. 2020-XXXX
DESIGN ML DRAWN MH SHEET NO. PP9
REVIEWED DD DATE 2020/07/02

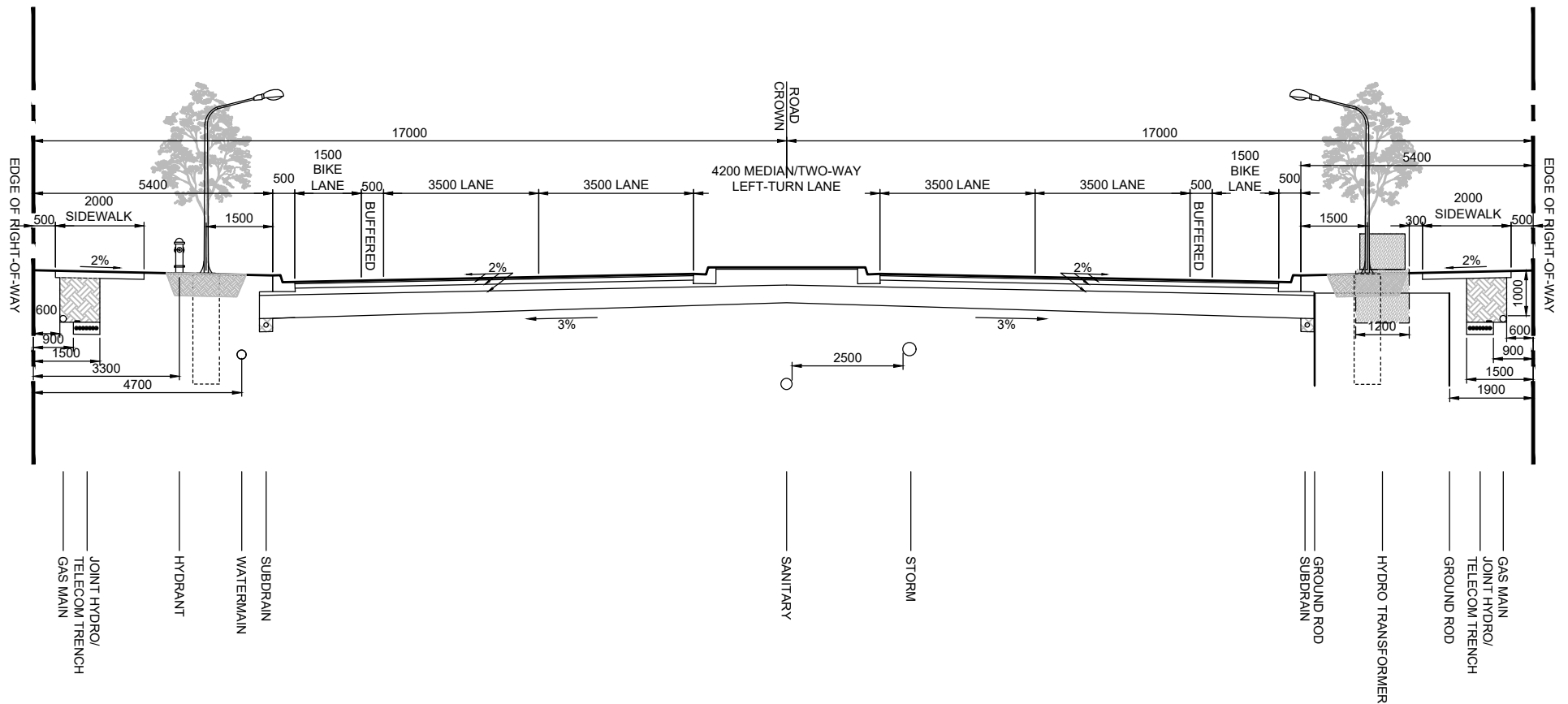


SCALE	HOR. 1:250	SCALE	VER. 1:50	CONTRACT NO. 2020-XXXX
DESIGN	ML	DRAWN	MH	
REVIEWED	DD	DATE	2020/07/02	
				SHEET NO. PP10



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. WASTEWATER SYSTEMS, STORMWATER SYSTEMS, INCLUDING LOW IMPACT DEVELOPMENT FACILITIES, AND WATER DISTRIBUTION AND TRANSMISSION SYSTEMS TO BE DESIGNED IN ACCORDANCE WITH CITY OF BARRIE ENGINEERING GUIDELINES AND STANDARDS.
3. REFER TO THE CITY OF BARRIE ROADWAY ILLUMINATION POLICIES AND DESIGN GUIDELINES AND ASSOCIATED BSD'S FOR LIGHT STANDARD AND POLE BASE LOCATION AND DEPTH.
4. REFER TO TRANSPORTATION DESIGN MANUAL FOR PAVEMENT DESIGN METHODOLOGY.
5. TREES TO BE PLACED IN LOCATIONS APPROVED BY THE PARKS, PLANNING, AND DEVELOPMENT BRANCH. (SEE BSD-1315)



NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
- WASTEWATER SYSTEMS, STORMWATER SYSTEMS, INCLUDING LOW IMPACT DEVELOPMENT FACILITIES, AND WATER DISTRIBUTION AND TRANSMISSION SYSTEMS TO BE DESIGNED IN ACCORDANCE WITH CITY OF BARRIE ENGINEERING GUIDELINES AND STANDARDS.
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- REFER TO TRANSPORTATION DESIGN MANUAL FOR PAVEMENT DESIGN METHODOLOGY.
- TREES TO BE PLACED IN LOCATIONS APPROVED BY THE PARKS, PLANNING, AND DEVELOPMENT BRANCH. (SEE BSD-1315)
- WIDENINGS MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE REQUIRED TURN-LANES
- AT AN INTERSECTION, THE 4.2 m MEDIAN BECOMES 3.0 m LEFT-TURN LANE, MINIMUM MEDIAN WIDTH TO BE 0.8m, EXCLUSIVE OF CURB.