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Appendix A

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Peto MacCallum Ltd.
CONSULTING ENGINEERS

PRELIMINARY GEOTECHNICAL/HYDROGEOLOGICAL INVESTIGATION
PROPOSED RECONSTRUCTION OF 7TH LINE
INNISFIL, ONTARIO

for

R.J. BURNSIDE & ASSOCIATES LIMITED



PETO MacCALLUM LTD.
19 CHURCHILL DRIVE
BARRIE, ONTARIO
L4N 8Z5
PHONE: (705) 734-3900
FAX: (705) 734-9911
EMAIL: barrie@petomaccallum.com

Distribution:
2 cc: R.J. Burnside & Associates Limited (+email)
1 cc: PML Barrie

PML Ref.: 18BF035
Report: 1
August 2018

Peto MacCallum Ltd.
CONSULTING ENGINEERS

August 24, 2018

PML Ref.: 18BF035
Report: 1

Mr. Drew Davidge, P.Eng.
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, Ontario
L4N 8J6

Dear Mr. Davidge

Preliminary Geotechnical/Hydrogeological Investigation
Proposed Reconstruction of 7th Line
Innisfil, Ontario

Peto MacCallum Ltd. (PML) is pleased to present the results of the preliminary geotechnical and hydrogeological investigation recently completed at the above noted project site. Authorization for this assignment was provided by Mr. D. Davidge in an email dated April 17, 2018 and execution of an Agreement for Professional Consulting Services provided by R.J. Burnside & Associates Limited (RJB).

The 7th Line of Innisfil between Yonge Street and 10th Sideroad (approximately 3.0 km) is to be reconstructed. An Environmental Assessment (EA) is being undertaken to plan for the road reconstruction. The EA will address the substandard road width (currently about 4.0 to 4.5 m in some areas), road profile and drainage, and possibly municipal servicing. There are also two watercourse crossings that will likely be upgraded.

The purpose of the preliminary geotechnical investigation was to assess the subsurface conditions at the site, and based on this information, provide comments and preliminary geotechnical engineering recommendations for watercourse crossings structures, municipal servicing and pavement design.

The purpose of the preliminary hydrogeological investigation was to characterize the existing hydrogeological conditions, complete a desktop water well survey, and provide an assessment of permeability parameters at the site.

A limited chemical testing program was included with the above studies to assess the preliminary geoenvironmental quality of the soil and ground water.

Seven boreholes were advanced along the road alignment to determine the subsurface conditions. Below the road pavement fill and peat were encountered over native granular soil. The July 2018 stabilized ground water was typically 1.4 to 1.7 m below existing grade, locally the ground water at depth was under pressure.

Road profile grades or culvert type/inverts were not determined at the time of this report. However, typical construction techniques are generally considered feasible with special concern for wet subgrade soils, high ground water table and artesian ground water at depth.

Sincerely

Peto MacCallum Ltd.

Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

GRW:jlb/tc

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1. INTRODUCTION

Peto MacCallum Ltd. (PML) is pleased to present the results of the preliminary geotechnical and hydrogeological investigation recently completed at the above noted project site. Authorization for this assignment was provided by Mr. D. Davidge in an email dated April 17, 2018 and execution of an Agreement for Professional Consulting Services provided by R.J. Burnside & Associates Limited (RJB).

The 7th Line of Innisfil between Yonge Street and 10th Sideroad (approximately 3.0 km) is to be reconstructed. An Environmental Assessment (EA) is being undertaken to plan for the road reconstruction. The EA will address the substandard road width (currently about 4.0 to 4.5 m in some areas), road profile and drainage, and possibly municipal servicing. There are also two watercourse crossings that will likely be upgraded.

The purpose of the preliminary geotechnical investigation was to assess the subsurface conditions at the site, and based on this information, provide comments and preliminary geotechnical engineering recommendations for watercourse crossing structures, municipal servicing and pavement design.

The purpose of the preliminary hydrogeological investigation was to characterize the existing hydrogeological conditions, complete a desktop water well survey, and provide an assessment of permeability parameters at the site.

A limited chemical testing program was included with the above studies to assess the preliminary geoenvironmental quality of the soil and ground water.

The comments and recommendations provided in this report are based on the subsurface conditions as revealed in a limited number of boreholes. Accordingly, the comments and recommendations provided in this report are general in nature and suitable only for preliminary planning purposes. When design details are available, they should be submitted to PML for review to assess the validity of the report, and will require additional investigation and/or analysis in order to finalize the geotechnical and hydrogeological recommendations.

2. INVESTIGATION PROCEDURES

The boreholes for this investigation were carried out on July 9 and 10, 2018, and consisted of Boreholes 1 to 7, drilled to 5.0 to 6.6 m depth at the locations shown on Drawing 1, appended.

The borehole locations were established in the field by PML based on a plan provided by the Client. Coordination for clearances of underground utilities was provided by PML. The boreholes were drilled cognizant of underground utilities.

Traffic control was provided by PML in accordance with the Ontario Traffic Manual, Book 7.

The boreholes were advanced using continuous flight solid and hollow stem augers, powered by a truck mounted CME-75 drill rig, equipped with an automatic hammer. The drill rig was supplied and operated by a specialist drilling contractor working under the full-time supervision of a member of PML's engineering staff.

Representative samples of the site soils were recovered at frequent depth intervals for identification purposes using a conventional split spoon sampler. Standard penetration tests were carried out simultaneously with the sampling operations to assess the strength characteristics of the subsoil. The ground water conditions in the boreholes were assessed during drilling by visual examination of the soil samples, the sampler, and drill rods as the samples were retrieved, and measurement of the water level in the open boreholes, if any.

Monitoring wells, comprising 50 mm diameter pipe with 1.5 m long screens at the base, filter sand, bentonite seal and flush mount protective covers, were installed in three of the boreholes to permit ground water level monitoring and sampling. Boreholes without wells were backfilled in accordance with O.Reg. 903. It should be noted that the wells become the property of the Owner and will have to be decommissioned by the Owner. PML would be pleased to assist in this regard.

All recovered soil samples were returned to our laboratory for moisture content determination and detailed examination to confirm field classification. Four samples of the pavement granular

material, two samples of the pavement subgrade and three samples of the major units were submitted for grain size analysis. Grain size analyses results are presented on Figures 1 to 6, appended.

Ground surface elevations at the boreholes were provided by RJB. Co-ordinates were provided based on a GPS application, accurate to ±4.0 m.

The hydrogeological field work for this investigation was completed on July 26, 30 and 31, 2018, and included obtaining ground water levels from all three monitoring wells and conducting three field permeability tests (slug tests) to determine the in-situ hydraulic conductivity.

Development of the wells was completed on July 30, 2018 and ground water sampling was completed July 31, 2018. Water samples were collected from all three wells.

Geoenvironmental procedural protocols for soil and ground water, and chemical testing results are presented later in the report.

3. PHYSICAL SETTING

3.1 Physiography and Topography

The site is located within the physiographic region known as the Simcoe Uplands and the surficial geology comprises glaciolacustrine beach and bar sediments consisting of gravel, sandy gravel and gravelly sand deposits (Chapman and Putnam, 1984).

The borehole elevations indicate higher ground to the east towards Yonge Street (elevation 274 to 276) and to the west towards 10th Sideroad (elevation 255 to 256) sloping down towards Lover's Creek wetland/tributaries (elevation 249) that run across the central part of the 7th Line.

3.2 Drainage and Surface Water Flow

The 7th line crosses an evaluated Ministry of Natural Resources (MNR) wetland known as Lover's Creek Swamp. The evaluated wetland starts about 200 m east of the 10th Sideroad and continues about 2 km east.

Lover's Creek and its tributaries cross the 7th Line between the 10th Line and Yonge Street at three locations.

Surface drainage is to Lover's Creek and its tributaries then to the north and/or east towards Lake Simcoe.

4. GEOLOGY AND SUBSURFACE CONDITIONS

4.1 Geology

Bedrock below the overburden is mapped as limestone, dolostone, shale, arkose, and sand stone of the Simcoe Group, Shadow Lake Formation from the Middle Ordovian period of the Paleozoic era of the Phanerzoic eon. Bedrock is at about 150 to 160 m depth based on Ministry of Environment, Conservation and Parks (MOECP) well records.

Regional overburden mapping shows the soil at the site and immediate surrounding area comprises Newmarket Till (Pleistocene period) comprising sandy silt to silt sediments with high carbonate and clast content.

4.2 Subsurface Conditions

Reference is made to the appended Log of Borehole sheets for details of the subsurface conditions, including soil classifications, inferred stratigraphy, Standard Penetration test N values (N Values – number of blows per 300 mm of penetration of the split spoon sampler), monitoring well installation details, ground water observations and the results of laboratory moisture content determinations.

Due to the soil sampling procedures and limited sample size, the depth demarcations on the borehole logs must be viewed as "transitional" zones between layers, and cannot be construed as exact geologic boundaries between layers. PML would be pleased to assist in defining soil boundaries in the field during construction, if required.

The site is characterized by pavement, over fill, locally peat, underlain by native granular soils. A description of the distribution and characteristics of the various soil units and ground water observations encountered in the boreholes is presented below.

4.2.1 Pavement

All boreholes were drilled through the existing road pavement. The following table summarizes the pavement component thicknesses:

BOREHOLE	ASPHALT (mm)	GRANNULAR BASE (mm)	GRANNULAR SUBBASE (mm)	TOTAL THICKNESS (mm)
1	30	150	250	430
2	30	170	280	480
3	140	140	320	600
4	50	180	300	530
5	180	130	240	550
6	30	150	220	400
7	30	170	400	600

Samples of granular base from Boreholes 2 and 6 were submitted for grain size analysis and the results are presented on Figure 1, appended. The samples were too fine on multiple sieves to meet OPSS Granular A specifications and too fine on 75 µm sieve (>15% vs. 8% standard) to meet OPSS Granular B Type I specifications.

Samples of the granular subbase from Boreholes 2 and 6 were also submitted for grain size analysis and the results are also provided on Figure 1, attached. The samples were too fine on the 75 µm sieve (about 20% vs 8% standard) to meet OPSS Granular B Type I specifications.

4.2.2 Fill

Beneath the pavement structure in all boreholes a fill unit was observed and extended to 1.4 to 2.1 m depth (elevation 247.5 to 275.1). The fill comprised sand/silty sand/sandy silt, with trace gravel and trace clay. A sample of the fill from Boreholes 2 and 7 were submitted for grain size analysis, and the results are presented on Figures 2 and 3, appended. N Values ranged from 3 to 51, indicating variable compaction effort when fill was placed. Moisture contents ranged from 2 to 18% (moist to very moist/wet at base of unit).

4.2.3 Peat

A local amorphous peat layer with trace sand was encountered below the fill in Boreholes 2, 3 and 4 (low lying central part of the site), extending to 2.1 to 2.9 m (elevation 246.7 to 248.9). N values ranged from 2 to 6. Moisture contents ranged from 19 to 73% (very moist to wet).

4.2.4 Silt and Sand

Below the sand in Borehole 3, a local silt and sand unit was revealed to the 6.6 m depth of exploration. A sample of the soil was submitted for grain size analysis and the results are presented on Figure 4, attached. The material was loose (N Values of 4 and 9) and wet (moisture content of 20%).

4.2.5 Silt and Sand Till

Silt and sand till deposit was encountered below the silty sand unit in Borehole 1 (west end) and the fill unit in Boreholes 5 to 7 (east end) to depths of 4.0 m to the 5.0 m depth of exploration (elevation 249.6 to 272.5). The deposit comprised silt and sand, with trace gravel and trace to some clay. Cobbles and boulders were noted throughout. A sample of the material from Borehole 6 was submitted for grain size analysis and the results are presented on Figure 5,

appended. The till layer was loose to very dense (N Values of 4 to 90) and was moist, with moisture contents ranging from 7 to 19%.

4.2.6 Sand

Below the fill and peat in Boreholes 1 to 4, a sand unit was revealed. The sand extended 2.9 and 4.0 m depth (elevation 253.6 and 245.6) in Boreholes 1 and 3, and to the 5.0 to 6.6 m depth of exploration in Boreholes 2 and 4. The unit comprised sand with trace to some silt and trace gravel, grading to silty sand in Borehole 1. A sample of the material from Borehole 2 was submitted to our laboratory for grain size analysis and the results are provided on Figure 6, appended. The sand was loose (N Values less than 10) in Boreholes 1 and 4, and compact to dense in Boreholes 2 and 3 (N Values 16 to 42). The material was wet with moisture contents of 15 to 20%.

A lower sand unit was encountered below the till in Boreholes 5 and 7 to the 5.0 m depth of exploration. The sand was dense to very dense (N Values of 41 and 58) and was wet (moisture contents of 10 and 12%).

4.2.7 Ground Water

The first water strike (ground water first encountered during drilling), the ground water levels measured in the boreholes upon completion of augering, and measured in the wells on July 26, 30 and 31, 2018 are summarized in the table below, on borehole by borehole basis:

BOREHOLE	FIRST STRIKE DURING DRILLING DEPTH (m) / ELEVATION	UPON COMPLETION OF AUGERING DEPTH (m) / ELEVATION	WATER LEVEL IN WELLS DEPTH (m) / ELEVATION		
			2018-07-26	2018-07-30	2018-07-31
1	2.7 / 253.8	4.0 / 252.5	--	--	--
2	3.1 / 247.9	Water used during drilling	1.6 / 249.4	1.4 / 249.6	1.5 / 249.5
3	3.1 / 246.5	Water used during drilling	1.7 / 247.9	1.6 / 248.0	1.5 / 248.1
4	1.5 / 248.2	1.5 / 248.2	--	--	--

BOREHOLE	FIRST STRIKE DURING	UPON COMPLETION OF	WATER LEVEL IN WELLS DEPTH (m) / ELEVATION		
5	4.6 / 249.0	4.0 / 249.6	--	--	--
6	2.0 / 272.6	4.6 / 270.0	1.6 / 273.0	1.5 / 273.1	1.5 / 273.1
7	3.0 / 273.5	2.9 / 273.6	--	--	--

Based on the above, the stabilized ground water table for July ranged from 1.4 to 1.7 m below existing grade (elevation 247.9 to 273.1). There also appears to be artesian pressure in the lower sand in the east, based on Borehole 7.

Ground water levels are subject to seasonal fluctuations, and in response to variations in precipitation.

5. GEOTECHNICAL ENGINEERING CONSIDERATIONS

5.1 General

The 7th Line of Innisfil between Yonge Street and 10th Sideroad (approximately 3.0 km) is to be reconstructed. An Environmental Assessment (EA) is being undertaken to plan for the road reconstruction. The EA will address the substandard road width (currently about 4.0 to 4.5 m in some areas), road profile and drainage, and possibly municipal servicing. There are also two watercourse crossings that will likely be upgraded.

5.2 Culverts

Two culverts are being considered for replacement. The replacement culvert type and size have yet to be determined. The culverts are located in the vicinity of Borehole 2 and 3, and will comprise either a closed bottom precast concrete box, an open bottom precast concrete culvert on poured in place concrete footings and/or a new CSP with similar inverts as the existing culverts, about 2.0 below the existing road grade.

5.2.1 Closed Bottom Precast Concrete Box Culvert or CSP

Reference is made to OPSS 400 Series and OPSD 800 Series for general culvert installation requirements, including granular bedding and cover material requirements and frost tapers. The following sections provide further details.

The subgrade near Borehole 2 and 3 is expected to comprise fill and peat to 2.1 to 2.9 m depth (elevation 246.7 to 248.9) overlying compact sand. The fill and peat layers will need to be sub-excavated and replaced with an increased thickness of bedding to remove potential for settlement. A minimum bedding thickness of 100 mm is recommended, comprising OPSS Granular A compacted to 98% Standard Proctor maximum dry density.

5.2.2 Open Bottom Precast Concrete Culvert on Poured In-Place Footings

An open bottom precast concrete unit supported on poured in-place footings is also being considered for the crossings. The fill and peat layers are not suitable to support the proposed culvert, and the culvert will have to be supported on the underlying compact to dense sand in Borehole 2 or compact sand and underlying loose silt and sand in Borehole 3.

A geotechnical bearing resistance at Serviceability Limit State (SLS) of 150 kPa and a factored bearing resistance at Ultimate Limit State (ULS) of 225 kPa are available for design footings on sand unit at Borehole 2. Due to the underlying loose silt and sand in Borehole 3, a reduced geotechnical bearing resistance at SLS of 100 kPa and a factored bearing resistance at ULS of 150 kPa is available for design of footings on the sand unit.

The bearing resistance at SLS is based on 25 mm of total settlement in the bearing stratum, with differential settlement of 75% of this value.

Footings are subject to frost action must be provided with a minimum 1.2 m of earth cover or equivalent. Scour protection must also be provided for the footings.

5.2.3 Lateral Earth Pressure

The culvert walls must be designed to resist the unbalanced lateral earth pressure imposed by the backfill adjacent to the culvert. The lateral earth and water pressure, P (kPa), may be computed using the equivalent fluid pressure method presented in Section 6.12 of the Canadian Highway Bridge Design Code (CHBDC), CSA-S6-14, December 2014, or employing the following equation:

$$P = K(\gamma h + q) + C_p$$

Where
- P = lateral pressure at depth h (m) below ground surface (kPa)
- K = lateral earth pressure coefficient of compacted backfill
- h = depth below grade (m) at which lateral pressure is calculated
- γ = unit weight of compacted granular backfill
- q = vertical stress at depth h, due to surcharge loads (kPa)
- C_p = compaction pressure (refer to clause 6.12.3 of CHBDC)

In addition, there should be allowance for seismic events and appropriate factors of safety should be used in the design.

Free draining granular material should be used as backfill behind the culvert walls.

5.2.4 Backfill

Backfill above the culvert should be placed in maximum 200 mm thick loose lifts compacted to at least 95% Standard Proctor maximum dry density to minimize post construction settlement in the backfill. Backfill for at least the upper 1 m of trench should be close to optimum moisture content to prevent subgrade instability issues.

The existing fill is generally considered suitable for reuse as backfill above the culvert, subject to moisture content control and geotechnical review and approval during construction.

In general, organic, wet, frozen, oversized (greater than 200 mm), or otherwise deleterious materials should not be incorporated as backfill above the culvert. Construction during the dry time of the season is also encouraged to help in reducing the amount of wet material to be handled.

All earthworks operations should be inspected by PML to approve materials, placement and compaction efforts and ensure the specified degree of compaction is achieved throughout.

5.3 Site Servicing

Plan and profile drawings have not been provided for the site. In this regard it has been assumed that the anticipated municipal servicing will only comprise sections of storm sewers. Servicing inverts are assumed to be a maximum of 2.0 to 3.0 m below existing road grade for this report.

5.3.1 Trench Excavation and Ground Water Control

Trench excavation and ground water control is discussed under Excavation and Ground Water Control later in the report.

5.3.2 Bedding

It is anticipated that services will be supported in native soils and bearing capacity issues are not anticipated. Where poor subgrade soils or fill are encountered at the design invert, it may be necessary to sub-excavate and provide an increased thickness of bedding, subject to geotechnical field review.

Standard granular bedding in accordance with OPSS compacted to 95% Standard Proctor maximum dry density should be satisfactory. For flexible pipes, bedding and cover material should comprise OPSS Granular A. For rigid pipes, bedding material should comprise OPSS Granular A, and cover material may comprise select trench backfill free of oversized (200 mm diameter or less) or excessively wet material.

5.3.3 Backfill

Trench backfill should comprise select inorganic soil placed in maximum 200 mm thick lifts compacted to minimum 95% Standard Proctor maximum dry density, to minimize post construction settlement. Topsoil, organic/peat, excessively wet, frozen, oversized (greater than 200 mm diameter), or otherwise deleterious material should not be incorporated as trench backfill.

The moisture content should be within 2% of optimum in order to achieve the specified compaction, and should be closer to the optimum moisture content in the upper 1 m to prevent instability issues. Ideally the backfill should comprise excavated site soil in order to minimize differential frost heave.

The excavated soils at the site will comprise the predominately fill and the native granular soils, locally peat. Excavated inorganic soils from above the ground water table are expected to be generally suitable for reuse as trench backfill with quantities expected to be limited due to high ground water table. Inorganic material from below the ground water table will be too wet for reuse unless allowed to "dry out" or mixed with drier soil to render the material suitable for reuse. If soil is to be dried out an allowance for time will be required to carry out this operation. Weather will also impact the moisture conditions of the soil and suitability for reuse. Tarping of stockpiled soil to protect it from wet weather should be considered. Geotechnical review of the excavated soil and approval for use as backfill will be necessary during construction.

Earthworks operations should be inspected by PML to verify subgrade preparation, backfill materials, placement and compaction efforts and ensure the specified degree of compaction is achieved throughout.

5.4 Excavation and Ground Water Control

The invert depth for services is assumed to be a maximum 2.0 m below existing grade, with culverts at similar depth. Locally, excavation may need to be deeper to 3.0 m, remove fill and/or peat for services or culverts. Excavation will predominately encounter the fill and/or peat over the native sand or till. Harder digging and the presence of cobbles and boulders should be anticipated in the till deposit.

Subject to effective ground water control, the site soils should be considered as Type 3 soil requiring excavation side walls to be constructed at no steeper than one horizontal to one vertical (1H:1V) from the base of the excavation in accordance with the Occupational Health and Safety Act.

The stabilized ground water levels on July 31, 2018 were typically 1.4 to 1.7 m below existing grade.

Based on the hydrogeological findings, presented later in the report, the upper soils typically have higher permeability and as such larger seepage volumes are expected for excavation to a depth of 2.0 to 3.0 m, about 0.5 to 1.5 m below the stabilized ground water table. Dewatering with keg wells or the likes (or possibly well points) is anticipated in order to lower the ground water level to permit excavation in dry conditions. The ground water level should be lowered about 0.5 m below the deepest excavation. Creek diversion will be required for culverts.

The conditions should be reviewed when design details are known, as some ground water at depth is under artesian pressure and may require depressurization. Dewatering systems must be designed and installed by specialists in this field.

Water taking in Ontario is governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation O. Reg. 387/040, Section 34 of the OWRA requires anyone taking more than 50,000 L/d to notify the MOECP. This requirement applies to all withdrawals, whether for consumption, temporary construction dewatering or permanent drainage improvements. Projects assessed to be taking more than 50,000 L/d but less than 400,000 L/d of ground water can obtain a permit/permission online via the Environmental Activity and Sector Registry (EASR) system. If it is assessed that more than 400,000 L/d is required then a Category 3 Permit-To-Take-Water (PTTW) will be required.

Based on the discussion above, a PTTW or registry on the EASR is anticipated. When design details including final grading and service inverts are available, they should be submitted to PML for review to more fully assess ground water requirements and the need for Site Specific Hydrogeological Site Assessment and application for a PTTW or EASR.

It is recommended that a test dig be undertaken to allow prospective contractors an opportunity to observe and evaluate the conditions likely to be encountered and assess preferred means of excavation and ground water control measures based on their own experience.

5.5 Pavement Design and Construction

The AASHTO DARwin design methodology was used for design of the pavement structure, based on traffic volumes of 1,000 AADT and 3% commercial traffic with 2% growth per year (provided by Client), and anticipated subgrade comprising sand fill, with low to moderate frost susceptibility.

A road profile grade raise more than 0.2 m is not recommended where peat was revealed below the fill (Boreholes 2 to 4) due to the potential for gross and differential settlement. The following pavement structure is recommended for a 20 year design service life:

MATERIAL	THICKNESS (mm)
Surface Asphalt (Superpave 12.5) Binder Asphalt (Superpave 12.5)	40 60
Granular Base	150
Granular Subbase	400
Total Thickness	650

The pavement design considers that construction will be carried out during the drier time of the year and that the subgrade is stable, as determined by proofrolling operations. Where wet and/or unstable subgrade is identified, remediation may include increasing the depth of subbase, the use of Granular B Type II and/or use of geogrid reinforcement, subject to geotechnical review during construction.

For rural cross section the granular material should daylight at the ditches with the ditches constructed as per OPSD 200.010.

Where grades or space do not allow ditching, then the incorporation of subdrains is recommended.

6. HYDROGEOLOGICAL CONSIDERATIONS

6.1 Aquifers and Local Ground Water Use

A search of Ontario MOECP Water Well Records within a 250 m radius of the site shows 19 records are present (Appendix A). The records indicated that the wells were predominantly for domestic water use. One of the records indicated the well was for public water supply. The wells were drilled from 1959 to 2006. It is not known how many of these wells remain in use.

The wells typically ranged in depth from 4.6 to 59.4 m below the ground surface with fresh water encountered typically within this range. The wells were developed in layers of sand, gravel and clay. One of the well records indicated that bedrock was encountered at a depth of 156.4 m below ground surface. The bedrock comprised in limestone.

6.2 Hydraulic Gradient

Based on the water levels in the three wells measured on July 31, 2018, the ground water flow direction is towards the center of the Site from both the east and west. The water levels measured show a 1.4 m difference between Boreholes 2 and 3 in the west, and a 25.0 m difference between Boreholes 3 and 6 in the east, with a gradient of 0.2% and 1.9%, respectively. It is noted that the water levels measured will be influenced by seasonal conditions and precipitation events.

Additional ground level monitoring is recommended to have water levels for a year long cycle.

6.3 Hydraulic Conductivity

6.3.1 Particle Size Distribution

Three of the samples submitted for grain size analysis represented the native soil units adjacent to the monitoring well screens.

FIGURE	SAMPLE IDENTIFICATION	DEPTH (m)	SOIL TYPE	ESTIMATED PERMEABILITY, K (cm/sec)
6	Borehole 2 SS5	3.0 to 3.6	Sand, Trace Gravel, Trace Silt	10^{-3} to 10^{-4}
4	Borehole 3 SS6	4.6 to 5.2	Silt and Sand, Trace Clay	10^{-5} to 10^{-6}
5	Borehole 6 SS5	3.0 to 3.6	Silt and Sand Till, Trace to Some Clay, Trace Gravel	10^{-6} to 10^{-7}

The Vukovic & Soro method was used to assess permeability.

6.4 Field Permeability Tests

Hydraulic conductivity field testing was conducted in all three monitoring wells on July 31, 2018.

The Hvorslev's Method was utilized for analysis and the results from the field permeability tests are presented in Appendix B. The estimated hydraulic conductivity values, (K) are summarized in the table below:

BH/MW	MID SCREEN DEPTH (m) / ELEVATION	MONITORING WELL SCREEN SOIL TYPE	ESTIMATED K-VALUE FROM BOREHOLE PERMEABILITY TESTING (m/s)
2	4.2 / 246.8	Silty Sand	2.0×10^{-4}
3	5.4 / 244.2	Silty Sand/Sandy Silt	4.5×10^{-6}
6	3.7 / 270.9	Sand and Silt Till	1.0×10^{-6}

7. GEOENVIRONMENTAL CONSIDERATIONS

A limited chemical testing program was carried out to check the geoenvironmental quality of the soil at selected sampling locations and ground water in the wells in order to provide comments regarding on-site reuse or off-site disposal options for excess excavated soil.

A Phase One Environmental Site Assessment (ESA) was not within the scope of work for this assignment. Accordingly, soil or ground water impairment that has not been identified by the limited chemical testing program may exist at the site. The limited chemical testing program does not constitute an Environmental Site Assessment as defined under the Environmental Protection Act and O. Reg. 153/04, as amended.

7.1 Chemical Testing Protocols

As part of the geoenvironmental procedural protocol, all recovered soil and ground water samples were field examined for visual and olfactory evidence of potential contamination. It is noted that none of the samples contained evidence of contamination.

After examination, the recovered soil and ground water samples were placed in laboratory air tight glass containers and stored in an insulated cooler for transportation to our laboratory for detailed visual examination.

Ground water samples were collected on July 31, 2018 from the three monitoring wells in Boreholes 2, 3 and 6, after well development, which consisted of attempting to remove a minimum of ten well volumes, however, as per the Ontario Water Resources Act (OWRA) well development was considered complete once the monitoring well went dry. Well development was completed using dedicated Waterra™ sampling equipment.

The samples were submitted for chemical analysis to a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory. The chemical analyses conducted were in accordance with the O. Reg. 153/04, as amended Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011.

For general environmental quality characterization, soil and ground water samples were tested for the following analyte groups:

- Metals and Inorganics;
- Petroleum Hydrocarbons (F1 to F4 fractions).

The following soil samples were submitted for testing:

Borehole 1 SS 2, (fill – 0.8 to 1.4 m)	Borehole 5 SS 2, (fill – 0.8 to 1.4 m)
Borehole 3 SS 3, (fill – 1.5 to 2.1 m)	Borehole 7 SS 3, (till –1.5 to 2.1 m)

A ground water sample from each well (Boreholes 2, 3 and 6) was submitted for testing

7.2 Site Condition Standards

In general, the applicable environmental quality guidelines depend on the site location, land use, soil texture and source of potable water at the site. In this regard, we selected the Generic Criteria of the O. Reg. 153/04, as amended, Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act dated April 15, 2011.

Based on Sections 41 and 43 of O.Reg. 153/04, as amended, and a review of readily available information, the site is considered a sensitive site. The subject site is considered sensitive as the MNR Evaluated wetland known as the Lover's Creek Swamp crosses the 7th Line.

Further, the site was reviewed against maps for watercourses and wells as part of the protocol to determine the applicable Site Condition Standards (SCSs) for the site. In this regard, Lover's Creek runs north-south through the 7th Line and there are private drinking water wells within

250 m of the site, based on the MOECP well records website. The site is not within a Town of Innisfil Wellhead Protection Area (Figure 10-1, dated October 2010).

Based on the above reviews, the criteria of Table 1: Full Depth Background Site Condition Standards, Table 1 SCSs, are considered applicable to the site.

7.3 Analytical Findings and Conclusions

7.3.1 Soil

The Certificates of Analyses for Chemical Testing are included in Appendix C.

7.3.1.1 On-Site Reuse

In summary, the concentration of the tested parameters in the submitted soil samples from the boreholes were either not detected (below the method detection limit) or were within Table 1 SCSs, except as follows:

- Sodium Absorption Ratio (SAR) of 3.33, 2.53, and 4.70 in samples from Boreholes 1, 3 and 5, respectively (Guideline Value is 2.4);
- Molybdenum of 3 µg/g in the sample from Borehole 1 (Guideline Value is 2 µg/g);
- PHC F4 of 900 µg/g, 1330 µg/g and 3120 µg/g in samples from Boreholes 1, 3 and 5, respectively (Guideline Value is 120 µg/g);
- PHC F3 of 255 µg/g in the sample from Borehole 5 (Guideline Value is 240 µg/g).

Based on the limited chemical testing, the site soil in the vicinity of Borehole 7 can be reused on-site, subject to geotechnical review during construction.

The soil in the vicinity of Boreholes 1, 3 and 5 do no meet the applicable Table 1 SCSs. The impacted material surrounding Boreholes 1, 3 and 5 should be taken off-site. The impacted material should be delineated with further soil sampling and chemical testing.

It should be noted that the soil conditions between and beyond the sampled locations may differ from those encountered during this assignment. PML should be contacted if impacted soil conditions become apparent during future development to further assess and appropriately handle the materials, if any, and evaluate whether modifications to the conclusions documented in this report are necessary.

This assessment is subject to the Statement of Limitations that is included with this report (Appendix E) which must be read in conjunction with the report.

7.3.1.2 Off-Site Reuse/Disposal

O.Reg. 153/04, as amended, has nine tables outlining SCSs (Tables 1 to 9) for evaluating Environmental Soil Characteristics. These tables are further divided based on land use. The chemical testing results from this project were compared to the various SCSs to evaluate where the excess soil can be transported. Our assessment was limited to Table 2 and Table 3 SCSs, the most common SCSs.

Based on the limited chemical testing results, excess excavated soil associated with Borehole 7, meet the most stringent SCSs and may be disposed of off-site at any land site, subject to approval from the receiving site authority.

Based on the limited chemical testing results, excess excavated soil associated with Boreholes 1 and 3, may be disposed of off-site at a receiving site where the SCSs comply with any one of the following O.Reg. 153/04, as amended, criteria;

- Table 2 (any land use);
- Table 3 (any land use).

Based on the limited chemical testing results, excess excavated soil associated with Borehole 5, may be disposed of off-site at a receiving site where the SCSs comply with any one of the following O.Reg. 153/04, as amended, criteria;

- Table 2 (ICC land use only);
- Table 3 (ICC land use only).

If a potential receiving site has SCSs other than Table 2 and 3 used for our assessment, then PML should be consulted to ensure that the results meet the applicable SCSs of the proposed receiving site.

Excess excavated soil can be transported to a landfill site, however, additional testing for Toxicity Characteristic Leaching Procedure (TCLP) will be required, in accordance with Ontario Regulation 347, Schedule 4, as amended to Ontario Regulation 558/00, dated March 2001.

When transporting excavated site soil to another site the following are recommended:

- The work must be completed in accordance with local by-laws governing soil movement and/or placement at other sites;
- All analytical results and environmental assessment reports must be fully disclosed to the receiving site owners/authorities and they have agreed to receive the material;
- The applicable SCSs for the receiving site have been determined, as confirmed by the environmental consultant and the SCSs are consistent with the chemical quality of the soil originating at the source site;
- Transportation and placement of the surplus soil is monitored by the environmental consultant to check the material is appropriately placed at the pre-approved site;
- The receiving site must be arranged and/or approved in advance of excavation in order to avoid delays during construction. As well, it is noted the chemical testing requirements for various receiving sites is site-specific and additional testing may be required, beyond that provided in this limited sampling and testing report;
- The excavation work should be conducted in accordance with a written Soil Management Plan prepared by a qualified professional to ensure that all surplus excavated material is tested and managed appropriately, and that imported fill material is of suitable quality and meets the SCSs applicable to the site. Reuse of surplus excavated soil on site is also subject to acceptance for reuse by the geotechnical consultant at the time of construction based on geotechnical considerations;
- Additional sampling and chemical testing should be carried out during construction to verify the chemical quality of the excess soil to assess the appropriate management/disposal options for the actual soil leaving the site;

- It is recommended that transportation of fill material from the Source Site (s) to the Receiving Site (s) be carried out in accordance with the MOECP document *Management of Excess Soil – A Guide for Best Management Practices* dated January 2014.

This assessment is subject to the Statement of Limitations that is included with this report (Appendix E) which must be read in conjunction with the report.

7.3.2 Ground Water

The certificates for chemical testing are included in Appendix D.

In summary, the concentration of the tested parameters in the submitted water samples were either not detected (below the method detection limit) or were within the applicable Table 1 Full Depth Background SCSs, except for the following:

- PHC Fraction F3 of 1800 µg/L in the sample from Borehole 3, Standard is 500 µg/L.

Based on the limited chemical testing, the ground water associated with Borehole 3 should be resampled to confirm the above noted results.

This assessment is subject to the Statement of Limitations that is included with this report in Appendix E.

8. CLOSURE

We trust this report is complete within our terms of reference, and the information presented is sufficient for your present purposes. If you have any questions, or when we may be of further assistance, please do not hesitate to call our office.

Sincerely

Peto MacCallum Ltd.



Alicia Kimberley, M.Sc., P.Geo.
Project Geoscientist, Geoenvironmental and Hydrogeological Services



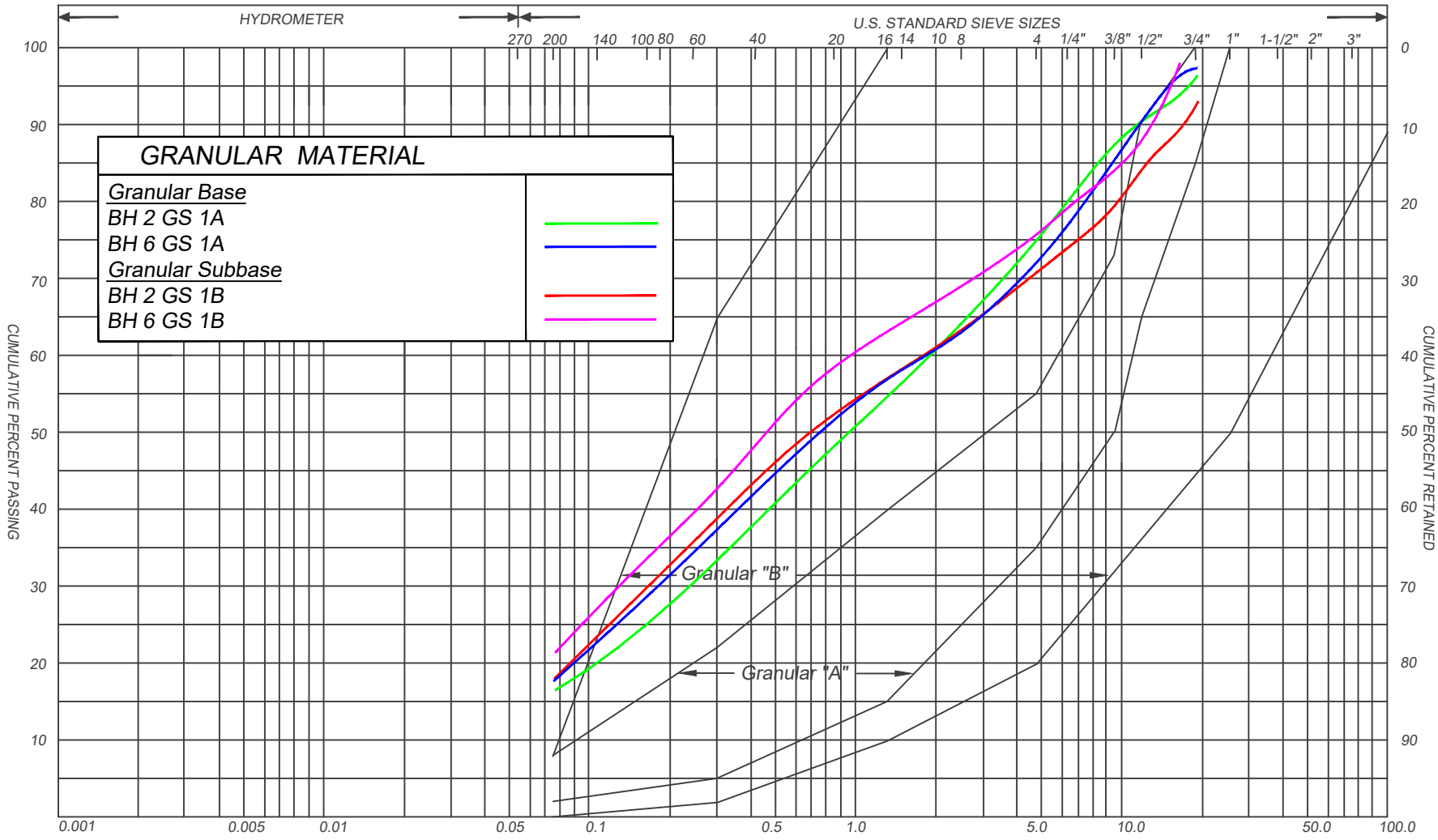
Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

RB/AK/GRW:jlb/tc

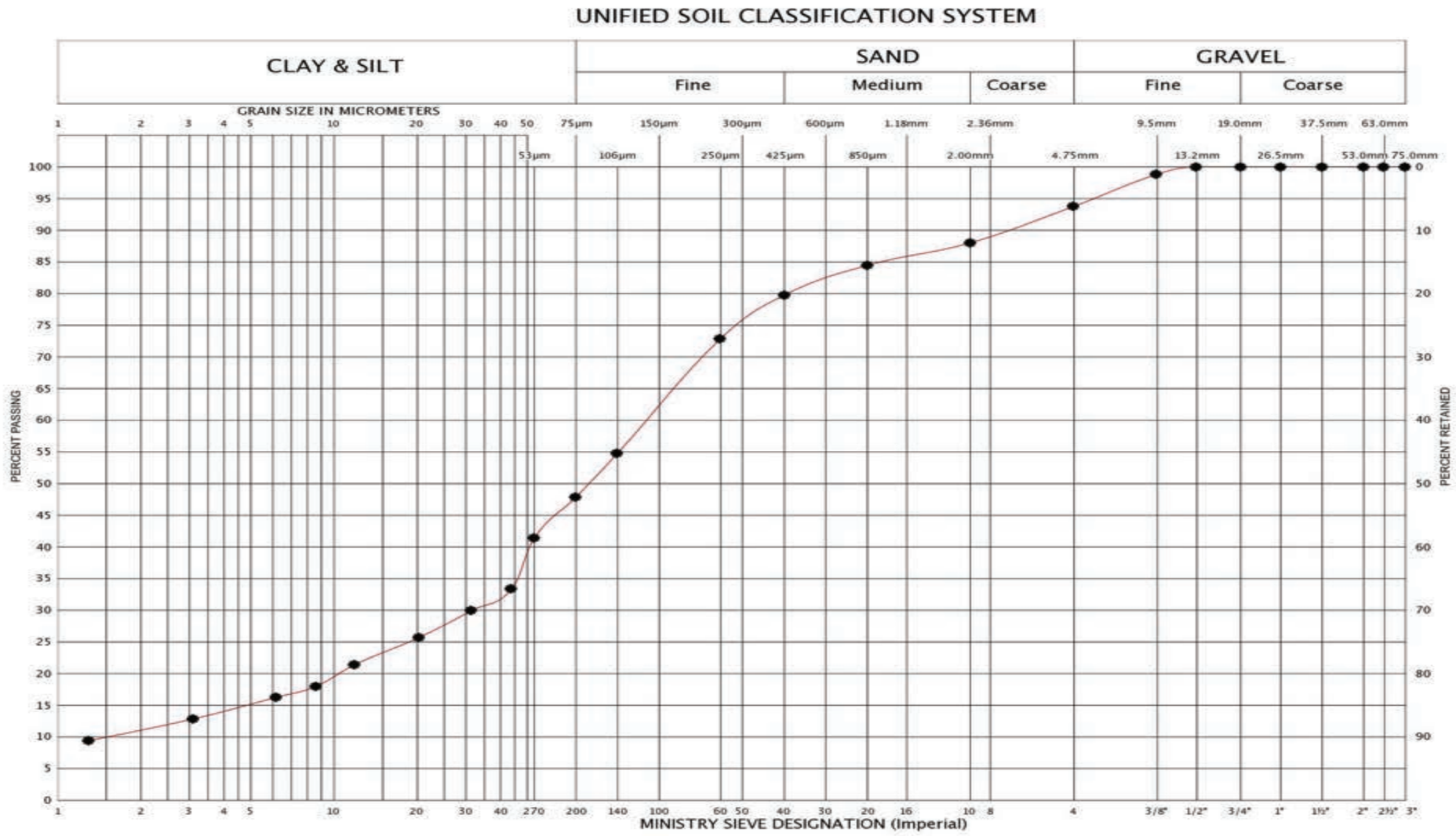
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PARTICLE SIZE DISTRIBUTION CHART

PML Ref.: 18BF035
Figure No.: 1



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL			COB BLES	UNIFIED
				SAND							
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL			COBBLES	M.I.T.
	SILT			SAND							
CLAY	SILT			V. FINE	FINE	MED	COARSE	GRAVEL			U.S. BUREAU
				SAND							



LEGEND		
	BH	7
	SAMPLE	2
	SYMBOL	●

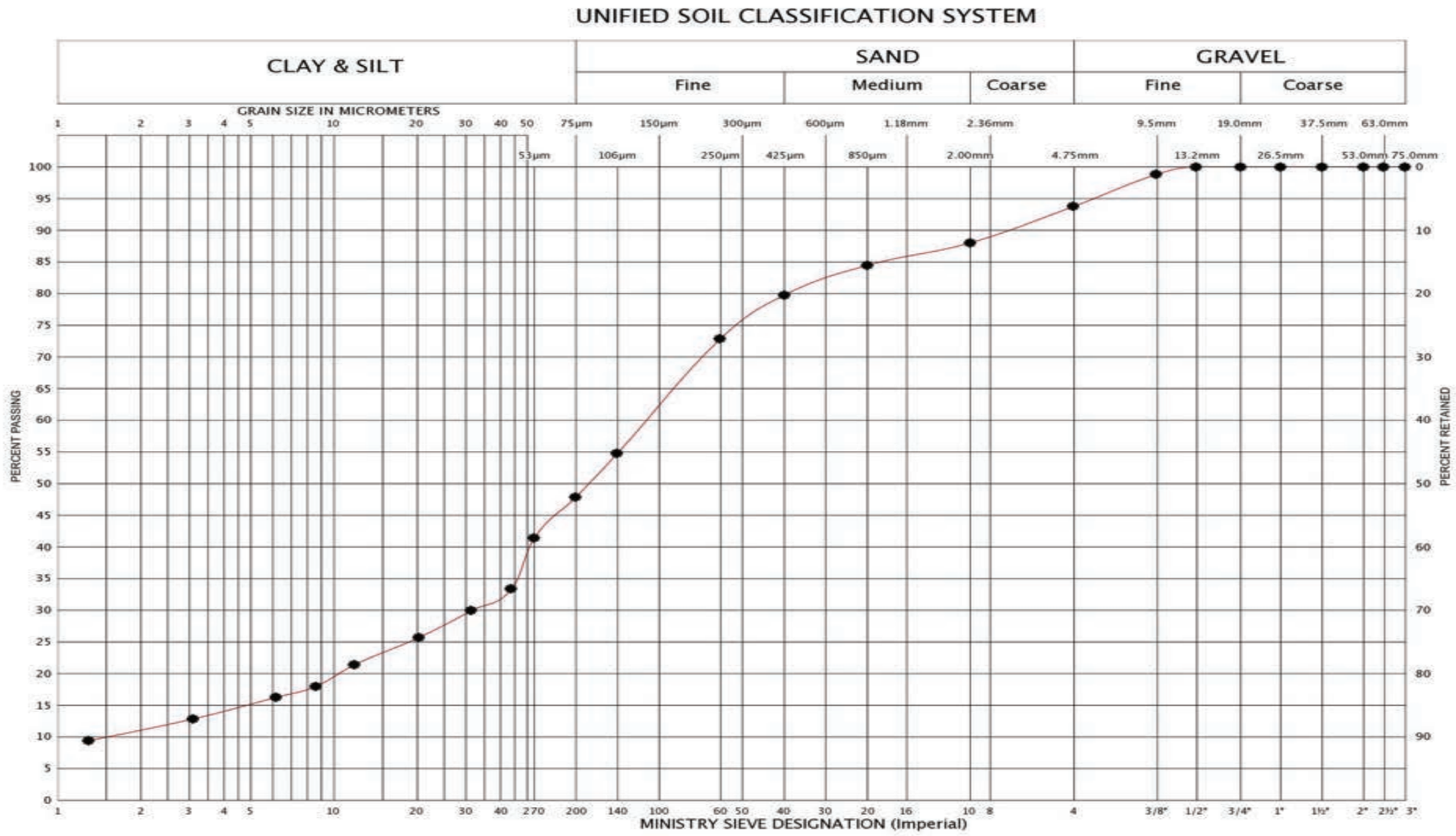
PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

GRAIN SIZE DISTRIBUTION

FILL: Silt and Sand, Trace Clay, Trace Gravel

FIG No.: 2

Project No.: 18BF035



LEGEND		
	BH	7
	SAMPLE	2
	SYMBOL	●

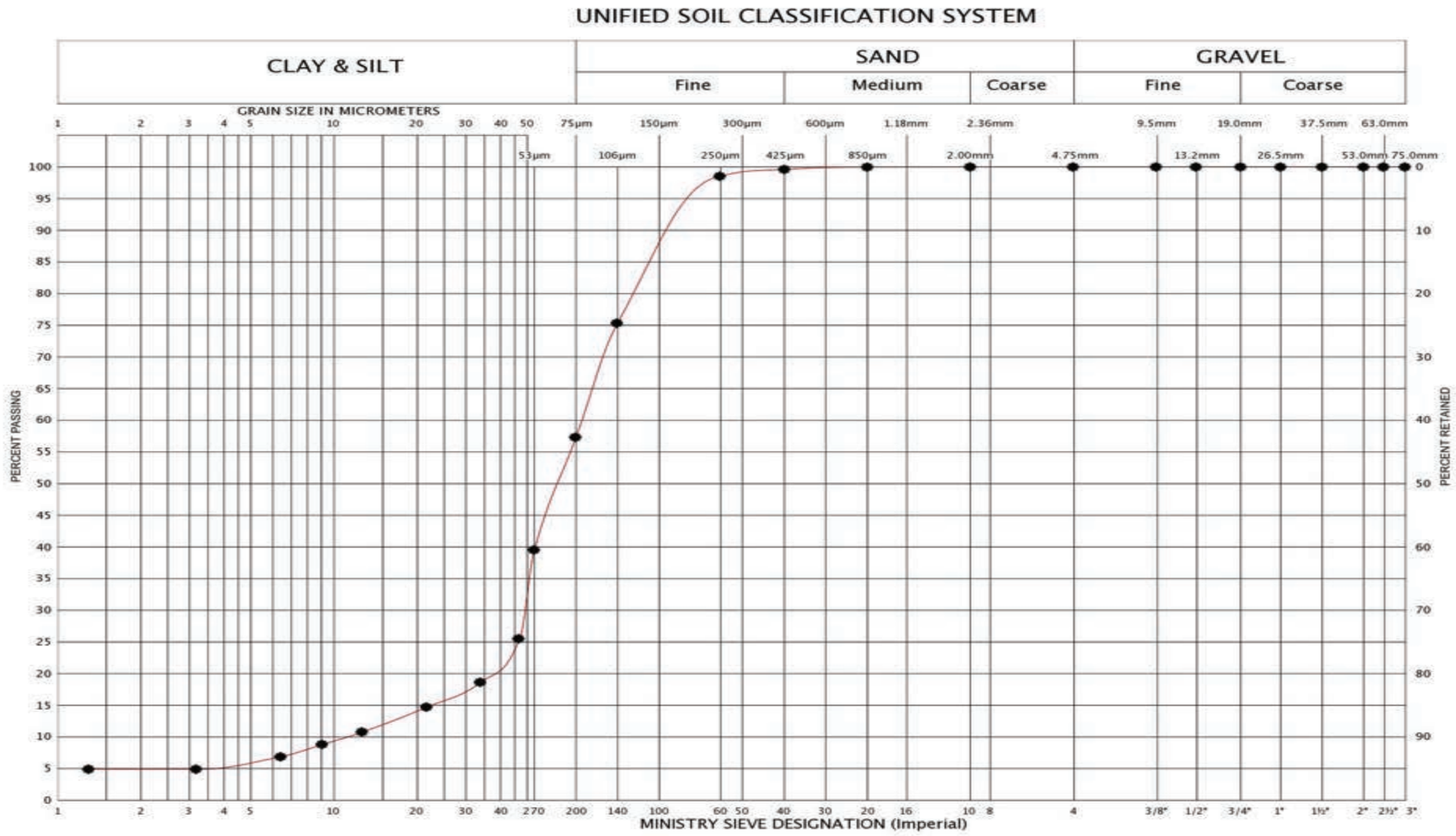
Peto MacCallum Ltd.
CONSULTING ENGINEERS

GRAIN SIZE DISTRIBUTION

FILL: Silt and Sand, Trace Clay, Trace Gravel

FIG No.: 3

Project No.: 18BF035



LEGEND		
	BH	3
	SAMPLE	6
	SYMBOL	●

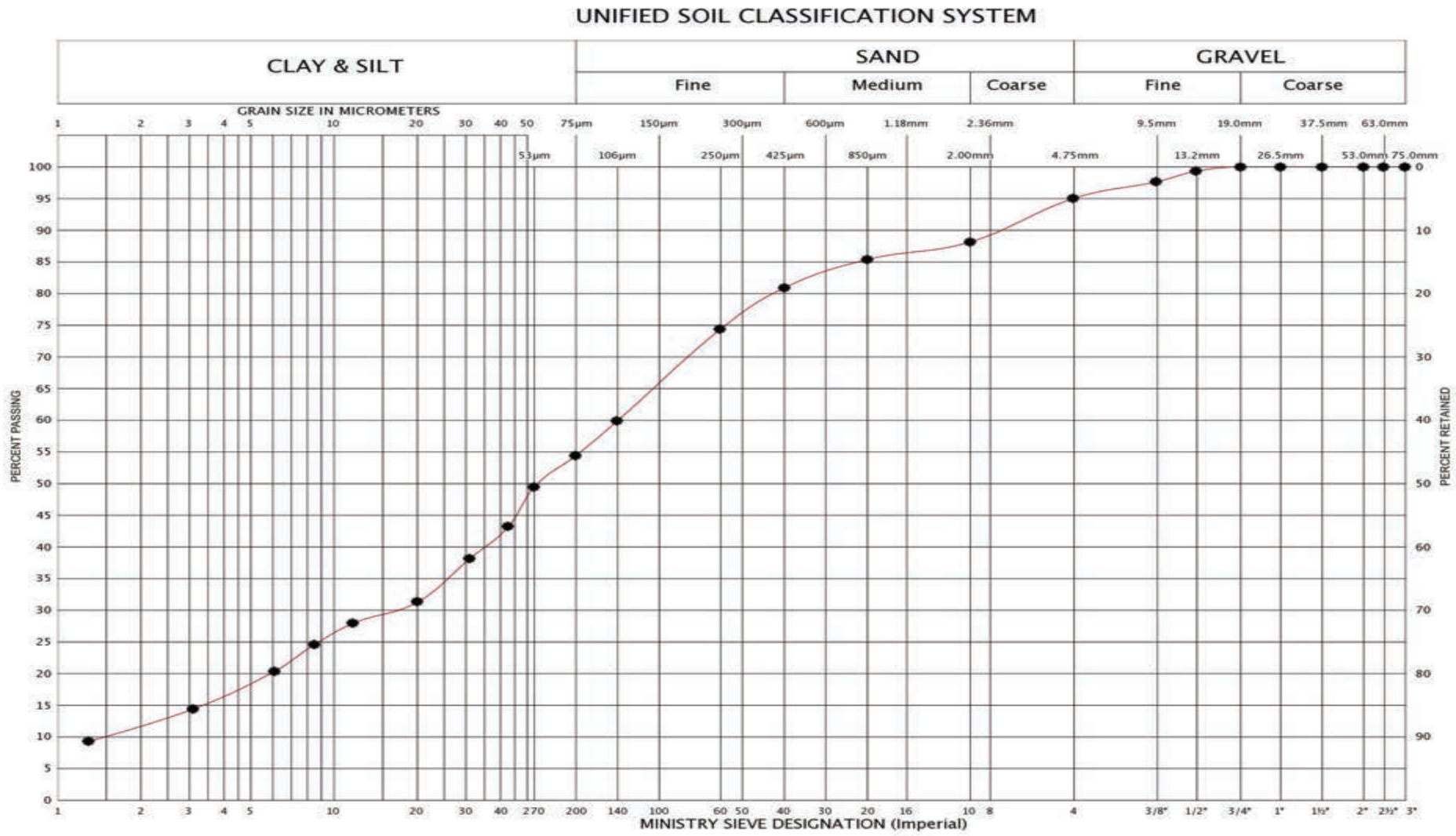
PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

GRAIN SIZE DISTRIBUTION

SILT AND SAND, Trace Clay

FIG No.: 4

Project No.: 18BF035



LEGEND		
	BH	6
	SAMPLE	5
	SYMBOL	●

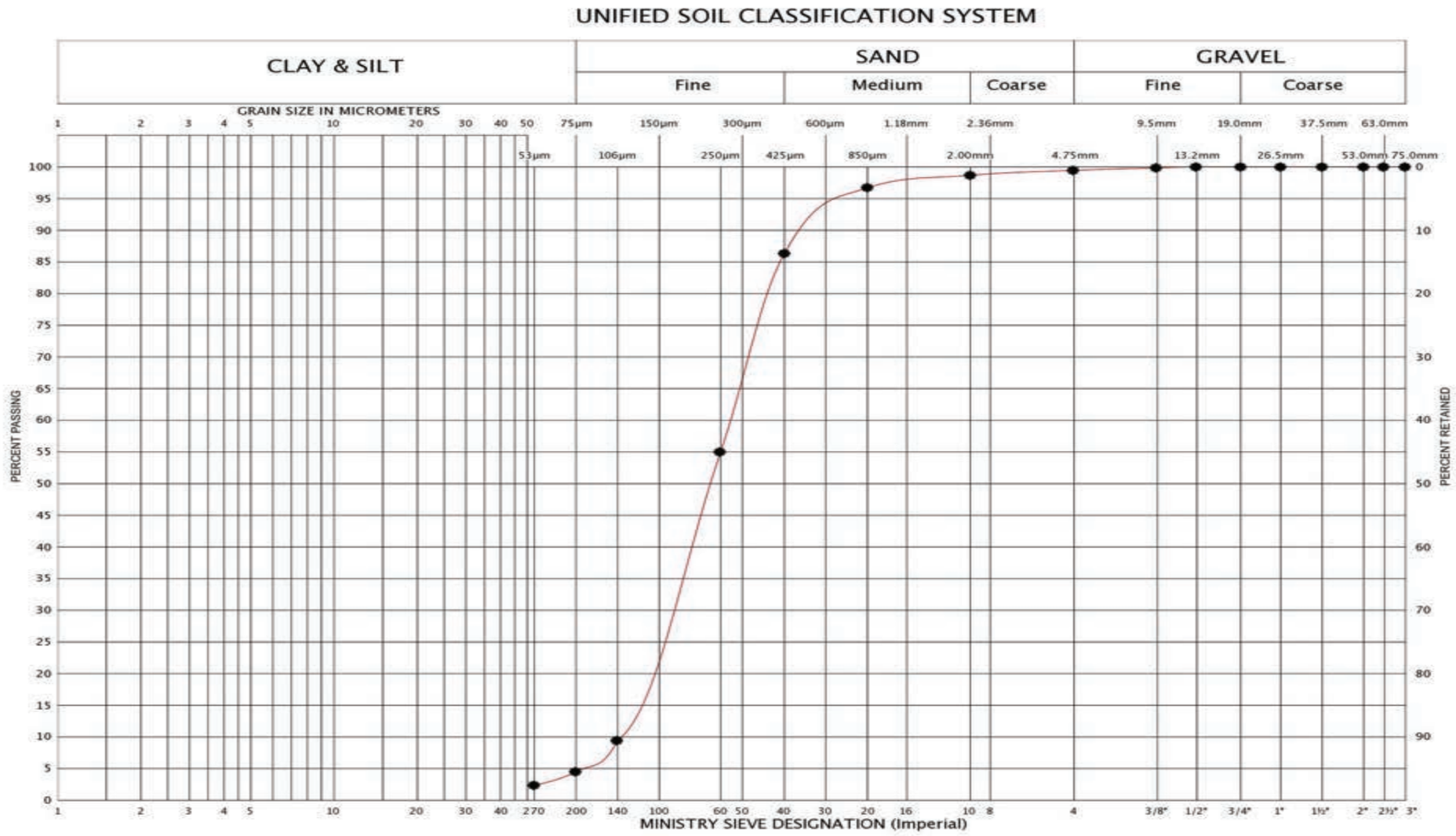
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GRAIN SIZE DISTRIBUTION

TILL, Silt and Sand, Some Clay, Trace Gravel

FIG No.: 5

Project No.: 18BF035



LEGEND		
	BH	2
	SAMPLE	5
	SYMBOL	●

PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

GRAIN SIZE DISTRIBUTION

SAND, Trace Silt, Trace Gravel

FIG No.: 6

Project No.: 18BF035

LIST OF ABBREVIATIONS

PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

CONSISTENCY	N (blows/0.3 m)	c (kPa)	DENSENESS	N (blows/0.3 m)
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		

WTLL	Wetter Than Liquid Limit
WTPL	Wetter Than Plastic Limit
APL	About Plastic Limit
DTPL	Drier Than Plastic Limit

TYPE OF SAMPLE

SS	Split Spoon	ST	Slotted Tube Sample
WS	Washed Sample	TW	Thinwall Open
SB	Scraper Bucket Sample	TP	Thinwall Piston
AS	Auger Sample	OS	Oesterberg Sample
CS	Chunk Sample	FS	Foil Sample
GS	Grab Sample	RC	Rock Core

PH	Sample Advanced Hydraulically
PM	Sample Advanced Manually

SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

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LOG OF BOREHOLE NO. 1

17T 608097E 4903882N

PROJECT Proposed Reconstruction of 7th Line
PML REF. 18BF035
LOCATION Innisfil, Ontario
BORING DATE July 9, 2018
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN AT

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	ELEVATION SCALE
		SURFACE ELEVATION 256.51					
0.0	256.51	PAVEMENT: 30 mm asphalt, over 150 mm granular base, over 250 mm granular subbase, moist		1A 1B	GS	-	256
0.43	256.08	FILL: Brown to black, sand, trace to some silt, some gravel, moist		2	SS	35	
1.0							
1.5	255.0	Becoming silty sand to sandy silt		3	SS	5	255
2.0	254.4	SILTY SAND: Loose, brown, silty sand, trace gravel, wet		4	SS	5	254
2.1	253.6	SILT AND SAND TILL: Dense to very dense, brown to grey, silt and sand, trace gravel, trace clay, cobbles and boulders, moist		5	SS	33	253
2.9							
3.0							
4.0							252
5.0	251.5	BOREHOLE TERMINATED AT 5.0 m		6	SS	90	
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Q_u
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

First water strike at 2.7 m

Upon completion of augering
Wet cave at 4.0 m

NOTES 1 - Sample submitted for chemical testing.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 2

17T 608504E 4904018N

PROJECT Proposed Reconstruction of 7th Line
LOCATION Innisfil, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE July 9, 2018
PML REF. 18BF035
ENGINEER GW
TECHNICIAN AT

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	'N' VALUES	ELEVATION SCALE
		SURFACE ELEVATION 251.04					
0.0		PAVEMENT: 30 mm asphalt, over 170 mm granular base, over 280 mm granular subbase, moist		1A 1B	GS	-	
0.48	250.56	FILL: Brown, silty sand, trace gravel, trace clay, moist		2	SS	20	250
1.0							
1.4	249.6	PEAT: Dark brown, amorphous, trace sand, very moist		3	SS	6	249
2.0	2.1						
	248.9	SAND: Compact to dense, grey to dark grey, sand, trace to some silt, trace gravel, wet		4	SS	16	248
3.0				5	SS	18	
4.0							247
5.0				6	SS	42	246
6.0							245
	6.6			7	SS	17	
7.0	244.4	BOREHOLE TERMINATED AT 6.6 m					
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT | NATURAL MOISTURE CONTENT | LIQUID LIMIT
w_P — w — w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

Flushmount casing
Concrete
Bentonite seal
First water strike at 3.1 m
50 mm Slotted pipe
Filter sand

Water used while drilling, no water level recorded upon completion.
Water Level Readings:

Date	Depth	Elev.
2018-07-25	1.6	249.4
2018-07-30	1.4	249.6
2018-07-31	1.5	249.5

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 3

17T 906138E 4904225N

PROJECT Proposed Reconstruction of 7th Line — **PML REF.** 18BF035
LOCATION Innisfil, Ontario — **BORING DATE** July 9, 2018 — **ENGINEER** GW
BORING METHOD Continuous Flight Hollow Stem Augers — **TECHNICIAN** AT

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES 'N' VALUES
	SURFACE ELEVATION 249.61				
0.0	PAVEMENT: 140 mm asphalt, over 140 mm granular base, over 320 mm granular subbase, moist		1A 1B	GS	-
0.60 249.01	FILL: Brown, sand, trace silt, some gravel, moist to very moist		2	SS	37
1.0			3	SS	31
2.1 247.5	PEAT: Brown to black, amorphic peat, trace sand, very moist		4	SS	3
2.9 246.7	SAND: Compact, grey, sand, trace to some silt, trace gravel, trace organics, wet		5	SS	17
4.0 245.6	SAND AND SILT: Loose, brown, sand and silt, trace clay, wet		6	SS	9
6.0			7	SS	4
6.6 243.0	BOREHOLE TERMINATED AT 6.6 m				

ELEVATION SCALE: 249, 248, 247, 246, 245, 244

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Cu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_p — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_l
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

Flushmount casing
Concrete
Bentonite seal
First water strike at 3.1 m
50 mm Slotted pipe
Filter sand

Upon completion of augering
Water used while drilling, no water level recorded.
No cave

Water Level Readings:

Date	Depth	Elev.
2018-07-25	1.7	247.9
2018-07-30	1.6	248.0
2018-07-31	1.5	248.1

NOTES 1 - Sample submitted for chemical testing.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 4

17T 906420E 4904321N

PROJECT Proposed Reconstruction of 7th Line
PML REF. 18BF035
LOCATION Innisfil, Ontario
BORING DATE July 9, 2018
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN AT

DEPTH (m)	ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) +FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●	PLASTIC LIMIT w_P	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w_L	WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
0.0		SURFACE ELEVATION 249.74												
		PAVEMENT: 50 mm asphalt, over 160 mm granular base, over 300 mm granular subbase, moist		1A 1B	GS	-								
0.58	249.16	FILL: Brown to black, sand, trace silt, trace gravel, moist to wet		2	SS	23	249							
1.0		Becoming silty sand		3	SS	3	248							First water strike at 1.5 m
2.1	247.6	PEAT: Dark brown, amorphous, wet		4	SS	2							73	
2.9	246.8	SAND: Loose, grey, sand, trace to some silt, trace gravel, wet		5	SS	5	247							
5.0	244.7	BOREHOLE TERMINATED AT 5.0 m		6	SS	6	246							Upon completion of augering Wet cave at 1.5 m
							245							

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 5

177 609849E 4904446N

PROJECT Proposed Reconstruction of 7th Line
PML REF. 18BF035
LOCATION Innisfil, Ontario
BORING DATE July 10, 2018
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN AT

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	'N' VALUES
	253.61	SURFACE ELEVATION 253.61				
0.0	253.06	PAVEMENT: 180 mm asphalt, over 130 mm granular base, over 240 mm granular subbase, moist		1A 1B	GS	-
0.55		FILL: Brown, silty sand, trace gravel, very moist to moist		2	SS	11
1.0				3	SS	51
2.0	251.5	SILT AND SAND TILL: Loose to compact, brown, silt and sand, trace gravel, trace clay, cobbles and boulders, moist		4	SS	9
2.1				5	SS	15
3.0						
4.0	249.6	SAND: Very dense, brown, sand, trace silt, trace gravel, wet		6	SS	58
5.0	248.6	BOREHOLE TERMINATED AT 5.0 m				

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu; ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST ●

ELEVATION SCALE: 253, 252, 251, 250, 249

WATER CONTENT (%): PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

First water strike at 4.6 m

Upon completion of augering
Water at 4.0 m
Cave at 4.3 m

NOTES 1 - Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 6

177 601520E 4904669N

PROJECT Proposed Reconstruction of 7th Line
PML REF. 18BF035
LOCATION Innisfil, Ontario
BORING DATE July 10, 2018
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN AT

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	ELEVATION SCALE
		SURFACE ELEVATION 274.62					
0.0	274.62	PAVEMENT: 30 mm asphalt, over 150 mm granular base, over 220 mm granular subbase, moist		1A 1B	GS	-	
0.40	274.22	FILL: Brown, sandy silt, trace gravel, very moist		2	SS	10	274
1.0							
1.4	273.2	SILT AND SAND TILL: Loose to dense, brown, silt and sand, trace gravel, trace to some clay, cobbles and boulders, wet to moist		3	SS	8	273
2.0				4	SS	24	272
3.0				5	SS	47	271
4.0							
5.0	269.6	BOREHOLE TERMINATED AT 5.0 m		6	SS	43	270
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

Flushmount casing
Concrete
Bentonite seal
First water strike at 2.0 m
50 mm Slotted pipe
Filter sand

Upon completion of augering
Water at 4.6 m
No cave
Water Level Readings:

Date	Depth	Elev.
2018-07-25	1.6	273.0
2018-07-30	1.5	273.1
2018-07-31	1.5	273.1

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

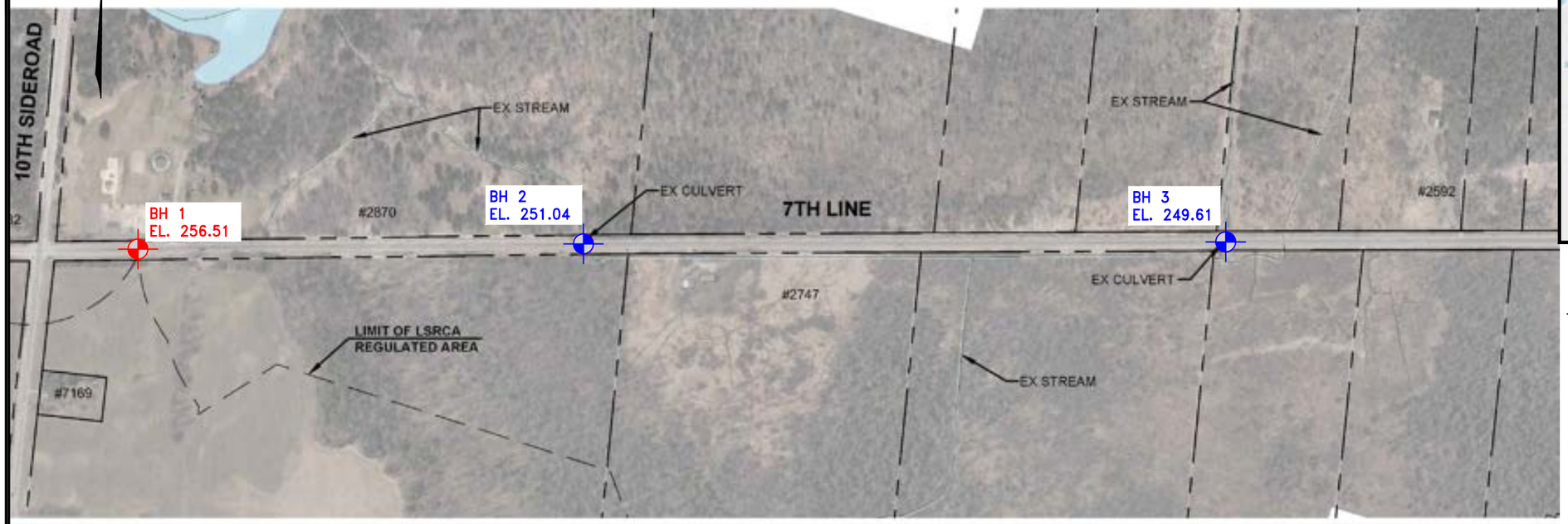
LOG OF BOREHOLE NO. 7

17T 610746E 4904746N

PROJECT Proposed Reconstruction of 7th Line
PML REF. 18BF035
LOCATION Innisfil, Ontario
BORING DATE July 10, 2018
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN AT

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	"N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) +FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ● Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●	PLASTIC LIMIT w_P	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w_L	WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
		SURFACE ELEVATION 276.51												
0.0		PAVEMENT: 30 mm asphalt, over 170 mm granular base, over 400 mm granular subbase, moist		1A / 1B	GS	-	276							
0.60	275.91	FILL: Dark brown, silt and sand, trace gravel, trace clay, moist		2	SS	11						○		
1.4	275.1	SILT AND SAND TILL: Loose to dense, brown, silt and sand, trace gravel, trace clay, cobbles and boulders, very moist		3	SS	4	275					○		
				4	SS	11	274					○		
				5	SS	35	273					○		First water strike at 3.0 m
4.0	272.5	SAND: Dense, brown, coarse sand, some gravel, trace silt, wet		6	SS	41	272					○		
5.0	271.5	BOREHOLE TERMINATED AT 5.0 m												Upon completion of augering Water at 2.9 m Cave at 4.0 m

NOTES 1 - Sample submitted for chemical testing



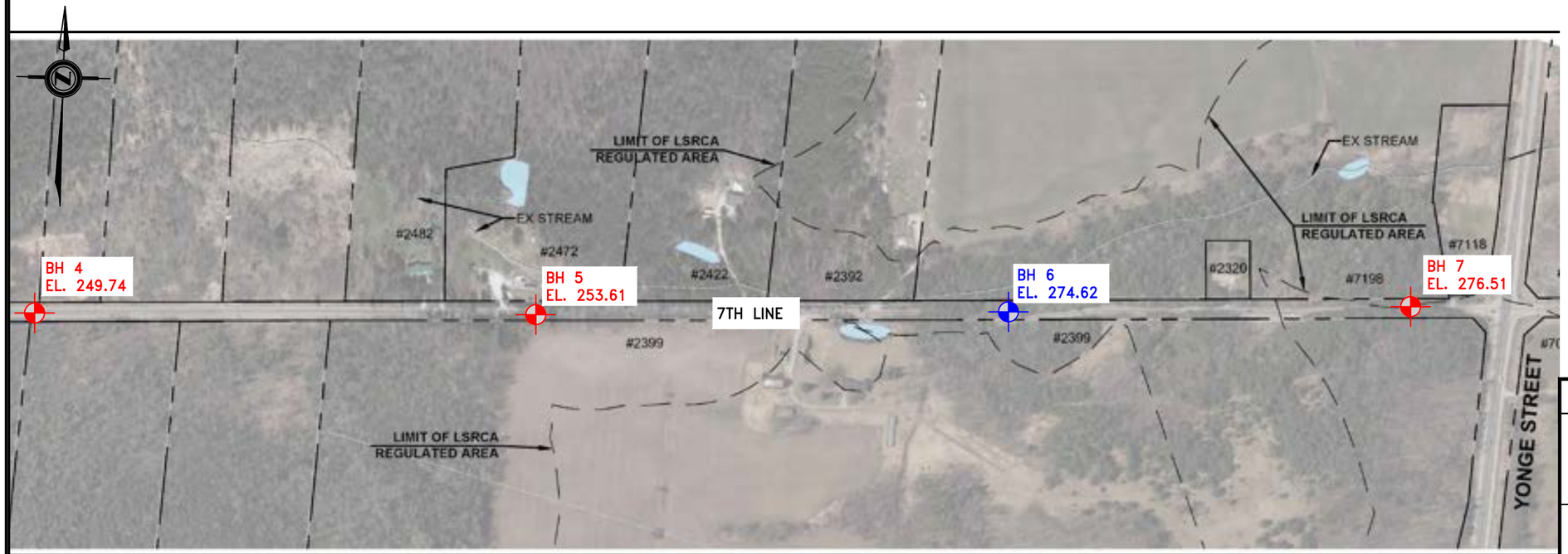


KEY PLAN
INNISFIL, ONTARIO

LEGEND:

BH 1
EL. 256.51 — BOREHOLE 1

BH 2
EL. 251.04 — BOREHOLE 2 (WITH MONITORING WELL)



REFERENCE:

BASE PLAN PRODUCED USING SIMCOE COUNTY OVERHEAD MAPPING, JUNE 2018.

KEY PLAN PRODUCED USING GOOGLE MAPS, JUNE 2018.

0m 80 160 240 320 400

SCALE

BOREHOLE LOCATION PLAN

PROPOSED RECONSTRUCTION OF 7TH LINE
10TH SIDEROAD TO YONGE STREET
INNISFIL, ONTARIO

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	AK	AUG 2018	AS SHOWN	18BF035	1
CHECKED	GW				
APPROVED	GW				

APPENDIX A

MOECP Water Well Records

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
INNISFIL TOWNSHIP CON 07 016	17 611114 4904973 W	1975/09 3413	30	FR 0020	1/14/3/2:0	DO		5712894 ()	BRWN SAND 0008 BLUE CLAY 0020 FGVL 0022
INNISFIL TOWNSHIP CON 06 018	17 612363 4905158 W	1965/08 2514	6	FR 0050	20/35/20/4:0	ST DO	0051 3	5701052 ()	PRDG 0034 BLUE CLAY MSND 0040 MSND GRVL CLAY 0050 MSND GRVL 0054
INNISFIL TOWNSHIP CON 06 021	17 613869 4905580 W	1965/10 2514	6	FR 0144	68/85/10/1:3 0	DO		5701055 ()	LOAM 0001 BRWN CLAY MSND BLDR 0014 BLUE CLAY BLDR 0035 MSND 0057 MSND GRVL SILT 0110 CLAY 0118 GRVL MSND SILT 0143 CSND 0144 GRVL 0145
INNISFIL TOWNSHIP CON 06 021	17 613852 4905718 W	1959/12 1308	30	FR 0006	6//0/:	PS		5701054 ()	BRWN CLAY 0002 BRWN MSND 0012 BLUE CLAY MSND BLDR 0024
INNISFIL TOWNSHIP CON 06 019	17 612998 4905439 W	1962/11 4102	30	FR 0040	20//2/:	DO		5701053 ()	BLUE CLAY 0040 MSND 0048
INNISFIL TOWNSHIP CON 07 017	17 611796 4905411 W	1964/11 4102	30	FR 0031	8//4/:	DO		5701086 ()	BRWN CLAY STNS 0016 BLUE CLAY 0031 GRVL MSND 0035
INNISFIL TOWNSHIP CON 07 020	17 613728 4905776 W	1967/09 4608	30	FR 0010	4//2/:	DO		5701090 ()	MSND 0002 GRVL 0015

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
INNISFIL TOWNSHIP CON 07 020	17 613604 4905723 W	1969/08 3109	30	FR 0017	12///:	DO		5707029 ()	LOAM 0002 CLAY MSND 0017 MSND 0020
INNISFIL TOWNSHIP CON 07 018	17 612464 4905523 W	1971/07 2514	6	FR 0075	21/76/3/3:0	DO		5708283 ()	GREY CLAY MSND GRVL 0020 GREY CLAY 0126
INNISFIL TOWNSHIP CON 06 019	17 613114 4905443 W	1971/10 3203	5	FR 0069	40/60/6/1:0	DO		5708514 ()	PRDG 0047 GREY CLAY 0067 GREY CLAY SILT 0069 GREY SAND 0070
INNISFIL TOWNSHIP CON 06 020	17 613684 4905623 W	1972/06 3203	5	FR 0139	75/80/8/2:30	DO		5708932 ()	BRWN LOAM 0002 BRWN GRVL STNS 0019 BRWN CLAY GRVL 0026 GREY CLAY 0045 GREY CLAY SAND STNS 0098 GREY SAND CLAY 0128 GREY CLAY GRVL 0139
INNISFIL TOWNSHIP CON 06 016	17 611014 4904673 W	1977/04 4816	6	FR 0195	77/84/12/3:3 0	ST DO	0190 5	5714381 ()	CLAY GRVL 0017 FSND SILT 0092 GREY CLAY 0182 FSND 0200 SILT 0212 GREY CLAY 0452 SILT GRVL 0513 LMSN 0515
INNISFIL TOWNSHIP CON 07 017	17 612014 4905223 W	1984/07 3413	30 30 24	FR 0040	15/40/5/3:0	DO		5720102 ()	LOAM 0002 BRWN CLAY 0018 BLUE CLAY 0040 CSND 0046 BLUE CLAY 0061
INNISFIL TOWNSHIP CON 07 020	17 613390 4905783 W	1988/05 4919	30	UK 0010 UK 0030	8/26//1:0	DO		5723315 (25662)	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY HARD 0028
INNISFIL TOWNSHIP CON 07 019	17 612379 4905339 W	1990/10 1851	7	FR 0125	42/130/15/3: 0	DO	0145 6	5727923 (91000)	BLCK LOAM 0002 BRWN SAND CLAY 0018 BRWN SAND SLTY 0060 GREY CLAY 0125 GREY SAND WBRG 0141

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
INNISFIL TOWNSHIP CON 07 021	17 613924 4905876 W	1994/10 2513	6	FR 0104	31/106/10/1: 30	DO	0108 7	5731242 (140389)	BLCK LOAM 0001 BRWN CLAY SAND 0016 GREY CLAY 0027 GREY SAND SILT CLAY 0064 GREY SAND SILT 0086 GREY CLAY 0104 GREY FSND CMTD 0116
INNISFIL TOWNSHIP CON 07 020	17 613691 4905971 W	2001/10 2513	6	FR 0116	30/80/20/1:0	DO	0112 4	5736436 (224034)	LOAM 0001 BRWN CLAY SAND 0003 GREY CLAY 0049 GREY SILT GRVL 0057 GREY CLAY FSND 0092 GREY CLAY 0112 GREY SAND CLAY 0116
INNISFIL TOWNSHIP	17 612041 4904846 W	2004/02 7174	6.3	FR 0078	/62/4/4:0	DO	0087 4	5738696 (Z04576) A004487	GREY CLAY 0020 GREY CLAY SAND 0035 GREY CLAY GRVL HARD 0085 BRWN SAND 0091
INNISFIL TOWNSHIP CON 06 017	17 612491 4905431 W	2006/06 2514	6.25	FR 0164	76/79/11/1:3 0	DO	0164 10	5741038 (Z34734) A032098	GREY CLAY GRVL 0052 GREY CLAY SAND 0161 GREY SAND CLAY 0170 GREY GRVL SAND 0174

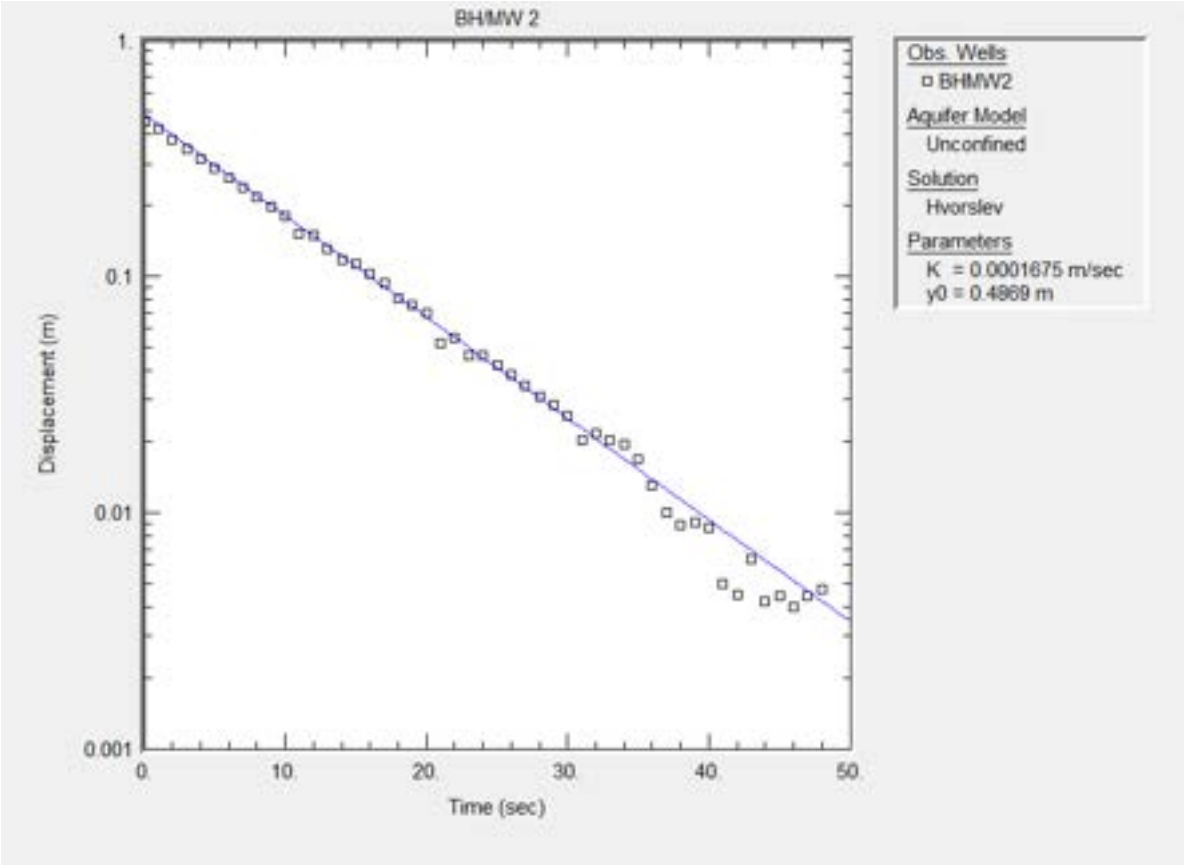
APPENDIX B

Field Permeability Plots

Estimation of K by Slug Test, based on Hvorslev equation

Date:	July 31, 2018
Conducted by:	A. Kimberley

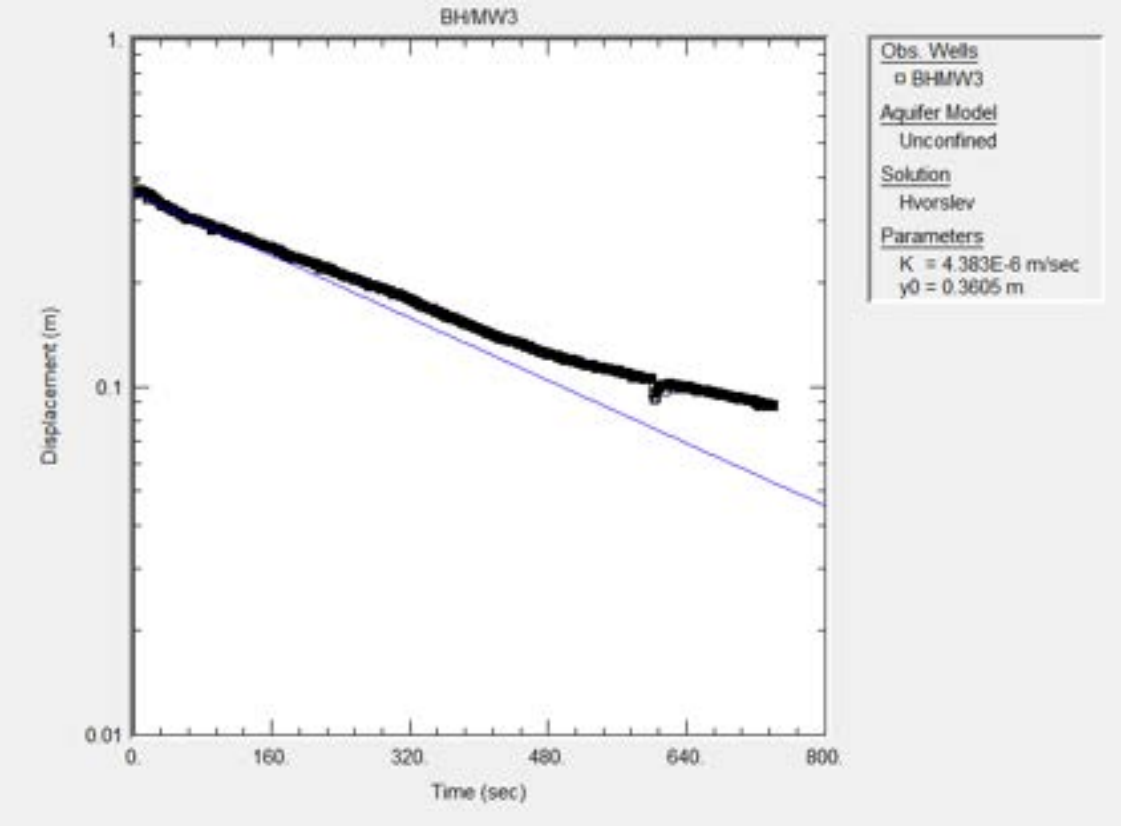
Well Number:	BHMW2	
Well Screen Bottom:	4.60	mbgs
Top of Pipe:	0.00	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	--	masl
Static Water Level:	1.45	mbgs
$K = r^2 \ln(L/R)/(2LTo) =$	**2.0×10^{-4}**	m/s



Estimation of K by Slug Test, based on Hvorslev equation

Date:	July 31, 2018
Conducted by:	A. Kimberley

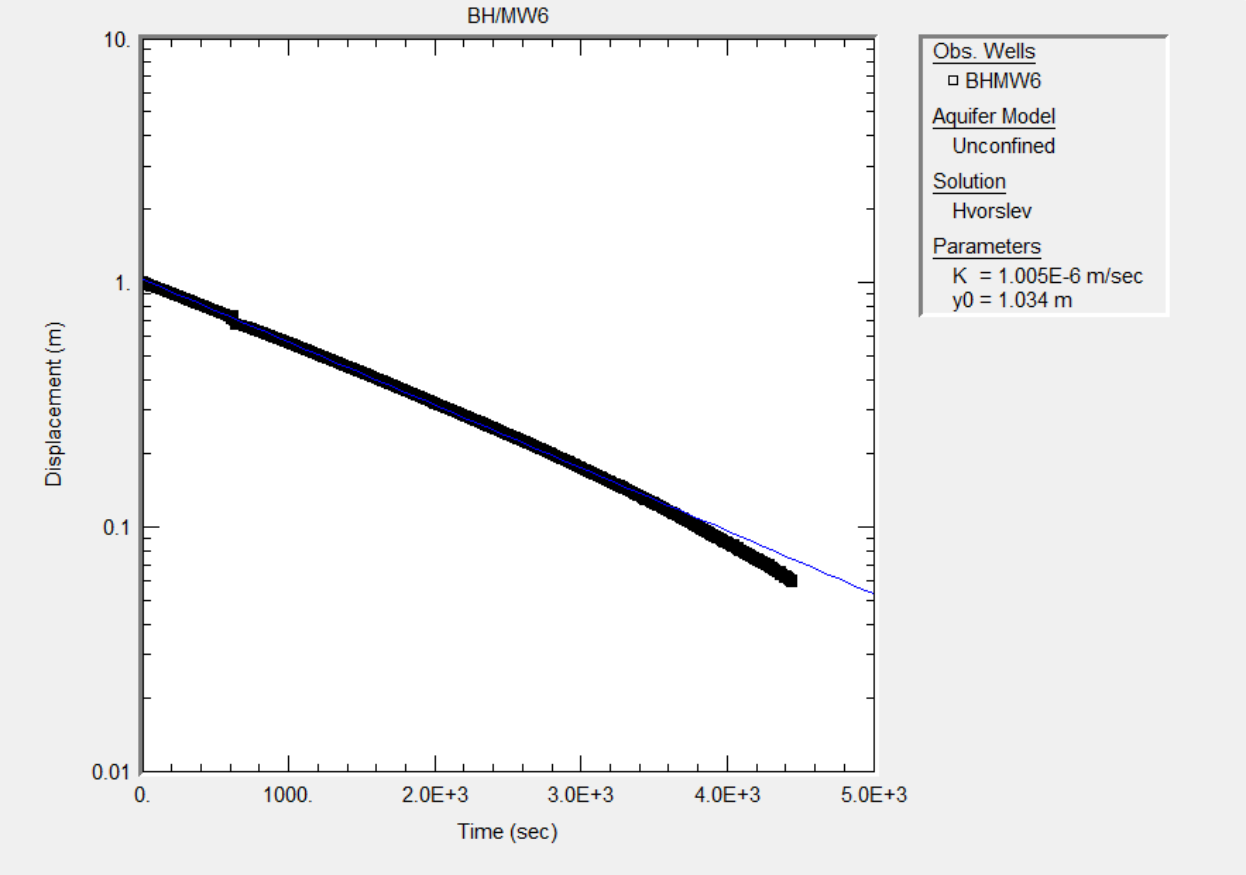
Well Number:	BHMW3	
Well Screen Bottom:	5.60	mbgs
Top of Pipe:	0.00	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	--	masl
Static Water Level:	1.56	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**4.5×10^{-6}**	m/s



Estimation of K by Slug Test, based on Hvorslev equation

Date:	July 31, 2018
Conducted by:	A. Kimberley

Well Number:	BHMW6	
Well Screen Bottom:	4.60	mbgs
Top of Pipe:	0.00	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	--	masl
Static Water Level:	1.53	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**1.0×10^{-6}**	m/s



APPENDIX C

Certificates of Analyses for Chemical Testing (Soil)

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G75187

REPORT No. B18-20242 (i)

Rev. 1

Report To:

Peto MacCallum Ltd
19 Churchill Drive,
Barrie ON L4N 8Z5
Attention: Geoff White

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 11-Jul-18
DATE REPORTED: 15-Aug-18
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
Cyanide	4	Kingston	US	17-Jul-18	A-CN s K	in house
Conductivity	4	Richmond Hill	ABL	16-Jul-18	A-COND-02 s RH	MOEE3138
pH	4	Richmond Hill	ABL	12-Jul-18	A-pH-02 (rh)	MOEE 3137
Chromium (VI)	4	Holly Lane	LMG	16-Jul-18	D-CRVI-02 (o)	EPA7196A
Mercury	4	Holly Lane	PBK	16-Jul-18	D-HG-01 (o)	EPA 7471A
Sodium Adsorption Ratio	4	Holly Lane	TPR	13-Jul-18	D-ICP-01 SAR (o)	SM 3120
Metals - ICP-OES	4	Holly Lane	TPR	16-Jul-18	D-ICP-02 (o)	EPA 6010
Metals - ICP-MS	4	Holly Lane	RPE	16-Jul-18	D-ICPMS-01 (o)	EPA 6020

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - All - Table 1 - Res/Park/Institutional/Indus/Com/Commun

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 11-Jul-18
DATE REPORTED: 15-Aug-18
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

	Client I.D.		BH 1 SS 2	BH 3 SS 3	BH 5 SS 2	BH 7 SS 3	O. Reg. 153	
	Sample I.D.		B18-20242-1	B18-20242-2	B18-20242-3	B18-20242-4	Tbl. 1 - All	
	Date Collected		09-Jul-18	09-Jul-18	10-Jul-18	10-Jul-18		
Parameter	**Units**	**R.L.**						
pH @25°C	pH Units		7.63	8.19	7.39	7.67		
Conductivity @25°C	mS/cm	0.07	0.42	0.23	0.50	0.17	0.57	
Cyanide (Free)	µg/g	0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.051	
Sodium Adsorption Ratio	units		**3.33**	**2.53**	**4.70**	2.02	2.4	
Antimony	µg/g	0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.3	
Arsenic	µg/g	0.5	1.1	0.7	1.4	1.3	18	
Barium	µg/g	1	87	36	21	67	220	
Beryllium	µg/g	0.2	< 0.2	0.2	< 0.2	0.3	2.5	
Boron	µg/g	0.5	32.1	2.7	2.7	4.2	36	
Cadmium	µg/g	0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.2	
Chromium	µg/g	1	45	12	8	14	70	
Chromium (VI)	µg/g	0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.66	
Cobalt	µg/g	1	3	4	3	5	21	
Copper	µg/g	1	61	9	6	6	92	
Lead	µg/g	5	10	< 5	< 5	7	120	
Mercury	µg/g	0.005	< 0.005	< 0.005	0.060	0.016	0.27	
Molybdenum	µg/g	1	**3**	< 1	< 1	< 1	2	
Nickel	µg/g	1	21	7	4	6	82	
Selenium	µg/g	0.5	< 0.5	< 0.5	0.6	< 0.5	1.5	
Silver	µg/g	0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.5	
Thallium	µg/g	0.1	< 0.1	< 0.1	< 0.1	< 0.1	1	
Uranium	µg/g	0.1	0.3	0.3	0.5	0.3	2.5	
Vanadium	µg/g	1	6	23	23	30	86	
Zinc	µg/g	3	118	18	12	24	290	

1 . Revised report to change guidelines as per client request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - All - Table 1 - Res/Park/Institutional/Indus/Com/Commun



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Lab Manager

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

Summary of Exceedances

Table 1 - Res/Park/Institutional/Indus/Com/Commun

BH 1 SS 2	Found Value	Limit
Sodium Adsorption Ratio (units)	3.33	2.4
Molybdenum (µg/g)	3	2
BH 3 SS 3	Found Value	Limit
Sodium Adsorption Ratio (units)	2.53	2.4
BH 5 SS 2	Found Value	Limit
Sodium Adsorption Ratio (units)	4.70	2.4

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - All - Table 1 - Res/Park/Institutional/Indus/Com/Commun

Christine Burke
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DATE REPORTED: 15-Aug-18
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
% Moisture	4	Richmond Hill	JE	12-Jul-18	A-% moisture RH	
PHC(F2-F4)	4	Kingston	KPR	16-Jul-18	C-PHC-S-001 (k)	CWS Tier 1
PHC(F2-F4)	3	Kingston	KPR	18-Jul-18	C-PHC-S-001 (k)	CWS Tier 1
PHC(F1)	4	Richmond Hill	JE	12-Jul-18	C-VPHS-01 (rh)	CWS Tier 1

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - All - Table 1 - Res/Park/Institutional/Indus/Com/Commun

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DATE RECEIVED: 11-Jul-18
DATE REPORTED: 15-Aug-18
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

	Client I.D.		BH 1 SS 2	BH 3 SS 3	BH 5 SS 2	BH 7 SS 3	O. Reg. 153	
	Sample I.D.		B18-20242-1	B18-20242-2	B18-20242-3	B18-20242-4	Tbl. 1 - All	
	Date Collected		09-Jul-18	09-Jul-18	10-Jul-18	10-Jul-18		
Parameter	**Units**	**R.L.**						
PHC F1 (C6-C10)	µg/g	10	< 10	< 10	< 10	< 10	25	
PHC F2 (>C10-C16)	µg/g	5	7	< 5	9	6	10	
PHC F3 (>C16-C34)	µg/g	10	79	44	**255**	16	240	
PHC F4 (>C34-C50)	µg/g	10	**166** [1]	97 [1]	**537** [1]	< 10	120	
PHC F4 (Gravimetric)	µg/g	50	**900**	**1330**	**3120**		120	
% moisture	%		9.0	5.1	3.2	11.1		

1 . F4 Gravimetric analysis required as chromats did not return to baseline.

2 . Revised report to change guidelines as per client request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - All - Table 1 - Res/Park/Institutional/Indus/Com/Commun

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G75187

REPORT No. B18-20242 (ii)

Rev. 1

Report To:

Peto MacCallum Ltd
19 Churchill Drive,
Barrie ON L4N 8Z5
Attention: Geoff White

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 11-Jul-18
DATE REPORTED: 15-Aug-18
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

Summary of Exceedances

Table 1 - Res/Park/Institutional/Indus/Com/Commun

BH 1 SS 2	Found Value	Limit
PHC F4 (Gravimetric) (µg/g)	900	120
PHC F4 (>C34-C50) (µg/g)	166	120
BH 3 SS 3	Found Value	Limit
PHC F4 (Gravimetric) (µg/g)	1330	120
BH 5 SS 2	Found Value	Limit
PHC F4 (Gravimetric) (µg/g)	3120	120
PHC F4 (>C34-C50) (µg/g)	537	120
PHC F3 (>C16-C34) (µg/g)	255	240

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - All - Table 1 - Res/Park/Institutional/Indus/Com/Commun

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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CADUCEON ENVIRONMENTAL LABORATORIES

TESTING REQUIREMENTS

- [x] O.Reg 153 — Table 8
- [ ] Surface Soil — [ ] Sub Surface Soil (O.Reg 153)
- [ ] Yes [ ] No — Record of Site Condition (O.Reg 153)
- [ ] Provincial Water Quality Objectives
- [ ] Sewer Use By-Law: _____
- [ ] MISA Guidelines
- [ ] O.Reg 558 Leachate Analysis
- Disposal Site: _____
- [ ] Landfill Monitoring
- [ ] Other: _____

REPORT NUMBER (Lab Use): B18-20242

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? [ ] Yes [x] No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Indicate Laboratory Samples are submitted to: [ ] Kingston [ ] Ottawa [ ] Richmond Hill [ ] Windsor [x] Barrie [ ] London

Organization: Peto MacCallum Ltd.	Address and Invoicing Address (if different): All INV Invoices to barrie@petomaccallum.com
Contact: Geoff White	
Tel: 705-734-3900	
Fax: 705-734-9911	Quote No.: P18-Peto
Email: Cblair@petomaccallum.com	P.O. No.: 18BF035
	Project Name: 18BF035
	Additional Info:

ANALYSES REQUESTED (Print Test in Boxes)

MBT; PHC(F1-F4); Suspected Highly Contaminated

TURNAROUND SERVICE REQUESTED (see back page)

- [ ] Platinum — 200% Surcharge**
- [ ] Gold — 100% Surcharge
- [ ] Silver — 50% Surcharge
- [ ] Bronze — 25% Surcharge
- [x] Standard — 5-7 days
- [ ] Specific Date: _____

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

Lab No:	Sample Identification	S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided (MBT; PHC(F1-F4))	✓	Field pH	Field Temp.	# Bottles Sample	Field Filtered(Y/N)
	BH1 SS2		S	18-07-09		✓ ✓					
	BH3 SS3		S	18-07-09		✓ ✓					
	BH5 SS2		S	18-07-10		✓ ✓					
	BH7 SS3		S	18-07-10		✓ ✓					
	jar a vials -DF. RH										
	jar - O										
	jar - K										

SAMPLE SUBMISSION INFORMATION

	Sampled by:	Submitted by:
Print:	Alan Turner	Alan Turner
Sign:		
	2018-07-11	2018-07-11
	Date (yy-mm-dd)/Time:	Date (yy-mm-dd)/Time:

SHIPPING INFORMATION

- [ ] Client's Courier
- [ ] Caduceon's Courier
- [ ] Drop Off
- [x] Caduceon (Pick-up)
- Invoice: [ ]
- # of Pieces:

REPORTING / INVOICING

- [ ] Report by Fax
- [x] Report by Email
- [x] Invoice by Email
- [ ] Invoice by Mail

SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)

- Received By (print): S. Austin — Signature: SA
- Date Received (yy-mm-dd): 18/07/11 — Time Received: 8:20
- Laboratory Prepared Bottles: [x] Yes [ ] No
- Sample Temperature °C: 17.3
- Labeled by: SA

Comments:

Page 1 of 1

G 75187

White: Lab Copy / Yellow: Invoicing Copy / Pink: Client Copy

CofC, Jan. 2017, Revision No: 20

APPENDIX D

Certificates of Analyses (Ground Water)

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G72927

REPORT No. B18-22691 (i)

Rev. 1

Report To:

Peto MacCallum Ltd
19 Churchill Drive,
Barrie ON L4N 8Z5
Attention: Alicia Kimberley

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:

P.O. NUMBER: 18BF035
WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
Cyanide	3	Kingston	US	02-Aug-18	A-CN-001 (k)	SM 4500CN
Conductivity	3	Richmond Hill	ABL	02-Aug-18	A-COND-01 (rh)	SM 2510
pH	3	Richmond Hill	ABL	02-Aug-18	A-pH-01 (rh)	SM 4500
Chromium (VI)	3	Holly Lane	LMG	02-Aug-18	D-CRVI-01 (o)	MOE E3056
Mercury	3	Holly Lane	PBK	03-Aug-18	D-HG-02 (o)	SM 3112 B
Metals - ICP-OES	3	Holly Lane	TPR	03-Aug-18	D-ICP-01 (o)	SM 3120
Metals - ICP-MS	3	Holly Lane	RPE	03-Aug-18	D-ICPMS-01 (o)	EPA 200.8

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Attention: Alicia Kimberley

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

	Client I.D.		BH/MW 2	BH/MW 3	BH/MW 6		O. Reg. 153 Tbl. 1 - GW	
	Sample I.D.		B18-22691-1	B18-22691-2	B18-22691-3			
	Date Collected		31-Jul-18	31-Jul-18	31-Jul-18			
Parameter	**Units**	**R.L.**						
pH @25°C	pH Units		7.28	7.95	7.59			
Conductivity @25°C	mS/cm	0.001	0.531	0.369	0.585			
Cyanide (Free)	µg/L	5	< 5	< 5	< 5		5	
Sodium	µg/L	200	12400	27500	10400		490000	
Antimony	µg/L	0.1	< 0.1	< 0.1	< 0.1		1.5	
Arsenic	µg/L	0.1	1.6	2.2	0.2		13	
Barium	µg/L	1	161	97	68		610	
Beryllium	µg/L	0.1	< 0.1	< 0.1	< 0.1		0.5	
Boron	µg/L	5	35	66	6		1700	
Cadmium	µg/L	0.015	< 0.015	< 0.015	< 0.015		0.5	
Chromium	µg/L	2	< 2	< 2	< 2		11	
Chromium (VI)	µg/L	2	< 2	< 2	< 2		25	
Cobalt	µg/L	0.1	0.5	0.1	0.3		3.8	
Copper	µg/L	2	< 2	< 2	< 2		5	
Lead	µg/L	0.02	0.12	< 0.02	0.06		1.9	
Mercury	µg/L	0.02	< 0.02	< 0.02	< 0.02		0.1	
Molybdenum	µg/L	0.1	2.1	7.7	2.6		23	
Nickel	µg/L	0.2	0.9	0.2	1.3		14	
Selenium	µg/L	1	< 1	< 1	< 1		5	
Silver	µg/L	0.1	< 0.1	< 0.1	< 0.1		0.3	
Thallium	µg/L	0.05	< 0.05	< 0.05	< 0.05		0.5	
Uranium	µg/L	0.05	0.32	0.17	0.52		8.9	
Vanadium	µg/L	0.1	3.2	0.9	0.4		3.9	
Zinc	µg/L	5	< 5	< 5	< 5		160	

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water



Christine Burke
Lab Manager

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19 Churchill Drive,
Barrie ON L4N 8Z5
Attention: Alicia Kimberley

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

	Client I.D.		BH/MW 2	BH/MW 3	BH/MW 6		O. Reg. 153
	Sample I.D.		B18-22691-1	B18-22691-2	B18-22691-3		Tbl. 1 - GW
	Date Collected		31-Jul-18	31-Jul-18	31-Jul-18		
Parameter	**Units**	**R.L.**					

1 . Vanadium results from ICPMS run to meet Table 1 limit

2 . Revised report to change guidelines as per client request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water

Christine Burke
Lab Manager

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Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

Summary of Exceedances

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Attention: Alicia Kimberley

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:

P.O. NUMBER: 18BF035
WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
PHC(F2-F4)	3	Kingston	KPR	03-Aug-18	C-PHC-W-001 (k)	MOE E3421
PHC(F1)	3	Richmond Hill	FAL	02-Aug-18	C-VPHW-01 (rh)	MOE E3421

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water



Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

	Client I.D.		BH/MW 2	BH/MW 3	BH/MW 6		O. Reg. 153	
	Sample I.D.		B18-22691-1	B18-22691-2	B18-22691-3		Tbl. 1 - GW	
	Date Collected		31-Jul-18	31-Jul-18	31-Jul-18			
Parameter	**Units**	**R.L.**						
PHC F1 (C6-C10)	µg/L	50	< 50	< 50	< 50		420	
PHC F2 (>C10-C16)	µg/L	50	< 50	< 50	< 50		150	
PHC F3 (>C16-C34)	µg/L	400	500	**1800**	< 400		500	
PHC F4 (>C34-C50)	µg/L	400	< 400	500	< 400		500	

1 . Revised report to change guidelines as per client request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water



Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Barrie ON L4N 8Z5
Attention: Alicia Kimberley

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 01-Aug-18
DATE REPORTED: 13-Aug-18
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 18BF035
WATERWORKS NO.

Summary of Exceedances

Table 1 - Ground Water

BH/MW 3	Found Value	Limit
PHC F3 (>C16-C34) (µg/L)	1800	500

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW - Table 1 - Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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CADUCEON ENVIRONMENTAL LABORATORIES

TESTING REQUIREMENTS

- [X] O.Reg 153 — Table 8
- [ ] Surface Soil — [ ] Sub Surface Soil (O.Reg 153)
- [ ] Yes [ ] No — Record of Site Condition (O.Reg 153)
- [ ] Provincial Water Quality Objectives
- [ ] Sewer Use By-Law: _____
- [ ] MISA Guidelines
- [ ] O.Reg 558 Leachate Analysis
- Disposal Site: _____
- [ ] Landfill Monitoring
- [ ] Other: _____

REPORT NUMBER (Lab Use): B18-22691

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? [ ] Yes [X] No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Indicate Laboratory Samples are submitted to: [ ] Kingston [ ] Ottawa [ ] Richmond Hill [ ] Windsor [X] Barrie [ ] London

Organization: PML

Contact: A. Kimberley

Tel: 705 734 3900

Fax: 705 734 9911

Email: akimberley@peteraccallum.com

Address and Invoicing Address (if different): barrie@peteraccallum.com

Quote No.: PIB_Pete

Project Name: PEB1035

P.O. No.:

Additional Info:

ANALYSES REQUESTED (Print Test in Boxes)

M+I (leach *2) | PHC | Suspected Highly Contaminated

TURNAROUND SERVICE REQUESTED (see back page)

- [ ] Platinum — 200% Surcharge**
- [ ] Gold — 100% Surcharge
- [ ] Silver — 50% Surcharge
- [ ] Bronze — 25% Surcharge
- [X] Standard — 5-7 days
- [ ] Specific Date: _____

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

Lab No:	Sample Identification	S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided	✓	Field pH	Field Temp.	# Bottles Sample	Field Filtered(Y/N)
1	BH/MW2		GW	18-07-31	11:00	X X				8	Y
2	BH/MW3		↓	↓	11:30	X X				8	Y
3	BH/MW6		↓	↓	12:00	X X				8	Y
	500mL, CN -PK.										
	Gen chem, vials -> PH										
	Metals, Hg & CRVI -> O										

SAMPLE SUBMISSION INFORMATION

	Sampled by:	Submitted by:
Print:	A. Kimberley	A. Kimberley
Sign:		
	Date (yy-mm-dd)/Time:	Date (yy-mm-dd)/Time:

SHIPPING INFORMATION

- [ ] Client's Courier
- [ ] Caduceon's Courier
- [ ] Drop Off
- [X] Caduceon (Pick-up)

Invoice [ ]

# of Pieces

REPORTING / INVOICING

- [ ] Report by Fax
- [ ] Report by Email
- [ ] Invoice by Email
- [ ] Invoice by Mail

SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)

Received By (print): S. AUSTIN — Signature: SA

Date Received (yy-mm-dd): 18/08/01 — Time Received: 9:10

Laboratory Prepared Bottles: [✓] Yes [ ] No

Sample Temperature °C: 8.3

Labeled by: SA

Comments:

Page 1 of 1

G 72927

White: Lab Copy / Yellow: Invoicing Copy / Pink: Client Copy

APPENDIX E

Statement of Limitations

STATEMENT OF LIMITATIONS

This report is prepared for and made available for the sole use of the client named. Peto MacCallum Ltd. (PML) hereby disclaims any liability or responsibility to any person or entity, other than those for whom this report is specifically issued, for any loss, damage, expenses, or penalties that may arise or result from the use of any information or recommendations contained in this report. The contents of this report may not be used or relied upon by any other person without the express written consent and authorization of PML.

This report shall not be relied upon for any purpose other than as agreed with the client named without the written consent of PML. It shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. A portion of this report may not be used as a separate entity: that is to say the report is to be read in its entirety at all times.

The report is based solely on the scope of services which are specifically referred to in this report. No physical or intrusive testing has been performed, except as specifically referenced in this report. This report is not a certification of compliance with past or present regulations, codes, guidelines and policies.

The scope of services carried out by PML is based on details of the proposed development and land use to address certain issues, purposes and objectives with respect to the specific site as identified by the client. Services not expressly set forth in writing are expressly excluded from the services provided by PML. In other words, PML has not performed any observations, investigations, study analysis, engineering evaluation or testing that is not specifically listed in the scope of services in this report. PML assumes no responsibility or duty to the client for any such services and shall not be liable for failing to discover any condition, whose discovery would require the performance of services not specifically referred to in this report.

STATEMENT OF LIMITATIONS
(continued)

The findings and comments made by PML in this report are based on the conditions observed at the time of PML's site reconnaissance. No assurances can be made and no assurances are given with respect to any potential changes in site conditions following the time of completion of PML's field work. Furthermore, regulations, codes and guidelines may change at any time subsequent to the date of this report and these changes may effect the validity of the findings and recommendations given in this report.

The results and conclusions with respect to site conditions are therefore in no way intended to be taken as a guarantee or representation, expressed or implied, that the site is free from any contaminants from past or current land use activities or that the conditions in all areas of the site and beneath or within structures are the same as those areas specifically sampled.

Any investigation, examination, measurements or sampling explorations at a particular location may not be representative of conditions between sampled locations. Soil, ground water, surface water, or building material conditions between and beyond the sampled locations may differ from those encountered at the sampling locations and conditions may become apparent during construction which could not be detected or anticipated at the time of the intrusive sampling investigation.

Budget estimates contained in this report are to be viewed as an engineering estimate of probable costs and provided solely for the purposes of assisting the client in its budgeting process. It is understood and agreed that PML will not in any way be held liable as a result of any budget figures provided by it.

The Client expressly waives its right to withhold PML's fees, either in whole or in part, or to make any claim or commence an action or bring any other proceedings, whether in contract, tort, or otherwise against PML in anyway connected with advice or information given by PML relating to the cost estimate or Environmental Remediation/Cleanup and Restoration or Soil and Ground Water Management Plan Cost Estimate.

Stormwater Report, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

May 2019
300042232.0000

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	yes	yes	Town of Innisfil

Record of Revisions

Revision	Date	Description
0	September 10, 2018	Draft Submission to Town of Innisfil
1	May 27, 2019	Revised based on comments

R.J. Burnside & Associates Limited

Report Prepared By:



Harold Faulkner, P.Eng. Hydrotechnical Engineer
HF:slw

Report Reviewed By:



Drew Davidge, P. Eng. Project Engineer
HF:slw

Table of Contents

1.0 Introduction 1
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1.0 Introduction

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

A review of stormwater was conducted in support of the Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad to Yonge Street (Study Area).

2.0 Study Area

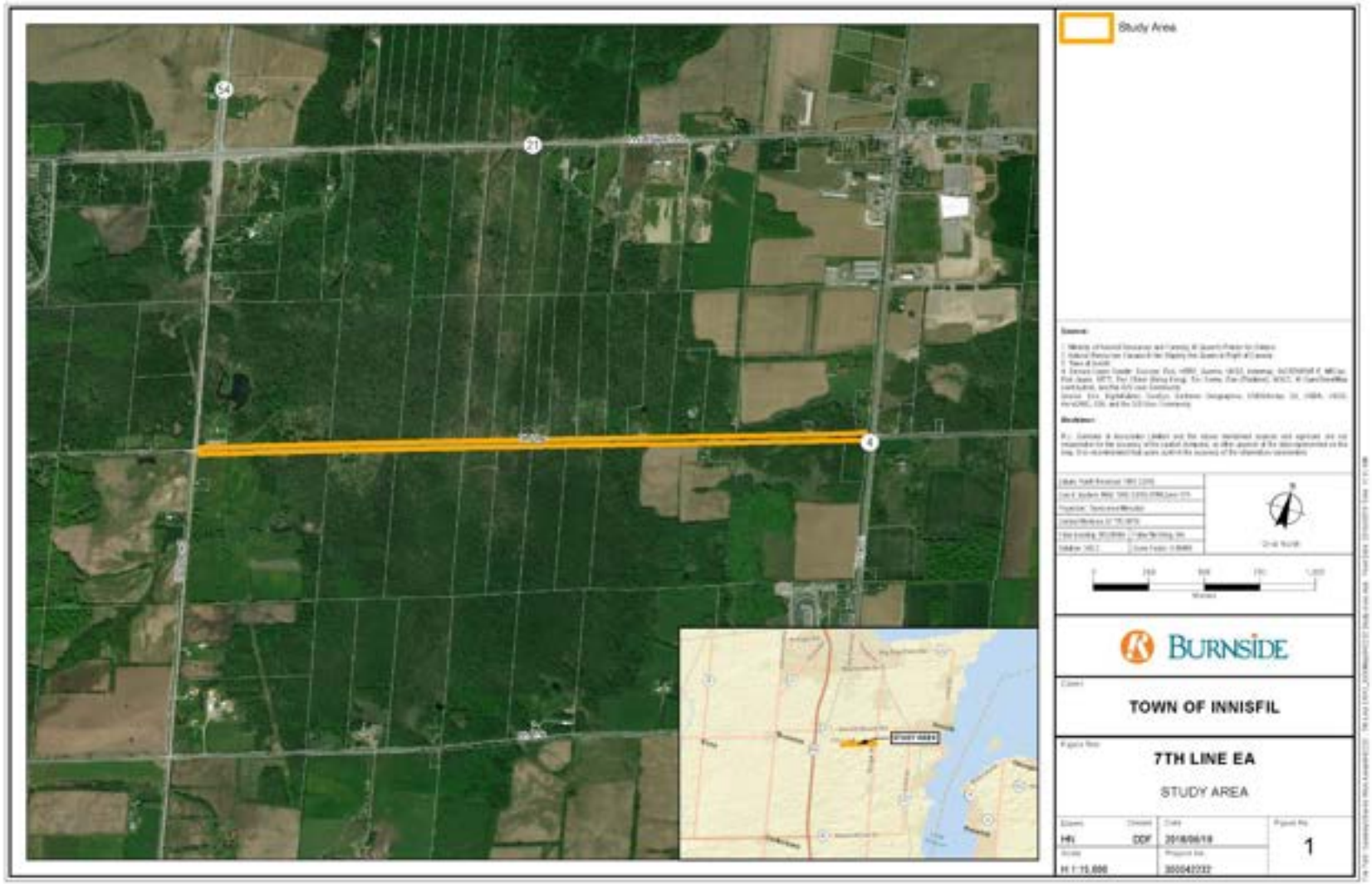
The 7th Line is an open-ditch rural cross-section which generally drains from the boundary roads from the east and the west to a central low-lying area. A large rural external drainage area from the south drains to the road and is conveyed to the north via existing culverts. The Study Area is within the Lovers Creek watershed. A map depicting the location of the Study Area is provided as Figure 1.

3.0 Background Information Review

The characterization of existing stormwater conditions and natural heritage features and functions within the Study Area included a review of the following databases, mapping and supporting background documents:

- Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan (2012);
- Town of Innisfil GIS database topographic data;
- Aerial photography;
- Lake Simcoe Region Conservation Authority (LSRCA) regulated areas mapping;
- Town of Innisfil Official Plan (2011);
- Preliminary Geotechnical/Hydrogeological Investigation – Peto MacCallum Ltd. August 2018.

Figure 1: Study Area



4.0 Existing Conditions and Deficiencies

Existing stormwater features within the Study Area are limited to conveyance features including roadside ditches, driveway culverts and road-crossing culverts. The tributary drainage area is not serviced by existing stormwater management facilities for quality or quantity control.

Portions of the road have been subject to erosion due to the close proximity of the existing watercourse to the road. This condition is currently repaired by the Town on an on-going reactionary basis. Roadside ditches are also not well defined in some areas.

The existing road-crossing culverts appear to be in good physical condition, based on visual inspection. Depending on the chosen alternative solution, a hydraulic analysis may be required to confirm sufficient conveyance capacity or recommend replacement. Concerns with culvert deficiencies have not been expressed.

It is noted nearly the entire Study Area is within the LSRCA regulated area.

5.0 Potential Impacts and Recommended Mitigation Measures

This section outlines the potential impacts and recommended mitigation measures associated with the proposed alternative solutions. Once the detailed design has been completed, the mitigation measures should be updated and reviewed to appropriately support the specific design.

4.1 Alternative Solutions and Potential Impacts

Do Nothing

This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

The Do Nothing approach would result in no changes to the existing condition. The existing watercourse erosion would continue to occur. Impervious area would not increase, and drainage boundaries would be maintained. Stormwater management features would not be proposed.

Local Traffic Only

This alternative may include the following:

- Allow access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road.
- Maintain public access to Centennial Park from 10th Sideroad.
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

Allowing access to local traffic only would result in no changes to the existing hydrologic or hydraulic conditions. The existing watercourse erosion would continue to occur. Impervious area would not increase, and drainage boundaries would be maintained. Stormwater management features would not be proposed.

One-Way Road

This alternative may include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.
- Install appropriate signage/marking and public notice of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisitions.

Reconfiguring the road to operate as a one-way public thoroughfare would not result in changes to the existing hydrologic or hydraulic conditions. The existing watercourse erosion would be mitigated, potentially through the realignment of the adjacent watercourse. The road surface would be repaved or rehabilitated, but impervious area would not increase, and drainage boundaries would be maintained. Stormwater management quantity or quality controls would not be warranted, but hydraulic analysis of the watercourse crossings would be completed to ensure replacement culverts meet current capacity requirements.

Widen the Road

This alternative may include the following:

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – paved shoulder and improve ditching.
- Tree clearing at east end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

Widening the road to operate as a two-way public thoroughfare would likely result in changes to the existing hydrologic and hydraulic conditions. Increased runoff and paved surfaces could impact stormwater runoff rates and quality. The existing watercourse erosion would be mitigated, potentially through the realignment of the adjacent watercourse. The road surface would be upgraded to meet current road design standards, which would result in an increase in impervious area.

Dead-End with Turnaround

This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build cul–de–sac or hammer head turnarounds.
- Perform regular maintenance as required.

Reconfiguring the road to operate as a two-way public road with no through traffic would likely result in changes to the existing hydrologic and hydraulic conditions. Increased runoff and paved surfaces could impact stormwater runoff rates and quality. The existing watercourse erosion would be mitigated, potentially through the realignment of

the adjacent watercourse. The road surface would be upgraded to meet current road design standards, which would result in an increase in impervious area.

4.2 Recommended Mitigation Measures

As part of the road reconfiguration or widening, improvements to the stormwater conveyance conditions would be proposed. These improvements include:

- A proactive approach to repairing road slopes from watercourse erosion for long term stability.
- Improving ditches where necessary to ensure conveyance capacity is provided.
- Assessing road-crossing and driveway culvert capacity and recommending replacement where necessary.

Road widening, or reconfiguration would increase the existing impervious area, which may require stormwater quantity and quality controls. Potential measures to facilitate these controls include:

- Wide, vegetated roadside ditches for quality control, which may require additional property acquisition.
- Infiltration measures for quality control, which would be dependent on the existing soil conditions and high groundwater levels.
- Stormwater management pond facility(ies) to provide quantity control, and possibly quality control. This option would likely require additional property outside of the existing Right-of-Way (ROW) limits.

Quantity Control

Quantity control may be required, should the road be widened. A comparison of the existing surveyed land cover, and proposed cover considering a standard rural local road 20 m allowance, 7 m pavement width and 2.4 m shoulder width is provided in Table 1.

Table 1: Existing and Proposed Land Cover – Runoff Coefficients

	Existing		Proposed	
	Area (ha)	**Runoff Coefficient**	**Area (ha)**	**Runoff Coefficient**
Pavement	2.00	0.90	2.10	0.90
Shoulder	0.40	0.70	0.72	0.90
Vegetated	3.60	0.20	3.18	0.20
Total	**6.00**	**0.46**	**6.00**	**0.53**

Based on the above comparison, the runoff coefficient is expected to increase by approximately 10%. Utilizing the Modified Rational Method, this increase could be mitigated by providing a quantity control volume of 77 m^3 and 166 m^3 for the 5-year and 100-year peak flows respectively.

If soil conditions permit, this volume could be achieved through infiltration trenching in the south roadside ditch. The required 100-year storage volume spread along the 3 km road averages 0.06 m^3 per linear meter of road.

If soil and groundwater conditions are not favourable for infiltration, the storage volume could be achieved in the south roadside ditch upstream of the existing main road crossing culvert located approximately 1.2 km east of 10th Sideroad.

Quality Control

As demonstrated in Table 1 above, widening the road would result in an increase in impervious area. In the existing condition, quality control is provided through the vegetated roadside ditches. As part of a proposed road improvement, the roadside ditches can be reconstructed as enhanced grassed swales, which typically have flatter slopes (+/-1%), wider bottom widths (0.75m+), and low flow velocities (0.5 m/s for the 4-hour 25 mm storm). The requirement for flat slopes and wide bottom widths preclude these features from being located in the eastern steeper portion of the road. Potential locations for enhanced grassed swales are shown on Figure 2.

Road-crossing Culverts

The topographic survey identified five culverts crossing 7th Line between 10th Sideroad and Yonge Street. 7th Line is identified as a local road, which is required to convey the 25-year storm, based on MTO WC-13 criteria. Preliminary hydrologic and hydraulic calculations have been completed to estimate the existing capacity of the culverts. The surveyed parameters of the culverts are provided in Table 2.

Table 2: Road-crossing Culvert Parameters

Location	Size	Inverts (m)		Length (m)	Comments
		US	DS		
At 10th Sideroad	450 mm dia. CSP	258.16	257.60	21.5	Conveys east roadside ditch of 10th Sideroad only.
1.2 km east of 10th Sideroad	1200 mm dia. CSP	247.70	247.67	12.5	Main culvert crossing. Tributary area approx. 600 ha drains through wetland. Undersized to convey the 25-year storm.

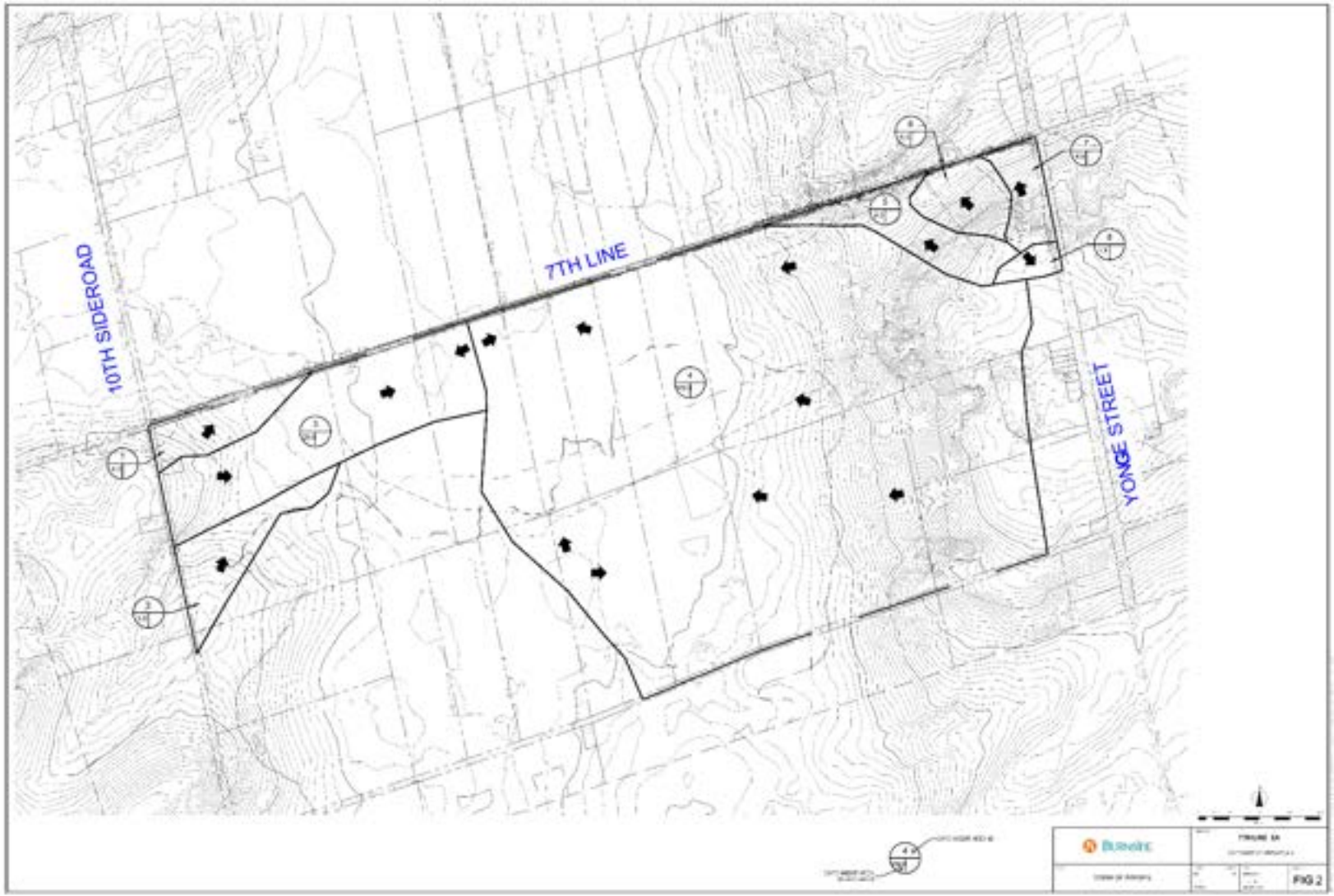
Location	Size	Inverts (m)		Length (m)	Comments
		US	DS		
515 m west of Yonge Street	450 mm dia. CSP	266.50	265.98	12.5	Tributary area approx. 5.5ha. Conveys +/- 25-year storm.
345 m west of Yonge Street	375 mm dia. CSP	272.60	272.27	8.5	Tributary area approx. 5.6ha. Conveys +/- 25-year storm.
At Yonge Street	600 mm dia. CSP	276.49	275.72	23	Tributary area approx. 12.6ha. Conveys +/- 25-year storm.

We anticipate the smaller sized culverts would be replaced with similar sizes as part of a widening option. Detailed calculations will confirm capacity for the 25-year storm conveyance.

The larger 1200 mm diameter culvert does not appear to have capacity for the 25-year storm runoff generated by the large upstream catchment area. Detailed hydrologic and hydraulic modeling should be completed to determine an appropriate replacement culvert size. Attenuation within the wetland area may have a significant impact on the peak flows to be conveyed by the culvert.

Regional storm conveyance should not be impacted, as the majority of conveyance would be overtop of the road, and a road widening option would not raise the road centerline.

Figure 2: Tributary Catchment Area



6.0 Design Considerations and Approval Requirements

The stormwater management design for the preferred option is to be based on the following design criteria:

- Town of Innisfil Engineering Design Standards and Specifications Manual (2016).
- Lake Simcoe Region Conservation Authority (LSRCA) Technical Guidelines for Stormwater Management Submissions (2016).
- LSRCA Lake Simcoe Protection Plan.
- MOE Stormwater Management Planning and Design Manual (2003).

The following approvals are anticipated, with respect to stormwater management:

- LSRCA Development, Interference with Wetlands and Alteration to Shorelines and Watercourse Permit.
- Ministry of Environment, Conservation and Parks Environmental Compliance Approval (ECA).

7.0 Hydrology

Where the preferred alternative deems necessary, hydrological modelling will be completed which will include the determination of the 2, 5, 10, 25, 50, 100-year peak flows as well as the Hurricane Hazel Flood Event Standard. For the hydrologic analysis OTTHYMO, or SWMHYMO may be used. IDF curves from the Town Standards shall be used for the return storm calculations.

Rational method calculations may be prepared for stormwater management calculations within the ROW including road-side ditches and facilities which receive little to no external drainage.

The hydrologic modeling results may be necessary to the design of roadside ditch improvements, stormwater management facilities, and culvert sizing. A figure showing the tributary catchment areas for the purposes of culvert capacity assessment is provided as Figure 2, above.

Traffic Assessment Report, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

May 2019
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1	May 21, 2019	Revised based on comments

R.J. Burnside & Associates Limited

Report Prepared By:

Jonah Lester, B.A.Sc.
JL:slw

Report Reviewed By:

Henry Centen, P.Eng.
Senior Transportation Engineer
JL:slw



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Photo 1: Examples of roadside erosion and maintenance efforts on 7th Line. 3

Appendices

Appendix A Traffic Counts
Appendix B Synchro Reports

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1.0 Introduction

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

As part of the EA process, R.J. Burnside & Associates Limited (Burnside) has completed a traffic assessment to summarizes the existing traffic conditions and planned road network improvements within the immediate and broader Study Area, in consideration of the planned form and function of 7th Line with the overall municipal road network. It also forecasts future traffic volumes and identifies traffic considerations associated with potential alternative solutions.

2.0 Study Area

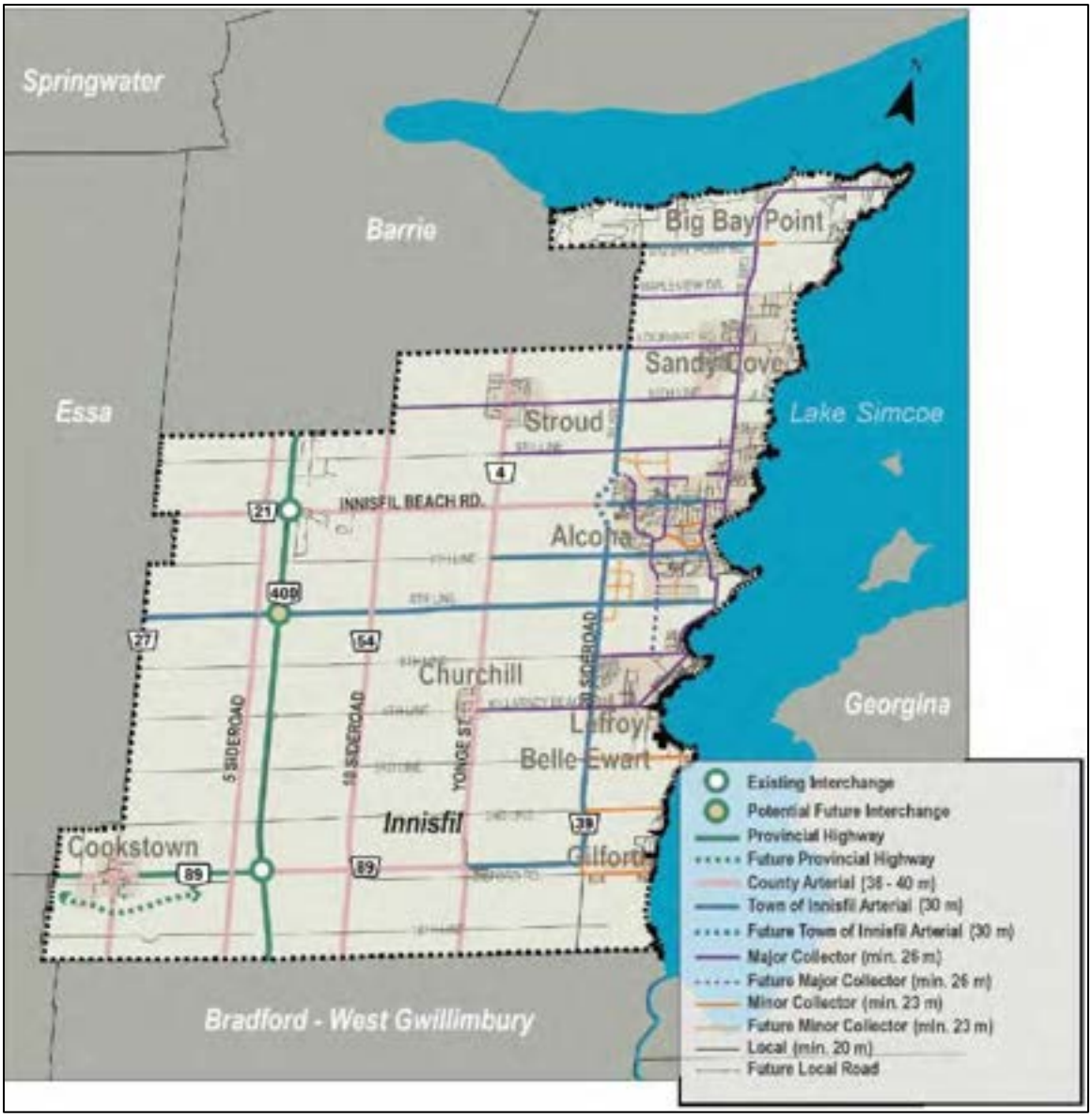
The Study Area contains the 7th Line, between 10th Sideroad and Yonge Street, as shown in Figure 1.

Figure 1 The 7th Line is a two-lane rural road running east-west with a low class bituminous surface. This section of 7th Line is approximately 3.0 km in length and is classified as a local road within the *Innisfil Official Plan* (2018) and the Town's Transportation Master Plan Update (HDR, 2018), as shown in Figure 2.

Figure 1: Study Area.



Figure 2: Schedule C – Transportation Network – Roads from Town of Innisfil Official Plan (2018).



3.0 Existing Conditions and Background Information

In the broader road network, the 7th Line to the east of Yonge Street has recently been upgraded to an arterial road classification from its previous designation as a major collector road. To the west of 10th Sideroad, the 7th Line is a local road and ends about 1.4 km to the west of 10th Sideroad, with no plans to extend this road within the municipal road network (i.e., considering the availability of the county roads in this area

to provide the necessary network connectivity to both the interchange at Highway 400/Innisfil Beach Road and to the employment growth area in Innisfil Heights). Therefore, for the purposes of this study it is anticipated that 7th Line will remain as a local road within the immediate Study Area.

The westerly 1.8 km of 7th Line within the Study Area is relatively straight and flat with a posted speed limit of 80 km/h and a typical pavement width of 7.5 m and narrow shoulders between 0.7 m and 1.0 m in width.

The easterly segment is posted at 50 km/h, with a very narrow road platform (as narrow as 4.9 m in some areas) that also includes many horizontal and vertical curves. In addition, the tree line encroaches up to the edge of the road platform, further limiting sightlines, and there is a natural watercourse along the north side of the roadway that is up to 3 m below the road surface that has contributed to continuous roadside erosion and drop-offs, as exhibited in Photo 1. These deficiencies in the easterly segment have caused incessant maintenance and safety issues, resulting in the Town implementing a temporary road closure in November of 2017 to limit the use of the road to local traffic only. This interim measure was quickly followed up by the decision to initiate this EA to find a permanent solution to the problem.

Photo 1: Examples of roadside erosion and maintenance efforts on 7th Line.





Since the interim road closure was put into effect, Town Staff have noted that the condition of the road has continued to deteriorate and that large rainstorms in June 2018 caused several shoulder washouts. Town Staff recommended that the road be temporarily designated as one-way in the westbound direction to allow temporary barriers to be used to reduce the width of the road in the areas experiencing significant

erosion, and to reduce the amount of through traffic still using the road despite the interim road closure. Council passed a by-law on June 20, 2018 to make 7th Line one-way westbound from Yonge Street to Centennial Park access (150 m west of 10th Sideroad).

3.1.1 Land Use and Access

The Study Area is generally surrounded by wooded areas and agricultural lands. There are several residences/agricultural operations along the 7th Line with approximately seven active driveway accesses.

A municipal park (Centennial Park) is located at the west end of the Study Area. The park features covered pavilions, accessible playground equipment and a small pond. The Park is open year-round and is used for picnics in the summer as well as various winter activities (e.g., snowshoeing). A designated “dog park” opened in October 2014 within Centennial Park, which has increased the use of the park.

3.1.2 Existing Operating Speeds

Automated Traffic Recorder (ATR) counts were conducted for a continuous seven-day period between June 18 and June 24, 2018 at two locations to determine existing traffic volumes, vehicle classifications and speeds. The west count location was located on 7th Line at 500 m east of 10th Sideroad and the east count location was located on 7th Line at 500 m west of Yonge Street. A summary of the collected speed data is shown in Table 1.

Table 1: 7th Line Operating Speed Data.

Speed Parameter	West Location (within posted 80 km/h zone)			East Zone (within posted 50 km/h zone)		
	Eastbound	Westbound	Two-Way	Eastbound	Westbound	Two-Way
15th Percentile	64 km/h	70 km/h	66 km/h	42 km/h	47 km/h	44 km/h
50th Percentile	77 km/h	82 km/h	80 km/h	52 km/h	55 km/h	54 km/h
85th Percentile	89 km/h	95 km/h	93 km/h	62 km/h	65 km/h	63 km/h
95th Percentile	103 km/h	103 km/h	103 km/h	69 km/h	72 km/h	71 km/h
Average	78 km/h	82 km/h	80 km/h	52 km/h	56 km/h	54 km/h

The results show that the average speeds within each section are at or near the posted speed limits with the 85th percentile speeds being an average of 13 km/h above the

posted speed. Typically, it is recommended that design speeds be set at, or above, operating speeds (i.e., assumed to be the 85th percentile speed), therefore the current posted speeds are not consistent with the road design.

3.1.3 Existing Traffic

The availability of historical traffic data for the Study Area is relatively limited. The Town provided daily traffic volumes from 2012, 2013, and 2014 count data. This information, together with, information from previous Road Needs Studies was reviewed and is summarized in Table 2. As mentioned in the previous section, Burnside undertook new traffic counts in June 2018, however, the interim road closure (local traffic only) was in effect at that time, therefore the results are not representative of normal operations, as shown in Table 2.

Table 2: 7th Line Daily Traffic Volumes Data

Year	Data Source	Daily Traffic Volume
2008-2012	Town Road Needs Study Data	300-500
2012	Town of Innisfil Count	1352
2013	Town of Innisfil Count	1208
2014	Town of Innisfil Count	1299
2018	Burnside (Ontario Traffic Inc.)	445 (during interim road closure)

The general opinion among Town staff and local residents seems to be that people use 7th Line to avoid the traffic on Innisfil Beach Road (County Road 21) to the north as much as possible. The significant reduction in traffic volume in 2018 (during the interim road closure) compared with the traffic volume from 2014 appears to confirm this theory.

3.2 Intersections

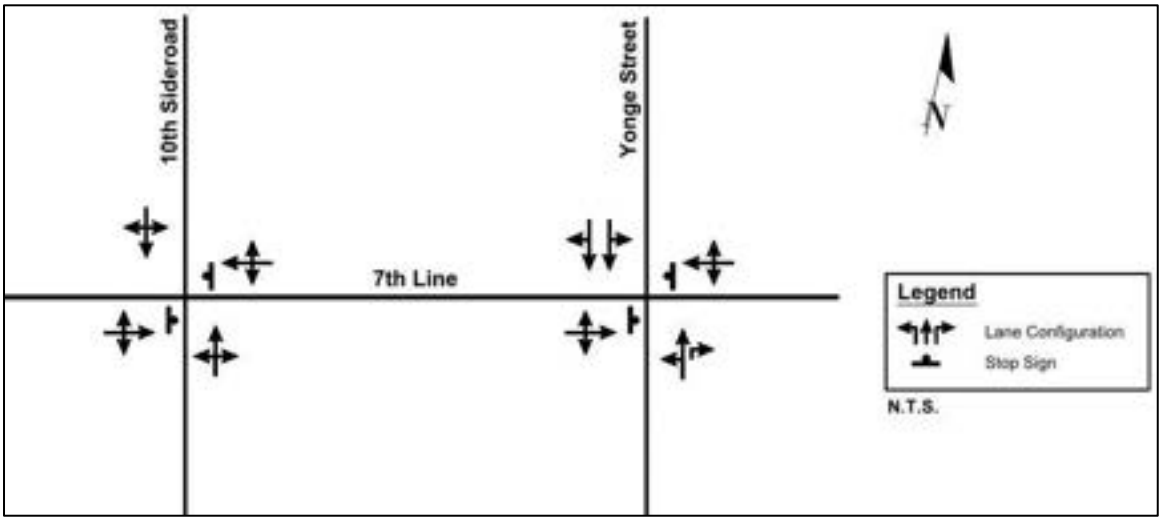
The Study Area is bounded by County road intersections at each end. At the east, Yonge Street (County Road 4) is a two-lane road with a posted speed limit of 80 km/h and is classified as a Primary Arterial (controlled access) road in the County of Simcoe Official Plan (2008). A southbound truck climbing lane starts upstream of 7th Line, so there are two southbound lanes through the intersection, and a northbound right turn taper is provided at the intersection.

At the west end of the Study Area, 10th Sideroad (County Road 54) is a two-lane road and is classified as a Secondary Arterial road in the County of Simcoe Official Plan (2008). There are no additional turn lanes or tapers at the 7th Line and 10th Sideroad intersection. The posted speed limit on 10th Sideroad is 80 km/h.

To the north of the Study Area, Innisfil Beach Road (County Road 21) is a two-lane road and is classified as a Primary Arterial road in the County of Simcoe Official Plan (2008).

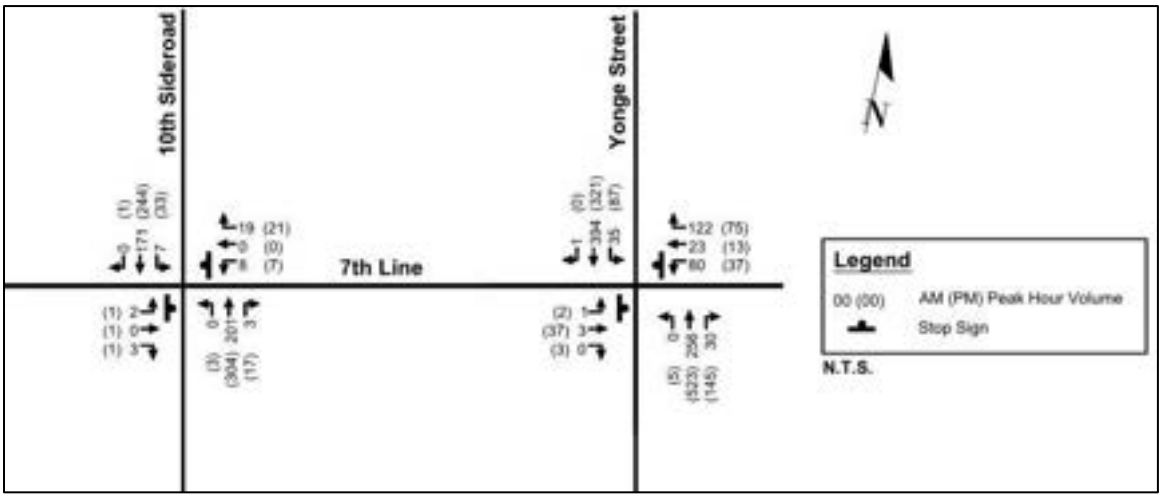
The lane configurations for the intersections in the Study Area are illustrated in Figure 3.

Figure 3: Existing Intersection Lane Configurations.



In addition to the ATR traffic counts taken on 7th Line, turning movement counts were undertaken at both Study Area intersections on June 18, 2018. The a.m. and p.m. peak hour traffic volumes from the June 18, 2018 counts are shown in Figure 4. It is noted that these volumes represent the interim road closure condition that was in place at the time of the counts.

Figure 4: Existing Intersection Traffic (Interim Road Closure Conditions)



The existing intersection operations were analyzed with Synchro software (based on the Highway Capacity Manual methodology) and the results are summarized in Table 3.

Table 3: Existing Intersection Operations

Intersection & Movement	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
	v/c	Delay/LOS	95th Queue (m)	v/c	Delay/LOS	95th Queue (m)
7th Line & 10th Sideroad						
Eastbound Left-Through-Right	0.01	10 / B	0	0.01	14 / B	0
Westbound Left-Through-Right	0.04	10 / B	5	0.06	12 / B	5
Northbound Left-Through-Right	0.00	0 / A	0	0.00	0 / A	0
Southbound Left-Through-Right	0.01	0 / A	0	0.03	1 / A	0
7th Line & Yonge Street						
Eastbound Left-Through-Right	0.02	19 / C	0	0.29	38 / E	9
Westbound Left-Through-Right	0.48	19 / C	20	0.51	32 / D	20
Northbound Left-Through	0.00	0 / A	0	0.00	0 / A	0
Northbound Right	0.02	0 / A	0	0.09	0 / A	0
Southbound Left-Through	0.03	1 / A	0	0.11	4 / A	5
Southbound Through-Right	0.13	0 / A	0	0.10	0 / A	0

Notes: v/c (volume to capacity), LOS (level of service), 95th Queue (95th Percentile Queue)

From the results above, it can be seen that the 7th Line and 10th Sideroad intersection operates well during both the a.m. and p.m. peak hours. At 7th Line and Yonge Street, the a.m. peak hour operations are good, but the p.m. peak hour shows that the eastbound movement experiences longer delay (level of service E). Since the analysis was based on traffic volumes during the interim road closure, it is expected that this delay would be even longer if the road were open to all traffic.

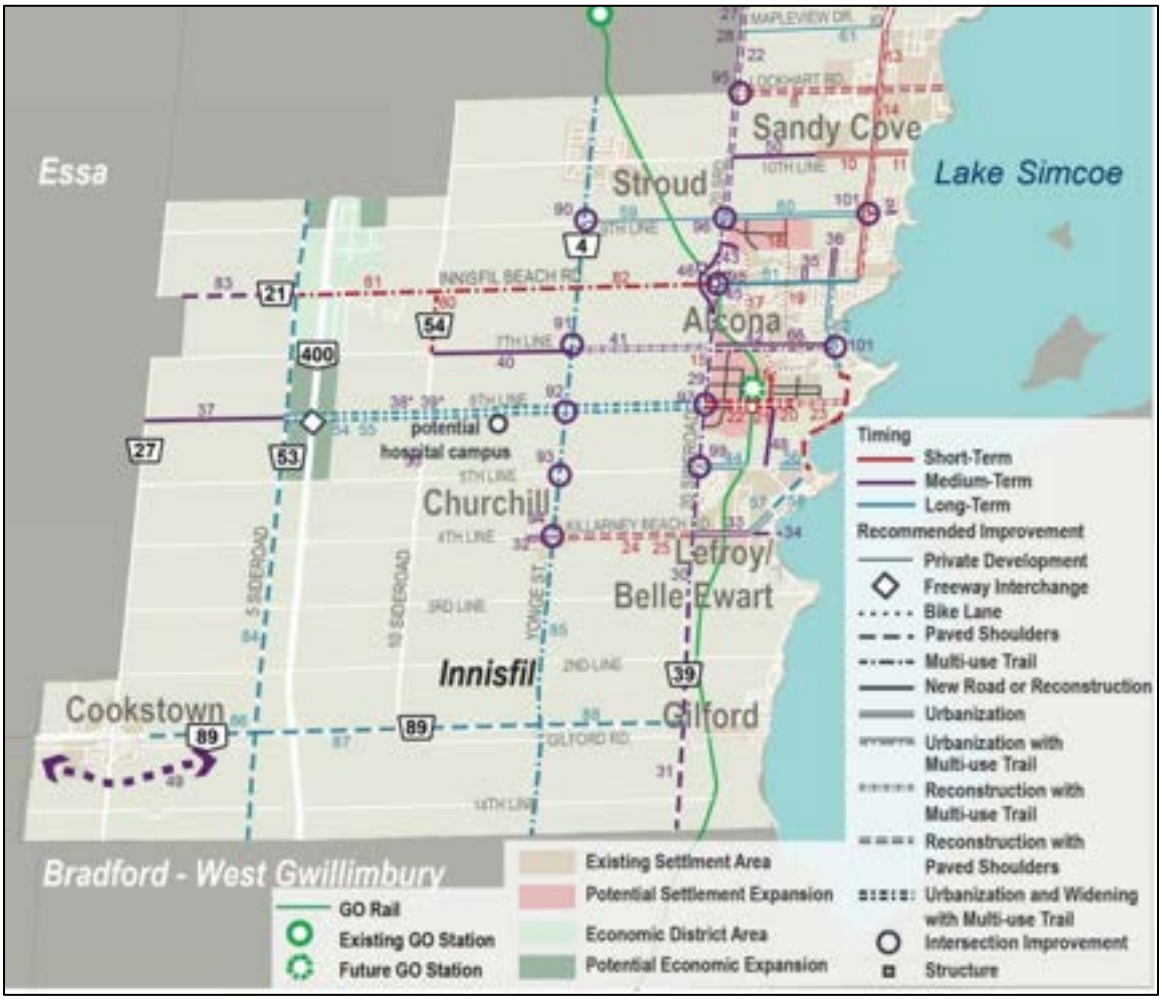
The turning movement counts were completed using video recordings, which allowed for additional analysis of vehicle origins and destinations through the Study Area. Our review of the a.m. and p.m. peak hour videos indicates that even during the interim road closure over 55% of the traffic on 7th Line in the Study Area was through traffic, and it can be assumed that that percentage would be much higher when the road was open.

3.3 Town of Innisfil Transportation Master Plan Update (2018)

The Town of Innisfil Transportation Master Plan Update (TMP Update) was completed in May 2018. The TMP Update built on the previous 2013 TMP to plan for a longer-term horizon to the year 2041. The 2041 recommended road network improvements are illustrated in Figure 5.

Figure 5: Recommended 2041 Road Network Improvements from the Town of Innisfil Transportation Master Plan Update.

Source: Exhibit C from Town of Innisfil Transportation Master Plan Update, May 2018



The following recommended improvements and timeframes are worth noting in relation to this study:

- Multi-use trail recommended on 7th Line from Yonge Street to St. Johns Road (Short Term – before 2021);
- Reconstruction of 7th Line from 10th Sideroad to 20th Sideroad (Medium Term – 2022 to 2031), which includes the segment of 7th Line under consideration in this current study;
- Signalization of the 7th Line and Yonge Street intersection is recommended (Medium Term 2022 to 2031);
- Reconstruction of 6th Line from County Road 53 to 20th Sideroad (Long Term – Beyond 2031).

It is also noted that the TMP Update recommended upgrading 7th Line, east of Yonge Street, from a Major Collector to an Arterial Road classification, and that change was included in the new Town Official Plan in 2018. The 6th Line has also been upgraded to an Arterial Road classification.

Recognizing that the eastbound movement at the 7th Line and Yonge Street intersection was experiencing long delays even when the interim road closure was in place (i.e., when traffic on 7th Line was much lower than during normal two-way operation), the design of improvements for 7th Line on the eastbound approach to Yonge Street should accommodate the planned signalization of this intersection, including implementing an eastbound left turn lane.

3.4 County of Simcoe Transportation Master Plan Update (2014)

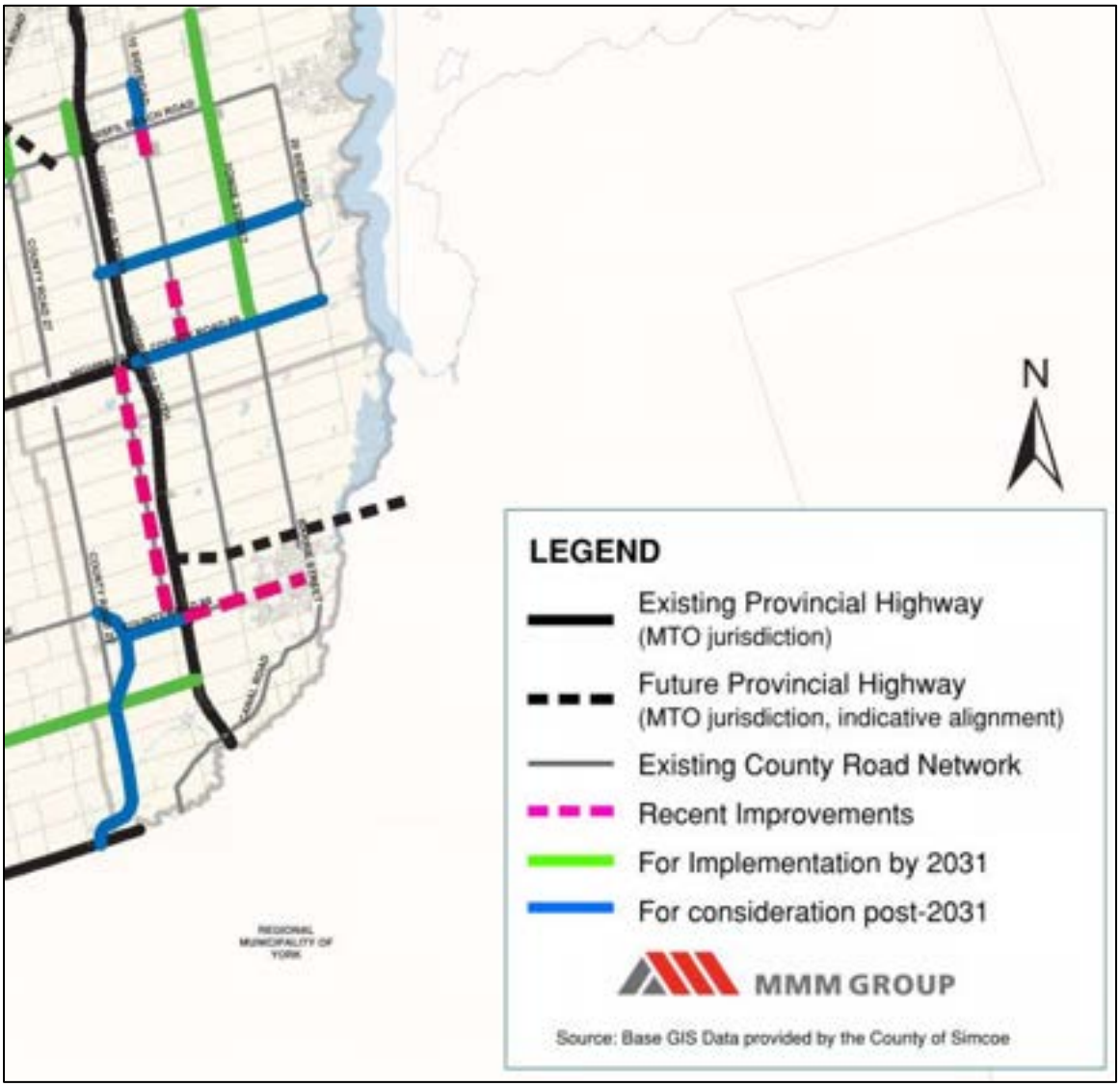
The County of Simcoe's Transportation Master Plan Update (October 2014) was reviewed and the County's Future Road Network is shown in Figure 6.

It is noted that County Road 4 (Yonge Street) north of County Road 89 is recommended to be widened to four lanes and include an off-road active transportation route by 2031.

Although not identified in the County's TMP Update, an EA was carried out in 2015 for the widening of Innisfil Beach Road (County Road 21) from County Road 27 to County Road 39 with the conclusion that it should be widened to four lanes. Construction of the widening is underway but will be phased through 2022.

Figure 6: Future Road Network from County of Simcoe Transportation Master Plan Update

Source: Figure 5.5-1 from County of Simcoe Transportation Master Plan Update, October 2014



3.5 6th Line Environmental Assessment

In 2016, HDR completed the 6th Line Municipal Class Environmental Assessment for transportation improvements to 6th Line from St. John's Road to County Road 27 to support traffic growth from development in the surrounding area. As part of this EA, HDR utilized a detailed travel demand model to forecast 2031 travel demand for 6th Line and the surrounding road network, which included 7th Line. Various road network improvement scenarios were analyzed, both including and excluding a potential new Highway 400 interchange at 6th Line. None of the scenarios resulted in increased traffic on 7th Line within the current Study Area and the following statement was made in the Needs Analysis: Travel Demand Forecasting Memo (Appendix L in the Environmental Study Report):

"It is noted that in the West of Yonge Street Screenline, 7th Line is projected to have very little demand since it does not cross Highway 400. Even though the roadway capacity is there in the screenline, very little traffic will use this road west of Yonge Street to divert away from congestion on Innisfil Beach Road and 6th Line."

While we would agree that the upgrades to the County Road network in the broader Study Area will limit the amount of traffic that may divert, over the long term, to the section of 7th Line under consideration in this current study, it should be noted that the County's improvements will result in potential diversion of traffic during the construction periods related to the implementation of the phased improvements being completed by the County. Therefore, the design of 7th Line should take into consideration such short and medium-term traffic demands.

4.0 Alternative Solutions and Potential Traffic Impacts

This section identifies general traffic impacts associated with potential alternative solutions that may be evaluated as part of this Study.

For the purpose of comparing traffic volumes between potential alternative solutions, a moderate traffic growth rate of 2.4% per year has been assumed based on the following:

- There are no planned developments in the immediate vicinity of the subject section of 7th Line.
- Although the travel demand forecasting carried out by HDR for the 6th Line EA indicated that there would be no additional future demand for traffic to use this section of 7th Line, the increase in traffic in recent years on 7th Line suggests that 7th Line may have served as an alternative route to avoid congestion on Innisfil Beach Road, and this may continue until planned improvements to the surrounding road network are implemented.

- 2.4% is consistent with Innisfil's overall population growth forecasted between 2021 and 2041 in the Town's TMP Update.

It is acknowledged that the forecasted traffic growth on 7th Line will be affected by the planned improvements in the broader Study Area, including the following:

- Widening of 6th Line and implementation of a 6th Line interchange at Highway 400.
- Widening of Yonge Street, particularly if a bypass is provided at Bradford.
- Widening of Innisfil Beach Road.

However, as noted previously, this segment of 7th Line is not anticipated to grow beyond "local road" classification within Innisfil's road network and therefore the assumed growth rate is considered to adequately forecast the impacts associated with the traffic options under consideration.

The traffic considerations associated with the potential transportation solutions are reviewed in the following sections to this report:

Do Nothing

This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

From a traffic perspective, this alternative would be expected to restore traffic to levels experienced prior to the interim road closure, in the range of approximately 1300 vehicles per day. Under the assumed 2.4% growth per year, traffic could increase to 2100 vehicles per day over the next 20 years. While this volume is well within the theoretical capacity of a two-lane road, the existing maintenance and safety issues on 7th Line would be further exacerbated by the increased traffic, and therefore this option is not considered to provide a practical transportation solution over even the short term.

Local Traffic Only

This alternative may include the following:

- Allow access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road.
- Maintain public access to Centennial Park from 10th Sideroad.
- Provide signage to limit through traffic.

- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

It is assumed that this alternative would operate similar to the initial interim road closure that was previously implemented on 7th Line, except on a permanent basis.

One-Way Road

This alternative may include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.
- Install appropriate signage/marking and public notices of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisitions.

Unless enforcement is increased, or an effective form of traffic barrier is implemented to reduce through traffic, the short-term traffic volumes would be expected to be similar to the June 2018 counts with average daily traffic of 445 vehicles. Assuming the 2.4% per year growth rate, daily traffic volumes would reach 715 vehicles per day in 20 years.

The primary impact of this alternative is that it forces existing and potential through traffic to use other routes which may increase congestion in the short term until the surrounding network improvements are implemented. Furthermore, some of the visitors of Centennial Park would be required to use a more circuitous route to reach the park, which is undesirable to the visitors, and also increases traffic on the adjacent roads.

Widen the Road

This alternative may include the following:

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road, to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – pave shoulder and improve ditching.
- Tree clearing at east end.

- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

It is assumed that this alternative may attract some additional through traffic to this section of 7th Line, at least in short term, therefore initial volumes are estimated to be 10% more than the existing traffic volumes before the interim road closure was enacted. This would equal approximately 1430 vehicles per day. Applying the assumed 2.4% growth rate results in 2300 vehicles per day in the 20-year horizon.

This alternative maintains 7th Line as an alternate route around parallel sections of Innisfil Beach Road and 6th Line until future network improvements are complete, which may be especially useful during construction of the other improvements. It also avoids the introduction of any of the out-of-the-way travel for local residents or park visitors that are associated with the other alternative solutions.

Dead-End Road with Turnaround

This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build cul–de–sac or hammer head turnarounds.
- Perform regular maintenance as required.

Assuming that the cul-de-sac would be implemented near the middle of the Study Area, daily traffic is estimated at 70 vehicles per day through east section based on 7 residences each generating 10 trips per day. If 2.4% growth rate is applied, would be 115 vehicles per day in 20 years.

This alternative provides the greatest reduction in traffic on 7th Line, but it would have the highest impact on the adjacent roads since all of the existing and potential through traffic would be diverted, plus out of the way travel would be required for local access on 7th Line, further increasing traffic on the surrounding roads.

5.0 Conclusions

Future traffic volume forecasts for all potential improvement alternatives for 7th Line are well below the theoretical capacities associated with each alternative.

The use of 7th Line is currently attractive to some commuters to avoid busier roads in the area, but with planned County and Town road improvements (e.g., Innisfil Beach Road, Yonge Street and 6th Line widenings), the 7th Line is not needed for additional capacity in the overall network and longer term capacity considerations do not need to be a key factor in assessing potential alternative solutions.

In the shorter term, additional capacity on 7th Line could be beneficial for the overall network and maintaining two-way operation would avoid artificially increasing traffic on other roads due to the circuitous routing associated with some alternatives.

The design of improvements for 7th Line, at its approach to Yonge Street should accommodate the planned signalization of this intersection, including implementing an eastbound left turn lane.

6.0 References

Town of Innisfil. Our Place Innisfil Official Plan. January 2018.

Simcoe County. County of Simcoe. Transportation Master Plan Update. October 2014.

Town of Innisfil. Transportation Master Plan Update. May 2018.

HDR. 6th Line Municipal Class EA County Road 27 to St. John's Road, Environmental Study Report. September 6, 2016.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Traffic Counts

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:00:00
To: 8:00:00

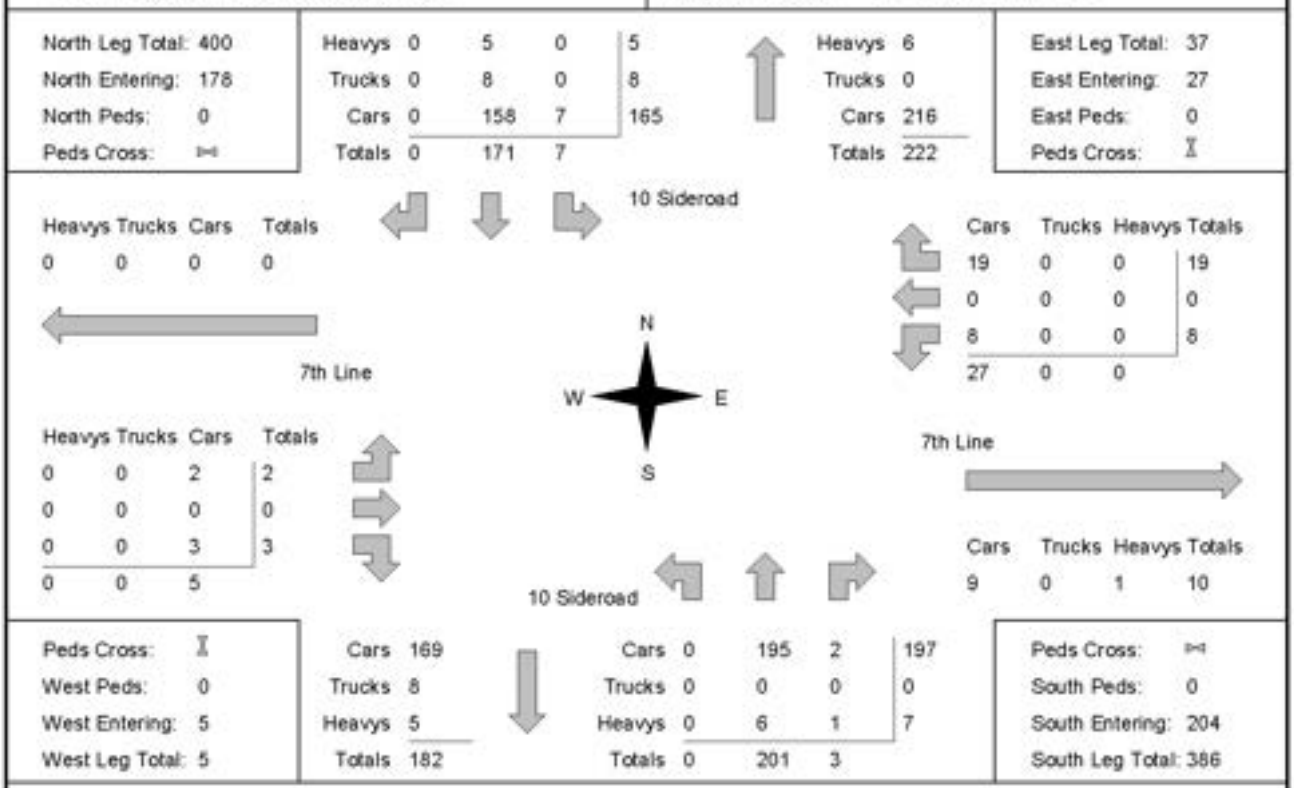
Municipality: Innisfil
Site #: 1826400001
Intersection: 10 Sideroad & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10 Sideroad runs N/S



Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

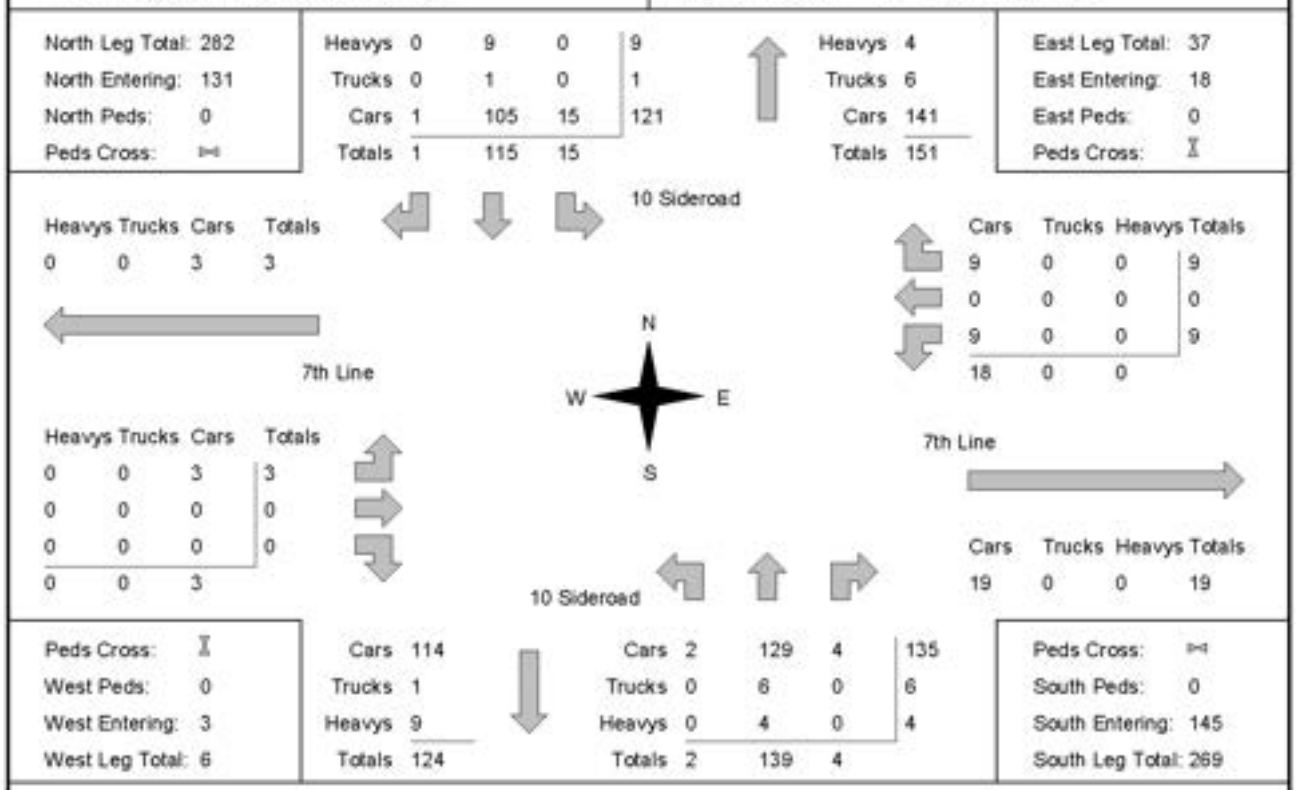
Municipality: Innisfil
Site #: 1826400001
Intersection: 10 Sideroad & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10 Sideroad runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

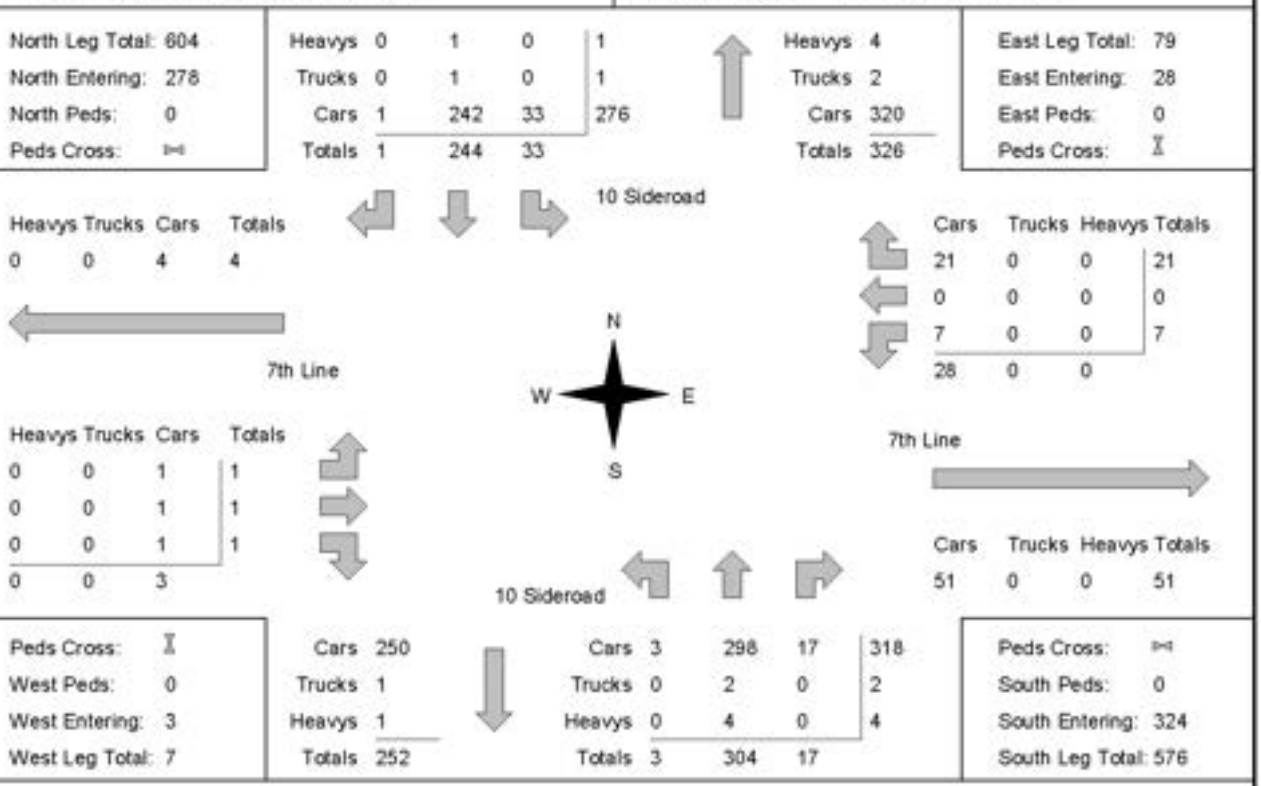
Municipality: Innisfil
Site #: 1826400001
Intersection: 10 Sideroad & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10 Sideroad runs N/S



Comments

Ontario Traffic Inc.

Total Count Diagram

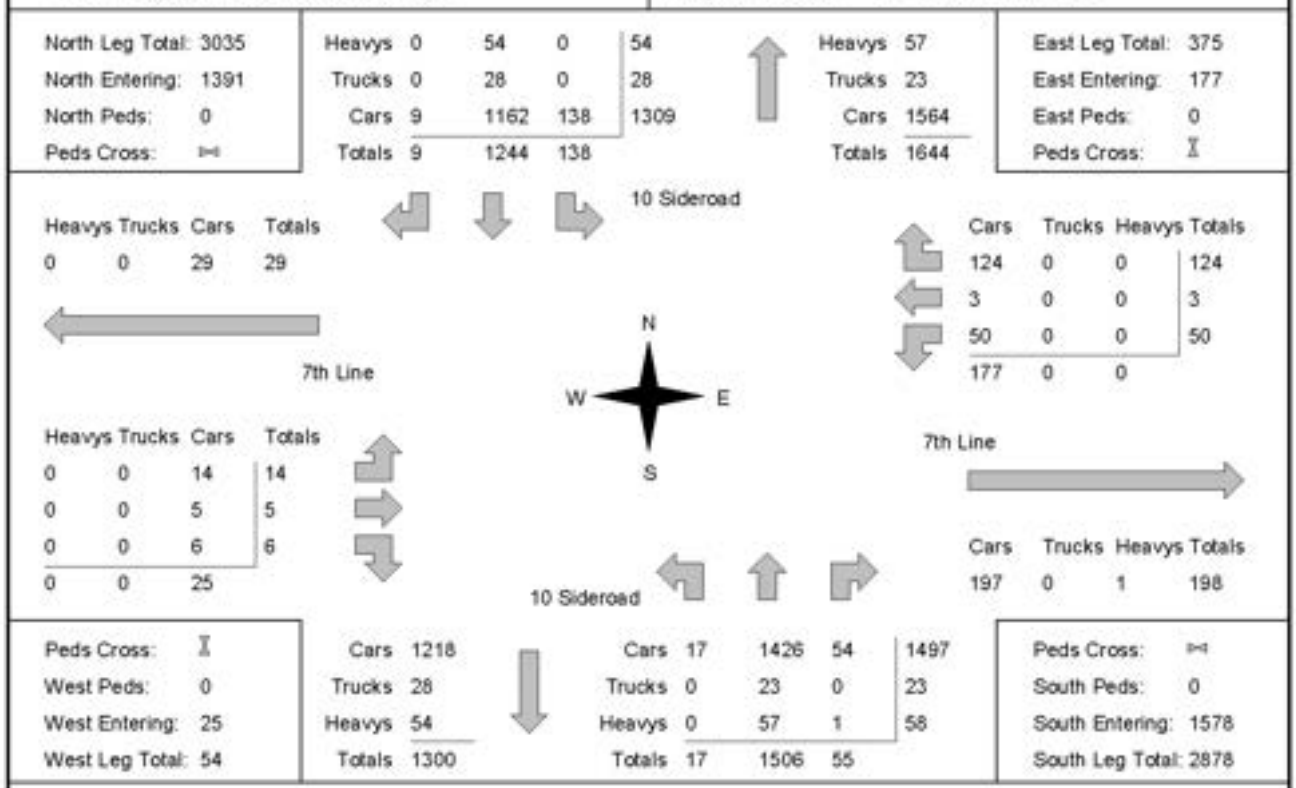
Municipality: Innisfil
Site #: 1826400001
Intersection: 10 Sideroad & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10 Sideroad runs N/S



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: 10 Sideroad & 7th Line | Count Date: 18-Jul-18 | Municipality: Innisfil

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	7	171	0	178	0	382
9:00:00	20	160	1	181	0	345
10:00:00	5	127	2	134	0	255
11:00:00	0	0	0	0	0	0
12:00:00	14	117	1	132	0	245
13:00:00	15	115	1	131	0	276
16:00:00	0	0	0	0	0	0
17:00:00	24	209	1	234	0	544
18:00:00	39	213	1	253	0	553
19:00:00	14	132	2	148	0	369
Totals:	138	1244	9	1391	0	2969

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	201	3	204	0
9:00:00	5	153	6	164	0
10:00:00	1	119	1	121	0
11:00:00	0	0	0	0	0
12:00:00	2	108	3	113	0
13:00:00	2	139	4	145	0
16:00:00	0	0	0	0	0
17:00:00	0	297	13	310	0
18:00:00	4	279	17	300	0
19:00:00	3	210	8	221	0
Totals:	17	1506	55	1578	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	8	0	19	27	0	32
9:00:00	10	0	20	30	0	34
10:00:00	4	0	16	20	0	24
11:00:00	0	0	0	0	0	0
12:00:00	6	0	9	15	0	17
13:00:00	9	0	9	18	0	21
16:00:00	0	0	0	0	0	0
17:00:00	6	0	24	30	0	31
18:00:00	5	1	14	20	0	23
19:00:00	2	2	13	17	0	20
Totals:	50	3	124	177	0	202

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	2	0	3	5	0
9:00:00	4	0	0	4	0
10:00:00	3	1	0	4	0
11:00:00	0	0	0	0	0
12:00:00	1	1	0	2	0
13:00:00	3	0	0	3	0
16:00:00	0	0	0	0	0
17:00:00	1	0	0	1	0
18:00:00	0	1	2	3	0
19:00:00	0	2	1	3	0
Totals:	14	5	6	25	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	10:00	12:00	13:00	17:00	18:00	19:00
Crossing Values:	10	14	8	8	12	7	6	4

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

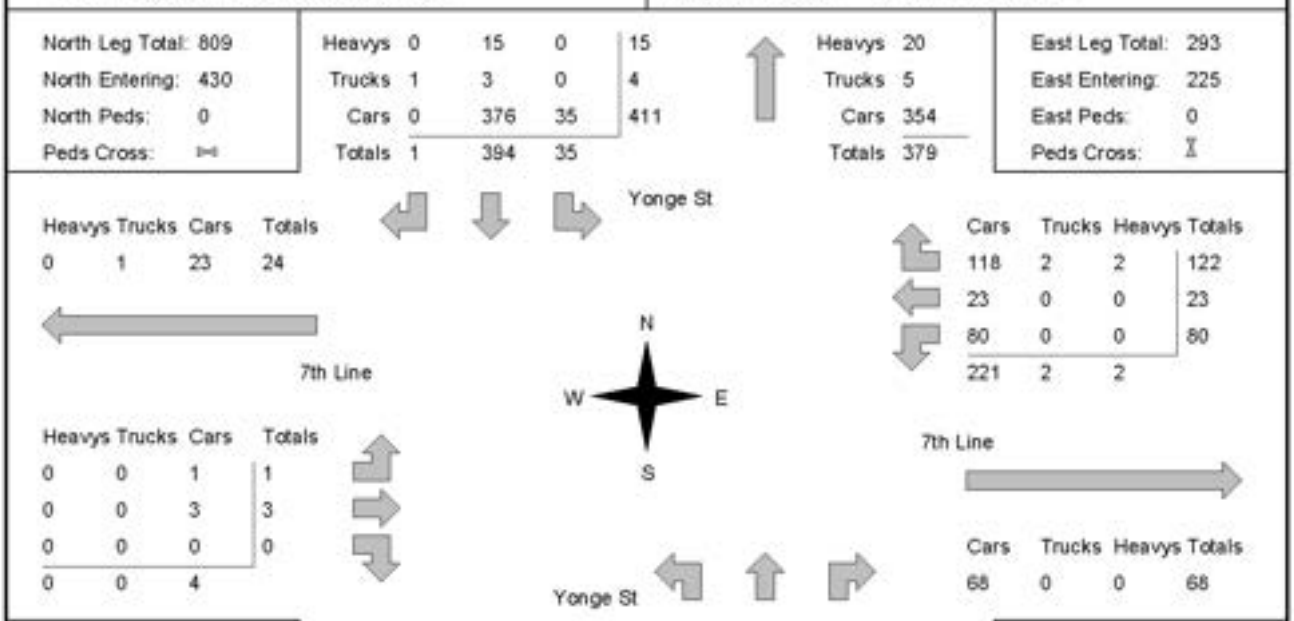
Municipality: Innisfil
Site #: 1826400002
Intersection: Yonge St & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Yonge St runs N/S



Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

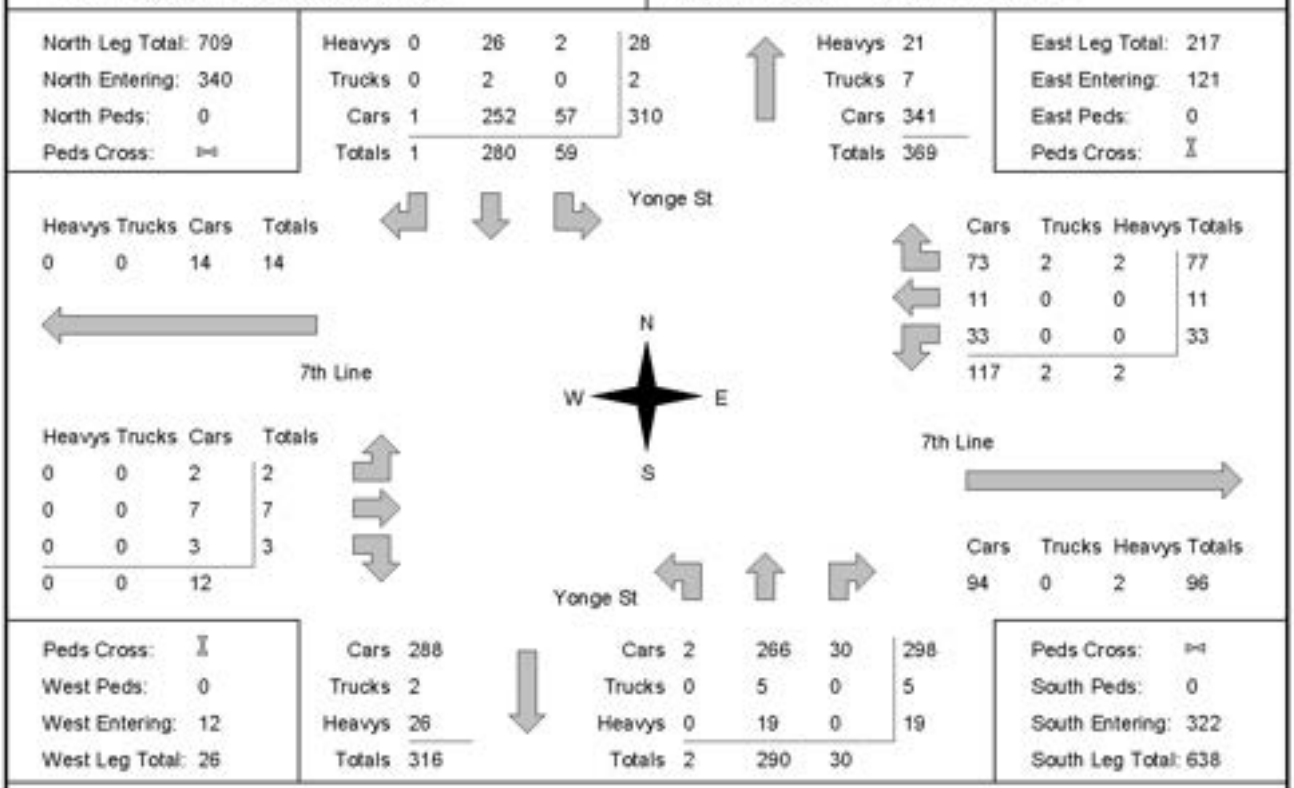
Municipality: Innisfil
Site #: 1826400002
Intersection: Yonge St & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Yonge St runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

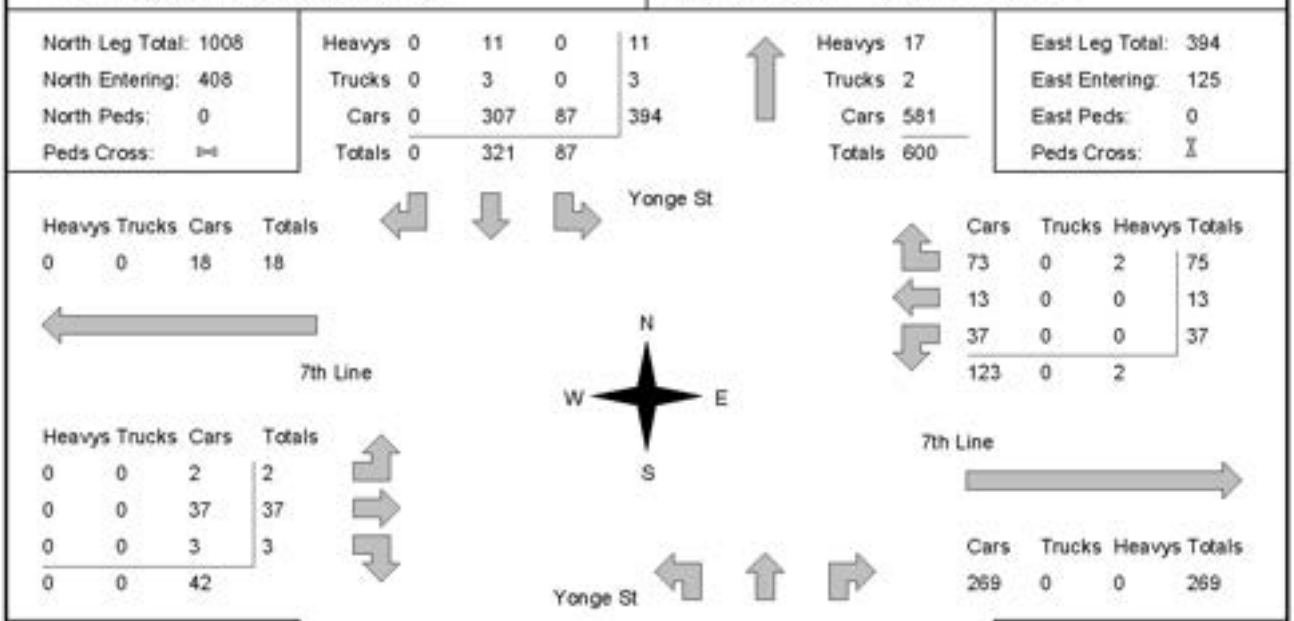
Municipality: Innisfil
Site #: 1826400002
Intersection: Yonge St & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Yonge St runs N/S



Comments

Ontario Traffic Inc.

Total Count Diagram

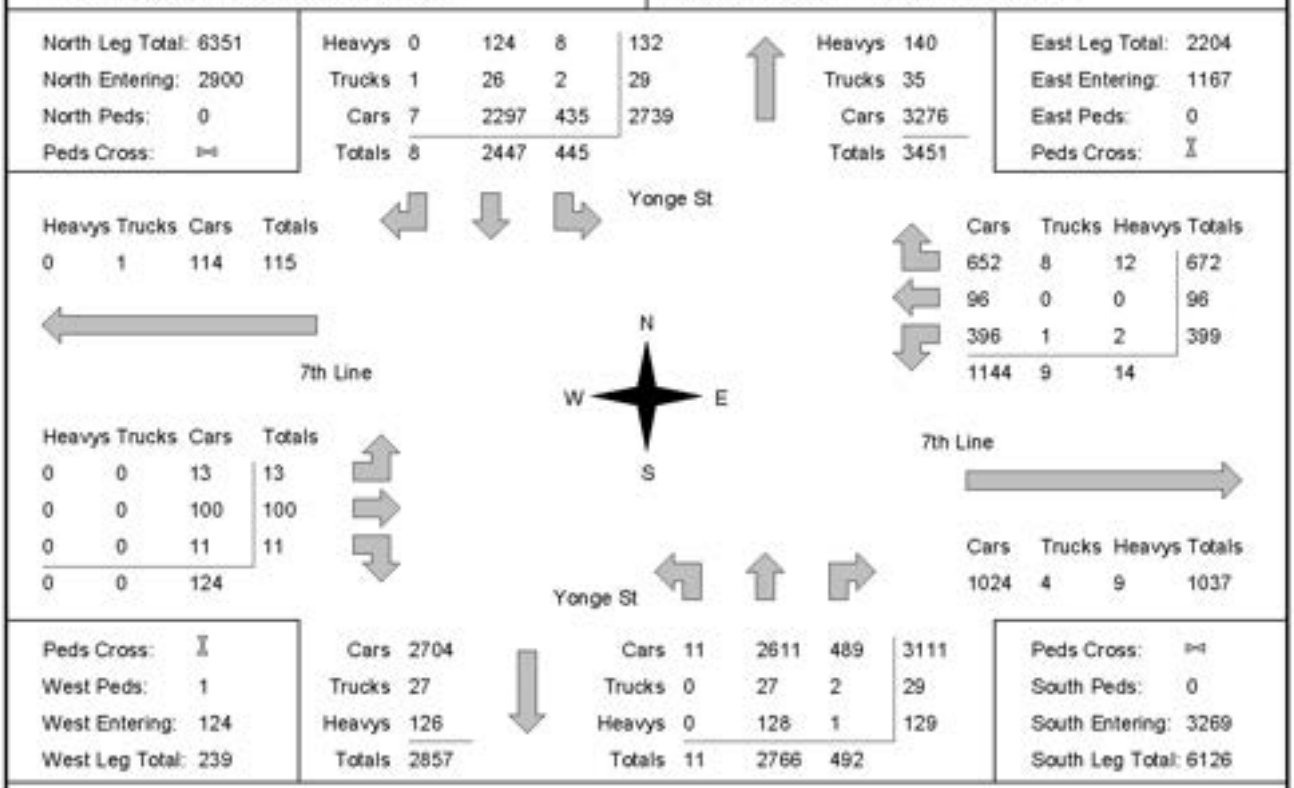
Municipality: Innisfil
Site #: 1826400002
Intersection: Yonge St & 7th Line
TFR File #: 1
Count date: 18-Jul-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Yonge St runs N/S



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Yonge St & 7th Line | Count Date: 18-Jul-18 | Municipality: Innisfil

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0
8:00:00	31	431	1	463	0	708
9:00:00	37	368	1	406	0	685
10:00:00	32	273	1	306	0	550
11:00:00	0	0	0	0	0	0
12:00:00	43	269	2	314	0	624
13:00:00	60	266	1	327	0	650
16:00:00	0	0	0	0	0	0
17:00:00	81	303	1	385	0	1018
18:00:00	85	310	0	395	0	1077
19:00:00	76	227	1	304	0	857
Totals:	445	2447	8	2900	0	6169

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	1	222	22	245	0
9:00:00	0	251	28	279	0
10:00:00	0	225	19	244	0
11:00:00	0	0	0	0	0
12:00:00	2	275	33	310	0
13:00:00	2	291	30	323	0
16:00:00	0	0	0	0	0
17:00:00	4	510	119	633	0
18:00:00	2	540	140	682	0
19:00:00	0	452	101	553	0
	11	2766	492	3269	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0
8:00:00	94	29	106	229	0	234
9:00:00	76	12	111	199	0	204
10:00:00	59	7	85	151	0	154
11:00:00	0	0	0	0	0	0
12:00:00	33	4	64	101	0	112
13:00:00	37	9	78	124	0	134
16:00:00	0	0	0	0	0	0
17:00:00	37	11	87	135	0	161
18:00:00	33	13	70	116	0	159
19:00:00	30	11	71	112	0	133
Totals:	399	96	672	1167	0	1291

West Approach Totals

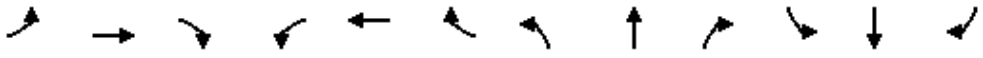
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	2	3	5	0
9:00:00	1	3	1	5	0
10:00:00	2	0	1	3	0
11:00:00	0	0	0	0	0
12:00:00	4	6	1	11	0
13:00:00	1	7	2	10	0
16:00:00	0	0	0	0	0
17:00:00	1	23	2	26	1
18:00:00	2	40	1	43	0
19:00:00	2	19	0	21	0
	13	100	11	124	1

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	10:00	12:00	13:00	17:00	18:00	19:00
Crossing Values:	123	89	68	43	47	61	75	51

Appendix B

Synchro Reports



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	3	8	0	19	0	201	3	7	171	0
Future Volume (Veh/h)	2	0	3	8	0	19	0	201	3	7	171	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	3	9	0	21	0	218	3	8	186	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	442	423	186	424	422	220	186			221		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442	423	186	424	422	220	186			221		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	97	100			99		
cM capacity (veh/h)	513	522	861	539	523	825	1401			1360		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	30	221	194
Volume Left	2	9	0	8
Volume Right	3	21	3	0
cSH	677	712	1401	1360
Volume to Capacity	0.01	0.04	0.00	0.01
Queue Length 95th (m)	0.2	1.0	0.0	0.1
Control Delay (s)	10.4	10.3	0.0	0.4
Lane LOS	B	B		A
Approach Delay (s)	10.4	10.3	0.0	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	24.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	3	0	80	23	122	0	256	30	35	394	1
Future Volume (Veh/h)	1	3	0	80	23	122	0	256	30	35	394	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	0	87	25	133	0	278	33	38	428	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	928	816	214	570	783	278	429			311		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	928	816	214	570	783	278	429			311		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	78	92	82	100			97		
cM capacity (veh/h)	169	304	797	397	318	719	1141			1261		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	245	278	33	252	215
Volume Left	1	87	0	0	38	0
Volume Right	0	133	0	33	0	1
cSH	254	507	1141	1700	1261	1700
Volume to Capacity	0.02	0.48	0.00	0.02	0.03	0.13
Queue Length 95th (m)	0.4	19.7	0.0	0.0	0.7	0.0
Control Delay (s)	19.4	18.5	0.0	0.0	1.4	0.0
Lane LOS	C	C			A	
Approach Delay (s)	19.4	18.5	0.0		0.8	
Approach LOS	C	C				

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	55.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	7	0	21	3	304	17	33	244	1
Future Volume (Veh/h)	1	1	1	7	0	21	3	304	17	33	244	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	8	0	23	3	330	18	36	265	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	706	692	266	684	683	339	266			348		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	706	692	266	684	683	339	266			348		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	97	100			97		
cM capacity (veh/h)	334	358	778	355	362	708	1310			1222		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	31	351	302
Volume Left	1	8	3	36
Volume Right	1	23	18	1
cSH	424	564	1310	1222
Volume to Capacity	0.01	0.06	0.00	0.03
Queue Length 95th (m)	0.2	1.3	0.1	0.7
Control Delay (s)	13.5	11.8	0.1	1.2
Lane LOS	B	B	A	A
Approach Delay (s)	13.5	11.8	0.1	1.2
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	45.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	37	3	37	13	75	5	523	145	87	321	0
Future Volume (Veh/h)	2	37	3	37	13	75	5	523	145	87	321	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	40	3	40	14	82	5	568	158	95	349	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1206	1275	174	966	1117	568	349			726		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1206	1275	174	966	1117	568	349			726		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	73	100	74	92	82	100			89		
cM capacity (veh/h)	101	150	845	154	186	466	1221			886		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	45	136	573	158	270	174
Volume Left	2	40	5	0	95	0
Volume Right	3	82	0	158	0	0
cSH	155	266	1221	1700	886	1700
Volume to Capacity	0.29	0.51	0.00	0.09	0.11	0.10
Queue Length 95th (m)	8.6	20.4	0.1	0.0	2.7	0.0
Control Delay (s)	37.5	31.8	0.1	0.0	4.1	0.0
Lane LOS	E	D	A		A	
Approach Delay (s)	37.5	31.8	0.1		2.5	
Approach LOS	E	D				

Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Terrestrial Habitat Assessment, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

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R.J. Burnside & Associates Limited

Report Prepared By: p.p



Lorraine Adderley, M.Sc., Project Coordinator, Terrestrial Ecologist
LA:slw

Report Reviewed By:



Deanna De Forest, B.Sc., EP, EA Coordinator
DDF:slw

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1.0 Introduction

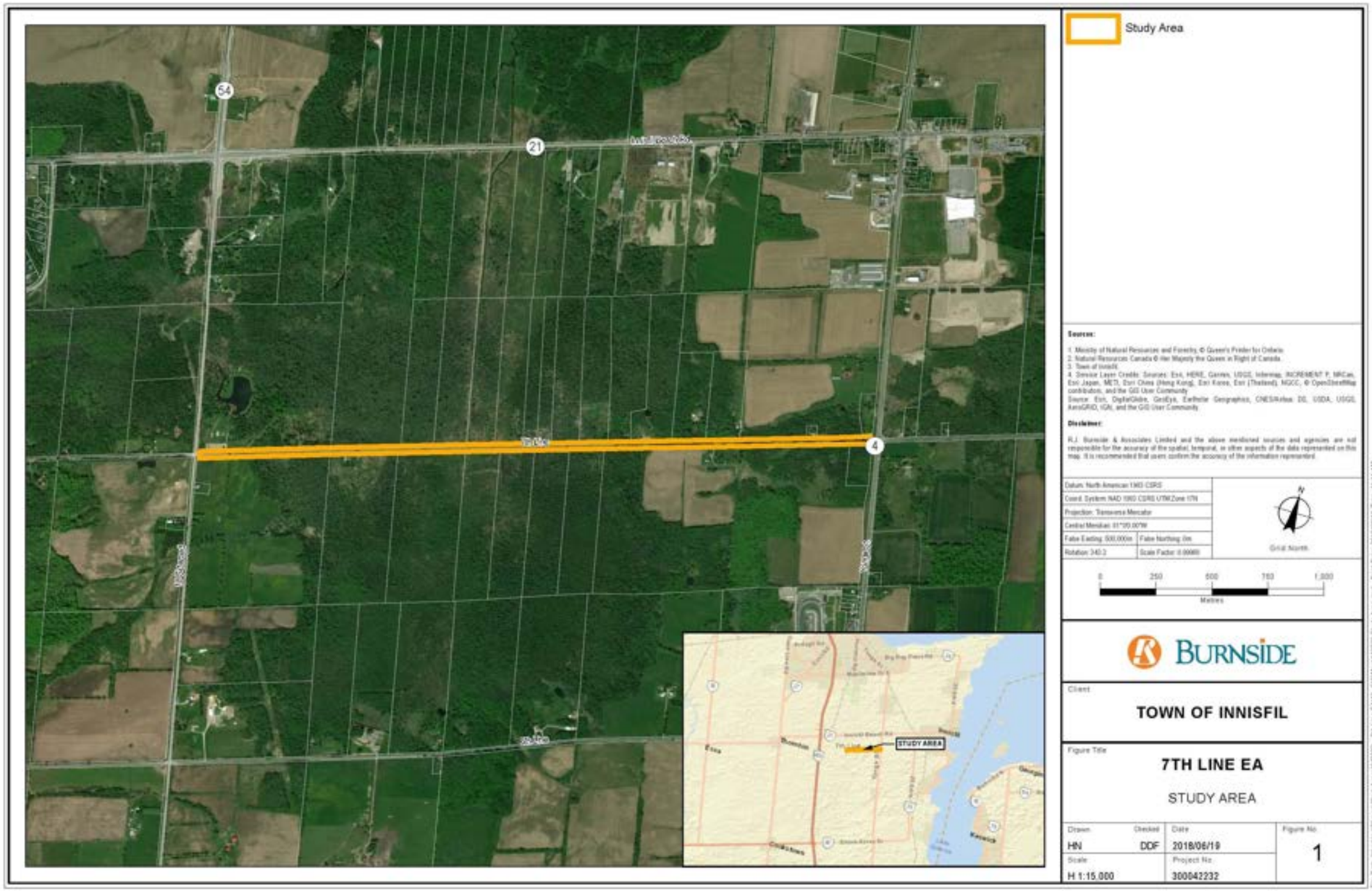
The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

A terrestrial assessment was conducted as part of the ecological investigations completed in support of the Schedule C Environmental Assessment (EA) for improvements to the 7th Line from Yonge Street to 10th Sideroad (the Study Area). The location and limits of the Study Area are shown on Figure 1 and defined below. The scope of this report includes background review, and the completion of a scoped terrestrial habitat field assessment including a single season vegetation inventory and Ecological Land Classification (ELC), amphibian breeding survey and an assessment of the general wildlife habitat including the potential for habitat of Species at Risk (SAR).

2.0 Study Area

The Study Area includes the current Right-of-Way (ROW) for 7th Line, from Yonge Street to 10th Sideroad, plus approximately 120 m on either side (Figure 1). Focus was paid to the ROW and the immediate adjacent areas. The road is within the jurisdiction of the Town, Midhurst District Ministry of Natural Resources and Forestry (MNRF) and Lake Simcoe Region Conservation Authority (LSRCA) regulated areas. More than half of the length of this section of road cuts though the Lovers Creek Provincially Significant Wetland (PSW) Complex. This PSW Complex is defined as a 1026.09 ha area complex of marshes and swamps extending from north of Big Bay Point Road in Barrie to south of 6th Line in Innisfil and from Highway 400 in the west to east of Yonge Street. The PSW contains habitat for SAR and provincially and locally rare vegetation. The remainder of the Study Area is a mix of upland forests, agricultural lands, and rural residential properties.

Figure 1: Study Area



3.0 Methodology

This report was prepared in accordance with Section 2.1 (Natural Heritage) of the Provincial Policy Statement (PPS; MMAH, 2014), the Natural Heritage Reference Manual for Natural Heritage Policies of the PPS, 2005 (MNR, 2010) and the Significant Wildlife Habitat Technical Guide (SWHTG; MNR, 2000). The terrestrial habitat assessment included:

- A broad review of applicable environmental policies and regulations affecting the Study Area.
- A review of existing secondary source data to identify any known natural features and their functions.
- Field investigations, completed during the appropriate timing windows, including:
  - Amphibian surveys, conducted on April 24, May 16, and June 26, 2018. The surveys were conducted as per the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada, 2009).
  - Vegetation inventory of the ROW, ELC and general wildlife habitat surveys were conducted on July 18-19, 2018. Vegetation communities were assessed and described using the Ecological Land Classification System for Southern Ontario: First Approximation and its Application (Lee *et al*., 1998) with reference to Second Approximation 2008 codes (Lee, 2008).
  - General wildlife surveys were conducted concurrently with the vegetation survey and ELC and completed as part of the terrestrial habitat assessment by a wandering transect of general coverage of the Study Area, recording all species observations and signs (e.g., tracks/trails, scat, burrows, dens, browse, vocalizations). Incidental observations were recorded during amphibian, tree inventory, and aquatics surveys and are included in this report.
- Consideration of the potential impacts of the alternative solutions.
- Recommended mitigating measures intended to minimize impacts to the terrestrial environment, consistent with local, regional, provincial and federal policies and regulations.

4.0 Background Review

Burnside has reviewed the following existing data sources:

- Aerial photography;
- MNRF Make a Map: Natural Heritage Areas;
- Natural Heritage Information Centre ("NHIC") database;
- The Ontario Breeding Bird Atlas ("OBBA") for records of birds breeding in the area;
- Species range maps (various sources);

- Lake Simcoe Region Conservation Authority (LSRCA) regulated areas mapping;
- Town of Innisfil Official Plan (OP) (2011);
- Our Place Innisfil Official Plan (Town adopted July 2018, County of Simcoe modified v.4 August 2018);
- County of Simcoe Official Plan (2016);
- Lake Simcoe Protection Plan (LSPP) (2009); and
- Lovers Creek Wetland Complex Wetland Evaluation (January 1, 2011).

Based on this review and initial consultation with the MNRF, the following information has been identified:

- The 7th Line (within the Study Area) is in the jurisdiction of the Town of Innisfil, Midhurst District MNRF and LSRCA regulated areas. A large portion of the 7th Line cuts through the Lovers Creek PSW Complex.
- Schedule A – Municipal Structure of the Town of Innisfil OP (2011) identifies the entire Study Area as Natural Heritage System. In Schedule A – Municipal Strategy of the Town adopted 2018 plan, the Study Area is designated as Countryside.
- Schedule B – Land Use Designations in the 2011 OP identifies the Study Area as primarily 'Natural Environmental Area' with a small portion of the west end of the Study Area and the east third of the Study Area south of 7th Line as 'Agricultural'. The 2018 plan, shows 'Key Natural Heritage Features and Key Hydrologic Features' boundaries co-incident with the 2011 'Natural Environmental Area'. 'Agricultural' designated areas remain the same as the 2011 plan, with the addition of the park area of Centennial Park at the northeast corner of 7th Line and 10th Sideroad as 'Parks and Open Space'.
- The Simcoe County OP and associated mapping identifies the majority of the Study Area as 'Greenlands', with small portions designated as 'Agricultural'. Portions of the Study Area are identified as 'Highly Vulnerable Aquifer' and as 'Significant Groundwater Recharge Areas'.
- LSRCA identifies almost the entirety of the Study Area as being located within the LSRCA Regulated Area less approximately 200 m from Yonge Street westward.
- The entirety of the Study Area is located within the LSPP.

Through review of available background data sources such as the OBBA and NHIC database records, the PSW evaluation, and consultation with the MNRF (Personal correspondence G. Findlay, MNRF, June 25, 2018) the following provincially listed SAR have been identified as potentially present in or adjacent to the Study Area:

- Barn Swallow (*Hirundo rustica*)
  (Threatened, ESA 2007)
- Blanding's Turtle (*Emydoidea blandingii*)
  (Threatened, ESA 2007)

- Butternut (*Juglans cinerea*)
  (Endangered, ESA 2007)
- Chimney Swift (*Chaetura pelagica*)
  (Threatened, ESA 2007)
- Common Nighthawk (*Chordeiles minor*)
  (Special Concern, ESA 2007)
- Eastern Wood-pewee (*Contopus virens*)
  (Special Concern, ESA 2007)
- Olive-sided Flycatcher (*Contopus cooperi*)
  (Special Concern, ESA 2007)
- Snapping Turtle (*Chelydra serpentina*)
  (Special Concern, ESA 2007)
- Eastern Whip-poor-will (*Antrostomus vociferus*)
  (Threatened, ESA 2007)
- Wood Thrush (*Hylocichla mustelina*)
  (Special Concern, ESA 2007)
- Canada Warbler (*Cardellina canadensis*)
  (Special Concern, ESA 2007)

5.0 Existing Conditions

5.1 Physiography and Topography

The Study Area is located within the Peterborough Drumlin Field Physiographic Region. This Physiographic region is an area of shallow overburden on limestone containing approximately 3,000 drumlins and numerous other drumlinoid hills and surface fluting of the till. Like much of the Peterborough Drumlin Field Physiographic Region, the Study Area is located in a Drumlinized Till Plains Physiographic Landform, with drumlins located to the north east at Yonge Street and Innisfil Beach Road (Chapman and Putnam, 1984 and 2007).

The Study Area has an undulating topography with both Yonge Street and 10th Sideroad at a higher elevation (approximately 280 masl and 259 masl, respectively) than the wide flat expanse of the large wetlands in the centre of the Study Area (approximately 250 masl). Small, meandering watercourses cross, and run alongside 7th Line within the wetlands. Small, manmade farm ponds are located at the east end of the Study Area, adjacent to rural residences and farm properties. The majority of the Study Area is the large flat expanse of the Lovers Creek PSW Complex.

5.2 Geology

The Study Area is located on the Lindsay Formation, a Middle Ordovician aged sedimentary bedrock in the Simcoe Group, which consists of nodular to black laminated

limestone (Armstrong and Dodge, 2007). The surficial geology is comprised of Organic Deposits in the low-lying wetland areas and a mix of coarse-textured glacio lacustrine deposits, ice-contact stratified deposits of sand gravel, minor silt and clay, and till in the upland portions of the Study Area (OGS, 2010).

5.3 Vegetation Communities and Species

A site survey of the existing vegetation communities was conducted in the Study Area on July 18 and 19, 2018. The Study Area includes the ROW and approximately 120 m either side of 7th Line. All communities and species were observed from publicly accessible locations with communities outside of the ROW inferred based on what could be seen from the ROW and from aerial photography interpretation. Vegetation communities were assessed and described using the Ecological Land Classification System for Southern Ontario and are illustrated on Figure 2.

Vegetation communities are described, and plant species are listed in Table 1. Species are sorted by vertical layer (i.e., canopy, shrub layer, ground cover) and are listed in descending order of abundance. Appendix A contains photographs (Photo 1 – Photo 21) and shows a representative illustration of the ELC communities.

The majority of the Study Area is swamp and marsh, with upland areas of forest. Cultural features are limited to the residential and agricultural areas near Yonge Street and 10th Sideroad. A SAR, Butternut, an Endangered species (SARA, 2002; and ESA, 2007) was observed in the Study Area (three individuals).

Although not observed in the Study Area during field investigations, the Lovers Creek Provincially Significant Wetland Complex Evaluation (MNRF 2010) indicates the presence of the following rare species within the wetland complex (no location was provided):

Provincially Significant

- Yellow Monkey-flower (*Mimulus moschata*)

Locally Rare (Rare in the Lake Simcoe Watershed)

- Nodding Trillium (*Trillium cernuum*)
- Showy Lady's-slipper (*Cypripedium reginae*)
- Swamp Thistle (*Cirsium muticum*)
- Closed Gentian (*Gentiana andrewsii*)
- Sweet Gale (*Myrica gale*)
- Common Wood Sorrel (*Oxalis montana*)
- One-sided Pyrola (*Orthilia secunda*)

Table 1: Ecological Land Classification and Plant List

ELC Code	ELC Name	Canopy Layer Species	Subcanopy Layer Species	Shrub Layer Species	Ground Layer Species	Comments	Soils
CGL_2	Parkland	Ornamental Landscape Trees	Ornamental Landscape Trees	Ornamental Landscape Shrubs	Mowed lawns and ornamental gardens	Manicured parkland	Mineral
CVR_4	Rural Residential	Ornamental Landscape Trees	Ornamental Landscape Trees	Ornamental Landscape Shrubs	Mowed lawns and ornamental gardens	Manicured residential properties	Mineral
FOCM2-2	Dry - Fresh White Cedar Coniferous Forest Type	Trembling Aspen (*Populus tremuloides*) Paper Birch (*Betula papyrifera*) Black Cherry (*Prunus serotina*) Eastern White Pine (*Pinus strobus*) Balsam Poplar (*Populus balsamifera*)	• Eastern White Cedar (*Thuja occidentalis*)*	• Common Elderberry (*Sambucus canadensis*)	• Field Horsetail (*Equisetum arvense*) • Coltsfoot (*Tussilago farfara*) • Balsam Poplar	Portions of this unit immediately east of FOMM3-2 are more open than other parts of the unit and are influenced by hydrocuts, a watercourse, and the road. As such there are inclusions of with dense meadow ground cover and additional component of Ash (i.e. an inclusion of FOMM4-3 Dry – Fresh White Cedar Hardwood Mixed Forest)	Mineral
FODM5-7	Dry - Fresh Sugar Maple - Black Cherry Deciduous Forest Type	Sugar Maple (*Acer saccharum*) Black Cherry Eastern White Pine White Ash (*Fraxinus americana*) Scots Pine (*Pinus sylvestris*) Red Maple (*Acer rubrum*)	• Eastern White Cedar • White Ash • American Beech (*Fagus grandifolia*)	• Sugar Maple • White Ash • Alternate-leaved Dogwood (*Cornus alternifolia*) • Choke Cherry (*Prunus virginiana*) • Riverbank Grape (*Vitis riparia*) • Canada Yew (*Taxus canadensis*)	• Wild Lily-of-the-valley (*Maianthemum canadense*) • Wild Ginger (*Asarum canadense*) • Small Enchanter's Nightshade (*Circaea alpina*) • Red Trillium (*Trillium erectum*)		Mineral
FOMM3-2	Dry - Fresh Sugar Maple - Hemlock Mixed Forest Type	Sugar Maple Eastern Hemlock (*Tsuga canadensis*) American Beech Balsam Poplar	• Green Ash (*Fraxinus pennsylvanica*)* • American Beech • Balsam Fir (*Abies balsamaea*) • Eastern White Cedar	• Canada Yew • Choke Cherry • Alternate-leaved Dogwood • Balsam Poplar • American Beech • Balsam Fir • Eastern White Cedar	• Red Trillium • False Solomon's Seal (*Maianthemum racemosum*) • Wild Ginger • Spinulose Wood Fern (*Dryopteris carthusiana*)		Mineral
MASM1-1	Cattail Mineral Shallow Marsh Type	N/A	• Eastern White Cedar (mostly dead) • Paper Birch • White Elm • Tamarack (*Larix laricina*)	• Eastern White Cedar (mostly dead) • Glossy Buckthorn (*Frangula alnus*) • Common Winterberry (*Ilex verticillata*) • Riverbank Grape • Choke Cherry	• Narrow-leaved Cattail (*Typha angustifolia*)* • Broad-leaved Cattail (*Typha latifolia*)* • Sensitive Fern (*Onoclea sensibilis*) • Field Horsetail • Purple-stemmed Aster (*Symphyotrichum puniceum*) • Spotted Joe Pye Weed (*Eutrochium maculatum*) • Beggar's Ticks (*Bidens* sp.) • Swamp Milkweed (*Asclepias incarnata*) • European Common Reed (*Phragmites australis* subsp. *australis*) • Dark-green Bulrush (*Scirpus atrovirens*) • Bulblet Bladder Fern (*Cystopteris bulbifera*) • Green Ash	North side of the road is dominated by Broad-leaved Cattail, whilst south side of the road is dominated by Narrow-leaved Cattail	Mineral
MASO1-1	Cattail Organic Shallow Marsh Type	Balsam Poplar	• Balsam Poplar	• Meadow Willow (*Salix petiolaris*) • Red Elderberry (*Sambucus racemosa*) • Red Osier Dogwood (*Cornus stolonifera*)	• Reed Canarygrass (*Phalaris arundinacea*)* • Narrow-leaved Cattail • Purple-stemmed Aster • Touch-me-not (*Impatiens* sp.) • Spotted Joe Pye Weed • Common Boneset (*Eupatorium perfoliatum*)		Organic

*indicates dominant species

Indicates dominant layer

ELC Code	ELC Name	Canopy Layer Species	Subcanopy Layer Species	Shrub Layer Species	Ground Layer Species	Comments	Soils
MEGM3	Dry - Fresh Graminoid Meadow Type	Sugar Maple	• White Elm (dead) • Black Cherry • Sugar Maple	• White Mulberry (*Morus alba*) • Choke Cherry	• Fescue (*Festuca* sp. *et al*) • Canada Goldenrod (*Solidago canadensis*) • Barnyard Grass (*Echinochloa* sp.) • Wild Carrot (*Daucus carota*) • Common Milkweed (*Asclepias syriaca*) • Smooth Brome (*Bromus inermis*) • Sweet White Clover (*Melilotus alba*) • Wild Chicory (*Cichorium intybus*)		Mineral
OAGM1	Annual Row Crops		N/A	N/A	Annual Row Crops		Mineral
SWCM1	White Cedar Mineral Coniferous Swamp Ecosite	Eastern White Cedar Sugar Maple Eastern Hemlock Yellow Birch (*Betula allegheniensis*) Basswood (*Tilia americana*) Eastern White Pine White Elm (*Ulmus americana*) (dead)	• Green Ash* • Black Ash (*Fraxinus nigra*) • Balsam Fir • Black Cherry • Eastern White Cedar • Sugar Maple • Eastern Hemlock • Paper Birch	• Choke Cherry • Alternate-leaved Dogwood • Swamp Current (*Ribes triste*) • Riverbank Grape • Eastern White Cedar • Balsam Fir • Sugar Maple	• Field Horsetail • Coltsfoot • Sensitive Fern • Water Sedge (*Carex* cf. *aquatilis*) • True Forget-me-not (*Myosotis scorpioides*) • Evergreen Wood Fern (*Dryopteris intermedia*) • Dwarf Scouring-rush (*Equisetum scirpoides*) • Graceful Sedge (*Carex gracillima*) • Blue-stemmed Goldenrod (*Solidago caesia*) • Bulblet Bladder Fern • Jack-in-the-pulpit (*Arisaema triphyllum*) • Beggar's Ticks • Broad-leaved Helleborine (*Epipactis helleborine*) • False Solomon's Seal • Tall Rattlesnakeroot (*Nabalus altissimus*) • Ostrich Fern (*Matteuccia struthiopteris*)	This community is a lowland area between the watercourse channel and the road. A dense fern growth area was assessed with the channel. A dry Hemlock – Sugar Maple slope is located on the slope to the north (FOMM3-2)	Mineral: Silty Sand
SWC	Coniferous Swamp	unknown (interpreted from PSW report, no species reported by MNRF)	• unknown (interpreted from PSW report, no species reported by MNRF)	• unknown (interpreted from PSW report, no species reported by MNRF)	• unknown (interpreted from PSW report, no species reported by MNRF)		Unknown
SWD	Deciduous Swamp	Black Ash Paper Birch Balsam Fir Balsam Poplar	• Eastern White Cedar • Balsam Poplar • Black Ash • Balsam Fir	• Balsam Poplar • Eastern White Cedar • Red Osier Dogwood • Black Ash • Balsam Fir • Common Buckthorn (*Rhamnus cathartica*) • Cranberry Viburnum (*Viburnum opulus* subsp. *opulus*)	• Reed Canarygrass • Spotted Joe Pye Weed • Fowl Manna Grass (*Glyceria striata*) • Ostrich Fern • Early Meadow Rue (*Thalictrum dioicum*) • Canada Bluejoint (*Calamagrostis canadensis*) • Narrow-leaved Cattail • Rice Cutgrass (*Leersia oryzoides*) • Swamp Milkweed		Organic
SWD2-2	Green Ash Mineral Deciduous Swamp Type	Trembling Aspen Balsam Poplar White Elm	• Green Ash* • Black Ash • Balsam Fir • Eastern White Cedar • Paper Birch	• Green Ash • Balsam Fir • Balsam Poplar • Virgin's Bower (*Clematis virginiana*) • Red Osier Dogwood • Choke Cherry • Alternate-leaved Dogwood • Eastern White Cedar • Basswood	• Tall Goldenrod (*Solidago altissima*) • Field Horsetail • Western Poison Ivy (*Toxicodendron radicans* var. *rydbergii*) • Wild Ginger • Clearweed (*Pilea* cf. *pumila*) • Sensitive Fern • Coltsfoot • Bracken Fern		Mineral
SWDM4-3	White Birch - Poplar Mineral Deciduous Swamp Type	Balsam Poplar* Paper Birch Green Ash Trembling Aspen Balsam Fir	• Green Ash • Black Ash • Eastern White Cedar • White Elm • Trembling Aspen	• Red Osier Dogwood • Choke Cherry • Riverbank Grape • Alternate-leaved Dogwood • Thicket Creeper (*Parthenocissus vitacea*)	• Field Horsetail • Sensitive Fern • Western Poison Ivy		Mineral: Sand

*indicates dominant species

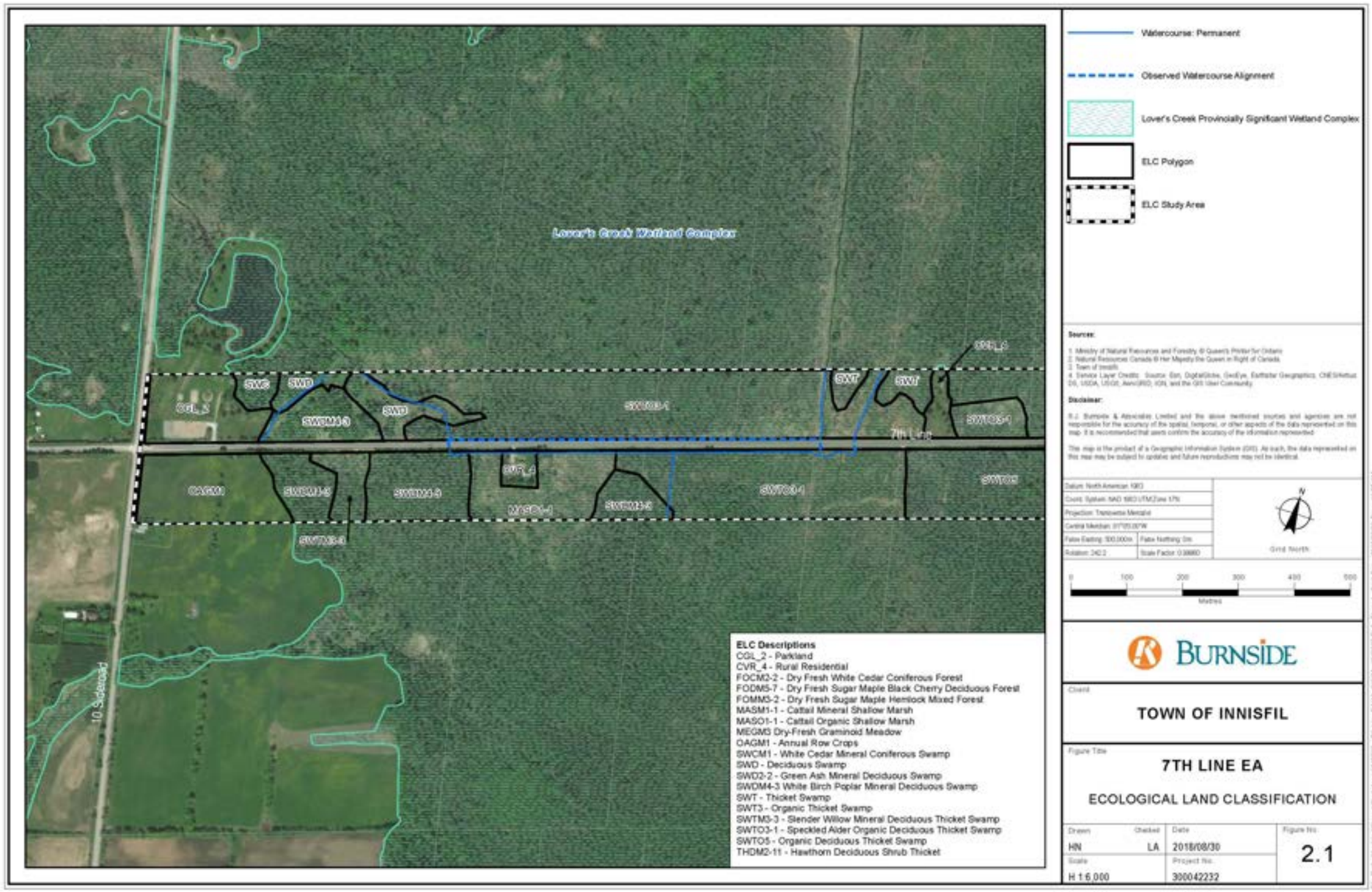
Indicates dominant layer

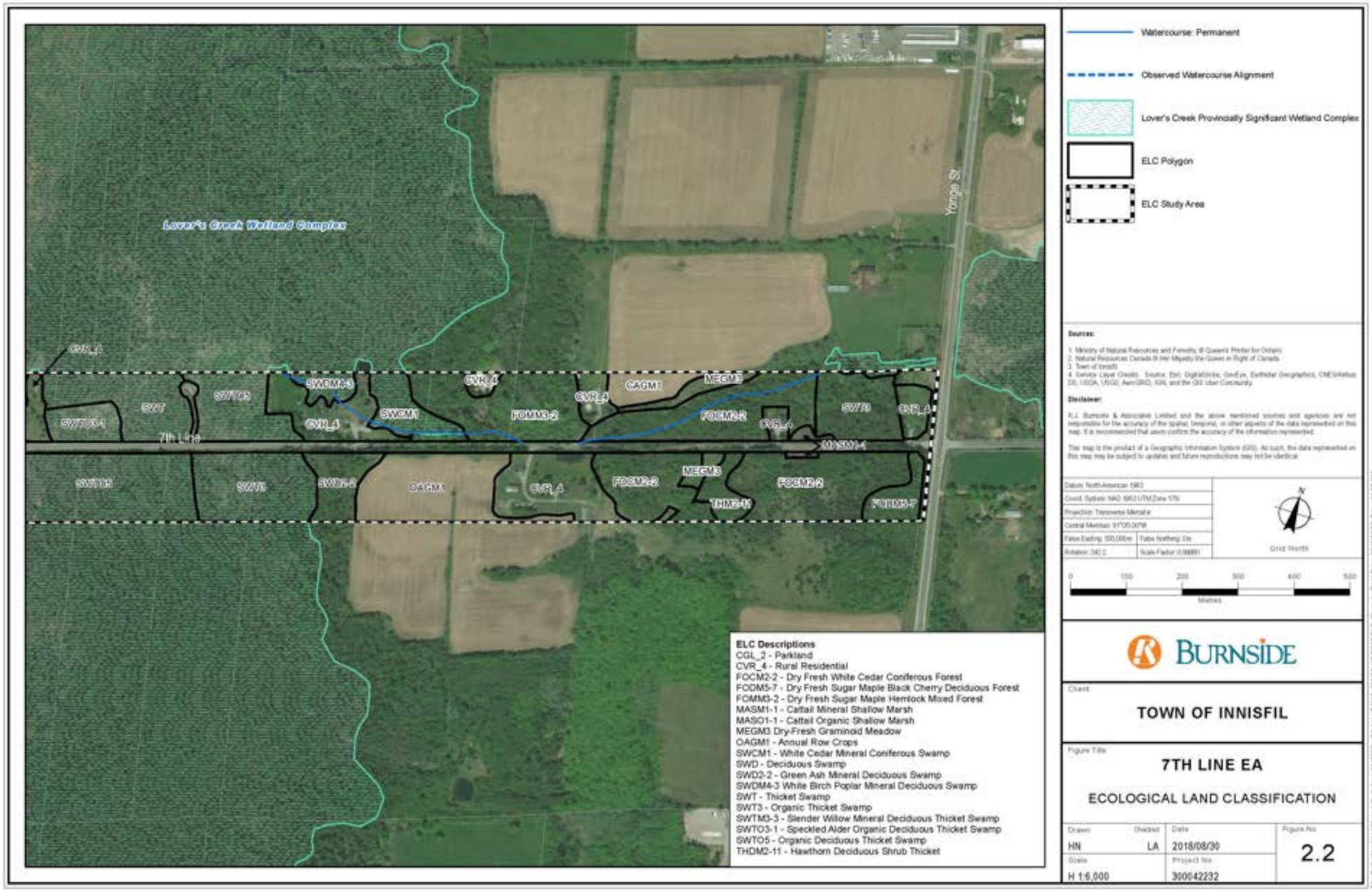
ELC Code	ELC Name	Canopy Layer Species	Subcanopy Layer Species	Shrub Layer Species	Ground Layer Species	Comments	Soils
SWT	Thicket Swamp	Silver Maple (*Acer saccharinum*)	• Black Ash* • Silver Maple • Eastern White Cedar (dead) • Paper Birch • Balsam Fir	• Speckled Alder (*Alnus incana* subsp. *rugosa*) • Eastern White Cedar (dead) • Cranberry Viburnum • Meadow Willow • Red Elderberry • Red Osier Dogwood • Silver Maple • Paper Birch	• Reed Canarygrass • Spotted Joe Pye Weed • Narrow-leaved Cattail • Canada Bluejoint • Black Ash	Most of trees are dead with Reed Canary Grass dominant groundlayer	Mineral: Loam
SWTM3-3	Slender Willow Mineral Deciduous Thicket Swamp Type	Tamarack	• Paper Birch • Green Ash • Tamarack	• Meadow Willow* • Red Elderberry • Green Ash • Paper Birch • Balsam Fir • Eastern White Cedar	• Narrow-leaved Cattail • Tussock Sedge (*Carex* cf. *stricta*) • Canada Bluejoint • Porcupine Sedge (*Carex hystericina*) • Bebb's Sedge (*Carex bebbii*) • Field Horsetail		Mineral: Sand
SWTO3-1	Speckled Alder Organic Deciduous Thicket Swamp Type	n/a	• Balsam Poplar • Trembling Aspen • Silver Maple • Tamarack • Black Ash	• Meadow Willow • Pussy Willow (*Salix discolor*) • Speckled Alder • Cottony Willow (*Salix eriocephala*) • Red Osier Dogwood • Balsam Poplar • Silver Maple • Black Ash	• Rice Cutgrass • Fowl Manna Grass • Spotted Joe Pye Weed • Narrow-leaved Cattail • Water-horehound (*Lycopus* sp.) • Reed Canarygrass • Sensitive Fern • Purple Loosestrife (*Lythrum salicaria*) • Bracken Fern (*Pteridium aquilinum*) • Tussock Sedge		Organic
SWTO5	Organic Deciduous Thicket Swamp Type	Balsam Poplar Trembling Aspen Black Ash	• Trembling Aspen • Black Ash • Balsam Poplar • Basswood • Eastern White Cedar • Green Ash	• Black Ash • Choke Cherry • Red Osier Dogwood	• Narrow-leaved Cattail • Reed Canarygrass • Canada Goldenrod • Sensitive Fern • Joe Pye Weed • Purple-stemmed Aster • Ostrich Fern	Areas with a closed canopy had ground cover dominated by ferns; those with an open canopy had a ground cover dominated by Joe Pye Weed, Canada Goldenrod, Reed Canarygrass, and Narrow-leaved Cattail	Organic
THDM2-11	Hawthorn Deciduous Shrub Thicket Type	Trembling Aspen*	• Trembling Aspen* • Eastern White Cedar • Eastern White Pine	• Hawthorn (*Crataegus* spp.) • Trembling Aspen • Eastern White Cedar • Green Ash • Sugar Maple	• Fescue • Wild Basil (*Clinopodium vulgare*) • Common Timothy (*Phleum pratense*) • Canada Goldenrod • Common St. John's-wort (*Hypericum perforatum*) • Thicket Creeper • Trembling Aspen • Sugar Maple • Hawthorn	Inclusions of Trembling Aspen dominated CUT1 – Cultural Thicket; and MASM1-1 – Cattail Mineral Shallow Marsh	Mineral

*indicates dominant species

Indicates dominant layer

Figure 2: Ecological Land Classification




Lover's Creek Wetland Complex
Yonge St.
7th Line
CVR_4
SWCM1-3
SWT
SWT05
SWT03-1
SWCM1
FOMM3-2
CAGM1
MEGM3
FOCM2-2
SWT0
THDM2-11
SWT03
SWD
SWD2-2
FOCM5-7
FOBM3-7
Watercourse: Permanent
Observed Watercourse Alignment
Lover's Creek Provincially Significant Wetland Complex
ELC Polygon
ELC Study Area
Sources:
1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada
3. Town of Innisfil
4. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Disclaimer:
R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.
This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.
Datum: North American 1983
Coord. System: NAD 1983 UTM Zone 17N
Projection: Transverse Mercator
Central Meridian: 81°00.00'W
False Easting: 500,000m
False Northing: 0m
Rotation: 342.0
Scale Factor: 0.9996
Grid North
0
100
200
300
400
500
Metres
ELC Descriptions
CGL_2 - Parkland
CVR_4 - Rural Residential
FOCM2-2 - Dry Fresh White Cedar Coniferous Forest
FODM5-7 - Dry Fresh Sugar Maple Black Cherry Deciduous Forest
FOMM3-2 - Dry Fresh Sugar Maple Hemlock Mixed Forest
MASM1-1 - Cattail Mineral Shallow Marsh
MASO1-1 - Cattail Organic Shallow Marsh
MEGM3 Dry-Fresh Graminoid Meadow
OAGM1 - Annual Row Crops
SWCM1 - White Cedar Mineral Coniferous Swamp
SWD - Deciduous Swamp
SWD2-2 - Green Ash Mineral Deciduous Swamp
SWDM4-3 White Birch Poplar Mineral Deciduous Swamp
SWT - Thicket Swamp
SWT3 - Organic Thicket Swamp
SWTM3-3 - Slender Willow Mineral Deciduous Thicket Swamp
SWTO3-1 - Speckled Alder Organic Deciduous Thicket Swamp
SWTO5 - Organic Deciduous Thicket Swamp
THDM2-11 - Hawthorn Deciduous Shrub Thicket
BURNSIDE
Client
TOWN OF INNISFIL
Figure Title
7TH LINE EA
ECOLOGICAL LAND CLASSIFICATION
Drawn HN
Checked LA
Date 2018/08/30
Figure No 2.2
Scale H 1:6,000
Project No 300042232

5.4 Wildlife and Wildlife Habitat

5.4.1 Amphibian Breeding Call Survey

Burnside qualified Ecologists conducted an Amphibian Breeding Call Survey of the Study Area in selected habitats along the 7th Line. Surveys were conducted between April 24, 2018 and June 26, 2018, to detect potential early, mid and late season amphibian breeding activity in Central Ontario.

Survey Stations were chosen to provide information on representative vegetation communities, relatively evenly spaced along the study corridor. Surveys were conducted north and south of 7th Line at each Station (except Station 5 south, as no habitat was present – Agricultural). The survey methodology is summarized below and in Table 2.

The Marsh Monitoring Program Guidelines state that three call surveys should be completed when night time air temperatures are greater than 5°C, 10°C and 17°C, respectively and when wind strength is less than 19 km/h (<3 on the Beaufort Scale).

Amphibian calls are used to identify species presence and are quantified by assigning a Call Level Code and an Abundance Count.

Table 2: Details of the Amphibian Breeding Call Survey

Staff Involved	Date (2018)	Time of Day	Weather Conditions			
			Precipitation/ Cloud Cover	Temp. (°C)	Wind (Beaufort Scale)[1]	Calls Heard
Lorraine Adderley Sylvia Radovic	April 24	2050 - 2200	cloudy/overcast, overnight precipitation	11	0-2	Yes
Lorraine Adderley Sylvia Radovic	May 16	2125 – 2230	Clear (no cloud cover)	17	0-1	Yes
Lorraine Adderley Deanna De Forest	June 26	2145 – 2249	Partly cloudy	18	0	Yes

[1] Beaufort Wind Scale 0 = calm, smoke rises vertically (0-2 km/hr); 1 = light air movement, smoke drifts (3-5); 3 = gentle breeze, wind felt on face; leaves rustle (6-11); 4 = moderate breeze, small branches moving, raises dust & loose paper (20-30); 5 = fresh breeze, small trees begin to sway (31-39); 6 = strong breeze, large branches in motion (40-50)

The purpose of the breeding amphibian surveys was to identify wildlife habitat, as well as any potential Significant Wildlife Habitat (SWH) in the Study Area. The SWH is discussed further in Section 5.4.4, and Appendix B.

Amphibian Breeding Call Survey results are summarized in Table 3. The following species were observed (i.e., heard calling and/or visually observed) within the Study Area over the course of three field visits:

- American Toad (*Anaxyrus americanus*)
- Spring Peeper (*Pseudacris crucifer*)
- Western Chorus Frog (*Pseudacris triseriata*)
- Green Frog (*Lithobates clamitans*)
- Northern Leopard Frog (*Lithobates pipiens*)

Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population is ranked as S3 and considered vulnerable in the province due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation. Western Chorus Frog is locally common and widespread in southwestern Ontario. However, this species has experienced declines in southeastern Ontario and had a statistically significant declining trend in the Great Lakes basin between 1995 and 1999 (NHIC, 2018). Although still widespread in southern Ontario, based on Marsh Monitoring Program (MMP) data, this is the only frog species showing significant declines in the Great Lakes basin between 1995 and 2012 (Tozer 2013). This population is listed under the federal *Species at Risk Act* as a Threatened Schedule 1 species. It is not listed as a SAR in Ontario under the provincial ESA. The Western Chorus Frog is found in forest openings around woodland ponds but can also be found in damp meadows, marshes, bottomland swamps and temporary ponds in open areas, or even urban areas. This frog breeds in almost any fishless pond with at least 10 cm of water, including quiet, shallow, usually temporary waterbodies with vegetation that is submerged or protrudes from the water, and especially in rain-flooded meadows and ditches, and in temporary ponds on floodplains. The Western Chorus Frog overwinters underground or under surface cover, such as fallen logs (ORAA, 2018).

The four-remaining species are ranked S5 (NHIC subnational rankings), and are considered secure, common and widespread across the Province of Ontario. None of these species receives protection under the *Ontario Fish and Wildlife Conservation Act* or the *Species at Risk Act*, and none have been assessed by the Committee on the Status of SAR in Ontario or the Committee on the Status of Endangered Wildlife in Canada. These species use aquatic vegetation for egg deposition.

Spring Peeper are found in a wide range of habitats and seem to breed almost anywhere there is shallow water, but mostly in temporary woodland ponds. In the

summer, these frogs move to forested and shrubby upland habitats and spend most of their time in the leaf litter. Spring Peepers hibernate under logs and loose bark. Breeding occurs early in the spring with tadpoles hatching in 2-3 weeks and transforming over the same summer. This species is unlikely to be found in urban areas.

American Toads are mainly terrestrial but breed in ponds. Breeding occurs in warm shallow ponds and streams and along river margins. Tadpoles transform in the season they are hatched and soon disperse into the surrounding habitat. Hibernation occurs on land where they burrow beneath the frost line in the soil. They are known to be relatively tolerant to human disturbance (ORAA, 2016).

Green Frogs may be found in or near any shallow permanent waterbodies such as springs, swamps, ponds, and lakes. Young Green Frogs use temporary water bodies in the summer. The female lays clutches of eggs on submerged vegetation in permanent water. Tadpoles overwinter in water before transforming the following summer (ORAA, 2018).

Leopard Frogs occupy a wide range of habitats and are often found far from open water. This species hibernates at the bottom of waterbodies that do not freeze, sometimes in different ponds than those they breed in. They breed in relatively permanent pods with or without fish, but most often in wetlands without large fish. Eggs are laid on submerged vegetation. Tadpoles transform the summer that they are hatched (ORAA, 2018).

Table 3: Summary of Amphibians Breeding Call Survey Results

Field Survey	Species Observed/Heard Calling	Station	Call Code	Count
#1	Western Chorus Frog	1(N)	1	3
		3(N)	1	2
		3(S)	1	2
#2	Spring Peeper	1(N&S)	3	N/A
		2(N&S)	3	N/A
		3(N&S)	3	N/A
		4(N&S)	3	N/A
		6(N&S)	3	N/A
		8(N)	2	2
		8(S)	2	2
	American Toad	1(N&S)	3	N/A
		2(N&S)	3	N/A

Field Survey	Species Observed/Heard Calling	Station	Call Code	Count
		3(N&S)	3	N/A
		4(N&S)	3	N/A
		5(N)	1	1
		6(N&S)	3	N/A
		7(N)	1	1
	Western Chorus Frog	1(N)	1	1
		2(S)	1	1
		3(N)	1	1
		3(S)	1	1
		4(N)	1	1
	Northern Leopard Frog	4(N)	1	1
		4(S)	1	1
#3	Green Frog	5(N)	2	4
		7(S)	1	6

[1]Call Level Code: 1 = calls can be counted, calls not simultaneous; 2 = calls distinguishable, some simultaneous calling; 3 = full chorus, calls continuous and overlapping
[2]Abundance Count: Estimated number of individuals present

As shown above, small numbers of calls of Western Chorus Frog were heard at Stations 1 and 3 during the first site visit in April. Two Green Frog were observed crossing the road, but not calling, at Station 1 during the April site visit (Appendix A – Photo 18). Spring Peeper were heard calling from wetlands west of 10th Sideroad at 7th Line during this first site visit, but not within the Study Area.

Large numbers of Spring Peeper and American Toad were heard during the second site visit in May at Stations 1,2,3,4, and 6, both north and south of 7th Line. Lesser numbers of calls of these species were also heard at Stations 5, 7, and 8. Small numbers of calls of Western Chorus Frog (presumably late breeding males) were heard at Stations 1,2,3, and 4. Northern Leopard Frog were heard calling at low numbers at Station 4, both north and south of 7th Line. A loud chorus of Spring Peeper and American Toad could be heard calling in the wetlands in the distance.

Small numbers of Green Frog were heard calling from dug ponds at Station 5 and Station 7 during the third site visit in June. No other amphibians were observed visually or heard calling during the three Amphibian Breeding Call Surveys.

Based on the results of the Amphibian Breeding Call Surveys, the lands within, and adjacent to the 7th Line ROW, do not meet the criteria for SWH in Ecoregion 6E for Amphibian Breeding Habitat in woodlands or wetlands, respectively.

5.4.2 General Wildlife Observations

General Wildlife Surveys were conducted on July 18 and 19, 2018 concurrent with vegetation survey and ELC by a wandering transect of general coverage of the Study Area, recording all species observations and signs (e.g., tracks/trails, scat, burrows, dens, browse, vocalizations). Incidental observations recorded during amphibian, tree inventory, and aquatics surveys are included in this report. The following wildlife species were observed, or evidence of their presence was observed, during the field surveys:

Mammals

During background review, MNRF indicated that the Study Area and the Lovers Creek PSW Complex includes the following:

- an area of known Stratum 1 and 2 Deer Wintering Area (Figure 2) for Eastern Whitetail Deer (*Odocoileus virginianus*)
- Racoon (*Procyon lotor*)
- Muskrat (*Ondatra zibethicus*)
- Eastern Coyote (*Canis latrans*)
- Beaver (*Castor canadensis)*
- Red Squirrel (*Tamiasciurus hudsonicus*)
- Red Fox (*Vulpes vulpes*)

In addition, it is expected that common rural mammals would be using the Study Area habitats; such as:

- Small mammals (i.e., Mice and Voles)
- Skunk (*Mephitis mephitis*)
- Eastern Cottontail (*Sylvilagus floridanus*)

In addition, wetland habitats on in the Study Area may also provide habitat to wetland mammals such as:

- Mink (*Mustela vison*)

Densely forested habitats may also provide some limited habitat for:

- Black Bear (*Ursus americanus*)

- Although not common, this species has been reported in Innisfil in 2018 on 10th Sideroad just south of Barrie (Innisfil Journal, May 21, 2018) and appropriate habitat exists in the Lovers Creek PSW Complex.

The following mammals were observed in the Study Area during Ecological Field Surveys:

- Muskrat
- Mustela sp. (decayed roadkill)
- Eastern Grey Squirrel (*Sciurus carolinensis*)

Reptiles

The only reptile observed in the Study Area was Snapping Turtle (Chelydra serpentina), a SAR (Special Concern, ESA 2007). This species was observed actively digging nests for egg laying in the loose gravels of the shoulder of 7th Line (Appendix A – Photo 20). The Lovers Creek PSW Complex provides good quality habitat for this species.

Although not observed, appropriate habitat exists for the following reptiles which have previously been recorded by the Ontario Reptile and Amphibian Atlas within the 10 km squares encompassing the Study Area and on iNaturalist (independently verified):

- Midland Painted Turtle (*Chrysemys picta subsp. marginata*)
- Milksnake (*Lampropeltis triangulum*)
- Eastern Gartersnake (*Thamnophis sirtalis subsp. sirtalis*)
- Blanding's Turtle (Threatened, ESA 2007)

Insects

Several species of Insects, including Lepidoptera (Butterflies, Skippers and Moths) and Odonata (Dragonflies and Damselflies), were observed or recorded in the Study Area. The following species were previously recorded in Centennial Park at 7th Line and 10th Sideroad in iNaturalist and independently verified:

- Milkweed Tussock Moth (*Euchaetes egle*)
- Bluets (*Enallagma sp.*)
- Virginian Tiger Moth (*Spilosoma virginica*)
- Dot-tailed Whiteface (*Leucorrhinia intacta*)

The following insects were observed by Burnside Staff during field studies:

- Monarch (*Danaus plexippus*) (Special Concern, ESA 2007)
- Eastern Tiger Swallowtail (*Papilio glaucus*)
- Fireflies (*Lampyridae*)

- Cicada (*Cicadidae*)
- Bees (*Anthophila*)
- Flies (*Diptera*)

Of note is the presence of Monarch, a Special Concern species provincially and Threatened federally. The open meadows and roadside contain Common Milkweed, and the open marsh areas contain Swamp Milkweed. Milkweed (*Asclepias spp*.) plants are the sole food source for Monarch caterpillars. Monarch were observed foraging on nectar producing flowers including on Milkweed plants (Appendix A – Photo 19).

Bats

Taxa Specific Surveys for Bats and Bat Habitat were not conducted as part of this report assessment; however, two individuals were incidentally observed foraging over the 7th Line ROW during the third Amphibian Field Survey but could not be identified to species as a result of night field conditions. Vegetation communities for the Study Area were delineated based on the Ecological Land Classification (ELC) for Southern Ontario (Lee, H.T. *et. al.*, 1998). According to MNRF Midhurst District's Maternity Roost Survey Protocol for Species at Risk Bats Within Treed Habitats (April 2017), any coniferous, deciduous, or mixed wooded ecosites, including treed swamps, should be considered suitable maternity roost habitat. As such the following ELC communities are potential maternity roost habitat for SAR bats:

- Deciduous Forests (FOD)
- Mixedwood Forests (FOM)
- Coniferous Forests (FOC)
- Deciduous Swamp (SWD)
- Coniferous Swamps (SWC)

A more detailed description of vegetation communities is in Table 1 and Figure 2.

Birds

Incidental observations of 17 bird species were recorded calling during the field surveys.

- Eastern Wood Pewee (Special Concern; ESA 2007)
- Red-winged Blackbird (*Agelaius phoeniceus*) (pair and singing males)
- Yellow-rumped Warbler (*Setophaga coronata*)
- Downy Woodpecker (*Picoides pubescens*)
- American Crow (*Corvus brachyrhynchos*)
- Black Capped Chickadee (*Poecile atricapillus*)
- White-throated Sparrow (*Zonotrichia albicollis*)
- Veery (*Catharus fuscescens*)

- Red-tailed Hawk (*Buteo jamaicensis*)
- Gray Catbird (*Dumetella carolinensis*)
- Mourning Dove (*Zenaida macroura*)
- Barn Swallow (Threatened; ESA 2007) (nesting on park structures, and foraging in open areas – Appendix A Photo 21)
- Cedar Waxwing (*Bombycilla cedrorum*)
- American Goldfinch (*Spinus tristis*)
- Chipping Sparrow (*Spizella passerina*)
- Woodcock (*Scolopax minor*) (calls and evening mating displays observed)
- Cliff Swallow (*Petrochelidon pyrrhonota*)

Of the species observed, all can be considered to be breeding within the Study Area. A single SAR, Barn Swallow and nest was observed on the side of a structure in Centennial Park on the north side of 7th Line, at 7th Line and 10th Sideroad. Barn Swallow nests and habitat up to 200 m is protected under the description of General habitat for this species. Category 1 habitat includes the nest, which are key to reproduction and have the lowest tolerance to alteration (MNRF, 2013). Nests are often reused from year to year, and sometimes support multiple broods within a year (Barclay, 1988). Category 2 habitat includes the 5 m immediate environs of the nest, which represents the area defended by territorial male Barn Swallows during the breeding season. This habitat has moderate tolerance to alteration. Category 3 habitat includes the foraging habitat 5 m to 200 m from the nest. Activities in general habitat for Barn Swallow can continue as long as the function of these areas is maintained, and individuals of the species are not killed, harmed, or harassed.

Potential for SAR habitat in the Study Area is evaluated in the SAR Screening Table (Appendix C)

A background review of bird species observed by the OBBA within two 10-kilometre squares encompassing the Study Area had records of 104 observed bird species. Of these species, SAR identified by the OBBA have been included for evaluation of SAR habitat in the SAR Screening Table (Appendix C). The OBBA identified 22 species that are considered by the Significant Wildlife Habitat Technical Guide (MNR, 2000) to be area-sensitive species. These species include:

- American Redstart (*Setophaga ruticilla*)
- Black-and-white Warbler (*Mniotilta varia*)
- Black-throated Blue Warbler (*Dendroica caerulescens*)
- Black-throated Green Warbler (*Dendroica virens*)
- Blue-headed Vireo (*Vireo solitarius*)
- Broad-Winged Hawk (*Buteo platypterus*)
- Brown Creeper (*Certhia americana*)

- Common Merganser (*Mergus merganser*)
- Grasshopper Sparrow (*Ammodramus savannarum*)
- Hairy Woodpecker (*Picoides villosus*)
- Hermit Thrush (*Catharus guttatus*)
- Least Flycatcher (*Empidonax minimus*)
- Northern Harrier (*Circus cyaneus*)
- Ovenbird (*Seiurus aurocapillus*)
- Pileated Woodpecker (*Dryocopus pileatus*)
- Pine Warbler (*Dendroica pinus*)
- Red-breasted Nuthatch (*Sitta canadensis*)
- Savannah Sparrow (*Passerculus sandwichensis*)
- Scarlet Tanager (*Piranga olivacea*)
- Veery (*Catharus fuscescens*)
- White-breasted Nuthatch (*Sitta carolinensis*)
- Winter Wren (*Troglodytes troglodytes*)

5.4.3 Species at Risk

Several SAR were identified through background review to have the potential to be present in the Study Area. Species at Risk (Threatened and Endangered) are species listed as protected by law under the provincial ESA (2007) or the federal SARA (2002). Special Concern species do not have species or habitat protection under Ontario's ESA (2007) or the federal SARA (2002), however, they may receive protection by some agencies, such as provincial; and national parks, or other acts, such as the *Ontario Fish and Wildlife Conservation Act*, and the *Migratory Birds Convention Act* (MBCA), which prohibits the killing, capturing injuring, harassment and trapping of specially protected species.

Potential for SAR to be present and impacted by potential work within the Study Area is evaluated in the SAR Screening Table (Appendix C) and includes the following species:

- Canada Warbler;
- Common Nighthawk;
- Eastern Wood-peewee;
- Olive-sided Flycatcher;
- Wood Thrush;
- Blanding's Turtle;
- Snapping Turtle;
- Little Brown Myotis;
- Northern Myotis;
- Tri-colored Bat;

- Monarch; and
- Butternut.

Two SAR protected under the Provincial ESA (2007) were observed in the Study Area:

- Barn Swallow, and
- Butternut.

Special Concern species observed in the Study Area include:

- Eastern Wood Pewee,
- Monarch, and
- Snapping Turtle.

5.4.4 Significant Wildlife Habitat

The identification and evaluation of Significant Wildlife Habitat (SWH)s are undertaken at the local planning level. Neither the Town nor Simcoe County have explicitly identified the locations of SWH in their OPs. The MNRF has provided information about SWH as it relates to Deer Wintering Areas in the Study Area. Determination of SWH is broadly categorized and described in the Natural Heritage Reference Manual NHRM (MNR 2010). The MNRF's SWHTG (MNR, 2000) and SWH Criteria Schedule for Eco-regions 6E (MNRF, 2015) are additional supplemental documents intended to assist in identifying SWH. The four categories of SWH are identified as:

1. Habitats of seasonal concentrations of animals.

2. Rare vegetation communities or specialized habitat for wildlife.

3. Habitat of species of conservation concern.

4. Animal movement corridors.

The presence of SWH, within and adjacent to the subject lands, was evaluated based on results of field investigations (Appendix B). Based on this evaluation, it was confirmed that SWH for the following is present in the Study Area:

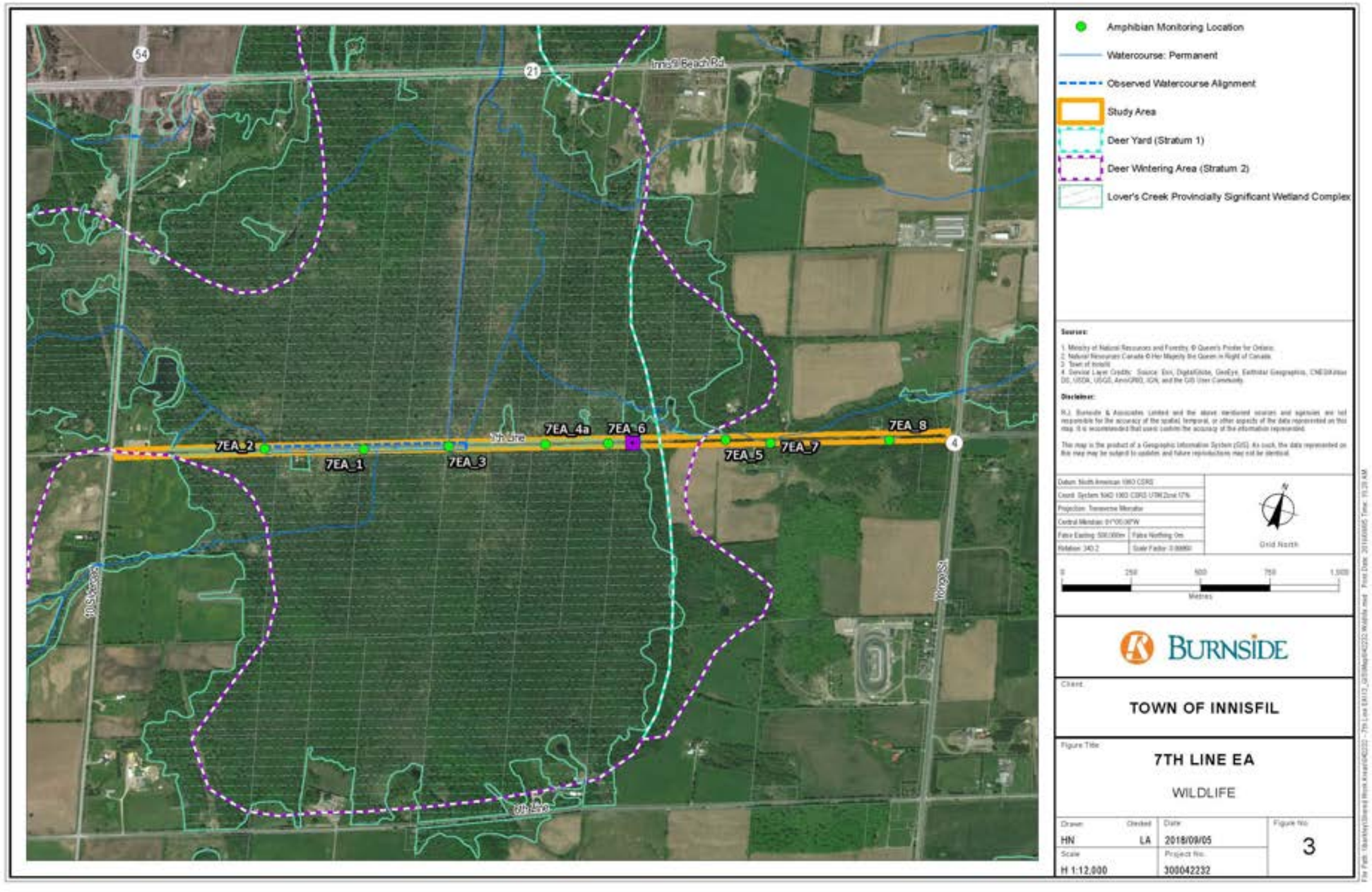
- Deer Yarding Areas - Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF (Figure 2).
- Deer Winter Congregation Areas - Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF (Figure 2).
- Turtle Nesting Areas – Nesting Snapping Turtle was observed during field surveys.
- Special Concern and Rare Wildlife Species – Confirmed breeding habitat for Monarch, Eastern Wood Pewee and Snapping Turtle was observed during field surveys.

- Deer Movement Corridors – Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF (Figure 2).

Unconfirmed potential for SWH for the following exists in the Study Area:

- Bat Maternity Colonies – Unconfirmed. Taxon specific surveys would be required to confirm.
- Turtle Wintering Areas – Unconfirmed. Taxon specific surveys would be required to confirm.
- Area Sensitive Birds – Unconfirmed. The Atlas of Breeding Birds of Ontario had observations of area sensitive birds in the two 10-kilometre squares encompassing the study area. Veery was the only area sensitive bird species observed incidentally during field surveys.
- Woodland Raptor Nesting Habitat – Unconfirmed. Taxon specific surveys would be required to confirm.

Figure 3: Wildlife



5.5 Alternative Solutions and Potential Impacts

Do Nothing

This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

Regular maintenance and continued presence of road through PSW poses minor impacts to wetland wildlife due to:

- Potential to harm turtle nests.
- Potential siltation from repairs and wash outs.
- Wildlife road mortality.

Local Traffic Only

This alternative may include the following:

- Allow access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road.
- Maintain public access to Centennial Park from 10th Sideroad.
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

Regular maintenance and continued presence of road through PSW poses minor impacts to wetland wildlife due to:

- Potential to harm to turtle nests.
- Potential siltation from repairs and wash outs.
- Wildlife road mortality (although greatly reduced from Option 1).

One-Way Road

This alternative may include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.

- Install appropriate signs/marking and public notice of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisition.

Repaving/rehabilitation of existing road, regular maintenance and continued presence of road through PSW poses minor impacts to wetland wildlife due to:

- Potential to harm to turtle nests.
- Potential siltation from repaving/rehabilitation, culvert works, and ditching.
- Wildlife road mortality (although somewhat reduced from Option 1).

Repaving/rehabilitation of existing road will require some removal of trees and vegetation which could pose minor impacts to:

- Vegetation communities and species.
- Breeding Birds.
- SAR Bats and Bat SWH.
- Monarch breeding habitat.
- Removal of Butternut and butternut habitat.

Widen the Road

This alternative may include the following:

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – paved shoulder and improve ditching.
- Tree clearing at east end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

The Widen the Road alternative is not anticipated to increase the footprint of the road bed in the west end of the Study Area. Regular maintenance and continued presence of road through PSW may pose impacts to wetland wildlife due to:

- Potential to disrupt wetland hydrology if culverts are not sized appropriately to maintain existing conditions.
- Potential to harm to turtle nests.
- Potential siltation from construction activities.
- Road mortality.

Widening of the road in the east end of the Study Area may require removal of trees and vegetation which could pose potential impacts to:

- Vegetation communities and species.
- Breeding Birds.
- SAR Bats and Bat SWH.
- Monarch breeding habitat.
- Removal of Butternut and Butternut habitat.

Dead-End Road with Turnaround

This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build cul–de–sac or hammer head turnarounds.
- Perform regular maintenance as required.

The location of the dead-end and turnaround will be considered as a design alternative if this alternative is selected as preferred. Impacts to PSW wildlife and vegetation communities over the long term would be reduced should the location of the dead-end close the road through much of the PSW. This could result in potential benefit to the PSW in the form of a nature trail and wildlife movement across the 7th Line ROW as well as reduced potential for road mortality as a result of anticipated reduction in vehicles using the 7th Line.

Upgrades to remaining active portions of road and construction of cul-de-sac or hammer-head turnarounds, regular maintenance and continued presence of road through PSW will pose minor impacts to wetland wildlife due to:

- Some removal of habitat area in the footprint areas of the turnaround.
- Some potential to harm to turtle nests.
- Potential siltation from construction activities.

Upgrades to the east end of the road may require removal of trees and vegetation which could pose potential impacts to:

- Vegetation communities and species.
- Breeding Birds.
- SAR Bats and Bat SWH.
- Removal of Butternut and Butternut habitat.

6.0 Potential Impacts and Recommended Mitigation Measures

Project activities associated with the alternative solutions are anticipated to range from minor impacts as a result of localized road repairs such as asphalt repairs, to greater impacts associated with ditch regrading, road realignment or road widening. Minor impacts are anticipated to be short-term, within the disturbed road or shoulder and require little vegetation removal. Greater impacts are anticipated to be, but are not limited to, tree removal, encroachment into vegetation communities and loss of wetland area. Impacts to the PSW, vegetation communities, wildlife and their habitats, and locally/regionally/provincially significant species and SAR will depend on the alternative selected for the road. General mitigation measures provided should be reviewed once the design alternative is selected and considered during the detailed design process. Further studies may be required once the design alternative is selected based on the potential for impact to SAR and associated habitat.

6.1 Potential Impacts to Vegetation Communities and Species

- Alternatives 3 to 5 present some degree of disturbance or destruction of vegetation species and natural vegetation communities.
- Alternatives 3 to 5 present some degree of disturbance or destruction of PSW vegetation communities. Alternatives 3 and 4 would disturb only the edges of the PSW in the footprint required to widen the shoulder and repair culverts in the ROW. Alternative 5 would impact PSW communities in the footprint required to create the turnaround.
- Potential sedimentation of wetland communities in the PSW beyond the limit of removals.
- Potential disturbance to hydrology of PSW resulting in vegetation community alteration.
- Disturbance of soils in construction areas could allow for non-native and invasive species to establish.

6.2 Potential Impacts to Wildlife and Wildlife Habitat

- Temporary displacement of and disturbance to, wildlife and wildlife habitat during the construction phase (i.e., vegetation removals, siltation, noise, light trespass, limited movement).
- Potential for increased road mortality and mortality during construction activities (i.e., amphibians, turtles, beaver, muskrat).
- Potential to reduce available wildlife habitat as a result of construction activities through the removal of natural vegetation (i.e., forests, thickets, wetlands). Alternatives 3 and 4 would temporarily disturb only the edges of natural vegetation communities in the footprint required for grading and culvert replacement. Alternative 5 would reduce available habitat in the footprint required to create the turnaround but would allow for the habitat currently being used as connecting road to be used, un-encumbered by wildlife.
- Disturbance or destruction of migratory breeding birds and their habitat during the construction phase.

6.3 Potential Impact to Species at Risk

- Possible impact to potential candidate SAR bat (Endangered) maternity roosting habitat if vegetation removals are required within forested communities (i.e., FOD, FOM, FOC, SWD, SWM, SWC), during the construction phase.
- Potential for disturbance or destruction of nesting SAR migratory breeding birds and their habitat during the construction phase.
- Impact Butternut (Endangered) trees as a result of tree and vegetation removal.
- Impacts to overwintering, nesting and/or basking habitat for Special Concern turtle species is unlikely to be impacted as no construction is proposed in areas of open water wetlands.

Endangered, Threatened, and Extirpated plants and animals and their habitat are protected from being killed, harmed, and harassed under the *Endangered Species Act* (2007). Consultation with the MECP will determine what authorizations may be required regarding SAR. Special Concern species are in danger of becoming threatened or endangered but are not afforded species and/or habitat protection under the ESA. Special Concern species habitat is considered as Significant Wildlife Habitat (Section 6.4).

6.4 Potential Impacts to Significant Wildlife Habitat

- Monarch (Special Concern) habitat may be temporarily removed during the construction.

- Eastern Wood-pewee (Special Concern) nesting habitat may be removed during vegetation clearing if not done in the recommended clearing window. However, only in a small area along the margins of the road. Large areas of appropriate habitat will still be available beyond the cleared areas in which appropriate Eastern Wood-pewee nesting habitat will remain.
- Snapping Turtle (Special Concern) nesting may be disrupted/destroyed by construction.
- Turtle overwintering and/or nesting areas may be impacted by construction.
- Turtle overwintering are unlikely to be impacted by construction.
- Deer congregation, wintering, and movement may be impacted by vegetation clearing and construction.
- Bat maternity colonies may be impacted.
- Area-sensitive bird species habitat is not anticipated to be impacted. The estimated footprint of the alternative solutions is not anticipated to significantly impact the potential habitat of area sensitive bird species as the relatively limited amount of vegetation to be removed is not expected to have a significant impact on the available overall habitat within the greater area for these species. Nor is any new habitat fragmentation anticipated due to any of the proposed alternative solutions.

6.5 Recommended Mitigation Measures

The following mitigation measures are recommended for carrying out road reconstruction projects. Mitigation measures should be reviewed following the selection of the preferred alternative and as a part of detailed design.

6.5.1 Vegetation Recommended Mitigation Measures

- Minimize disturbance to existing vegetation. Adjust grading prior to construction to reduce impacts to trees by increasing the steepness of slopes in isolated locations, where feasible. Impacts to vegetation communities within the PSW wetland should be avoided where possible.
- An Erosion and Sediment Control (ESC) plan should be developed during detailed design, prior to construction. Silt fence shall be used to delineate the limit of the construction area adjacent to wetland communities (i.e., through the designated PSW area).
- No intrusion into the PSW shall occur beyond the construction area delineated by silt fencing. No storage, stockpiling, or staging shall occur beyond the work area delineated by silt fencing.
- All materials and equipment used for the purpose of site preparation and project completion should be operated, maintained and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the wetland or watercourses.

- Soils shall be immediately stabilized following disturbance using a seed mix suitable to the site conditions, selected in consultation with the LSRCA.

6.5.2 Wildlife Recommended Mitigation Measures

- The footprint of the proposed disturbed area should be minimized as much as possible.
- Vegetation clearing should be avoided during sensitive times of the year for local wildlife, such as spring and early summer (when many animals bear their young or migrate between wintering and summer habitats).
- Consideration should be given during detailed design to facilitate wildlife passage and to reduce road mortality. Ideas to be considered should include but not be limited to:
  - Culvert sizing and design.
  - Permanent amphibian and reptile exclusion fencing.
  - Wildlife crossing signage.
  - Deer movement corridors and fencing (in consultation with MNRF).
- An Environmental Inspector shall be engaged during the construction phase to review Erosion and Sediment Control (ESC) measures that protect adjacent natural features and prevent certain wildlife such as turtles from entering the work zone. Deficiencies will be resolved immediately.
- The ESC Inspector will also convey to the contractors that no access, storage or stockpile of materials or equipment can occur within the area protected by the ESC measures.
- A Qualified Ecologist must be called where wildlife is encountered that may be impacted by construction work. This Ecologist can coordinate with the MNRF the appropriate measures to be taken for rescue and future conflicts.
- Fencing shall be erected around active work areas, including temporary storage/equipment areas and soil stockpiles to exclude wildlife prior to site preparation and construction at the limit of disturbance.
- If temporary perimeter exclusion fencing is used at a location, it shall be installed to allow wildlife to leave the fenced area during vegetation clearing. Once the work area has been cleared, it can be securely fenced to prevent wildlife from returning.
- The excluded area shall be searched immediately following fencing installation for any wildlife that may have become trapped. Any wildlife shall be safely relocated (by qualified personnel), or permitted to escape, to a suitable habitat. All works shall stop immediately and MNRF contacted should a SAR be encountered within a construction or operational area to ensure compliance with the ESA.

6.5.3 Species at Risk Mitigation Measures

- Educational material should be provided to construction personnel prior to commencement of construction works to assist personnel in identifying SAR species including, but not limited to: Snapping Turtle, Blanding's Turtle, and Butternut.
- To the extent possible and practical, earthworks and vegetation removal activities related to the construction of the preferred alternative should be completed outside of the active season for identified Threatened and Special Concern species. The active season for SAR turtle is generally considered to be from May 15th through July (MNRF, 2015), and the active season for bats is considered to be from April 1st to October 31st (personal correspondence, B. Shirley, MNRF, 2018).
- Removal of trees within the forested communities of the Study Area should be avoided to avoid impacts to potential SAR bat roosting habitat. If avoidance of tree removals within the forest and forest swamp communities is not possible, consultation with MNRF should occur to confirm the recommended mitigation measures to avoid negative impacts to candidate SAR bat habitat.
- To reduce the risk of contravening the federal MBCA, timing constraints shall be applied to avoid any vegetation clearing and grubbing during the active window for breeding birds – broadly from April 1st to August 31st for most species (regardless of the calendar year).
- Active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA, cannot be destroyed at any time of the year.
- If a nesting migratory bird (or SAR protected under ESA) is identified within or adjacent to the construction site (or during operations and maintenance activities) and the activities are such that continuing works in that area would result in a contravention of the MBCA or ESA, all activities shall stop and the Contract Administrator (with assistance from an Avian Biologist) shall discuss mitigation measures with the Town. Should SAR be identified, all activities shall stop and MECP Midhurst District shall be contacted immediately to ensure compliance with the ESA. The Contract Administrator shall instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the Avian Biologist, Town, the MECP and/or Environment Canada.
- Fencing shall be erected around active work areas, including temporary storage/equipment areas and soil stockpiles to exclude SAR reptiles prior to site preparation and construction at the limit of disturbance in wetland areas.
- Permitting and compensation will be required to be coordinated with the MECP if impacts or removal of Butternut will occur.

6.5.4 Significant Wildlife Recommended Mitigation Measures

- The footprint of the proposed disturbed area should be minimized as much as possible.

- Consideration should be given during detailed design for restoration plans to provide turtle nesting habitat in the wetland, not on the gravel shoulder (i.e., gravel nesting islands).
- Consideration should be given during detailed design to facilitate wildlife passage and to reduce road mortality for turtles and amphibians. Ideas to be considered should include but not be limited to:
  - Culvert sizing and design.
  - Permanent amphibian and reptile exclusion fencing.
- MNRF shall be consulted on the appropriate mitigation measures required to preserve deer congregation, wintering, and movement in the event of vegetation clearing and construction.
- Removals of individual milkweed plants and their supporting habitat should be avoided during the active egg laying and larval stages of this species (end of May through end of August).
- Soils shall be immediately stabilized following disturbance using an appropriate seed mix, such as OSC Seed Simcoe County Mix (Product Code 6850) in upland areas and OSC Wet Meadow Marsh Mixture (Product Code 8195) in lowland/wetland areas. Both of these mixes contain native seed appropriate to the site conditions and contain Milkweed species. Seed mix selection to be confirmed in consultation with the LSRCA
- If designated areas are created during construction for the stockpiling of materials, especially fill, soil and gravel, the Contractor shall install fencing around the perimeter of these areas to prevent any turtle species from entering the area and attempting to nest (turtles are attracted to these materials for nesting). Please refer to MNRF Best Practices Technical Note - Reptile and Amphibian Exclusion Fencing (Version 1.1) July 2013 (OMNR 2013).

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Appendix A

Ecological Land Classification Communities (Photos 1 – 21)



Photo 1: CGL_2 Parkland (August 30, 2018)



Photo 2: CVR_4 Rural Residential (July 19, 2018)



Photo 3: FOCM2-2 Dry – Fresh White Coniferous Forest Type (July 19, 2018)



Photo 4: FODM5-7 Dry – Fresh Sugar Maple - Black Cherry Deciduous Forest Type (July 19, 2018)



Photo 5: FOMM3-2 Dry – Fresh Sugar Maple - Hemlock Mixed Forest Type (July 19, 2018)



Photo 6: MASM1-1 Cattail Mineral Shallow Marsh Type (July 19, 2018)



Photo 7: MASO1-1 Cattail Organic Shallow Marsh Type (July 18, 2018)



Photo 8: MEGM3 Dry - Fresh Graminoid Meadow Type (July 18, 2018)



Photo 9: SWCM1 White Cedar Mineral Coniferous Swamp Ecosite (July 19, 2018)



Photo 10: SWD Deciduous Swamp (July 18, 2018)



Photo 11: SWD2-2 Green Ash Mineral Deciduous Swamp Type (July 19, 2018)



Photo 12: SWDM4-3 White Birch - Poplar Mineral Deciduous Swamp Type (July 18, 2018)



Photo 13: SWT Thicket Swamp (July 18, 2018)



Photo 14: SWTM3-3 Slender Willow Mineral Deciduous Thicket Swamp Type (July 18, 2018)



Photo 15: SWTO3-1 Speckled Alder Organic Deciduous Thicket Swamp Type (July 18, 2018)



Photo 16: SWTO5 Organic Deciduous Thicket Swamp Type (July 18, 2018)



Photo 17: THDM2-11 Hawthorn Deciduous Shrub Thicket Type (July 18, 2018)



Photo 18: Green Frog crossing 7th Line at Monitoring Station #1 (April 27, 2018)



Photo 19: Monarch butterfly at Swamp Milkweed (July 19, 2018)



Photo 20: Snapping Turtle Nesting at roadside (June 14, 2018)



Photo 21: Barn Swallow Nest at Centennial Park (August 30, 2018)

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Appendix B

Significant Wildlife Habitat Screening – Ecoregion 6E Criteria (2015)

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
Seasonal Concentration Areas of Animals						
Waterfowl Stopover and Staging Areas (Terrestrial) **<u>Rationale</u>**: Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects: • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100 to 300 m radius area, dependent on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST Index #7 provides development effects and mitigation measures.	No potential. No flooded fields present on the subject lands.	N/A
Waterfowl Stopover and Staging Areas (Aquatic) **<u>Rationale:</u>** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water)	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100 m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST Index #7 provides development effects and mitigation measures.	Limited potential for SWH. MAS1 and SWD2 communities are present in the study area. However, none of the wildlife species for this SWH were observed during field studies and no aggregations of waterfowl were observed.	N/A

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
	Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck					
Shorebird Migratory Stopover Area **<u>Rationale</u>**: High quality shorebird stopover habitat is extremely rare and typically, has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH.	Studies confirming: • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24 hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWHMiST Index #8 provides development effects and mitigation measures.	No potential significant wildlife habitat. None of the wildlife species or ecosites listed for this SWH were observed in the study area.	N/A
Raptor Wintering Area **<u>Rationale</u>**: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **<u>Special Concern:</u>** Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; <u>Forest:</u> FOD, FOM, FOC.	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be > 20 ha, with a combination of forest and upland Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects."	Limited potential for significant wildlife habitat. While the combination of Forest and open upland area (i.e. OAGM1) are present in the study area, none of the wildlife species for this SWH	N/A

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting.	• SWHMiST Index #10 and #11 provides development effects and mitigation measures.	were observed in the study area.	
Bat Hibernacula **Rationale**: Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #1 provides development effects and mitigation measures.	No potential. The ecosites are not present on the subject lands.	N/A
Bat Maternity Colonies **Rationale:** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM SWC FOC	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25 cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.	• Maternity Colonies with confirmed use by; – >10 Big Brown Bats – >5 Adult Female Silver- haired Bats • The area of the habitat includes the entire woodland, or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #12 provides development effects and mitigation measures.	Unknown potential. FOD, FOM, SWD, SWC, and FOC ecosites are present in the study area. No surveys for Bat maternity habitat have been conducted.	Unconfirmed. Taxon specific surveys would be required to confirm.
Turtle Wintering Areas **Rationale:**	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	For Midland Painted and Snapping Turtles: ELC Community Classes: SW, MA,	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map • Turtle or Snapping Turtle over- wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation	Unconfirmed potential SWH. Snapping Turtle was observed nesting during summer surveys. SW and	Unconfirmed. Taxon specific surveys are required to confirm SWH

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.		OA and SA ELC Community Series: FEO and BOO For Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May). • Congregation of turtles is more common where wintering areas are limited and therefore significant. • SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	MA communities, and SA/OA inclusions were observed in the study area. It is likely that Snapping Turtle overwintering occurs within the PSW and overwintering for Midland Painted Turtle may occur in the dug ponds on the east side of the Study Area.	
Reptile Hibernaculum **<u>Rationale</u>**: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**<u>Snakes</u>**: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Eastern Milksnake **<u>Special Concern</u>**: Eastern Ribbonsnake **<u>Lizard</u>:** **<u>Special Concern</u>**: Five-lined Skink (Southern Shield population	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1, FOC3.	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock groundcover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • Note: If there are Special Concern Species present, then site is SWH. • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e., strong hibernation site fidelity). Other critical life processes (e.g., mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five- lined skink wintering habitat.	Unlikely. No snakes were observed during the surveys. The majority of the site is organic substrates or unconsolidated till without rocks or rock piles.	N/A
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) **<u>Rationale</u>:** Historical use and number of nests in a colony make	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns.	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as	Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough- winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50 m radius habitat area from the peripheral nests.	No potential. Although Cliff Swallow nesting was observed during surveys, the appropriate bluff and cliff ecosites are not present	N/A

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.		Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation.	• Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #4 provides development effects and mitigation measures.	in the study area. Nests were observed on man-made structures.	
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale:</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night - Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree.	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest Ecosite containing the colony or any island <15.0 ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	Limited potential. Although SWD2 and SWD4 ecosites area present in the study area, none of the listed wildlife species was observed during surveys. Also, typically heronry locations are well known to the MNRF and indicated during background information gathering.	N/A
Colonially - Nesting Bird Breeding Habitat (Ground) **<u>Rationale:</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM, CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #6 provides development effects and mitigation measures.	No potential. None of the species listed was observed during surveys. The habitat in the study area does not meet the criteria for ecosites.	N/A
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly	Painted Lady Red Admiral <u>Special Concern</u> Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: <u>Field</u>:	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Ontario. • The habitat is typically a combination of field and forest and provides the butterflies with a location to rest prior to their long migration south.	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between	No potential. Adult Monarch were observed feeding on nectar plants during field investigations in July 2018.	N/A

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.		CUM CUT CUS <u>Forest</u>: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	• The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.	years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST Index #16 provides development effects and mitigation measures.	The subject lands are greater than 5 km from Lake Ontario	
Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those woodlands <2 km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Ontario are Candidate SWH.	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects and mitigation measures.	No potential. While migratory songbirds were observed on the subject lands, and woodlots >10 ha exist on the subject lands, the subject lands are greater than 5 km from Lake Ontario.	N/A
Deer Yarding Areas **<u>Rationale</u>:** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites;	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40 cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from	SWH present Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF (Figure 3).	Confirmed.

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.		CUP2 CUP3 FOD3 CUT	in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • MNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area, then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.		
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions cxlviii.	White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100 ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant.	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white- tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20 cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area, then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	SWH present Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF (Figure 3).	Confirmed.
Rare Vegetation Communities						
Cliffs and Talus Slopes **<u>Rationale:</u>** Cliffs and Talus Slopes are extremely rare habitats in Ontario.		Any ELC Ecosite within Community Series: TAO, CLO, TAS, CLS, TAT, CLT	Most cliff and talus slopes occur along the Niagara Escarpment. A Cliff is vertical to near vertical bedrock >3 m in height.	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. • SWHMiST Index #21 provides development effects and mitigation measures.	No potential. The ecosites listed are not present.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
			A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris			
Sand Barren **<u>Rationale;</u>** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry		ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <u>≤</u> 60%.	A sand barren area >0.5 ha in size. Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #20 provides development effects and mitigation measures.	No potential. The ecosites listed are not present.	N/A
Alvar **<u>Rationale;</u>** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.		ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:** *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E.	An Alvar site > 0.5 ha in size. An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal's species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	• Field studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses • SWHMiST Index #17 provides development effects and mitigation measures.	No potential. The ecosites listed are not present.	N/A
Old Growth Forest **<u>Rationale;</u>** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior		Forest Community Series: FOD FOC FOM SWD SWC	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest Old Growth forests are characterized by heavy mortality or turnover of over- storey trees resulting in a mosaic of gaps that	Field Studies will determine: • If dominant trees species of the area >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present).	No potential. No mature forest or swamp exists on the subject lands.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
habitat provided by old growth forests is required by many wildlife species.		SWM	encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	• The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.		
Savannah **<u>Rationale:</u>** Savannahs are extremely rare habitats in Ontario.		TPS1 TPS2 TPW1 TPW2 CUS2	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No potential. The ecosites listed are not present.	N/A
Tallgrass Prairie **<u>Rationale:</u>** Tallgrass Prairies are extremely rare habitats in Ontario.		TPO1 TPO2	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is theSWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No potential. The ecosites listed are not present.	N/A
Other Rare Vegetation Communities **<u>Rationale:</u>** Plant communities that often contain rare species which depend on the habitat for survival.		Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. The OMNRF/NHIC will have up to date listing for rare vegetation communities. Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No potential. Provincially rare vegetation communities are not present.	N/A
Waterfowl Nesting Area **<u>Rationale;</u>**	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards.	Unlikely. None of the listed species were observed during field surveys. MAS1	N/A

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	Green-winged Teal Wood Duck Hooded Merganser Mallard	MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.	• Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	habitats are limited in size and are very close to the existing roadway and are unlikely to support breeding waterfowl.	
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **<u>Rationale:</u>** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms).	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. cvi, ccvii Area of the habitat from 400-800 m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWHMiST Index #26 provides development effects and mitigation measures.	Limited potential. Osprey and Bald Eagle were not observed during field surveys. No nests were observed in the study area. Suitable nesting habitat may exist in the forested areas adjacent to the wetland habitats.	N/A.
Woodland Raptor Nesting Habitat **<u>Rationale:</u>**	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk	May be found in all forested ELC Ecosites.	All natural or conifer plantation woodland/forest stands >30 ha with >10 ha of interior habitat. Interior habitat determined with a 200 m buffer	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH (the 28 ha habitat area would	Potential SWH The ecosites and size criteria listed are present in Lover’s Creek PSW	Unconfirmed. Taxon specific surveys are required for confirmation.

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Barred Owl Broad-winged Hawk	May also be found in SWC, SWM, SWD and CUP3	• Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200 m radius around the nest is the SWH • Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50 m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	Complex. However, none of the listed wildlife species was observed during field surveys.	
Turtle Nesting Areas **<u>Rationale:</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	Confirmed SWH. Open water habitat exists in the PSW and in dug ponds in the eastern half of the study area. Gravel shoulders of 7th line adjacent to wetland areas provide appropriate nesting habitat. Nesting Snapping Turtle was observed during surveys.	Confirmed.
Seeps and Springs **<u>Rationale</u>:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of an ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • SWHMiST Index #30 provides development effects and mitigation measures.	Limited potential. No indicators of groundwater discharge (i.e. Watercress, iron precipitates, springs, seeps) were observed in the study area.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
Amphibian Breeding Habitat (Woodland). **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	• Presence of a wetland, pond or woodland pool (including vernal pools) >500 m^2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMiST Index #14 provides development effects and mitigation measures.	Potential SWH. FOC, FOM, FOD, SWC, and SWD ecosites are present in the study area. No woodland pools were observed. Spring Peeper and Western Chorus Frog were heard calling during amphibian surveys.	SWH Habitat not present. Studies confirm the presence of breeding populations of Spring Peeper and Western Chorus frog. 12 Western Chorus frog were heard calling over 3 surveys (Level 1 Call Code). Level 3 Codes were heard for Spring Peeper only.
Amphibian Breeding Habitat (Wetlands) **<u>Rationale:</u>** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	• Wetlands >500 m^2 (about 25 m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	Potential SWH. SW and MA Communities, and SA inclusions are present in the study area. The Lover's Creek PSW is >500m^2 in area. Shrubs and logs are present. American Toad, Western Chorus Frog, Northern Leopard Frog, and Green Frog were heard calling during amphibian breeding surveys.	SWH not present. Studies confirm the presence of breeding populations of American Toad, Western Chorus Frog, Northern Leopard Frog, and Green Frog. 12 Western Chorus frog were heard calling over 3 surveys (Level 1 Call Code). 2 Northern Leopard Frog were heard calling over 3 surveys. 10 Green Frog were heard calling over 3 surveys.

Habitat	Wildlife Species	Candidate SWH ELC Ecosite Codes	Candidate SWH Habitat Criteria	Confirmed SWH Defining Criteria	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
						Level 3 Codes were only heard from American Toad.
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale</u>:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #34 provides development effects and mitigation measures.	Limied potential for SWH. No interior forest habitat is present in the study area. Veery was observed during vieid studies.	N/A
Marsh Breeding Bird Habitat **<u>Rationale;</u>** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #35 provides development effects and mitigation measures.	Limited potential for SWH. None of the species listed was observed during field surveys. None of the ecosites listed was observed in the study area.	N/A
Open Country Bird Breeding Habitat	Upland Sandpiper Grasshopper Sparrow	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species.	No potential.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl		• Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	• A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWHMiST cxlix Index #32 provides development effects and mitigation measures.	The site does not contain the appropriate ecosites. None of the listed wildlife species was observed during field surveys.	
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	**Indicator Spp:** Brown Thrasher Clay-coloured Sparrow **Common Spp.** Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	• Large field areas succeeding to shrub and thicket habitats >10 ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow- breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST cxlix Index #33 provides development effects and mitigation measures.	Limited potential. None of the listed wildlife species was observed in the study area. A Hawthorn Thicket (CUT1 in 1998 Codes/THDM2-11 in 2008 ELC codes) was observed in the study area. However, this is <10 ha in size.	N/A
Terrestrial Crayfish **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish (*Cambarus diogenes*) –	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water. • Both species are a semi- terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • SWHMiST Index #36 provides development effects and mitigation measures.	Limited potential. MAS1, SWD, and SWT Ecosites are present in the study area. None of the listed wildlife species was observed during the field surveys.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
		swamp ecosites can be used by terrestrial crayfish.				
Special Concern and Rare Wildlife Species **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10 km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g., specific nesting habitat or foraging habitat. • SWHMiST Index #37 provides development effects and mitigation measures.	Potential Habitat for Monarch exists in the roadside meadows and wetlands with flowering plants and Milkweed (*Asclepias* spp.) Confimred breeding habitat for Eastern Wood Pewee exists in the Organic Thicket Swamp (SWT3). Confirmed nesting habitat for Snapping Turtle exists in the gravel shoulders of 7th Line.	Confirmed. Monarch (Special Concern) was confirmed present in the study area during field investigations in 2018. Adults were observed feeding on wildflowers and on Milkweed. Milkweed is present in the meadows, roadsides, and wetlands the study area; therefore, the site is also suitable for supporting the larval stage of this species. Confimred breeding habitat for Eastern Wood Pewee exists in the Organic Thicket Swamp (SWT3). Confirmed nesting habitat for Snapping Turtle exists in the gravel shoulders of 7th Line.
Amphibian Movement Corridors **<u>Rationale:</u>** Movement corridors for amphibians moving from	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander	Corridors may be found in all ecosites associated with water. Corridors will be determined based on	Movement corridors between breeding habitat and summer habitat Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant	No potential. No SWH for these species is identified herein.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
their terrestrial habitat to breeding habitat can be extremely important for local populations.	Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	identifying the significant breeding habitat for these species in Table 1.1.	(Amphibian Breeding Habitat –Wetland) of this Schedule.	• Corridors should have at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat • SWHMiST Index #40 provides development effects and mitigation measures		
Deer Movement Corridors **<u>Rationale:</u>** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors, SWHMiST Index #39 provides development effects and mitigation measures.	SWH present Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF (Figure 3).	Confirmed.
6E-14 **<u>Rationale</u>:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bear	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech), Black bears require forested habitat that provides cover, winter hibernation sites, and mast- producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears	All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	No potential. The study area is not located in Ecoregion 6-14.	N/A

Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Candidate SWH Habitat in the Study Area	Confirmed SWH Habitat in the Study Area
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria		
6E- 17 **<u>Rationale</u>:** Sharp-tailed grouse only occur on Manitoulin Island in Eco- region 6E, Leks are an important habitat to maintain their population	**Lek** Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated. Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying). • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting.	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant. • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat. • SWHMiST cxlix Index #32 provides development effects and mitigation measures.	No potential. The study area is not located in Ecoregion 6-17.	N/A

BURNSIDE

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Appendix C

Species at Risk Screening Table

Appendix C: Species at Risk Screening Table

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
BIRDS									
Barn Swallow (Source: MNRF, OBBA)	*Hirundo rustica*	S4B	THR	THR	THR	1	Barn Swallows build mud nests on ledges of walls in or outside of a barn or other man-made structures, including building and bridges. Natural nesting locations include caves and cliffs, but they are now rarely used. They often nest in small colonies in areas regularly associated with other insectivores. Foraging occurs in open areas where insects are present: over water, meadows, marshes, and agricultural fields. They are most abundant south of the Canadian Shield, within agricultural lands in the Carolinian and Lake Simcoe-Rideau regions.	Appropriate aerial foraging over the open areas of the site. An anthropogenic structure in the study area outside of the ROW may be appropriate habitat for nesting Barn Swallow. Barn Swallow Nests were observed on structures within Centennial Park at 7th line and 10th Sideroad, outside of the ROW. However, permission was not obtained to search private residences. The natural areas of the site do not possess the suitable nesting habitat for this species.	Yes. Barn Swallow were observed aerial foraging over the open areas of the site, particularly close to the park. Nests were observed on structures within the park, outside of the ROW.
Canada Warbler (Source: OBBA)	*Cardellina canadensis*	S4B	SC	THR	THR	1	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	Appropriate breeding habitat exists in the swamps (SWC and SWD) and forest communities found in the study area.	No.
Chimney Swift (Source: MNRF, OBBA)	*Chaetura pelagica*	S4B,S4N	THR	THR	THR	1	Chimney Swifts have historically nested/roosted in deciduous and coniferous, typically wet, forest types, with a well-developed, dense shrub layer. Currently, most are found in anthropogenic structures, most commonly in uncapped chimneys.	No chimneys were observed in the ROW. However, permission was not obtained to search private residences. Hollow trees may be present in the extensive forested and swamp areas of the study area beyond the ROW.	No.
Common Nighthawk (Source: MNRF, OBBA)	*Chordeiles minor*	S4B	SC	SC	THR	1	Prefers open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	Grasslands and pastures which could potentially provide habitat were observed in the study area outside of the ROW. As well mixed and coniferous forest were present in the study areas.	No.

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
Eastern Wood-pewee (Source: MNRF, OBBA)	*Contopus virens*	S4B	SC	SC	SC	1	Prefers open space near the nest in the form of forest edges, clearings, roadways, and water. They do not require large areas of woods but occurs less frequently in woodlots surrounded by development than in those without.	Appropriate habitat exists at the forest edges	Yes. A singing male was recorded at the edge of the Thicket Swamp at 7th Line. This area and adjacent woodlands are suitable nesting habitat for this species and the record should be considered a likely breeding resident pair.
Olive-sided Flycatcher (Source: MNRF, OBBA)	*Contopus cooperi*	S4B	SC	SC	THR	1	Generally, prefers natural forest edges and openings adjacent to rivers or wetlands. Commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	Appropriate habitat exists at the edges of swamps and forests adjacent to marsh. White Spruce and Balsam Fir are common in the study area.	No.
Red-Headed Woodpecker (Source: MNRF, OBBA)	*Melanerpes erythrocephalus*	S4B	SC	END	THR	1	Generally, prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks.	No appropriate habitat for this species was observed in the study area.	No.
Red-Shouldered Hawk (Source: OBBA)	*Buteo lineatus*	S4B	-	NAR	SC	3	Prefers deciduous or mixed-woods forests containing shade-tolerant hardwood trees close to wetland areas.	Appropriate habitat for this species occurs in the deciduous (FOD) and mixed-wood forests (FOM) in the study area.	No.
Eastern Whip-poor-will (Source: MNRF, OBBA)	*Antrostomus vociferus*	S4B	THR	THR	THR	1	Generally, prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods near open areas.	No appropriate habitat for this species was observed in the study area.	No.
Wood Thrush (Source: MNRF, OBBA)	*Hylocichla mustelina*	S4B	SC	THR	THR	1	Mainly nests in second-growth, mature deciduous and mixed forests. The presence of tall trees and a thick understory are usually prerequisites for site occupancy.[6, 8] They prefer large forested areas, but they may also nest in small forest fragments. Nest building commonly occurs in Sugar Maples and American Beech saplings, trees or shrubs.[8] Wintering occurs in Central America, along the Atlantic and Pacific slopes.[6]	Appropriate habitat for this species is present in the FODM5-7 Dry – Fresh Sugar Maple – Black Cherry Deciduous Forest.	No.

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
INSECTS									
Monarch (Source: RJB)	*Danaus plexippus*	S2N, S4B	SC	END	SC	1	Monarchs can be found in areas that Milkweed (*Asclepius sp.*) and other wildflowers are present. This includes open spaces (fields), abandoned farmland, and roadsides. Pin-sized green eggs are laid on the underside of Milkweed species (*Asclepias spp.*), which are the primary food source of the Monarch caterpillar. Adult Monarchs migrate in late summer/early fall. Overwintering occurs along the California coast, and the Oyamel Fir Forest in central Mexico.[8]	Appropriate foraging and breeding habitat was present in the meadows, marshes, and roadsides in the study area. Milkweed species were observed in the meadows and marshes.	Yes. Monarch were observed feeding on nectar producing plants and on Milkweed plants.
MAMMALS									
Eastern Small-Footed Myotis (Source: RJB)	*Myotis leibii*	S2S3	END	-	-	-	Eastern Small-footed Myotis can be found from southern Georgian Bay to Lake Erie, and east to the Pembroke area. Record sightings also exist within the Bruce Peninsula, the Espanola area, and Lake Superior Provincial Park.[8] Roosting habitat: during the spring and summer, they will roost under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines or hollow trees. They often change their roosting locations every day.[8] Hibernacula: caves and abandoned mines that tend to be colder and drier than the hibernacula of similar bats, and they will return to the same hibernacula every year. As with Little Brown Myotis, Eastern Small-footed myotis populations have been declining rapidly due to a fungal infection (White-nose Syndrome) that affects bats while in hibernation.[8]	No appropriate hibernation or roosting habitat exists in the study area. Appropriate roosting habitat was not observed in the study area.	No.

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
Little Brown Myotis (Source: RJB)	*Myotis lucifugus*	S3	END	END	END	1	Population distribution within Canada includes the boreal forest, south of the tree line through to the U.S. border.[10] Roosting habitat: mainly considered to be a cavity-roosting species, however tree foliage and rock crevices may also be used for day and maternity roosting. Communal night roosts are used when temperatures are cool and tend to be in spaces that are warm or can be warmed by an accumulation of bats. Females prefer to roost in maternity colonies, preferring tree cavities, exfoliating bark, cracks and crevices in cliffs and small caves and crevices heated by hot springs. Temperature is the principal criterion for the selection of a maternity roost location. Maternity colonies form just after bats come out of hibernation (late April and early May) and are located within 1 kilometer of water.[10] Hibernacula: hibernation typically takes place in caves or abandoned mines with favorable temperatures and humidity conditions. Migration to hibernation sites can be up to 1,000km, and typically occurs in early September.[11] Little Brown Myotis populations in Ontario have declined dramatically in recent years due to White-nose Syndrome, a fungal infection caused by *Pseudogymnoascus destructans*, which infects bats while in hibernation.[10]	Appropriate hibernation habitat not present in the Study Area. Appropriate roosting habitat may be present in the following ecosites present in the study area: Deciduous Forests (FOD) Mixedwood Forests (FOM) Coniferous Forests (FOC) Deciduous Swamp (SWD) Coniferous Swamps (SWC)	No. However two bats were observed foraging over the ROW during amphibian surveys. Could not be identified to species.

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
Northern Myotis (Source: RJB)	*Myotis septentrionalis*	S3	END	END	END	1	Roosting habitat: males and non-breeding females roost alone or in small groups, choosing trees, caves or, less commonly in caves and other buildings. Breeding females roost in tree hollows, cavities, crevices or under loose bark of living or decaying trees, sometimes in groups of up to 60 adults. They often change roosting locations every few days. Prey mainly includes terrestrial insects, such as flies, moths, beetles, caddisflies, lacewings and leafhoppers, as well as non-flying species, such as spiders and caterpillars. They tolerate cooler conditions than the Little Brown Myotis and are therefore not usually found near that species.[10] Hibernacula: tend to enter hibernation later than other species, around late September to early November, and will emerge from hibernation sometime between March and May. They spend the summer relatively close to their hibernacula (56 km between summer and winter sites).[10] As with Little Brown Myotis, White-nose Syndrome has cause a dramatic decline in Ontario populations.[10]	Appropriate hibernation habitat not present in the Study Area. Appropriate roosting habitat may be present in the following ecosites present in the study area: Deciduous Forests (FOD) Mixedwood Forests (FOM) Coniferous Forests (FOC) Deciduous Swamp (SWD) Coniferous Swamps (SWC)	No. However two bats were observed foraging over the ROW during amphibian surveys. Could not be identified to species. .

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
Tri-colored Bat (Source: RJB)	*Perimyotis subflavus*	S3?	END	END	END	1	Roosting habitat: females roost alone or in small colonies in manmade structures or tree cavities and have been shown to exhibit fidelity to small roosting areas. Foraging typically occurs in forested riparian areas, over open water, and in relatively open areas. Studies have shown that Tri-coloured bats forage in forested areas with the greatest coverage, suggesting that they may avoid agricultural clearings, urban areas and areas where forest harvesting has occurred.[10] Hibernacula: tends to hibernate in the deepest parts of caves or abandoned mines, where temperature is least variable and humidity levels are high. They hibernate solitarily and exhibit high fidelity to hibernacula.[10]	Appropriate hibernation habitat not present in the Study Area. Appropriate roosting habitat may be present in the following ecosites present in the study area: Deciduous Forests (FOD) Mixedwood Forests (FOM) Coniferous Forests (FOC) Deciduous Swamp (SWD) Coniferous Swamps (SWC)	No. However two bats were observed foraging over the ROW during amphibian surveys. Could not be identified to species.
PLANTS									
Butternut (Source: MNRF)	*Juglans cinerea*	S3	END	END	END	1	Generally, grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows.	Appropriate habitat exists in the upland forests and cultural areas of the study area (i.e. FOD, FOM, CGL, CVR) particularly along forest edges and in hedgerows.	Yes. A total of three butternut trees were found during the tree investigation. Samples of leaves were submitted to the MNRF Ontario Forest Research Institute for the Butternut Hybridity Test. One of the 3 individuals identified as positive as a hybrid. The other 2 trees are protected under the ESA.

Common Name **(Source)	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present in Study Area?	Species Observed In Study Area During Field Surveys?
REPTILES & AMPHIBIANS									
Blanding's Turtle (Source: MNRF, ORAA)	*Emydoidea blandingii*	S3	THR	END	THR	1	Generally, occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	Appropriate habitat for this species occurs in the Wetland habitats of the PSW. However, this species is known to travel great distances (>400 m) to get to overwintering sites therefore may be observed in any of the natural areas in the study area, if present. Appropriate nesting habitat exists in the gravel shoulders of 7th line in portions adjacent to wetland communities. Appropriate overwintering habitat may be present in the dug ponds in the eastern half of the study area.	No.
Milksnake (Source: ORAA)	*Lampropeltis triangulum*	S4	-	SC	SC	1	Generally, occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields, to rocky hillsides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying.	Appropriate habitat exists throughout the study area.	No.
Midland Painted Turtle (Source: ORAA)	*Chrysemys picta* subsp. *marginata*	S4	-	SC	-	-	Inhabits waterbodies, such as ponds, marshes, lakes and slow-moving creeks, that have a soft bottom and provide abundant basking sites and aquatic vegetation. These turtles often bask on shorelines or on logs and rocks that protrude from the water. The midland painted turtle hibernates on the bottom of waterbodies.	Preferred habitat is found throughout the wetlands and watercourses in the study area. No good basking locations were observed in the study area. Appropriate nesting habitat exists in the gravel shoulders of 7th line in portions adjacent to wetland communities.	No.
Snapping Turtle (Source: ORAA)	*Chelydra serpentina*	S3	SC	SC	SC	1	Snapping turtles generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. During nesting season, females travel overland in search of suitable nesting sites.[8]	Preferred habitat is found throughout the wetlands and watercourses in the study area. Appropriate nesting habitat exists in the gravel shoulders of 7th line in portions adjacent to wetland communities.	Yes. A female Snapping Turtle was observed digging nests in the gravel shoulder of 7th line adjacent to the PSW.

** Sources: Natural Heritage Information Centre (NHIC) database searched on June 18, 2018 for squares 17PK0803, 17PK0804, 17PK0904; Correspondence with MNRF Midhurst District, (Received June 25, 2018); Ontario Reptile and Amphibian Atlas (ORAA) for squares 17PK00 and 17PK10, searched online on August 30, 2018; Ontario Breeding Bird Atlas (OBBA) 2001-2005 database for squares 17NJ08 and 17NJ09 searched online on June 18, 2018.

[1]S-Ranks (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: http://explorer.natureserve.org/nsranks.htm)

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.
SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers
B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.
N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.
M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

[2]SARO *Endangered Species Act, 2007*
(provincial status from http://www.ontario.ca/environment-and-energy/how-species-risk-are-listed#section-3)
The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.
Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.
Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.
Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

[3]SARA (Federal *Species at Risk Act*) Status and Schedule (includes COSEWIC Status)
The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

Extinct - A wildlife species that no longer exists.
Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
Endangered (END) - A wildlife species facing imminent extirpation or extinction.
Threatened (THR) - A wildlife species that is likely to become an endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

[4]SARA Schedule
Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

Sources:
[5]MNRF, 2000; McCracken, J.D. et al. 2013; Cadman, M.D., et al. 2007; Newcomb, L.. 1977; Newmaster S.G., et al. 1997; Harding, J.H., 1997; Paulson, D., 2011.; Ontario Reptile and Amphibian Atlas (ORAA) at: http://www.ontarionature.org/protect/species/reptiles_and_amphibians/index.php; Flora: http://michiganflora.net/search.aspx.; Michigan Flora http://michiganflora.net/search.aspx; Environment Canada, 2015. Recovery Strategy for Little Brown Myotis, Northern Myotis, and Tri-colored Bat in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp; Kraus, T. et al. 2010.
[6] Species at Risk Public Registry http://www.sararegistry.gc.ca
[7] Cadman, M.D., et al. (eds). 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005*. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp
[8] MNR SARO List Species Descriptions (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html)
[9] COSEWIC Species Assessment Report
[10] Government of Canada. 2015. *Proposed Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Canada.*
[11] Naughton, Donna. 2012. *The Natural History of Canadian Mammals*.

Tree Assessment Report, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

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1	May 21, 2019	Revised based on comments

R.J. Burnside & Associates Limited

Report Prepared By:



Kevin Butt, ISA Certified Arborist and Terrestrial Ecologist

Report Reviewed By:



Deanna De Forest,
B.Sc., EP, EA Coordinator
KB:slw

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Appendices

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1.0 Introduction

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

A tree assessment was conducted as part of the ecologic investigations required in support of the Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad to Yonge Street (Study Area) EA. A R.J. Burnside & Associates (Burnside), ISA Certified Arborists undertook a review of the trees within the Study Area in July and August of 2018. This investigation was completed to determine the extent of trees that may be impacted by the proposed alternative solutions.

2.0 Study Area

The Study Area includes the trees within the existing road Right-of-Way (ROW) and on lands immediately adjacent to the 7th Line from the 10th Side Road to Yonge Street.

3.0 Methodology

All trees 10 cm Diameter at Breast Height (DBH) and greater within the ROW and immediately adjacent were included in the investigation. The following data was collected for each individually assessed tree:

- Tree ID
- Species (Common Name)
- Diameter at Breast Height – DBH (cm)
- Condition (Good, Fair, Poor or Dead)
- Comments (provided as additional information)

Appendix A discusses in full detail the methodology used in assessing trees within the Study Area.

Appendix B includes Figures T-1 to T-17 of the Tree Inventory. Trees within the ROW were tagged and surveyed and are identified on the figures with black circles. Trees considered to be located beyond the ROW were mapped in the field using Global Positioning System (GPS) points and are identified on the figures with black triangles. Trees beyond the ROW are included in the investigation so that impacts to offsite trees could be considered if impacts such as grading extends to the limits of the ROW. For the purpose of the field assessment, the limits of the ROW were inferred to generally correspond with the alignment of the fence line, located adjacent to the north and south of the roadway.

Trees were grouped in locations where trees were growing very densely, and tagging and individual assessment was not reasonable. This method was used for the groupings of White Cedar (*Thuja occidentalis*) near the east limit of the Study Area, and a single hedgerow at the southwest limit of the Study Area.

A Minimum Tree Protection Zone (MTPZ) was calculated based on a tree's DBH in accordance with many of the tree protection policies used in municipalities in the Greater Toronto Area. This measurement, as opposed to the dripline (crown reserve) of the tree, is a more accurate way to determine the critical protection areas, particularly a tree's rootzone. A MTPZ is the minimum distance required to protect a tree from construction impacts that may include disturbances such as grading (cut or fill). Appendix C provides the tree assessment data, specifically the MTPZ calculation of the DBH and the required setback doubled. This total results in the diameter of a circle around the centre of the tree, identifying its protection area.

Trees data and locations were used to evaluate impacts of the proposed alternatives to the trees within the ROW and immediately offsite.

Tree assessment data in Appendix C and locations of the assessed trees within the existing ROW is provided on an air photo shown in Figures T1 to T17 (Appendix B). MTPZ's could not be clearly shown; however, the MTPZ's for each tree is provided in the data.

Appendix D provides the limitations of this tree assessment.

4.0 Existing Conditions

The Study Area is described as having trees found within a mix of vegetation communities, including hedgerows, forests, swamps, and thickets. These vegetation communities are mapped and discussed in the Terrestrial Habitat Assessment Report.

Based on the tree assessment, White Cedar is the dominant species overall in the Study Area, representing over one third of the total individually assessed trees and all of the grouped trees. Other tree species well-represented in the Study Area include Green Ash (*Fraxinus pennsylvanica*), Sugar Maple (*Acer saccharum*) and Trembling Aspen (*Populus tremuloides*).

Trees are densely clustered in the east limit of the ROW, in the area identified by local stakeholders as the 'Tunnel of Trees'. White Cedar is the main species growing within this area. Little management (i.e. tree removals and branch pruning) of trees in this area has occurred resulting in dense spacing with crowns extending across the road.

Detailed notes within the tree assessment data were not feasible for all trees investigated due to the large number of trees. Generally, light suppression is the main

factor affecting White Cedar and other trees within the Tunnel of Trees and Emerald Ash Borer is the significant factor associated with diminished Green, Black and White Ash condition.

A total of 1,348 trees, comprised of 762 surveyed trees and 586 GPS located trees, were individually inventoried and assessed within the Study Area.

4.1 Butternut

The *Endangered Species Act, 2007* (ESA) provides protection to members of threatened and endangered species (Section 9 of the ESA) and their habitats (Section 10 of the ESA).

Three Butternut trees, an endangered species, (*Juglans cinerea*) were identified within the Study Area. A Butternut Health Assessment (BHA) was completed for each tree and the data provided in a submission to the Ministry of Natural Resources and Forestry (MNRF). Their locations are generally illustrated on mapping due to sensitivity with Species at Risk (SAR) location information.

Samples of leaves from each of the three identified trees were submitted to the MNRF Ontario Forest Research Institute for the Butternut Hybridity Test. One of the three samples was identified as a hybrid Butternut, as such, there is no provincial protection of this tree. The other two trees represent Butternut and are protected under the ESA (2007). ESA matters, including permitting is now being regulated by the Ministry of Environment, Conservation and Parks (MECP).

5.0 Potential Impacts of Proposed Construction

This section outlines the potential anticipated impacts to trees associated with each proposed alternative solution.

5.1 Impacts to Trees

Trees will require removal if their locations are in conflict with proposed design elements of the alternative solutions, including road expansion, ditches or grading (cut or fill). A tree is also recommended for removal if encroachment into 25% or more of a tree's MTPZ is required.

For alternatives that do not require property acquisition, impacts to trees beyond the ROW may still occur. Disturbance extending to the limits of the ROW may result in impacts to trees beyond the ROW where rootzones may extend.

For alternatives that do require property acquisition, impacts to trees beyond the existing ROW is anticipated.

5.2 Impacts to Butternuts

Butternuts, like the other ROW trees will be impacted or removed if expansion of the road, or, if associated grading extends southward. Permitting and compensation will be required to be coordinated with the MECP if impacts within 50 metres of the tree or removal will occur.

An impact assessment will be required to evaluate for potential impacts on the trees or their general habitat (i.e., to determine if the activity would contravene Sections 9 or 10 of the ESA) if the preferred alternative is within the 50 metres protection zone around the trees.

5.3 Alternative Solutions and Potential Impacts

Do Nothing

This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

Local Traffic Only

This alternative may include the following:

- Allow access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road
- Maintain public access to Centennial Park from 10th Sideroad
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions

Anticipated impacts are not anticipated to result from any design, rather trees may be impacted during regular maintenance and slope/washout repair.

One-Way Road

This alternative may include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.

- Install appropriate signs/marking and public notice of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisition.

This alternative may result in minor impacts to trees due to repaving/rehabilitation in addition to trees that may be impacted during regular maintenance and slope/washout repair.

Widen the Road

This alternative may include the following:

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – paved shoulder and improve ditching.
- Tree clearing at east end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

It is anticipated there will be significant impacts with this alternative during the construction phase. Tree removals and impacts to adjacent vegetation communities are anticipated to accommodate alignment improvements, ditching and widening at the east limit. Minor and localized tree impacts/removals are anticipated in the west end to accommodate slope repairs and culvert replacements. Minor impacts as a result of regular maintenance is anticipated.

Dead-End Road with Turnaround

This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build cul–de–sac or hammer head turnarounds.
- Perform regular maintenance as required.

It is anticipated there will be moderate to significant impacts with the alternative solution of a dead-end road with turnaround. Significant tree impacts and removals are anticipated to accommodate alignment improvements, ditching and widening at the east limit. Minor and localized tree impacts/removals are anticipated to accommodate slope repairs and culvert replacements, and placement of cul-de-sac/hammerhead turn around.

6.0 Recommended Mitigation Guidelines

Mitigation guidelines will direct the future detailed mitigation design that will be coordinated with the selected road design and associated grading plan. These guidelines are provided to reduce impacts to trees and the remaining adjacent vegetation communities. General mitigation guidelines are provided that list the actions recommended for implementation when construction requires removal of portions of vegetation communities and tree mitigation guidelines are intended to assist with protection of trees adjacent to impact areas.

General Mitigation Guidelines:

- Mitigation must be coordinated with recommendations that are provided in the Terrestrial Habitat Assessment Report.
- It may be reasonable to adjust grading prior to construction to reduce impacts to trees by increasing the steepness of slopes in isolated locations.
- No tree removal can occur within the active window for breeding birds (broadly from end of March to end of August for most species regardless of the calendar year).
- An Environmental Inspector shall be engaged during the construction phase to review Erosion and Sediment Control (ESC) measures that will also act as tree protection measures for deficiencies. Deficiencies will be resolved immediately.
- The Environmental Inspector will also convey to the contractors that no access, storage or stockpile of materials or equipment can occur within the area protected by the ESC measures.
- An arborist should carry out or oversee the mitigation of any impacts to trees, including broken branches.
- Installation plantings of trees, shrubs and seeding as edge management plantings where new forest and wetland edges are created to reduce impacts to trees and their associated natural features will be required. These impacts include weed invasion,

drying of soils and exposure of vegetation within the ground layer and understory to increased light.

- Edge management may also require pruning or selective removal of remaining trees at edges of treed communities if the trees at the exposed edges are not suitable for retention. Trees with poor health (e.g., severe crown dieback) and/or condition (e.g., severe unsupported lean) will require removal if there is a greater risk to cause injury or property damage. Green Ash that are compromised by Emerald Ash Borer may require additional vigilance during the review of retained trees.
- Culturally significant properties and residential lands that are subject to tree removal on the adjacent ROWs may require reinstatement of native woody vegetation to compliment cultural heritage aesthetics and provide privacy.
- A landscape/streetscaping plan will need to be coordinated with the detailed design for aesthetics and compensation for removals.
- A detailed mitigation plan that uses a variety of native species suited to the varied site conditions will be required for preparation in conjunction with detailed design requiring impacts or removal of trees.

Tree Mitigation Guidelines:

- Tree protection fence (coordinated with ESC measures) should be installed at the MTPZ where it can be reasonably accommodated by the design.
- Tree groupings (e.g., clumps, rows) not assigned individual MTPZs such as the ‘Tunnel of Trees’ are recommended to have dripline (crown reserve) protection where reasonable.
- Trees to be retained beyond the limit of clearing will be protected using tree protection fence installed at the dripline or grading limit, whichever provides the greatest setback from the trees.
- An arborist is recommended to be consulted if additional removals or pruning are required once construction is underway.
- Monitoring of preserved trees throughout the construction period and before contractor demobilization is recommended to identify injuries (e.g., broken branches, exposed roots) and determine appropriate action.
- Annual monitoring of the retained trees adjacent to the impacted area to manage tree risk (i.e., fell compromised trees and prune branches).

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Tree Study Methodology

Tree Studies: Methodology

The list provided below represents all data that may be collected in the analysis of trees. Methodology descriptions should be reviewed with the column headings provided in the data. The columns represent the scope and extent of the tree assessment carried out.

Tree #: This number may be assigned by the tree assessor or predetermined by the surveyor or client. The number corresponds with the tree tag affixed to the tree, if tree tagging is part of the study's scope.

Species Name: Botanical name of the species.

Common Name: Commonly used English name.

DBH (cm): Diameter at Breast Height measured using DBH tape or tree caliper.

Crown Reserve (m): Average measurement of the diameter or width of the dripline (extent of branches from the trunk). Generally the trunk is trunk is the midpoint of this measurement. It is represented on the drawing(s) as a circle. This measurement may not be used in the subject jurisdiction.

TPZ (m): Tree protection zone required based on the required setback from the trunk, as designated by the agency (e.g. municipality). The TPZ is calculated by doubling the setback and including the trunk diameter to create a diameter of circle of protection around the tree.

HT (m): Estimated height from the base to the top of the tree.

Condition (G, F, P, D): A qualitative score of the combination of biological health and structural condition assigned as Good, Fair, Poor or Dead.

Preserve or Remove Reason: Reasons for recommended preservation or removal assigned in the tree study. Reasons for recommended removal may result from:

- Existing condition (critical deficiency such as severe crown dieback)
- Anticipated impacts of the proposed development (i.e., tree location is in conflict with construction element)
- Both existing condition and anticipated impacts

A checkmark is provided in the appropriate column.

Description of Reason: Rationale for the assignment of preservation or removal rationale based on analysis of collected data and proposed development.

Transplant Potential (G,F,P): Assignment of qualitative measure of reestablishment success of a tree when removed from its existing location and moved to another or removed and stored for replanting following construction. An assignment of Good, Fair or Poor is assigned based on a species' ability to reestablish, condition of the tree, new growing conditions, etc.

Appendix B

Figures T-1 to T-17 – Tree Inventory





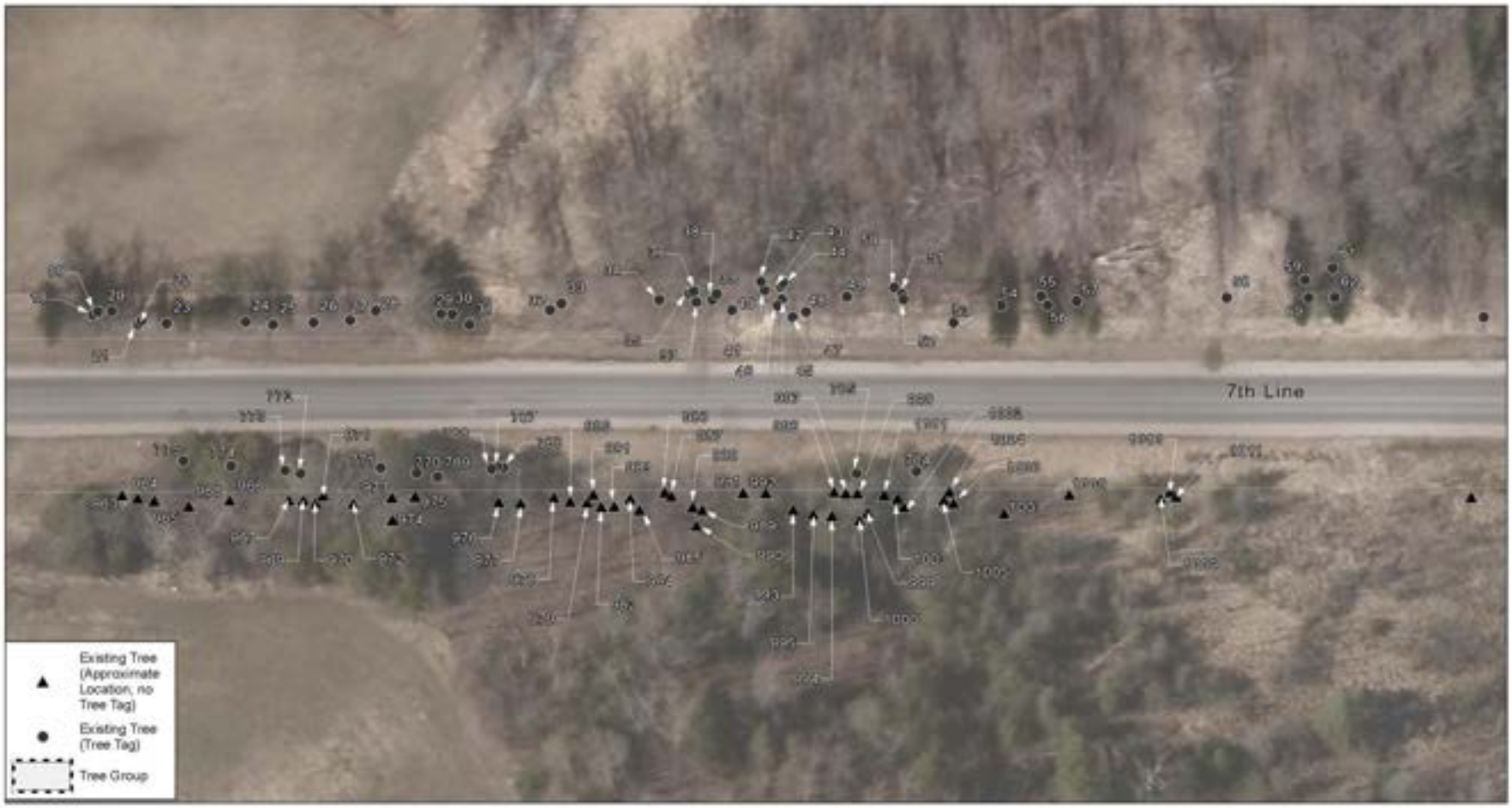
BURNSIDE

TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-1
Scale		Project No.	
H 1:500		300042232	





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-2
Scale: H 1:500		Project No.: 300042232	





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TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-3
Scale		Project No.	
H 1:500		300042232	





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Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-4
Scale: H 1:500		Project No.: 300042232	





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-5
Scale: H 1:500		Project No.: 300042232	





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-6
Scale: H 1:500		Project No.: 300042232	





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-7
Scale: H 1:500		Project No.: 300042232	





BURNSIDE

TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date
HN	KB	2019/02/11

Scale: H 1:500

Project No.: 300042232

Figure No.: T-8





BURNSIDE

TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-9
Scale		Project No.	
H 1:500		300042232	





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-10
Scale: H 1:500		Project No.: 300042232	





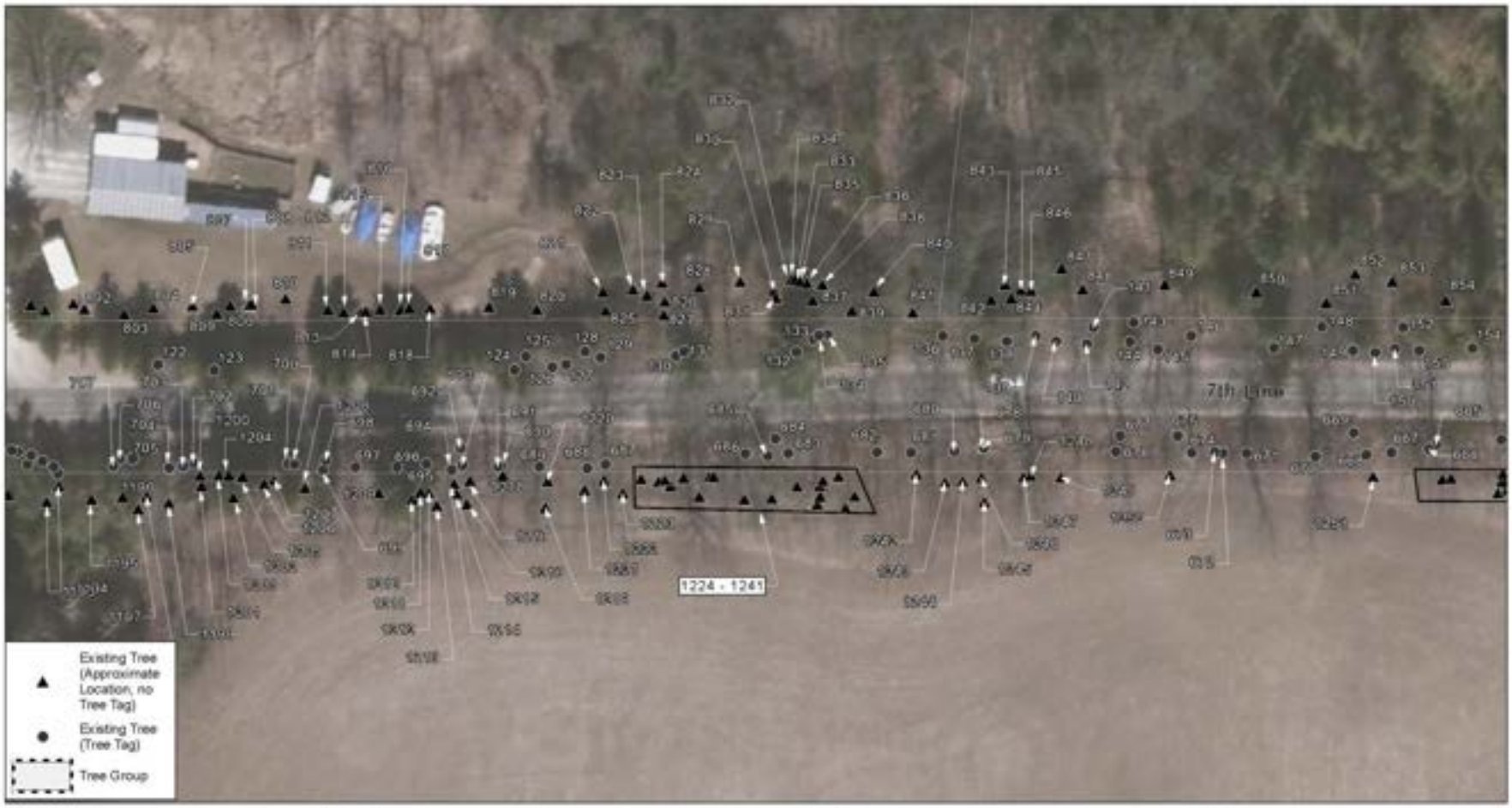
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TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-11
Scale		Project No.	
H 1:500		300042232	





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TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date
HN	KB	2019/02/11

Scale: H 1:500

Project No.: 300042232

Figure No.: T-12



BURNSIDE

TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date
HN	KB	2019/02/11

Scale: H 1:500

Project No.: 300042232

Figure No.: T-13





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-14
Scale: H 1:500		Project No.: 300042232	





BURNSIDE

TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date
HN	KB	2019/02/11

Scale: H 1:500

Project No.: 300042232

Figure No.: T-15





BURNSIDE

Client: TOWN OF INNISFIL

Figure Title: 7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-16
Scale: H 1:500		Project No.: 300042232	





BURNSIDE

TOWN OF INNISFIL

7TH LINE EA

TREE INVENTORY

Drawn	Checked	Date	Figure No.
HN	KB	2019/02/11	T-17
Scale		Project No.	
H 1:500		300042232	

Appendix C

Tree Assessment Data

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1	Green Ash	26,39	6.47	Fair	
2	Trembling Aspen	16	3.76	Fair	Leader broken off
3	Trembling Aspen	18	3.78	Good	
4	Trembling Aspen	14	3.74	Good	
5	Trembling Aspen	20	3.8	Good	
6	Trembling Aspen	20	3.8	Fair	Compartmentalized wound (minor), canopy dieback (minor)
7	Silver Maple	17	3.77	Good	
8	Trembling Aspen	12	3.72	Good	
9	Trembling Aspen	14	3.74	Fair	Lean (minor) to south
10	Silver Maple	37	5.17	Good	
11	Trembling Aspen	27	3.87	Fair	Lean to south (minor), broken scaffolding (minor)
12	Silver Maple	45	6.45	Fair	Codomonant stems at 1 m, compartmentalized wound (minor) at base, lean moderate to west
14	Silver Maple	27,14	5.1	Fair	Compartmentalized wound at base, fork at base, high crown dieback, past pruning low
15	Silver Maple	58,17	7.8	Fair	Past pruning (minor), conks indicating decay on leader
16	Sugar Maple	30	5.1	Poor	Large wound at base, sloughing bark moderate, Severe crown decay
17	Sugar Maple	29	3.89	Poor	Crown decay (severe), evidence of decay (severe)
18	Trembling Aspen	22,23	5.12	Good	
19	White Cedar	19	3.79	Good	
20	Trembling Aspen	28	3.88	Poor	Crown decay (severe)
21	Balsam Poplar	22	3.82	Good	
22	Balsam Poplar	22	3.82	Good	
23	Balsam Poplar	18	3.78	Good	
24	Basswood	25,23	5.14	Fair	Fork at base (minor)
25	Sugar Maple	44	6.44	Poor	Crown dieback (severe), broken scaffolding (severe)
26	Balsam Poplar	14	3.74	Poor	Crown dieback (severe), signs of decay moderate
27	Balsam Poplar	23	3.83	Good	
28	Balsam Poplar	26	3.86	Poor	Fork at 2 m beginning to split (severe)
29	White Spruce	23	3.83	Fair	Light suppressed (moderate)
30	Balsam Poplar	21	3.81	Fair	Crown dieback (moderate - severe)
31	White Cedar	15, 8	3.77	Good	
32	Balsam Poplar	13, 11	3.77	Fair	Fork at base
33	Balsam Poplar	26	3.86	Fair	Decay at 3m woodpecker activity moderate
34	Balsam Poplar	28, 10	5.1	Good	
35	Balsam Poplar	21	3.81	Fair	Compartmentalized wound low on trunk moderate
36	White Elm	22	3.82	Fair	Lean to south moderate
37	Balsam Poplar	21	3.81	Good	
38	Balsam Poplar	29	3.89	Poor	Large split through base of tree from zero to 2 m high

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
39	Balsam Poplar	31	5.11	Good	
40	Black Ash	28	3.88	Good	
41	Balsam Poplar	15	3.75	Good	
42	Balsam Poplar	13	3.73	Good	
43	Balsam Poplar	31	5.11	Fair	Crown dieback (minor)
44	Balsam Poplar	32	5.12	Fair	Crown dieback (moderate) to severe
45	Balsam Poplar	28	3.88	Good	
46	Balsam Poplar	25	3.85	Fair	Crown dieback (minor)
47	Black Ash	30	5.1	Good	
48	Balsam Poplar	30	5.1	Fair	Crown dieback (moderate)
49	Green Ash	13	3.73	Poor	Crown dieback (severe)
50	Balsam Poplar	18	3.78	Good	
51	Green Ash	21	3.81	Good	
52	Balsam Poplar	34, 11	5.16	Good	
53	Yellow Birch	35	5.15	Fair	Signs of decay moderate on trunk growing into fence
54	Eastern Hemlock	31	5.11	Fair	Leaf discolouration minor
55	Yellow Birch	18	3.78	Good	
56	Eastern Hemlock	18,7,12	3.83	Good	
57	Green Ash	15	3.75	Good	
58	White Elm	20	3.8	Good	
59	White Cedar	59	7.79	Fair	Evidence of decay moderate to severe
60	White Cedar	23	3.83	Fair-Poor	Decay at base moderate
61	Black Ash	19	3.79	Good	
62	Eastern Hemlock	18,13	3.82	Fair	Lean to south minor
63	Balsam Poplar	26	3.86	Good	
64	Balsam Poplar	22	3.82	Good	
65	Balsam Poplar	26	3.86	Good	
66	Basswood	49, 21, 8	7.74	Good	
67	Black Ash	24	3.84	Good	
68	White Birch	25,8,6,4	3.87	Good	
69	Balsam Poplar	31	5.11	Good	
70	Green Ash	15	3.75	Good	
71	Green Ash	34	5.14	Fair	Crown dieback (severe)
72	Balsam Poplar	18	3.78	Good	
73	White Pine	29	3.86	Poor	Evidence of trunk decay (severe), exposed roots, crown dieback (moderate), cavity prescence
74	Green Ash	55	7.75	Fair	Leader branch signs of decay moderate with open cavity
75	White Cedar	25	3.85	Fair	Minor lean south

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
76	Black Ash	15	3.75	Good	
77	Eastern Hemlock	19	3.79	Fair	Lean moderate to south with exposed roots
78	Eastern Hemlock	15	3.75	Fair	Lean to south moderate
79	White Cedar	38	5.18	Fair-Poor	Lean to south moderate, Crown dieback (severe), leader damage moderate
80	White Pine	53	7.73	Fair	
81	White Pine	26	3.86	Fair	Light suppressed (moderate)
82	White Pine	58	7.78	Good	
83	White Cedar	39	5.19	Fair	Crown dieback (moderate)
84	White Cedar	40	5.2	Good	
85	White Cedar	48	6.48	Fair	Fork at 7 m beginning to split with included bark
86	Eastern Hemlock	24	3.84	Good	
87	White Cedar	14	3.74	Good	
88	White Birch	27	3.87	Good	
89	White Pine	50	6.5	Fair	Crown dieback (moderate)
90	Eastern Hemlock	12	3.72	Fair	
91	Eastern Hemlock	20	3.8	Good	
92	White Cedar	36	5.16	Good	
93	Eastern Hemlock	18	3.78	Good	
94	Eastern Hemlock	12	3.72	Fair	
95	White Cedar	31	5.11	Poor	Significant lean to south
96	White Cedar	42	6.42	Fair	Crown dieback (moderate)
97	White Cedar	39, 33, 26	7.77	Fair	Significant lean to south, exposed roots severe
98	White Elm	22,2	3.82	Good	
99	White Willow	36,34, 13, 18 , 12, 7	7.75	Fair	Open wound at base
100	Tamarack	17	3.77	Fair	
101	Tamarack	19	3.79	Good	
102	Balsam Poplar	18	3.78	Poor	Significant decay at base, Crown dieback (moderate) to severe
103	Balsam Poplar	21	3.81	Fair	
104	Balsam Poplar	13	3.73	Fair	Leaf discolouration moderate
105	White Spruce	36	5.16	Fair	Exposed roots moderate, Crown dieback (moderate)
106	Balsam Poplar	26	3.86	Good	
107	Basswood	15, 8, 9	3.79	Good	
108	Balsam Poplar	20	3.8	Good	
109	Black Ash	10	3.7	Good	
110	Black Ash	14	3.74	Good	
111	Apple	12	3.72	Fair	

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
112	Black Ash	18	3.78	Fair	Crown dieback (minor)
113	White Birch	10, 5	3.71	Good	
114	Eastern Hemlock	22	3.82	Fair	Crown dieback (minor)
115	Manitoba Maple	19,12,9	3.84	Good	
116	Eastern Hemlock	24,18	5.1	Fair	Compartmentalized would base minor, Crown dieback (minor)
117	Eastern Hemlock	23,19	5.1	Poor	Crown dieback (severe)
118	White Spruce	26	3.86	Good	
119	White Cedar	26	3.86	Fair	Severe lean to south
120	White Cedar	10	3.7	Good	
121	White Cedar	10	3.7	Good	
122	Trembling Aspen	17	3.77	Good	
123	White Spruce	21	3.81	Good	
124	White Ash	14,18	3.83	Fair	Wound on truck moderate fork at base
125	White Spruce	21	3.81	Good	
126	White Ash	13,14,12	3.83	Good	Minor compartmentalized wound at trunk
127	White Ash	15,8	3.77	Good	
128	White Ash	22	3.82	Fair	
129	White Ash	23	3.83	Good	
130	White Ash	34	5.14	Fair	Compartmentalized wound on trunk moderate
131	White Ash	30	5.1	Good	Minor lean over road
132	Sugar Maple	25	3.85	Fair	Minor lean over road
133	White Birch	38	5.18	Good	
134	White Birch	26	3.86	Good-Fair	Compartmentalized wound on base of trunk minor
135	White Cedar	11	3.71	Poor	Crown dieback severe, light suppressed, large wound at base
136	Sugar Maple	39	5.19	Poor	Crown dieback (severe), lean over road minor
137	White Cedar	38	5.18	Good	
138	White Cedar	25,16	5.1	Good	
139	White Ash	15,12	3.79	Good	
140	White Ash	12	3.72	Good	
141	White Cedar	28	3.88	Good	Compartmentalized wound on trunk mionr, decay at base minor
142	Large-toothed Aspen	33	5.13	Good	
143	White Cedar	22	3.82	Good	
144	White Cedar	13	3.73	Poor	Lean over road moderate
145	Sugar Maple	30	5.13	Poor	Crown dieback (severe), major wound on trunk severe, nearly dead, conk growth severe
146	Sugar Maple	38	5.18	Good	
147	White Cedar	33	5.13	Good	
148	American Beech	46	6.46	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
149	White Ash	15	3.75	Good	
150	White Ash	23	3.83	Poor	Crown dieback (severe) sloughing bark moderate to high
151	White Ash	18	3.78	Fair	Crown dieback (moderate) compartmentalized wound moderate
152	White Ash	11	3.71	Good	
153	White Ash	21	3.81	Good	
154	Sugar Maple	12	3.72	Good	
155	Yellow Birch	32	5.12	Good	
156	White Spruce	17	3.77	Fair	Crown dieback (moderate), minor lean over road
157	White Ash	26	3.86	Fair	
158	White Cedar	18	3.78	Fair-Poor	Crown dieback (severe)
159	White Cedar	33	5.13	Good	
160	White Cedar	40	5.2	Good	
161	White Cedar	28	3.88	Fair	Hydro pruning moderate
162	White Cedar	36	5.16	Fair	
163	White Cedar	16	3.76	Fair	
164	Yellow Birch	38	5.18	Good	Exposed roots minor
165	White Ash	24	3.86	Fair	Lean over road moderate
166	White Cedar	19	3.79	Fair	Poor buttress development wound on trunk minor
167	White Ash	19	3.86	Fair	Wound on trunk moderate, crown dieback (moderate)
168	Yellow Birch	31	5.11	Fair	
169	White Ash	28	3.88	Good	
170	White Ash	17	3.77	Good	
172	White Ash	16,13	3.81	Fair	
173	White Ash	11	3.71	Good	
174	White Cedar	39	5.19	Fair	
175	White Ash	12	3.72	Good	
176	White Ash	25	3.85	Good	
177	White Ash	16	3.76	Fair	
178	White Ash	14	3.74	Fair	
179	White Ash	13	3.73	Fair	
180	White Ash	14	3.74	Good	
181	Sugar Maple	23	3.83	Good	
182	White Ash	11	3.71	Good	
183	White Ash	14	3.74	Good	
184	Sugar Maple	17	3.77	Good	
185	Sugar Maple	11	3.71	Good	

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
186	White Ash	19	3.79	Fair	
187	White Ash	14,10,3	3.77	Fair	Compartmentalized wound on main trunk moderate
189	Basswood	13	3.73	Good	
190	Black Ash	12	3.72	Good	
191	Black Ash	13	3.73	Good	
192	White Ash	18	3.78	Fair	
193	Sugar Maple	22	3.82	Fair	Crown dieback (severe)
194	White Cedar	34	5.14	Poor	Significant decay crown dieback significant
195	Black Ash	10	3.7	Good	
196	Black Ash	11	3.71	Fair	Crown dieback (severe)
197	White Birch	17	3.77	Good	
198	White Cedar	15	3.75	Fair	
199	White Cedar	16	3.76	Good	
200	White Cedar	17	3.77	Good	
201	White Ash	27	3.87	Good	
202	White Cedar	12	3.72	Fair	
203	White Cedar	12,5,6,4,10	3.78	Fair	
204	Black Ash	16	3.76	Good	
205	White Cedar	18	3.78	Good	
206	White Ash	22	3.82	Poor	
207	White Cedar	23	3.83	Fair	Wound on trunk minor
208	White Cedar	15	3.75	Good	
209	White Ash	21	3.81	Good	
210	White Ash	16	3.76	Fair	
211	White Ash	12	3.72	Fair	
212	White Ash	18	3.78	Fair	
213	White Cedar	28,36	6.46	Poor	Sloughing bark, crown dieback (severe)
214	White Cedar	14,23	3.87	Fair	
215	Black Ash	16	3.76	Good	
216	Trembling Aspen	26	3.86	Good	
217	Trembling Aspen	32	5.12	Good	
218	Black Ash	18	3.76	Good	
219	Sugar Maple	13	3.73	Good	
220	Sugar Maple	17	3.77	Good	
221	Trembling Aspen	17	3.77	Good	
222	White Cedar	18	3.78	Poor	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
223	White Cedar	18	3.78	Poor	
224	White Spruce	15	3.75	Fair	
225	White Cedar	11	3.71	Good	
226	White Cedar	10	3.7	Fair	
227	White Cedar	15	3.75	Good-Fair	
228	Trembling Aspen	14	3.74	Good	
229	Yellow Birch	12	3.72	Fair-Poor	
230	Trembling Aspen	18	3.78	Fair	
231	Trembling Aspen	26	3.86	Fair	
232	White Cedar	20	3.8	Fair	
233	White Elm	18	3.78	Good	
234	Trembling Aspen	12	3.72	Good	
235	White Cedar	18	3.78	Good	
236	White Cedar	17	3.77	Good-Fair	
237	Trembling Aspen	11	3.71	Good	
238	White Cedar	14,16,10	3.83	Fair	
239	White Spruce	34	5.14	Good	
240	White Ash	14	3.74	Good	
241	Trembling Aspen	15	3.75	Good	
242	Trembling Aspen	12	3.72	Good	
243	Trembling Aspen	17	3.77	Fair-Poor	
244	Basswood	28	3.88	Good	
245	White Cedar	16	3.76	Good	
246	Green Ash	13	3.73	Fair	
247	Green Ash	15	3.75	Fair	
248	Black Ash	14	3.74	Good	
249	Green Ash	11	3.71	Fair	
250	White Cedar	10,13,14	3.82	Fair-Poor	
251	White Cedar	36,26,24	6.5	Good	
252	Green Ash	11	3.71	Good	
253	White Cedar	15,16	3.82	Good	
254	White Cedar	18	3.78	Good	
255	White Cedar	14	3.74	Poor	
256	White Cedar	20	3.8	Good-Fair	
257	White Cedar	20	3.8	Good	
258	White Cedar	22,20	5.1	Good	
259	White Cedar	15,20,14	3.89	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
260	White Cedar	30,32	6.44	Good	
261	White Cedar	12,20	3.83	Good	
262	White Cedar	15,16	3.82	Good	
263	White Cedar	12	3.72	Good	
264	White Cedar	14	3.74	Good	
265	White Cedar	15	3.75	Good	
266	White Cedar	15,22	3.87	Good	
267	White Cedar	15	3.75	Fair	
268	White Cedar	15	3.75	Fair	
269	White Cedar	18,15	3.83	Fair	
270	White Cedar	18,12,17	3.88	Good	
271	White Cedar	18	3.78	Good	
272	White Cedar	10	3.7	Fair	
273	White Cedar	10	3.7	Good	
274	White Cedar	20,17	3.86	Fair	
275	White Cedar	14	3.74	Fair	
276	White Cedar	26	3.86	Fair	
277	White Cedar	24	3.84	Fair	
278	White Cedar	15,18,20	5.11	Fair	
279	White Cedar	18,20	3.87	Good	
280	White Cedar	15,14	3.81	Good-Fair	
281	White Cedar	22	3.82	Good-Fair	
282	White Cedar	25	3.85	Good-Fair	
283	White Cedar	18,16,15,16, 22,20,17	6.47	Fair	
284	White Cedar	25	3.85	Fair	
285	Green Ash	12	3.72	Good-Fair	
286	Green Ash	10	3.7	Good-Fair	
287	White Cedar	28	3.88	Fair	
288	White Cedar	14,6	3.75	Fair	
289	White Cedar	12,18,22,17	5.15	Good	
290	White Cedar	16	3.76	Fair	
291	White Cedar	15	3.75	Fair	
292	Black Ash	12	3.72	Fair	
293	White Cedar	16	3.76	Fair	
294	Balsam Poplar	46	6.46	Fair	
295	White Cedar	16	3.76	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
296	White Cedar	22	3.82	Good	
297	White Cedar	12	3.72	Fair	
298	White Cedar	12	3.72	Good	
299	White Cedar	16	3.76	Good	
300	White Cedar	10	3.7	Good-Fair	
301	Tamarack	14	3.74	Fair	
302	Green Ash	13	3.73	Good	
303	Green Ash	12	3.72	Good	
304	Green Ash	10	3.7	Good	
305	Green Ash	10	3.7	Good-Fair	
307	White Cedar	16	3.76	Good	
308	White Cedar	14	3.74	Good-Fair	
309	White Cedar	6,9,7,14,16	3.85	Poor	
310	Apple	10	3.7	Good-Fair	
311	White Cedar	32,11,12, 6,12,14	5.2	Fair	
312	White Cedar	16	3.76	Fair	
313	White Cedar	19	3.79	Good	
314	White Cedar	16	3.76	Good	
315	Green Ash	14	3.74	Poor	
316	Black Cherry	19	3.79	Poor	
317	White Cedar	16	3.76	Fair	
318	White Cedar	16	3.76	Fair	
319	Apple	25	3.85	Fair	
320	White Cedar	14	3.74	Good	
321	White Cedar	19	3.79	Good	
322	White Cedar	14,15,16,17	5.11	Good	
323	White Cedar	15,9	3.77	Good	
324	White Cedar	11	3.71	Good	
325	White Cedar	21,18	3.88	Good	
326	White Cedar	16	3.76	Fair	
327	Green Ash	10	3.7	Fair	
328	White Cedar	19	3.79	Fair	
329	White Cedar	13	3.73	Fair	
330	White Cedar	27,17	5.12	Fair	
331	Green Ash	20	3.8	Good-Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
332	White Cedar	29	3.89	Good	
333	Green Ash	8,12	3.74	Fair-Poor	
334	White Cedar	12	3.72	Good	
335	White Cedar	12	3.72	Fair	
336	White Cedar	10	3.7	Fair	
337	White Cedar	12	3.72	Good	
338	White Birch	27,26	5.17	Good	
339	White Birch	28	3.88	Good	
340	White Cedar	19	3.79	Good	
341	White Birch	32	5.12	Good	
342	White Cedar	21,19	3.88	Good	
343	White Cedar	15	3.75	Good	
344	White Cedar	17	3.77	Fair-Poor	
345	White Cedar	10,14	3.77	Good-Fair	
346	White Birch	42	6.42	Fair-Poor	
347	Green Ash	12	3.72	Fair	
348	White Cedar	14	3.74	Fair-Poor	
349	White Cedar	16	3.76	Fair-Poor	
350	White Cedar	12	3.72	Fair-Poor	
351	White Cedar	14	3.74	Fair	
352	White Cedar	11,11,14	3.81	Good-Fair	
353	White Cedar	12,13	3.78	Fair	
354	White Cedar	10	3.7	Fair	
355	White Cedar	13	3.73	Good	
356	White Birch	28	3.88	Fair	
357	White Cedar	13	3.73	Poor	
358	White Cedar	19	3.79	Good-Fair	
360	Green Ash	28	3.88	Poor	
361	White Cedar	16	3.76	Poor	
362	White Cedar	16	3.76	Fair-Poor	
363	White Cedar	14	3.74	Good	
364	White Cedar	13	3.73	Fair-Poor	
365	White Cedar	13,11,4	3.77	Fair	
366	White Cedar	20	3.8	Good-Fair	
367	White Cedar	36	5.16	Good	
368	White Cedar	19	3.79	Good-Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
369	Green Ash	10	3.7	Poor	
370	White Cedar	11,6	3.73	Poor	
371	Green Ash	14	3.74	Fair-Poor	
372	White Cedar	14	3.74	Good	
373	White Cedar	14,17	3.82	Good-Fair	
374	White Cedar	17	3.77	Fair	
375	White Cedar	17,18	3.85	Fair	
376	White Cedar	17	3.77	Fair	
377	White Cedar	17	3.77	Fair	
378	Eastern Hemlock	21,10	3.83	Fair-Poor	
379	White Cedar	28,30,16	6.44	Good-Fair	
380	White Cedar	20	3.8	Good-Fair	
381	White Cedar	52,48	10.31	Fair	
382	White Cedar	18,22	3.88	Fair	
383	White Cedar	17	3.77	Good	
384	White Cedar	16,21,15	5.1	Poor	
385	Green Ash	43	6.43	Fair	
386	Green Ash	54	7.74	Poor	
387	White Cedar	14	3.74	Fair	
388	White Cedar	19	3.79	Poor	
389	White Cedar	18,10,13,15	3.89	Fair	
390	White Cedar	22	3.82	Fair-poor	
391	White Cedar	11,16	3.79	Fair	
392	White Cedar	11,7,16	3.81	Fair	
393	White Cedar	16	3.76	Fair	
395	White Cedar	16	3.76	Fair	
396	White Cedar	18	3.78	Fair	
397	White Cedar	14	3.74	Fair	
398	White Cedar	18,17	3.85	Fair	
399	White Cedar	16	3.76	Fair	
400	White Cedar	16	3.76	Fair	
401	White Cedar	15	3.75	Fair	
402	White Cedar	19	3.79	Fair	
403	White Cedar	14	3.74	Fair	
404	White Cedar	14	3.74	Fair	
405	White Cedar	22	3.82	Good	
406	White Pine	52	7.72	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
407	White Cedar	14	3.74	Fair	
408	White Cedar	16,16	3.83	Fair	
409	White Cedar	19,6,12,10,6, 5,12,15,14	5.16	Fair-Poor	
410	White Cedar	16	3.76	Good	
411	White Cedar	15	3.75	Good-Fair	
412	White Cedar	18	3.78	Fair	
413	White Cedar	48	6.48	Fair	
414	White Cedar	19	3.79	Poor	
415	White Cedar	48,16	6.5	Fair	
416	Green Ash	12	3.72	Fair	
417	White Cedar	40,28,23,23	7.79	Fair-Poor	
418	White Cedar	18	3.78	Fair-Poor	
419	White Cedar	20	3.8	Fair	
420	White Cedar	28,24	5.17	Fair	
421	White Cedar	10,12	3.76	Fair	
422	White Cedar	16	3.76	Fair	
423	White Cedar	17,19	3.86	Fair	
424	White Cedar	14	3.74	Fair	
425	White Cedar	39,26	6.47	Fair	
426	White Cedar	22	3.82	Fair	
427	White Cedar	25	3.85	Fair	
428	White Cedar	28	3.88	Fair	
429	Apple	28	3.88	Good	
430	Willow sp.	43	6.43	Good	
431	Willow sp.	46	6.46	Fair	
432	Balsam Poplar	22	3.82	Good	
433	Balsam Poplar	27	3.87	Good	
434	Green Ash	11	3.71	Poor	Crown dieback (severe)
435	Green Ash	23	3.83	Poor	
436	Green Ash	13	3.73	Poor	
437	Balsam Poplar	31	5.11	Fair	
438	White Cedar	33, 28	6.43	Good	
439	White Cedar	21, 21, 22, 18, 21	6.46	Good	
440	Green Ash	16	3.76	Fair	
441	White Cedar	32	5.12	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
442	White Cedar	34	5.14	Fair	
443	White Cedar	16	3.76	Fair	
444	White Cedar	27	3.87	Fair	
445	White Cedar	39	5.19	Fair-Poor	
446	White Cedar	18	3.78	Fair	
447	White Cedar	33,26	6.42	Good	
448	White Cedar	32,25	6.41	Good	
449	White Cedar	30	5.1	Fair	
450	White Cedar	33	5.13	Good	
451	White Cedar	33	5.13	Fair	
452	White Cedar	27	3.87	Good	
453	White Cedar	27	3.87	Good	
454	White Cedar	28	3.88	Good	
455	White Cedar	21, 20, 19	5.15	Good	
456	White Cedar	30	5.1	Good	
457	White Cedar	23	3.83	Fair	
458	White Cedar	28	3.88	Good	
460	White Cedar	36	5.16	Good	
461	White Cedar	38	5.18	Fair	
462	White Cedar	20, 20	3.88	Fair	
463	White Cedar	25	3.85	Good	
464	White Cedar	26	3.86	Good	
465	White Cedar	31	5.11	Good	
466	White Cedar	31, 21	5.17	Good	
467	White Cedar	42	6.42	Fair	
468	White Cedar	28	3.88	Fair	
469	White Cedar	25	3.85	Good	
470	White Cedar	29	3.89	Good	
471	White Cedar	31	5.11	Good	
472	White Cedar	33	5.13	Fair	
473	Sugar Maple	72	10.32	Poor	Leader broken, severe girdling
474	White Cedar	35	5.15	Good	
475	White Cedar	21	3.81	Good	
476	White Cedar	28	3.88	Fair	Lean over road moderate
477	White Cedar	31, 40	7.71	Good	
478	White Cedar	35, 35	6.5	Good	
479	White Cedar	22,24,10	5.14	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
480	White Cedar	19, 21,23	5.16	Fair	
481	White Cedar	33,31, 31	7.75	Good	
482	White Cedar	37,11,19	6.43	Good	
483	White Cedar	26, 30	5.2	Good	
484	White Cedar	21	3.81	Fair	
485	Smooth Serviceberry	25	3.85	Fair	
486	Smooth Serviceberry	13	3.73	Fair	
487	Smooth Serviceberry	16	3.76	Good	
488	White Cedar	30	5.1	Good	
489	White Cedar	33, 26	6.42	Good	
490	White Cedar	32	5.12	Good	
491	White Cedar	18	3.78	Good	
492	White Cedar	14	3.74	Good	
493	White Cedar	24, 16	3.89	Good	
494	White Pine	22	3.82	Fair-Poor	
495	White Cedar	31,30,28,31	7.8	Fair	
496	White Cedar	21	3.81	Good	
497	White Cedar	17	3.77	Fair-Poor	
498	White Cedar	29	3.89	Good	
499	White Cedar	16	3.76	Good	
502	White Cedar	33,38	6.5	Fair	
503	White Cedar	34,30	6.45	Good	
504	Black Cherry	31	5.11	Good	
505	White Cedar	39,14,23	6.47	Fair	
506	White Cedar	27	3.87	Good	
507	White Cedar	27	3.87	Good	
508	White Cedar	19	3.79	Fair	
509	White Cedar	13,13,	3.78	Fair	
510	White Cedar	19	3.79	Good	
511	White Cedar	28	3.88	Good	
512	White Cedar	33,21,20	6.44	Fair	
513	White Cedar	20	3.8	Good	
514	Green Ash	51	7.71	Fair	
515	White Cedar	23	3.83	Fair	
516	White Cedar	21	3.81	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
517	White Cedar	21, 19	3.88	Fair	
518	White Cedar	21,26	5.13	Good	
519	White Cedar	29	3.89	Good	
520	White Cedar	25	3.85	Good	
521	White Cedar	24	3.84	Good	
522	Black Cherry	45	6.45	Good	
523	White Cedar	45	6.45	Fair	
524	Green Ash	16	3.76	Good	
525	White Cedar	45, 39	7.8	Fair	
526	White Cedar	42	6.42	Fair	
527	Sugar Maple	82	11.62	Good	
528	White Cedar	27	3.87	Good	
529	White Cedar	12	3.72	Good	
530	White Cedar	22	3.82	Good	
531	White Cedar	42,47,16	9.05	Good	
532	White Cedar	33	5.13	Fair	
533	White Cedar	14	3.74	Good	
534	White Cedar	23	3.83	Fair	
535	White Cedar	35	5.15	Good	
536	White Cedar	23	3.83	Fair-Poor	
537	White Ash	14	3.74	Fair	
538	White Cedar	45	6.45	Good	
539	White Cedar	58,14,15	9.02	Good	
540	Green Ash	27	3.87	Fair	
541	Green Ash	12,18	3.82	Poor	
542	Carolina Poplar	31	5.11	Fair	
543	White Cedar	25	3.85	Good	
544	White Birch	22	3.82	Fair	
545	White Birch	18	3.78	Fair	
546	Green Ash	21	3.81	Fair	
547	White Birch	33	5.13	Good	
548	White Birch	24	3.84	Fair	
549	White Birch	24	3.84	Good	
550	White Cedar	23,26,20, 18,16	6.47	Good	
551	White Birch	35	5.15	Good	
552	Black Cherry	40	5.2	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
553	White Birch	20	3.8	Good	
554	White Birch	29	3.89	Good-Fair	
557	White Birch	30	5.1	Good	
558	White Cedar	29,28,19, 24,16	7.73	Good	
559	White Cedar	15,12,10,7	3.83	Good	
560	White Cedar	26,20,7, 19,13,16	6.44	Good	
561	White Cedar	24,24,23, 21,21	7.71	Good	
562	White Cedar	16,12	3.8	Good	
563	White Cedar	21,8	3.82	Good	
564	White Birch	36	5.16	Good	
565	White Cedar	49	6.49	Good	
566	White Birch	12	3.72	Good	
567	White Cedar	20, 20	3.88	Good	
568	Green Ash	25	3.85	Poor	
569	White Cedar	25,16	5.1	Good	
570	White Cedar	20	3.8	Fair	
571	White Cedar	18,14,17	3.88	Good	
572	Green Ash	47	6.47	Fair	
573	Green Ash	36	5.16	Fair	
574	White Cedar	21	3.81	Good	
575	White Cedar	23	3.83	Good	
576	White Cedar	16,13	3.81	Good	
577	White Cedar	24	3.84	Good	
578	White Cedar	28	3.88	Good	
579	Trembling Aspen	23	3.83	Good	
580	Green Ash	24	3.84	Fair	
581	Trembling Aspen	25	3.85	Fair	
582	White Cedar	19	3.79	Good	
583	White Cedar	34	5.14	Good	
584	Green Ash	29	3.89	Poor	
585	Black Cherry	26,27,27,25	5.15	Good	
586	White Cedar	34	5.14	Good	
587	White Birch	25	3.85	Fair	
588	White Birch	16,23	3.88	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
589	Trembling Aspen	29,27,18	6.44	Good	
590	Trembling Aspen	18,19	3.86	Good	
591	Trembling Aspen	32, 23	5.19	Fair	
592	Green Ash	36	5.16	Fair	
593	Green Ash	21	3.81	Fair	
594	White Cedar	16	3.76	Good	
595	White Cedar	12,12	3.77	Good	
596	Green Ash	45	6.45	Good	
597	White Cedar	15	3.75	Good	
598	Green Ash	21,22,31,30	7.73	Poor	Crown dieback (severe)
599	Green Ash	14,15	3.81	Poor	
600	Green Ash	34,36	6.5	Poor	
601	Green Ash	36	5.16	Fair	
604	Sugar Maple	20	3.8	Good	
605	White Birch	18	3.78	Good	
606	Large-toothed Aspen	34	5.14	Good	
607	Large-toothed Aspen	32	5.12	Good	
608	Large-toothed Aspen	27	3.87	Good	
609	Large-toothed Aspen	31	5.11	Good	
610	Large-toothed Aspen	28	3.88	Good	
611	Green Ash	10	3.7	Fair	
612	Green Ash	13	3.73	Fair	
613	Green Ash	12	3.72	Good	
614	White Birch	31	5.11	Fair	
615	White Birch	33	5.13	Good	
616	White Birch	30	5.1	Fair	
617	White Birch	25	3.85	Good	
618	White Cedar	16,12	3.8	Good	
619	Black Ash	23	3.83	Fair	
620	White Cedar	23	3.83	Fair	
621	White Cedar	18,30,26	6.44	Fair	
622	Green Ash	19	3.79	Poor	
623	White Cedar	24	3.84	Poor	
624	Black Ash	19	3.79	Poor	
625	White Cedar	30	5.1	Fair	
626	White Cedar	32	5.12	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
627	White Cedar	25	3.85	Poor	
628	White Birch	51, 15,15, 19,12	16.38	Fair	
629	White Cedar	18	3.78	Fair	
630	Green Ash	11	3.71	Poor	
631	White Cedar	15,20	3.85	Fair	
632	White Birch	16	3.76	Good	
633	White Cedar	19,16,28,7	5.18	Good	
634	Green Ash	12,14	3.78	Poor	
635	Green Ash	9,10	3.73	Poor	
636	Green Ash	36	5.16	Poor	
637	Sugar Maple	14	3.74	Good	
638	Sugar Maple	14	3.74	Good	
639	Sugar Maple	10,11,13, 16,18	5.11	Good	
640	Green Ash	24	3.84	Poor	
641	Green Ash	16,18	3.84	Poor	
642	Green Ash	22	3.82	Poor	
645	Green Ash	45	6.45	Good	
646	Sugar Maple	30	5.1	Good	
647	Green Ash	36	5.16	Fair	
648	Sugar Maple	14	3.74	Good	
649	Sugar Maple	38	5.18	Good	
650	Sugar Maple	11	3.71	Good	
651	Sugar Maple	14	3.74	Good	
652	Sugar Maple	102	13.26	Good	
653	Sugar Maple	43	6.43	Good	
654	Sugar Maple	82, 8,4,16	11.64	Good	
655	Green Ash	8,19	3.81	Fair	
656	Sugar Maple	18	3.78	Good	
657	Sugar Maple	15	3.75	Good	
658	Basswood	34,37	6.5	Good	
659	Sugar Maple	23,26	5.15	Good	
660	Sugar Maple	4,2,14	3.75	Good	
661	Sugar Maple	53,22	7.77	Good	
662	Sugar Maple	50	6.5	Fair	Trunk structure good, deadwood to be pruned, 1 stem structure poor
663	Sugar Maple	55	7.75	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
664	Sugar Maple	20,6	3.81	Good	
665	Sugar Maple	97	12.97	Fair	Deadwood structure poor
666	Basswood	36,42	7.75	Good	
667	Sugar Maple	16,15,9	3.84	Good	
668	Green Ash	15	3.75	Good	
669	White Ash	14	3.74	Fair	
670	Sugar Maple	97	12.97	Good	
671	Sugar Maple	89	11.69	Good	
672	Black Cherry	11	3.71	Good	
673	Sugar Maple	16	3.76	Good	
674	White Birch	47	6.47	Fair	
675	Green Ash	16,7	3.77	Fair	
676	Basswood	38,22,18, 32,17	7.8	Fair	
677	Green Ash	12,11	3.76	Good	
678	Green Ash	22	3.82	Good	
679	Green Ash	19	3.79	Good	
680	Black Cherry	11	3.71	Fair	
681	Sugar Maple	14	3.74	Good	
682	Green Ash	49	6.49	Good	
683	Sugar Maple	24	3.84	Good	
684	Basswood	11	3.71	Fair	
685	White Cedar	27	3.87	Poor	
686	Black Cherry	48	6.48	Fair	
687	Sugar Maple	40,34	7.73	Good	
688	Black Cherry	70	9.1	Fair	
689	Sugar Maple	56	7.76	Good	
690	Silver Maple	38	5.18	Fair-Poor	
691	Silver Maple	11	3.71	Good	
692	Large-toothed Aspen	10	3.7	Good	
693	White Ash	10	3.7	Good	
694	Sugar Maple	24	3.84	Fair	
695	Sugar Maple	10	3.7	Fair	
696	Eastern Hemlock	65	9.05	Fair	
697	White Birch	40,17,8	6.44	Good	
698	Sugar Maple	11	3.71	Fair	
699	White Cedar	36	5.16	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
700	White Spruce	21	3.81	Fair	
701	White Spruce	12	3.72	Fair	
702	American Beech	31	5.11	Fair	
703	White Birch	27,23,26	6.44	Good	
704	Basswood	48	6.48	Good	
705	Sugar Maple	19	3.79	Good	
706	Eastern Hemlock	10	3.7	Fair	
707	Eastern Hemlock	18	3.78	Fair	
708	White Cedar	38	5.18	Poor	
709	White Ash	14	3.74	Fair	
710	Eastern Hemlock	13	3.73	Fair	
711	Large-toothed Aspen	10	3.7	Fair	
712	White Cedar	26	3.86	Fair	
713	Large-toothed Aspen	10	3.7	Good	
714	Large-toothed Aspen	19	3.79	Good	
715	White Cedar	36	5.16	Good	
716	White Spruce	39	5.19	Fair	
717	Eastern Hemlock	11	3.71	Fair	
718	Eastern Hemlock	19	3.79	Fair	
719	White Cedar	23	3.83	Good	
720	White Cedar	24	3.84	Good	
721	White Cedar	20	3.8	Good	
722	White Cedar	33	5.13	Good	
723	Trembling Aspen	28	3.88	Fair	
724	White Spruce	31	5.11	Fair	
725	Eastern Hemlock	17	3.77	Fair	
726	White Spruce	40	5.2	Fair	
727	Green Ash	11,12,6	3.77	Good	
728	White Ash	20	3.8	Fair	
729	Balsam Poplar	32	5.12	Fair	
730	Basswood	12,10,11,10, 8,8,7,6,2	3.86	Good	
731	Trembling Aspen	22	3.82	Good	
732	Trembling Aspen	22	3.82	Good	
733	Trembling Aspen	28	3.88	Good	
734	Trembling Aspen	32	5.12	Good	
735	Basswood	26,24,25,20	6.48	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
736	White Elm	58	7.78	Good	
737	Basswood	23,19,6	5.1	Fair	
738	Balsam Poplar	27	3.87	Fair	
739	Balsam Poplar	12	3.72	Fair	
740	White Birch	19	3.79	Fair	
741	Trembling Aspen	26	3.86	Good	
742	Trembling Aspen	16	3.76	Fair	
743	Trembling Aspen	11	3.71	Good	
744	Silver Maple	23,2,2	3.83	Fair	
745	Tamarack	49	6.49	Good	
746	Black Ash	23	3.83	Good	
747	Silver Maple	17, 16,10, 12,8,6	5.1	Poor	
748	White Cedar	52	7.72	Good	
749	White Birch	23	3.83	Good	
750	White Birch	11	3.71	Fair	
751	White Cedar	39,41	7.77	Fair	
752	White Birch	16	3.76	Fair	
753	Silver Maple	17,8,4	3.79	Fair	
754	Silver Maple	13,12,9,1	3.8	Fair	
755	Silver Maple	15,2,3,4	3.76	Fair	
756	Silver Maple	15,8	3.77	Fair	
757	Balsam Poplar	21	3.81	Good	
758	Balsam Poplar	36	5.16	Good	
759	Balsam Poplar	18	3.78	Fair	
760	Silver Maple	16	3.76	Good	
761	Silver Maple	27,19,18, 13,7,6	5.2	Good	
762	Silver Maple	56	7.76	Good	
763	White Spruce	17,14,8	3.83	Good	
764	White Cedar	40	5.2	Fair	
765	White Cedar	14	3.74	Good	
766	White Cedar	15	3.75	Good	
767	White Cedar	14	3.74	Good	
768	White Cedar	11	3.71	Good	
769	White Cedar	29,37,17	6.5	Fair	
770	White Cedar	37	5.17	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
771	White Cedar	40	5.2	Good	
772	White Cedar	27	3.87	Good	
773	White Cedar	29,28	5.2	Fair	
774	White Cedar	44,56,21, 23,14,48	12.92	Fair	
775	White Cedar	47	6.47	Fair	
776	Sugar Maple	73	10.33	Good-Fair	
779	Apple	45,18,29	7.76	Fair	
780	White Cedar	19	3.79	Fair	
781	Black Ash	33	5.13	Good	
782	White Cedar	18	3.78	Fair	
783	White Cedar	14	3.74	Good	
784	White Cedar	19,10	3.81	Fair	
785	White Birch	13	3.73	Poor	Large wound at base, evidence of decay moderate to severe
786	White Cedar	19	3.79	Good	
787	White Spruce	21	3.81	Fair	
788	White Ash	13	3.73	Good	
789	Large-toothed Aspen	26,31	5.2	Good	Fork at base
790	White Cedar	11	3.71	Fair	Leader broken at top severe
791	White Ash	13	3.73	Good	
792	White Cedar	10	3.7	Poor	Major wound at base
793	Large-toothed Aspen	75	10.35	Good	
794	White Cedar	14	3.74	Good	
795	White Cedar	15	3.75	Fair	
796	Large-toothed Aspen	29,23	5.17	Good	
797	White Pine	57	7.77	Fair	
798	Large-toothed Aspen	10	3.7	Good	
799	White Ash	37,35,36,37	10.33	Fair	
800	Red-cedar	15	3.75	Fair	
801	White Spruce	31	5.11	Good	
802	Rock Elm	12	3.72	Good	
803	White Spruce	15	3.75	Good	
804	White Spruce	23	3.83	Good	
805	Trembling Aspen	12	3.71	Good	
806	White Spruce	24	3.84	Good	
807	Trembling Aspen	11	3.71	Good	
808	White Pine	15	3.75	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
809	Balsam Poplar	21	3.81	Good	
810	Trembling Aspen	19	3.79	Good	
811	White Spruce	28	3.88	Good	
812	White Spruce	25,21,10	5.14	Good	
813	White Spruce	28	3.88	Poor	
814	White Spruce	33	5.13	Fair	Crown dieback low
815	White Spruce	15	3.75	Good	
816	White Spruce	15	3.75	Good	
817	White Spruce	10	3.7	Good	
818	White Spruce	24	3.84	Fair	
819	Balsam Poplar	11	3.71	Good	
820	White Ash	19	3.79	Good	
821	White Ash	22,17	3.88	Fair	Crown dieback low
822	Yellow Birch	16,23	3.88	Poor	Main leader dead with heavy decay,second leader fair condition
823	White Ash	26	3.86	Good	
824	White Pine	58	7.78	Good	
825	White Ash	16	3.76	Fair	
826	Yellow Birch	36,22,8	6.43	Good	
827	Balsam Poplar	31	5.11	Good	
828	Sugar Maple	16	3.76	Fair	Large compartmentalized trunk wound, Crown dieback (moderate)
829	White Pine	61	9.01	Good	
830	Eastern Hemlock	22	3.82	Fair	
831	Eastern Hemlock	33	5.13	Good	
832	Eastern Hemlock	28	3.88	Good	
833	White Birch	24	3.84	Fair-Poor	
834	Sugar Maple	40	5.2	Good	
835	Sugar Maple	48	6.48	Good	
836	Sugar Maple	19	3.79	Good	Tree leaning against trunk
837	Eastern Hemlock	40	5.2	Fair	
838	Eastern Hemlock	13	3.73	Good	
839	Sugar Maple	46	6.46	Good	
840	Basswood	39	5.19	Good	Decay at base minor
841	Sugar Maple	48	6.48	Good	
842	White Cedar	18	3.78	Good	
843	Eastern Hemlock	25	3.87	Good	
844	Eastern Hemlock	27	3.87	Fair	Light suppressed (low)
845	Sugar Maple	54	7.74	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
846	Sugar Maple	26	3.86	Good	
847	Sugar Maple	57	7.77	Good	
848	Sugar Maple	24	3.84	Good	
849	Sugar Maple	19	3.79	Good	
850	Eastern Hemlock	34,10	5.15	Fair	Leaf discolouration high, crown dieback (moderate)
851	Eastern Hemlock	15	3.75	Good	Light suppressed (minor)
852	Eastern Hemlock	37	5.17	Fair	Light suppressed (moderate)
853	Sugar Maple	43	6.43	Poor	Crown dieback (severe), two dead leaders
854	Eastern Hemlock	24	3.84	Poor	Crown dieback (severe)
855	Black Ash	24	3.84	Good	
856	Sugar Maple	21	3.81	Good	
857	Eastern Hemlock	16	3.76	Poor	Crown dieback (severe)
858	Eastern Hemlock	15	3.75	Poor	Crown dieback (severe)
859	White Ash	17	3.77	Good	
860	White Cedar	13	3.73	Fair	
861	Sugar Maple	17	3.77	Fair	
862	White Ash	24	3.84	Good	
863	Sugar Maple	71	10.31	Good	
864	White Cedar	14	3.74	Fair	Light suppressed (moderate)
865	White Ash	18	3.78	Good	
866	Sugar Maple	21	3.81	Good	
867	Sugar Maple	20	3.8	Good	
868	White Ash	28	3.88	Good	
869	Eastern Hemlock	38	5.18	Fair	Crown dieback (moderate)
870	Sugar Maple	19	3.79	Fair	Crown dieback (severe)
871	Black Cherry	13	3.73	Fair	
872	Yellow Birch	39	5.19	Fair	Roots exposed lean to east moderate
873	Sugar Maple	43	6.43	Good	
874	White Cedar	13	3.73	Good	Light suppressed (low)
875	Eastern Hemlock	14	3.74	Fair	Wound on trunk moderate
876	White Ash	26	3.86	Good	
877	Sugar Maple	18	3.78	Good	
878	Sugar Maple	16	3.76	Good	
879	White Ash	22	3.82	Good	
880	White Pine	71	10.31	Good	
881	White Ash	17	3.77	Good	
882	White Cedar	36	5.16	Fair-Poor	Compartmentalized wound moderate lean to SE moderate

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
883	White Pine	39	5.19	Good	
884	White Ash	20	3.8	Fair	
885	White Ash	27	3.87	Poor	Significant decay at large wound on trunk
886	White Ash	18	3.78	Good	
887	Basswood	19	3.79	Good	
888	White Pine	39,29	6.49	Fair-Poor	Smaller stem is dead fork at 1 metre
889	White Ash	21	3.81	Fair	
890	White Cedar	36	5.16	Poor	Significant lean to east emerging roots high large wound on front
891	Black Ash	10	3.7	Good	
892	Black Ash	15	3.75	Good	
893	White Birch	15	3.75	Good	
894	Black Ash	10	3.7	Good	
895	Black Ash	10	3.7	Good	
896	White Cedar	12,10,8, 5,5,2	3.79	Good	
897	Sugar Maple	23	3.83	Good	
898	White Ash	24	3.84	Fair	Crown dieback (severe)
899	White Ash	18	3.78	Fair	
900	Sugar Maple	24	3.84	Good	
901	Green Ash	15	3.75	Good	
902	White Cedar	20,21,6	5.1	Fair	
903	White Cedar	18	3.78	Good-Fair	
904	White Cedar	12,16	3.8	Good	
905	White Cedar	16	3.76	Good	
906	Trembling Aspen	22	3.82	Good	
907	Green Ash	26	3.86	Fair	
908	Green Ash	21	3.81	Good	
909	White Cedar	12,14	3.78	Fair	
910	Trembling Aspen	28	3.88	Good	
911	White Cedar	16	3.76	Fair	
912	White Cedar	22	3.82	Good-Fair	
913	White Cedar	20,18,16	5.11	Good-Fair	
914	White Birch	18	3.78	Poor	
915	White Cedar	14,12	3.78	Good	
916	White Cedar	18,24,15	5.14	Good-Fair	
917	White Cedar	14,17,21	5.1	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
918	White Cedar	23,8	3.84	Fair	
919	White Cedar	12,22,27,10, 8,16,12,6	6.44	Fair	
920	White Cedar	18	3.78	Good	
921	White Cedar	19,12,13, 8,16	5.12	Fair	
922	White Cedar	15	3.75	Good	
923	White Cedar	14,9,5	3.77	Fair-Poor	
924	White Cedar	12	3.72	Fair	
925	White Cedar	16	3.76	Fair	
926	White Birch	16	3.76	Fair	
927	White Birch	14	3.74	Fair	
928	White Cedar	16	3.76	Good	
929	White Cedar	16,14	3.81	Fair	
930	White Cedar	16	3.76	Fair	
931	White Cedar	12	3.72	Fair	
932	White Cedar	12	3.72	Fair	
933	White Cedar	16,19,20	5.12	Good	
934	White Cedar	24,18,10,12	5.14	Good	
935	White Cedar	12,14	3.78	Poor	
936	White Cedar	12,14	3.78	Poor	
937	White Cedar	41	6.41	Good	
938	White Cedar	16	3.76	Fair	
939	White Cedar	16	3.76	Fair-Poor	
940	Green Ash	14	3.74	Good-Fair	
941	White Cedar	24	3.84	Fair	
942	White Pine	45	6.45	Good	
943	White Cedar	16,14	3.81	Fair	
944	White Cedar	14,16,12	3.84	Fair	
945	White Cedar	16	3.76	Fair	
946	White Cedar	14,6	3.75	Fair	
947	White Cedar	14	3.74	Fair	
948	White Cedar	15	3.75	Fair	
949	White Cedar	21	3.81	Fair	
950	White Pine	48	6.48	Good	
951	White Cedar	28	3.88	Fair	
952	White Cedar	16	3.76	Fair-Poor	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
953	White Cedar	32	5.12	Fair	
954	White Cedar	16	3.76	Fair	
955	White Cedar	16	3.76	Fair	
956	White Cedar	16,18	3.84	Fair	
957	White Cedar	17	3.77	Fair	
958	White Cedar	18	3.78	Fair	
959	White Cedar	14	3.74	Fair	
960	White Cedar	21	3.81	Good	
961	White Cedar	25	3.85	Good	
962	Butternut	1	2.41		
963	Apple	18	3.78	Good	
964	Apple	22	3.82	Good	
965	White Cedar	10	3.7	Good	
966	Trembling Aspen	11	3.71	Good	
967	Trembling Aspen	33	5.13	Good	
968	Trembling Aspen	21	3.81	Good	
969	Trembling Aspen	21	3.81	Fair	
970	White Elm	42	6.42	Fair	
971	White Ash	22	3.82	Fair	
972	White Ash	19	3.79	Fair	
973	White Cedar	37	5.17	Good	
974	Green Ash	18	3.78	Fair	
975	White Ash	24,18	5.1	Fair	
976	Green Ash	19	3.79	Fair	
977	White Birch	19	3.79	Good	
978	White Cedar	13	3.73	Fair	
979	Balsam Poplar	26	3.86	Fair	
980	Green Ash	12	3.72	Good	
981	Balsam Poplar	23	3.83	Poor	
982	White Ash	13	3.73	Fair	
983	Balsam Poplar	15	3.75	Fair	
984	Balsam Poplar	11	3.71	Good	
985	Balsam Poplar	17	3.77	Fair	Crown dieback (minor)
986	Trembling Aspen	13	3.73	Fair	Light suppressed (low)
987	Black Ash	10, 10	3.74	Fair	Fork at base
988	Balsam Poplar	14	3.74	Fair	Light suppressed (low)
989	Trembling Aspen	13	3.73	Good	

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
990	Green Ash	16	3.76	Good	
991	Trembling Aspen	19,17,17	5.11	Good	
992	Balsam Poplar	20	3.8	Fair	Leader broken
993	Balsam Poplar	17	3.77	Fair	
994	Balsam Poplar	20	3.8	Fair	Crown dieback (moderate)
995	Green Ash	13	3.73	Good	
996	White Cedar	10	3.7	Good	
997	White Cedar	12,8	3.74	Good	
998	White Cedar	10,11	3.75	Good	
999	Green Ash	19	3.79	Good	
1000	White Cedar	12	3.72	Fair	Light suppressed (moderate)
1001	Yellow Birch	13	3.73	Good	
1002	Trembling Aspen	22	3.82	Poor	Crown dieback (severe)
1003	Green Ash	10	3.7	Good	
1004	Black Ash	13	3.73	Good	
1005	Basswood	12,6,4	3.74	Good	
1006	White Birch	10	3.7	Good	
1007	Green Ash	10	3.7	Fair	Crown dieback (minor)
1008	Green Ash	10	3.7	Good	
1009	Tamarack	12	3.72	Good	
1010	Tamarack	11	3.71	Good	
1011	Tamarack	10	3.7	Good	
1012	White Spruce	10	3.7	Good	
1013	White Cedar	48,13	6.5	Poor	Large leader completely dead, small leader, crown dieback (severe)
1014	White Birch	10,7	3.72	Good	
1015	Tamarack	25	3.85	Good	
1016	White Cedar	22	3.82	Poor	Crown dieback (severe)
1017	White Birch	10	3.7	Good	
1018	White Spruce	14	3.74	Fair	
1019	Balsam Poplar	10	3.7	Fair	Crown dieback (moderate), leader damage moderate
1020	White Spruce	12	3.72	Good	
1021	Balsam Poplar	10	3.7	Good	
1022	White Birch	10	3.7	Good	
1023	White Spruce	10	3.7	Good	
1024	Green Ash	13	3.73	Fair	
1025	Tamarack	10	3.7	Good	
1026	White Spruce	13	3.73	Good	

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
990	Green Ash	16	3.76	Good	
991	Trembling Aspen	19,17,17	5.11	Good	
992	Balsam Poplar	20	3.8	Fair	Leader broken
993	Balsam Poplar	17	3.77	Fair	
994	Balsam Poplar	20	3.8	Fair	Crown dieback (moderate)
995	Green Ash	13	3.73	Good	
996	White Cedar	10	3.7	Good	
997	White Cedar	12,8	3.74	Good	
998	White Cedar	10,11	3.75	Good	
999	Green Ash	19	3.79	Good	
1000	White Cedar	12	3.72	Fair	Light suppressed (moderate)
1001	Yellow Birch	13	3.73	Good	
1002	Trembling Aspen	22	3.82	Poor	Crown dieback (severe)
1003	Green Ash	10	3.7	Good	
1004	Black Ash	13	3.73	Good	
1005	Basswood	12,6,4	3.74	Good	
1006	White Birch	10	3.7	Good	
1007	Green Ash	10	3.7	Fair	Crown dieback (minor)
1008	Green Ash	10	3.7	Good	
1009	Tamarack	12	3.72	Good	
1010	Tamarack	11	3.71	Good	
1011	Tamarack	10	3.7	Good	
1012	White Spruce	10	3.7	Good	
1013	White Cedar	48,13	6.5	Poor	Large leader completely dead, small leader, crown dieback (severe)
1014	White Birch	10,7	3.72	Good	
1015	Tamarack	25	3.85	Good	
1016	White Cedar	22	3.82	Poor	Crown dieback (severe)
1017	White Birch	10	3.7	Good	
1018	White Spruce	14	3.74	Fair	
1019	Balsam Poplar	10	3.7	Fair	Crown dieback (moderate), leader damage moderate
1020	White Spruce	12	3.72	Good	
1021	Balsam Poplar	10	3.7	Good	
1022	White Birch	10	3.7	Good	
1023	White Spruce	10	3.7	Good	
1024	Green Ash	13	3.73	Fair	
1025	Tamarack	10	3.7	Good	
1026	White Spruce	13	3.73	Good	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1027	White Spruce	26	3.86	Good	
1028	White Cedar	15	3.75	Fair	Light suppressed (severe), crown dieback back (moderate - severe)
1029	White Cedar	23	3.83	Poor	Leader topped for hydro pruning
1030	White Spruce	10	3.7	Good	
1031	White Spruce	12	3.72	Good	
1032	Green Ash	13	3.73	Fair	
1033	White Cedar	19,20	3.88	Fair	Larger limb fallen over, significant lean
1034	Green Ash	43	6.43	Fair	
1035	Trembling Aspen	14	3.74	Good	
1036	White Spruce	14	3.74	Good	
1037	Green Ash	21	3.81	Fair	Crown dieback (severe)
1038	Green Ash	21	3.81	Fair	Crown dieback (severe)
1039	White Spruce	17	3.77	Good	
1040	Green Ash	10	3.7	Fair	
1041	White Spruce	26	3.86	Good	
1042	White Spruce	30	5.1	Good	
1043	White Elm	11	3.71	Fair	
1044	Balsam Poplar	10	3.7	Good	
1045	White Birch	10	3.7	Good	
1046	Balsam Poplar	18	3.78	Good	
1047	White Spruce	14	3.74	Poor	Significant lean to east
1048	White Spruce	14	3.74	Fair	Moderate lean to east
1049	White Spruce	13,7	3.75	Good	
1050	White Cedar	15	3.75	Good	
1051	White Cedar	15	3.75	Good	
1052	White Cedar	14	3.74	Good	
1053	Green Ash	11	3.71	Good	
1054	White Cedar	23	3.83	Fair	Topped for hydro pruning
1055	Green Ash	11	3.71	Good	
1056	White Cedar	18,10	3.81	Fair	Pruning high for hydro
1057	White Cedar	16	3.76	Fair	
1058	Trembling Aspen	16	3.76	poor	Crown dieback (severe)
1059	Balsam Poplar	15	3.75	Fair	Epicormic growth moderate, Crown dieback (severe)
1060	White Spruce	36	5.16	Good	
1061	Sugar Maple	11	3.71	Fair	Past pruning minor
1062	Silver Maple	39	5.19	Good	
1063	Sugar Maple	12	3.72	Fair	

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1064	Silver Maple	32	5.12	Good	
1065	Silver Maple	18	3.78	Good	
1066	Silver Maple	31	5.11	Good	
1067	Silver Maple	25,22,16, 17,12	6.42	Good	
1068	Silver Maple	31,28,9	6.43	Fair	
1069	Silver Maple	30,8	5.11	Fair	
1070	Silver Maple	24,11,22	5.14	Good	
1071	Silver Maple	22	3.82	Good	
1072	Silver Maple	20,25	5.12	Good	
1073	Silver Maple	32	5.12	Fair	
1074	Silver Maple	13,6,4	3.75	Good	
1075	Silver Maple	15	3.75	Good	
1076	Silver Maple	18	3.78	Good	
1077	Silver Maple	12,4,3	3.73	Fair	
1078	White Willow	28	3.88	Good	
1079	White Willow	27,18	5.12	Good	
1080	Silver Maple	16	3.76	Good	
1081	Balsam Poplar	14	3.74	Poor	
1082	Balsam Poplar	10	3.7	Good	
1083	White Spruce	12,6	3.73	Poor	
1084	Silver Maple	23	3.83	Fair	
1085	White Elm	19	3.79	Poor	Nearly dead, epicormic growth remains
1086	Green Ash	18	3.78	Poor	
1087	White Birch	11	3.71	Good	
1088	White Spruce	11	3.71	Fair	
1089	Green Ash	24	3.84	Poor	
1090	White Cedar	29,20	5.15	Poor	
1091	White Elm	12	3.72	Fair	
1092	White Cedar	35	5.15	Fair	
1093	White Birch	13,6,10	3.77	Fair	
1094	White Birch	12,10,6	3.77	Fair	
1095	White Cedar	29	3.89	Fair	
1096	White Cedar	36	5.16	Good	
1097	White Cedar	38	5.18	Poor	
1098	White Elm	10	3.7	Fair	

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Tree Inventory

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TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1099	White Spruce	12	3.72	Fair	
1100	Basswood	12	3.72	Fair	
1101	Silver Maple	29,3,4,5,2,3	5.1	Fair	
1102	White Spruce	14	3.74	Poor	
1103	White Spruce	17	3.77	Fair	
1104	Green Ash	15	3.75	Poor	
1105	Green Ash	10	3.7	Poor	
1106	Green Ash	10	3.7	Poor	
1107	Green Ash	12	3.72	Poor	
1108	Green Ash	13	3.73	Poor	
1109	Trembling Aspen	16	3.76	Fair	
1110	Trembling Aspen	10	3.7	Fair	
1111	Trembling Aspen	13	3.73	Fair	
1112	Basswood	9,7,5,5,5,3,3,1	3.75	Poor	
1113	White Cedar	32	5.12	Good	
1114	Green Ash	13	3.73	Fair	
1115	Green Ash	10	3.7	Fair	
1116	Green Ash	10	3.7	Fair	
1117	Basswood	14,8,6	3.77	Fair	
1118	White Cedar	36	5.16	Fair	
1119	White Cedar	37	5.17	Fair	
1120	Green Ash	11	3.71	Poor	
1121	Green Ash	14	3.74	Fair	
1122	Green Ash	10	3.7	Fair	
1123	Black Ash	10	3.7	Fair	
1124	White Spruce	17	3.77	Good	
1125	Green Ash	12	3.72	Fair	
1126	Green Ash	13	3.73	Poor	
1127	White Birch	14,11	3.78	Poor	
1128	White Cedar	16	3.76	Good	
1129	Green Ash	18	3.78	Fair	
1130	Green Ash	16	3.76	Fair	
1131	White Spruce	15	3.75	Fair	
1132	White Birch	17	3.77	Fair	
1133	White Spruce	11	3.71	Fair	
1134	White Spruce	10	3.7	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1135	White Spruce	12	3.72	Fair	
1136	Green Ash	14	3.74	Fair	
1137	White Cedar	11	3.71	Fair	
1138	White Spruce	33	5.13	Fair	
1139	White Spruce	13	3.73	Fair	
1140	Trembling Aspen	25	3.85	Good	
1141	White Cedar	15,9	3.77	Good	
1142	Balsam Poplar	28	3.88	Good	
1143	White Spruce	13	3.73	Good	
1144	White Ash	15	3.75	Fair	
1145	White Elm	15	3.75	Fair	
1146	White Cedar	11	3.71	Good	
1147	White Ash	10	3.7	Fair	
1148	Trembling Aspen	38	5.18	Good	
1149	Trembling Aspen	34	5.14	Good	
1150	Trembling Aspen	25	3.85	Good	
1151	Green Ash	13	3.73	Good	
1152	White Birch	34	5.14	Good	
1153	Trembling Aspen	32,30	6.44	Good	
1154	White Spruce	18	3.78	Good	
1155	White Cedar	14,3	3.74	Good	
1156	White Spruce	18	3.78	Good	
1157	White Spruce	23	3.83	Good	
1158	White Spruce	23	3.83	Good	
1159	White Cedar	10	3.7	Good	
1160	Trembling Aspen	21	3.81	Good	
1161	Trembling Aspen	24	3.84	Good	
1162	White Spruce	11	3.71	Fair	
1163	Trembling Aspen	32	5.12	Good	
1164	White Spruce	29	3.89	Fair	
1165	Trembling Aspen	29	3.89	Fair	
1166	White Spruce	33	5.13	Fair	
1167	White Spruce	17	3.77	Fair	
1168	Trembling Aspen	21	3.81	Fair	
1169	White Spruce	23	3.83	Good	
1170	Trembling Aspen	34	5.14	Good	
1171	Trembling Aspen	22	3.82	Good	

Appendix C: Town of Innisfil, 7th Line EA
Tree Inventory

Completed: July & August, 2018
Assessment by: Kevin Butt & Stewart Gibson, Certified Arborists

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1172	White Cedar	25	3.85	Good	
1173	White Spruce	27	3.87	Good	
1174	White Spruce	31	5.11	Good	
1175	White Cedar	13,12	3.78	Fair	
1176	Trembling Aspen	30	5.1	Fair	
1177	Trembling Aspen	32	5.12	Fair	
1178	Trembling Aspen	28	3.88	Fair	
1179	White Cedar	13,12	3.78	Good	
1180	White Cedar	12,8	3.74	Good	
1181	White Cedar	17	3.77	Good	
1182	Trembling Aspen	20	3.8	Good	
1183	White Cedar	24,6	3.85	Good	
1184	White Cedar	17	3.77	Good	
1185	White Cedar	10	3.7	Good	
1186	White Cedar	14	3.74	Good	
1187	White Spruce	31	5.11	Good	
1188	White Spruce	12	3.72	Fair	
1189	White Cedar	32	5.12	Good	
1190	White Spruce	12	3.72	Fair	
1191	White Spruce	10	3.7	Fair	
1192	White Spruce	10	3.7	Fair	
1193	White Spruce	23	3.83	Fair	
1194	Sugar Maple	10	3.7	Fair	
1195	Green Ash	23	3.83	Fair	
1196	White Spruce	18	3.78	Fair	
1197	White Spruce	17	3.77	Fair	
1198	White Spruce	24	3.84	Fair	
1199	Trembling Aspen	22	3.82	Good	
1200	White Cedar	53,27,28	9.06	Poor	Fork at base, significant decay at base
1201	Trembling Aspen	21	3.81	Good	
1202	Trembling Aspen	19	3.79	Good	
1203	White Cedar	16	3.76	Fair	
1204	White Cedar	34	5.14	Fair	
1205	White Cedar	44	6.44	Fair	
1206	Green Ash	18,21,13,26	5.2	Fair	
1207	White Cedar	23	3.83	Fair	
1208	Black Cherry	34,17,12,26	6.48	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1209	Large-toothed Aspen	20,20	3.88	Good	
1210	Sugar Maple	10	3.7	Good	
1211	Large-toothed Aspen	11	3.71	Fair	
1212	Green Ash	63	9.03	Fair	
1213	Basswood	12	3.72	Good	
1214	Blue-beech	10,10,9	3.77	Good	
1215	Large-toothed Aspen	21	3.81	Good	
1216	Large-toothed Aspen	24	3.84	Good	
1217	Sugar Maple	19	3.79	Good	
1218	Green Ash	30	5.1	Fair	
1219	Large-toothed Aspen	11	3.71	Fair	
1220	Sugar Maple	24	3.84	Good	
1221	Basswood	15,31	5.14	Good	
1222	Green Ash	14	3.74	Good	
1223	Green Ash	33	5.13	Fair	
1224	Sugar Maple	23	3.83	Good	
1225	Sugar Maple	15	3.75	Good	
1226	Sugar Maple	19	3.79	Good	
1227	Sugar Maple	12,10	3.76	Good	
1228	Black Cherry	61	9.01	Fair	
1229	Sugar Maple	26	3.86	Good	
1230	Sugar Maple	16,18,13,13	5.1	Good	
1231	Green Ash	40	5.2	Fair	
1232	White Pine	15	3.75	Fair	
1233	Basswood	17	3.77	Fair	
1234	Large-toothed Aspen	18	3.78	Fair	
1235	Large-toothed Aspen	20	3.8	Fair	
1236	Large-toothed Aspen	24	3.84	Fair	
1237	Sugar Maple	10	3.7	Fair	
1238	Sugar Maple	12,8,2	3.75	Fair	
1239	Large-toothed Aspen	19	3.79	Fair	
1240	Large-toothed Aspen	22	3.82	Fair	
1241	Black Cherry	28	3.88	Good	
1242	Black Cherry	46	6.46	Fair	
1243	Trembling Aspen	22	3.82	Poor	
1244	Trembling Aspen	17	3.77	Fair-Poor	
1245	Trembling Aspen	21	3.81	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1246	Black Cherry	45	6.45	Good	
1247	Sugar Maple	98,40	13.78	Fair	
1248	Green Ash	35,10,7	5.17	Fair	
1249	Sugar Maple	13,10,2, 4,5,7,7	3.81	Fair	
1250	Sugar Maple	26,13,12,4	5.12	Fair	
1251	Sugar Maple	16	3.76	Fair	
1252	Basswood	17	3.77	Good	
1253	Basswood	20,6	3.81	Good	
1254	Basswood	15	3.75	Good	
1255	Basswood	12	3.72	Good	
1256	Sugar Maple	22	3.82	Good	
1257	Sugar Maple	19	3.79	Good	
1258	Sugar Maple	10	3.7	Good	
1259	Sugar Maple	18	3.78	Good	
1260	Sugar Maple	11	3.71	Good	
1261	Sugar Maple	16	3.76	Good	
1262	Green Ash	28,26	5.18	Fair	
1263	Basswood	25	3.85	Good	
1264	Green Ash	12	3.72	Good	
1265	Sugar Maple	37,30	6.48	Good	
1266	Basswood	15	3.75	Good	
1267	Green Ash	13	3.73	Good	
1268	Basswood	19	3.79	Good	
1269	Green Ash	17	3.77	Fair	
1270	Green Ash	31,18,28	6.45	Fair	
1271	Basswood	15,7	3.77	Good	
1272	Green Ash	29	3.89	Fair	
1273	Sugar Maple	11	3.71	Good	
1274	Green Ash	26	3.86	Fair	
1275	Green Ash	20,17	3.86	Fair	
1276	Green Ash	10	3.7	Fair	
1277	Green Ash	17,7	3.78	Fair	
1278	Sugar Maple	28	3.88	Fair	
1279	Sugar Maple	60	7.8	Fair	
1280	Sugar Maple	41	6.41	Fair	
1281	Sugar Maple	12	3.72	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1282	Green Ash	35	5.15	Fair	
1283	Green Ash	10	3.7	Fair	
1284	Sugar Maple	27	3.87	Fair	
1285	Sugar Maple	28	3.88	Good	
1286	Sugar Maple	18,8	3.8	Fair	
1287	Sugar Maple	23	3.83	Good	
1288	Sugar Maple	15	3.75	Fair	
1289	Sugar Maple	12	3.72	Good	
1290	Green Ash	20	3.8	Fair	
1291	Sugar Maple	12,10	3.76	Good	
1292	Sugar Maple	10	3.7	Good	
1293	Sugar Maple	12	3.72	Good	
1294	Black Cherry	11	3.71	Fair	
1295	Black Cherry	11	3.71	Fair	
1296	Green Ash	32	5.12	Fair	
1297	Green Ash	18,9	3.8	Good	
1298	Black Cherry	13	3.73	Fair	
1299	Green Ash	33,20	5.19	Fair	
1300	Sugar Maple	13	3.73	Good	
1301	Sugar Maple	106	13.78	Fair	
1302	Sugar Maple	19	3.79	Good	
1303	Green Ash	24,10,14	5.1	Poor	
1304	White Cedar	15,14,12,12,12,10,6,4,4,3	5.12	Fair	
1305	Green Ash	18	3.78	Fair	
1306	Sugar Maple	12	3.72	Fair	
1307	White Cedar	19	3.79	Fair	
1308	White Cedar	18	3.78	Fair	
1309	White Cedar	20,17,12,6,7	5.1	Fair	
1310	White Cedar	11	3.71	Fair	
1311	White Cedar	17	3.77	Fair	
1312	White Cedar	15,13,13	3.84	Fair	
1313	Trembling Aspen	23,15	3.87	Fair	
1314	Trembling Aspen	28,20,17,17	6.42	Fair	
1315	Trembling Aspen	23,15	3.87	Fair	
1316	Trembling Aspen	26	3.86	Fair	
1317	Trembling Aspen	13	3.73	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1318	Trembling Aspen	15	3.75	Good	
1319	Trembling Aspen	15	3.75	Good	
1320	Trembling Aspen	20	3.8	Fair	
1321	Trembling Aspen	19	3.79	Fair	
1322	Trembling Aspen	14	3.74	Good	
1323	Trembling Aspen	21	3.81	Fair	
1324	Trembling Aspen	13	3.73	Fair	
1325	Trembling Aspen	18	3.78	Fair	
1326	Trembling Aspen	15	3.75	Fair	
1327	Trembling Aspen	20	3.8	Fair	
1328	Trembling Aspen	16	3.76	Fair	
1329	Trembling Aspen	18	3.78	Fair	
1330	Trembling Aspen	16	3.76	Good	
1331	Trembling Aspen	14	3.74	Fair	
1332	Trembling Aspen	15	3.75	Fair	
1333	White Cedar	11,5	3.72	Good	
1334	White Cedar	14,12	3.78	Good	
1335	White Cedar	21	3.81	Good	
1336	Trembling Aspen	14	3.74	Good	
1337	Trembling Aspen	13	3.73	Good	
1338	White Cedar	16	3.76	Good	
1339	White Cedar	14,3	3.74	Good	
1340	Green Ash	35	5.15	Fair	
1341	White Birch	19,13	3.83	Good	
1342	Sugar Maple	76	10.36	Fair	
1343	Sugar Maple	40	5.2	Good	
1344	White Cedar	33	5.13	Good	
1345	White Cedar	14	3.74	Good	
1346	White Pine	82	11.62	Fair	
1347	White Cedar	16	3.76	Good	
1348	White Cedar	20,23,23	5.18	Good	
1349	White Cedar	30,32	6.44	Good	
1350	White Cedar	48,26	7.75	Good	
1351	Green Ash	46	6.46	Poor	
1352	White Cedar	24	3.84	Poor	
1353	White Cedar	19	3.79	Fair-Poor	
1354	White Cedar	22	3.82	Fair	

TreeID	Species	DBH (cm)	MTPZ	Condition	Comments
1355	White Cedar	22	3.82	Fair	
1356	Sugar Maple	74	10.34	Fair	
1357	White Cedar	29,32,34,25	7.8	Fair	
1358	White Cedar	24,18,5	5.1	Fair	
1359	White Cedar	26	3.86	Fair	
1360	White Cedar	26,29,35, 32,18	9.04	Fair	
1361	White Spruce	13	3.73	Fair	
1362	Sugar Maple	25	3.85	Fair	
1363	Sugar Maple	64	9.04	Good	
1364	White Spruce	18	3.78	Good	
1365	White Spruce	21	3.81	Good	

Appendix D

Limitations of Tree Studies

Tree Studies: Limitations

This report, drawings and data (i.e., qualitative and quantitative measurements) are intended to inform the recipient and reviewer(s) of the report of the tree(s) condition at the time of the assessment. The assessment may be limited by the following constraints:

1. Access – tree is located offsite, or the onsite location is not reasonably accessed.
2. Weather – accumulated snow around the base or in branch attachments may obscure defects.
3. Season – biotic indications (e.g., foliage chlorosis or fungal fruiting bodies) are only obvious for a portion of the year.
4. Visual obstructions – Elements such as other trees' canopies can prevent the view of the entire tree.

The study is completed from the ground using a DBH tape or tree caliper. Non-invasive tools such as binoculars and a sounding hammer may be used to provide additional information about defects and characteristics. Excavation of the rootzone and other intensive analyses have not been completed unless stated.

It must be understood that trees may not manifest signs or symptoms (e.g., dieback) of some impacts (e.g., root compaction) immediately and so recent changes to the tree or its growing conditions prior to the assessment may not be apparent to the assessor. Also, changes to the tree condition resulting from damage, weather, infestations, defects, soil, decay, light, moisture, exposure, etc. may occur after the assessment.

No tree is without some level of risk, where a tree may fail and strike a target. Mitigation options, if provided, will not eliminate risk but are prescribed treatments to reduce risk based on the measured and assessed factors at the time of assessment, subject to site and assessment

Aquatic Habitat Assessment, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

May 2019
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Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	Town of Innisfil

Record of Revisions

Revision	Date	Description
0	September 10, 2018	Draft Submission to Town of Innisfil
1	May 21, 2019	Revised based on comments

R.J. Burnside & Associates Limited

Report Prepared By:



Camden Jermey, B.Sc. (Hons), P.Biol., R.P. Bio, CAN-CISEC, Aquatic Ecologist
CJ:slw

Report Reviewed By:



Deanna De Forest, B.Sc., EP, EA Coordinator
CJ:slw

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1.0 Introduction

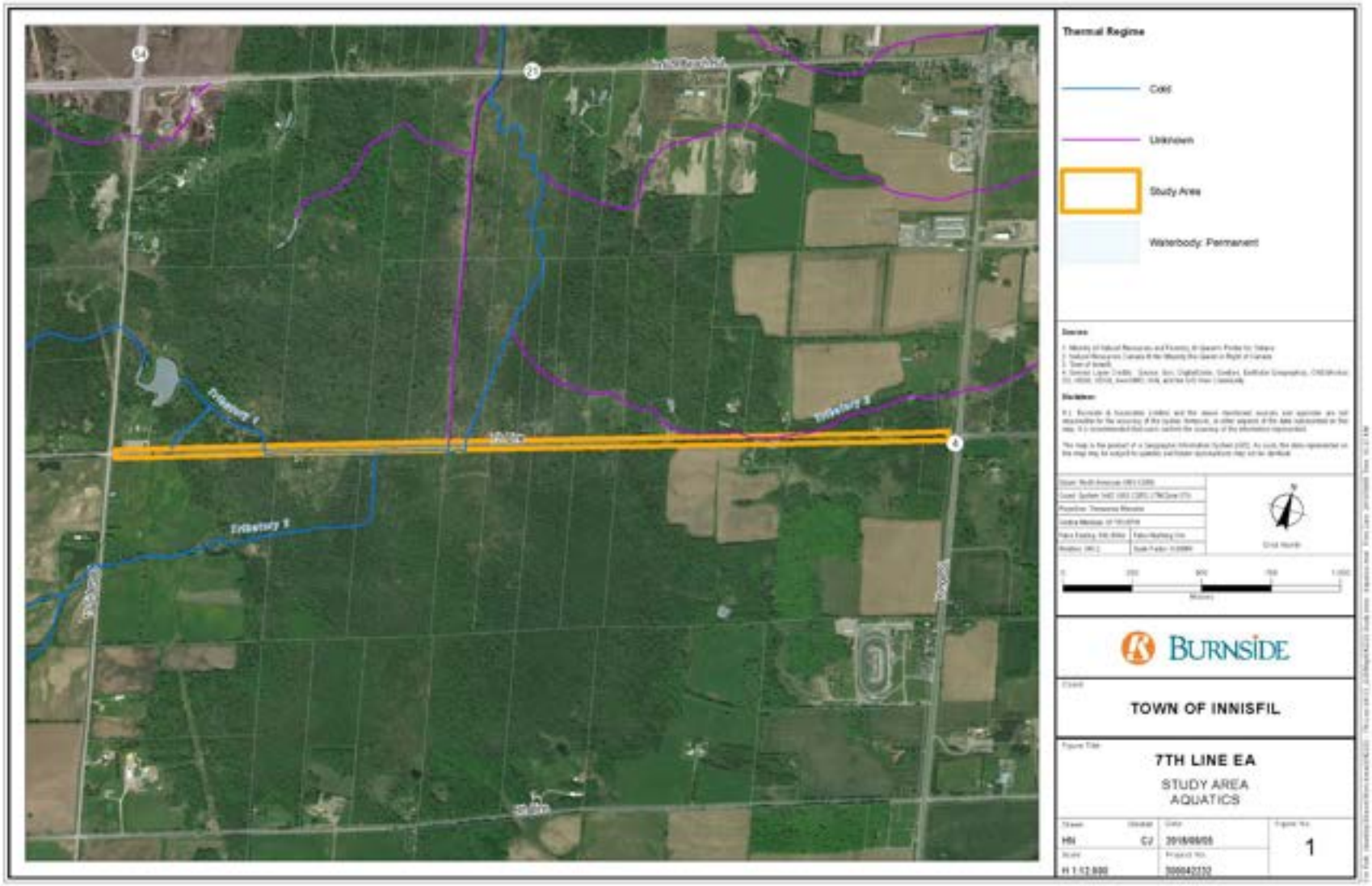
The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

A series of aquatic assessments were initiated as part of an ecological investigation in support of the Schedule C EA for improvements to the 7th Line from 10th Sideroad to Yonge Street (the Study Area). Burnside conducted an aquatic habitat assessment on June 14, 2018. This report documents the existing aquatic conditions, identifies potential impacts of each of the proposed alternative solutions for the 7th Line from 10th Sideroad to Yonge Street and provides potential mitigation measures.

2.0 Study Area

The Study Area is within the headwaters of Lovers Creek, a tributary to Lake Simcoe (Figure 1). Investigations were conducted at culverts and meander bends within the existing road Right-of-Way (ROW) that may be utilized by fish and potentially impacted by proposed works on the 7th Line from the 10th Side Road to Yonge Street.

Figure 1: Study Area



3.0 Methodology

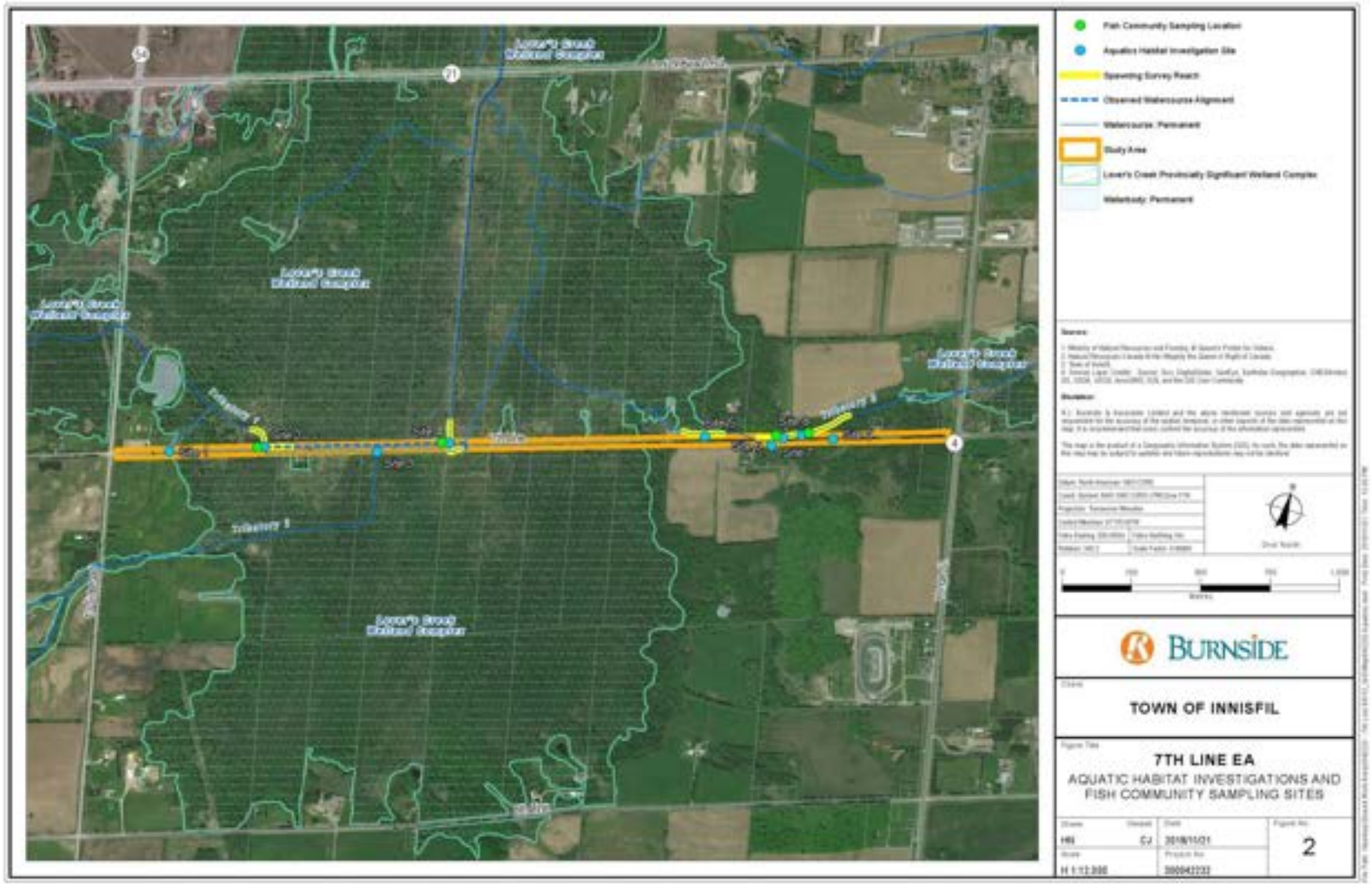
Burnside completed a review of available background information and conducted a series of aquatic habitat assessments on June 14, 2018 throughout the Study Area to document existing conditions. Investigations focused on fish habitat within the ROW that may be impacted by the proposed road improvements using Burnside's Standard Operating Procedure (SOP) for Linear Development Projects, based on the Ministry of Transportation Environmental Guide for Fish and Fish Habitat (2009) (The Guide). As outlined in Figure 1, a number of interconnected tributaries are present within the vicinity of the Study Area. A combination of desktop and aerial imagery review, coupled with field investigations were utilized to determine fish and fish habitat that may be impacted by the proposed works. A total of nine survey Sites within the three main tributaries of the Study Area were established and numbered from west to east as illustrated in Figure 2 and listed in Table 1, along with rationale for selection.

Table 1: Sampling Sites within Tributaries of Lovers Creek

Sampling Site	Watercourse	Rationale
Site 1	Tributary 1	Mapped hydrolayer originating at north road embankment – potential for water conveyance feature.
Site 2	Tributary 1	Mapped crossing of Tributary 1 under 7th Line.
Site 3	Tributary 2	Mapped Confluence of Tributary 1 and Tributary 2 along southern road embankment.
Site 4	Tributary 1	Confluence of Tributary 1 with three roadside ditches within the ROW.
Site 5	Tributary 3	Meander bend in close proximity to embankment.
Site 6	Farm Pond	Farm pond immediately south of the road easement with marginal connectivity to downstream habitat.
Site 7	Tributary 3	Meander bend in close proximity to embankment.
Site 8	Tributary 3	Meander bend in close proximity to embankment.
Site 9	Tributary 3	Small wetland drainage feature that conveys water under the 7th Line.

Sites were investigated for potential fish habitat, form and function as well as to document any sensitive features that may be present. At each Site an Area of Investigation (AOI) was established based on criteria outlined in The Guide (50 m upstream and 200 m downstream) or as access permitted.

Figure 2: Aquatic Habitat Investigations and Fish Community Sampling Sites



4.0 Background Review

Burnside conducted a desktop review of current data, mapping, and literature for aquatic habitat conditions and fish communities within the Study Area prior to initiating field activities.

The following documents/information sources have been reviewed in support of the project:

- Natural Heritage Information Centre (2014);
- Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan (2012);
- Burnside's Enhanced Aquatic Screening Tool (BEAST) mapping (2018);
- Recent digital imagery (Google Earth Pro);
- Ministry of Natural Resources and Forestry (MNRF) Make A Map: Natural Heritage Areas Online Mapping Tool and Natural Heritage Information Centre (NHIC);
- MNRF Fish ON-Line Database;
- MNRF Aquatic Resource Area (ARA) Summary Data (included in the BEAST);
- Fisheries and Oceans Canada Aquatic Species at Risk Stream Segment and Critical Habitat Mapping (included in the BEAST);
- Provincial Species at Risk in Ontario List;
- Federal *Species at Risk Act* Schedules;
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping (2017); and
- DFO Critical SAR Habitat mapping (2017).

Literature review indicated that the Study Area is within the headwaters of Lovers Creek and contains up to four watercourses with a series of intermittent and ephemeral systems that contribute to the Lovers Creek subwatershed. It should be noted that some discrepancies were observed between satellite imagery and Aquatic Resource Area (ARA) mapping data with respect to watercourse routing and connectivity. Field activities were designed to clarify these inconsistencies and are discussed in Section 4.0.

The Study Area is located within a predominantly rural region with abundant natural heritage features such as forests and wetlands. The 7th Line bisects a large Provincially Significant Wetland (PSW) that spans approximately two-thirds of the Study Area between the 10th Sideroad to Yonge Street. The Study Area is also used for agriculture, recreation and private residences.

The headwaters of Lovers Creek are comprised of organic soils with high infiltration rates, flowing down into silty clay loam (slow infiltration rates) and organics (moderate infiltration rates) further down the subwatershed (LSRCA, 2012). Investigations

conducted by the LSRCA also determined that the upper reaches of the subwatershed have marshy areas with mucky substrate and a low slope, which is typically poor habitat for benthic invertebrates and not ideal for most fish species (LSRCA, 2012). Sampling of benthic communities by LSRCA utilizing the Hisenhoff Biotic Index (HBI) indicated that habitat quality was Poor within the northwestern tributary (Tributary 1), immediately downstream of Centennial Park, located on the north side of 7th Line, at the west end of the Study Area, while habitat quality within the eastern tributary (Tributary 3), located on the north side of 7th Line at the east end of the Study Area, was rated as Excellent (LSRCA, 2012).

The northwestern tributary, Tributary 1, is mapped as crossing 7th Line from north to south, then flowing parallel to 7th Line along the south side of the road for approximately 660 m before crossing 7th Line again northward towards Innisfil Beach Road (Figure 1). The southwestern tributary, Tributary 2, enters the Study Area from the southwest, then empties into the PSW complex of the Study Area, before its confluence with Tributary 1 on the south side of 7th Line, approximately 900 m east of the 10th Sideroad. The eastern tributary, Tributary 3 enters the Study Area from the east and meanders through a wooded area flowing parallel to the 7th Line along the north side of the road for approximately 800 m before turning further north to confluence with Tributary 1 and Tributary 2 between the 7th Line and Innisfil Beach Road (Figure 1). Tributary 1 and 2 are both mapped by the LSRCA as having coldwater thermal regimes. Tributary 3 is mapped as having an unknown thermal regime.

Background review indicated that the fish community in Lovers Creek has been well documented, with numerous sampling records throughout its length. However, the habitat characteristics, water quality, and accessibility by fish varies considerably throughout the extent of Lovers Creek. As such, fish community records discussed below are limited to those available for the immediate vicinity of the Study Area. A summary of records for fish species documented in Tributary 1, Tributary 2 and Tributary 3 are presented in Table 2.

Table 2: Summary of Lovers Creek Historical Fish Species Records in the Vicinity of the Study Area[1]

Watercourse Reach	Common Name	Scientific Name
Tributary 1	Brook Stickleback	*Culaea inconstans*
	Creek Chub	*Semotilus atromaculatus*
	Central Mudminnow	*Umbra limi*
	Bluntnose Minnow	*Pimephales notatus*
	White Sucker	*Catostomus commersonii*
	Eastern Blacknose Dace	*Rhinichthys atratulus*

[1] The data was obtained from the MNRF Aquatic Resource Area mapping (2015).

Watercourse Reach	Common Name	Scientific Name
	Common Shiner	*Luxilus cornutus*
	Fathead Minnow	*Pimephales promelas*
	Northern Redbelly Dace	*Chrosomus eos*
Tributary 2	Eastern Blacknose Dace	*Rhinichthys atratulus*
Tributary 3	Brook Stickleback	*Culaea inconstans*
	Brook Trout	*Salvelinus frontinalis*
	Central Mudminnow	*Umbra limi*
	Eastern Blacknose Dace	*Rhinichthys atratulus*
	Fathead Minnow	*Pimephales promelas*

Review of current data indicates no records of Species at Risk (SAR), or critical habitat for SAR species are identified in the vicinity of the Study Area. The fish community data outlined above was collected in 2010 by LSRCA (2012) and incorporated into the Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan, 2012. Supplemental sampling was conducted by Burnside during this assessment to monitor reach utilization in the Study Area, particularly for sensitive species such as Brook Trout, in support of the project. Sampling results are provided in Section 5.0.

5.0 Existing Conditions

5.1 Aquatic Habitat Assessments

Site 1

Site 1 is a feature mapped as originating along the north embankment of 7th Line and conveying flow northeast towards Tributary 1. Flowing water, channel scour, or fish habitat were not observed during the field investigations. It is anticipated that if present, this drainage feature originates further north and not within the road ROW.

Site 2

Site 2 is located approximately 400 m downstream from the online pond located in Centennial Park. The upstream reach is dominated by flat habitat with moderate sinuosity and an unconfined bank/channel structure (Photo 1). *Available hydrolayer mapping illustrates water is conveyed under the 7th Line at this location, however, during the field reconnaissance,* water was observed to be conveyed from the northwest toward the road embankment where it makes a sharp easterly turn and heads due east. Channel routing and alignment, as observed during the field reconnaissance, is illustrated on Figure 2. The road embankment of 7th Line forms the outside (southern) meander bend and directs flow eastward towards Site 4.

Photo 1: View upstream at Site 2 (June 14, 2018).



Morphologically, the downstream reach is anthropogenically impacted with low sinuosity, lacks complexity and is less confined than further downstream (

Photo 2). The channel parallels the road for approximately 660 m along the northern embankment. Both wetted width and bankfull widths are larger in the upper reaches resulting in lower laminar velocity (i.e., flat habitat). Silt, organics and detritus deposition is extensive (i.e., greater than 0.70 m) in the immediate vicinity of Site 2 but becomes less embedded as the channel constricts downstream closer to Site 4. Cover is primarily provided by undercut banks with contributions from woody debris, overhanging vegetation and instream vegetation. Instream vegetation included Coontail (*Ceratophyllum demersum*), Watercress (*Nasturtium sp*.) and Eel Grass (*Vallisneria Americana*). In general, this reach primarily supports cyprinid species but provides marginal habitat for sport fish such as Brook Trout.

Photo 2: Looking upstream (west) at typical habitat downstream of Site 2 (June 14, 2018).



Several reaches downstream were traversed between Site 2 and Site 4. The channel meanders from approximately four to eight meters from the northern road embankment passing through meadow and wetland habitat throughout its length. From approximately 800 m east of 10th Sideroad downstream, the channel structure becomes more confined (i.e., incised in areas) with dense overhanging vegetation. This reach provides high quality cyprinid habitat with abundant undercut banks and cover. Coarse substrates were observed in areas, but substrates were dominated by silt and fines. Numerous fish were observed during the assessment of this reach.

Site 3

Investigations at this location found poor potential fish habitat and a lack of channelization or flow (Photo 3). Hydrolayer mapping indicates a potential confluence at this location; however, field investigations determined that Tributary 1 parallels the 7th Line along the north embankment, suggesting this confluence may not exist.

Photo 3: Potential confluence location at Site 3 No channelization or fish habitat observed (June 14, 2018).



Standing water was observed adjacent to the road embankment throughout the Site 3 area. Field investigations east and west along road could not detect flowing water or signs of significant channel scouring. Hydrocarbons and iron staining was observed interstitially amongst grasses and cattails. This reach appears to be limited to standing roadside water and provides poor fish habitat and connectivity. It is anticipated that water originating in Tributary 2 and the southern PSW feature eventually cross at the Site 4 location.

Site 4

Site 4 contains a series of closely interconnected features which confluence in proximity to the Corrugated Steel Pipe (CSP) culvert located approximately 1.2 km east of the 10th Sideroad. Upstream of the culvert, water is conveyed within the roadside ditches from the east and west, as well as two input features entering from the PSW to the south. One PSW drainage enters the south roadside ditch immediately upstream of culvert crossing and the other approximately 40 m east along the road embankment. Both

drainages originating from the PSWs provided poor direct fish habitat at the time of the assessment but are thought to contribute indirectly. Watercress was observed within both features, with water temperatures of 21.4°C and 16.9°C, respectively. Two roadside drainages parallel the southern road embankment flowing from the east and west and confluence immediately upstream of the culvert forming a small pool (Photo 4). The drainage originates 42 m upstream (west) from the culvert and provides poor to marginal fish habitat throughout its length. East of the culvert, water enters the roadside drainage approximately 150 m from the culvert. Fish habitat was fair throughout this reach but degrades upstream. Temperature readings also increased as distance from the culvert increased with readings of 24.2°C and 24.7°C at 40 m and 75 m upstream (east), respectively.

Photo 4: View of upstream eastern channel paralleling road. Culvert inlet out of frame immediately left (June 14, 2018).



Immediately downstream of the Site 4 culvert crossing there is a confluence between Tributary 1, and a small mapped tributary from the northeast (Figure 2). Field investigations determined this northeastern feature does not cross the 7th Line, as indicated, but parallels the northern embankment. Observed alignment is outlined in Figure 2.

The northeastern tributary drains the northern PSW and enters the roadside ditch approximately 50 m east of the culvert. Flow was negligible with dense vegetation and iron precipitate throughout its length (

Photo 5). This drainage feature is unlikely to provide direct fish habitat; however, iron staining and temperature readings (i.e., 17.5^{o}C) suggests it provides water balance and indirect habitat value to the downstream network.

The majority of flow (i.e., >90%) within the downstream reach of Site 4 originates from Tributary 1. A scour pool with gravel substrates is formed immediately downstream of the culvert at its confluence. The downstream reach is an unconfined watercourse flowing through a thicket/swamp vegetation community set back from the floodplain. Its' low sinuosity suggests it may have been anthropogenically influenced in the past between the 7th Line and Innisfil Beach Road. At approximately 50 m downstream the watercourse narrows with notably more undercut banks and an increase in depth present. Fish were observed throughout the reach.

Photo 5: View of northeastern drainage at Site 4 paralleling road. Iron staining, stagnant water, and poor fish habitat throughout (June 14, 2018).



Photo 6: Downstream view of Site 4 CSP culvert crossing. Note confluence with Tributary 1 (left) (June 14, 2018).



Site 5

Site 5 is the western most meander bend of Tributary 3 that comes within 7th Line ROW. It is an irregularly meandering watercourse that is moderately confined within a coniferous swamp.

Channel morphology is dominated by riffle habitat with areas of flats, pools and runs. Cover is primarily provided by overhanging and instream woody debris, with boulders, cobble and undercut banks providing additional cover. The outside meander bend comes within 6 m of the road (measured horizontally), with a steep embankment that is well vegetated and stable at the time of assessment (Photo 7). Upstream and downstream investigations were limited due to access restrictions within this reach.

Photo 7: Looking east at Site 5. Note road embarkment (right) June 14, 2018).



Site 6

Site 6 is a farm pond located 10 m south of 7th Line approximately 650 m west of Yonge Street. It is approximately 53 long and 25 m wide with a depth estimated to be 2 m. The littoral area was populated with cattails and reeds, with riparian trees along the south and eastern banks (Photo 8).

Fish were observed throughout the pond, and though not sampled, are believed to be Largemouth Bass (*Micropterus salmoides*) and Pumpkinseed (*Lepomis gibbosus*). Abundant submergent vegetation was observed throughout the pond that provides cover and primary food sources. It is anticipated that the pond may impact temperature and water quality in Tributary 3 downstream. Temperature was recorded at 22.4°C at the time of assessment but is expected to be higher during summer. A small outflow channel is present exiting the pond at the northwest corner and is conveyed under 7th Line through a CSP culvert. Connectivity to downstream habitat is marginal but potential for fish passage under high water conditions is present.

Photo 8: Looking southwest at the Site pond (June 14, 2018).



Site 7

Site 7 is the location of a road embankment failure where stabilization works were conducted in the Spring of 2018 prior to field investigations. Scouring of the road embankment resulted in the undermining and compromise of the roadway surface requiring immediate repair.

This Site primarily consists of riffle channel geomorphic units throughout its reach with small areas of flats, pools and run habitat types. Substrates are moderately embedded in most areas with exposed substrates (i.e., low embeddedness) in areas of high velocity and channel constriction. Cover is dominated by undercut banks and woody debris (both instream and overhanging) with sub-dominant boulder and cobble cover types.

Embankment stabilization works resulted in the constriction of the channel to 0.6 m for approximately 12 m immediately adjacent to the works (Photo 9). A CSP culvert is present 25 m downstream of the stabilization works which conveys flow under a residence driveway. Fish passage is unlikely to be impacted under normal water

conditions, though, some gradient was observed which may result is poor connectivity during drought/low water conditions. Generally, this reach provides good fish habitat.

Photo 9: Looking upstream at Site 7 road embankment stabilization works (June 14, 2018).



Site 8

The watercourse at Site 8 is irregularly meandering with a well-defined channel structure, good complexity, cover and substrates. Substrates are angular cobble with sand, silt and detritus material. Moderate sand and silt deposition were observed within the reach where velocities permit (e.g., behind eddy lines) but generally substrates were low/moderate embeddedness and good quality. Potential Brook Trout spawning gravels were present throughout the assessment area; however, no obvious signs of upwelling was observed. Cover was dominated by instream and overhanging woody debris with cobble, boulders and undercut banks provided subdominant cover features. The abundant large woody debris, good substrates, and flow provide high quality fish habitat throughout the reach (Photo 10).

An outside meander bend encroaches to within 6 m of the road 550 m west of Yonge Street. The embankment is steep and moderately unstable due to active erosional action. As such, road embankment works have been conducted at this location to improve stability and prevent undermining.

Photo 10: Looking upstream at typical habitat reach of Site 8 (June 14, 2018).



Site 9

Site 9 was established in the field and is a small drainage feature that is associated with a wetland and conveys water under 7th Line. Substrates are primarily composed of organic detritus with sub-dominant fines and sand present. Upgradient (south) is populated with cattails and forms an area of standing water and saturated soils upstream of the culvert (Photo 11).

Water is conveyed downgradient through a collapsed CSP culvert that discharges at the toe of the road embankment and continues through woodland habitat towards Tributary 3. Some mild rilling and gully formation indicates moderate flows occur, but generally this feature is believed to be a low volume drainage. Given the poor

connectivity (i.e., steep gradient up embankment) it is anticipated to be limited to indirect fish habitat upstream of the culvert. Insufficient water was present to sample during the August 2, 2018 investigation further supporting its lack of direct fish occupancy.

Photo 11: Looking upgradient (south) at Site 9 (August 2, 2018).



5.1.1 Channel Morphology and Substrate Composition

The collection of channel morphology data and characteristics were completed at each Site during the field investigations.

Table 3 provides a summary of channel measurements and substrate composition.

Table 3: Channel Morphology and Substrate Composition

Site No.	*Mean Bankfull Width (m)*	*Mean Wetted Width (m)*	*Mean Bank Height (m)*	*Mean Water Depth (m)*	*Substrate Composition (%)*[1]						
					Si	*Sa*	*Gr*	*Co*	*Bo*	*Br*	*Or*
1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2	2.3	2.1	1.4	0.8	20	10	0	0	0	0	70
3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4[1]	4.5	2.5	0.6	0.2	20	30	20	0	0	0	30
5	2.5	1.9	1.3	0.12	10	30	20	20	10	0	10
6[2]	25	25	3.0	2.0	40	20	0	0	0	0	40
7	2.1	1.4	1.1	0.1	10	30	30	20	10	0	0
8	2.3	1.8	1.5	0.13	10	20	30	20	10	0	10
9	n/a	0.4	n/a	0.08	0	20	0	0	0	0	80

[1] Transects conducted downstream of culvert; [2] depth and substrates estimated

5.1.2 Fish Community Sampling

Electrofishing was conducted on August 2, 2018 using a Smith Root LR-24 backpack electrofishing unit to supplement background data and fish community inventories. Four locations were sampled under the Licence to Collect Fish for Scientific Purposes (LCFSP) Permit # 1090241 to document fish utilization. Sampling was completed by a Class 2 backpack electrofishing certified ecologist and supporting crew member in compliance with OMNR policy standards. Fish were captured, enumerated, identified and immediately released into appropriate habitat. A Mandatory Collection Report (MCR) will be submitted to Midhurst District MNRF in fulfillment of the LCFSP conditions.

Electrofishing was completed at Site 2, Site 4, Site 7 and Site 8. Sampling was not conducted at Site 1, Site 3, and Site 9 due to a lack of water; or Site 5 and Site 6 due to access limitations. Sampling technique and effort were conducted in accordance with the Screening Level of investigation as outlined Module Section 3: Module 1 of the Ontario Stream Assessment Protocol (OSAP).

Table 4 provides a summary of the results of the fish community sampling.

Table 4: Fish Community Sampling Results (August 2, 2018)

Location	Common Name	Scientific Name	No. Captured
Site 2	Northern Redbelly Dace	*Chrosomus eos*	4
	Creek Chub	*Semotilus atromaculatus*	*12*
	Central Mudminnow	*Umbra limi*	*15*
Site 4	Northern Redbelly Dace	*Chrosomus eos*	*4*
	Creek Chub	*Semotilus atromaculatus*	*22*
	Central Mudminnow	*Umbra limi*	*31*
	Brook Stickleback	*Culaea inconstans*	*1*
	Cyprinid sp.[1]	*Cyprinidae*	*13*
Site 7	Brook Trout	*Salvelinus frontinalis*	2
	Central Mudminnow	*Umbra limi*	2
Site 8	Brook Trout	*Salvelinus frontinalis*	4
	Central Mudminnow	*Umbra limi*	4

[1]Young of the year (YOY) Cyprinid species less than 20 mm

A total of 114 fish were captured after 812 seconds of electrofishing effort over four sites and two watercourses. Fish density was highest in Tributary 1 (Sites 2 and 4) with fish species comprising of ubiquitous cyprinid species. Schools of baitfish were readily observed utilizing pool features and undercut banks throughout the downstream extent of Site 2 and within Site 4. Site 7 and Site 8 yielded lower volumes of fish but contained both cold water species (i.e., Brook Trout) (

Photo 12) and cool/warm water species (i.e., Central mudminnow). These reaches contained a lower density of habitat utilized by fish with long areas of low productivity (i.e., shallow cobble riffles) which are likely used as migratory routes between preferred habitat (i.e., pools).

Capture results yielded a representative community list which corroborated data available in the Subwatershed Plan (LSRCA, 2012) and within the ARA sampling database. Sampling results and point temperature data would suggest that thermal mapping of these reaches could be updated to reflect the presence of coldwater species in Tributary 3.

Photo 12: Brook Trout (S*alvelinus frontinalis*) captured at Site 8 (August 2, 2018).



Overall, the four sampling sites (Sites 2, 4, 7 and 8) provided good fish habitat throughout their reaches. Tributary 1 provides high quality cyprinid habitat with low velocity and abundant cover to support a healthy population of baitfish. Conversely, Tributary 3 primarily consists of a narrower, confined channel structure with coarse substrates and moderate flow which supports a lower density fish population, including Brook Trout. Based on the habitat and species observed, an in-water timing window of July 15 to September 30th is recommended throughout the Study Area to align with the cold-water mapping of Tributary 1 and the presence of Brook Trout in Tributary 3.

5.1.3 Brook Trout Spawning Survey

Following the observation of Brook Trout in Tributary 3, and subsequent correspondence with MNRF, supplemental spawning investigations were conducted in early November 2018 to document reach utilization by spawning Brook Trout in the vicinity of the project.

Brook Trout excavate “nests” (i.e., redds) during spawning. Generally, salmonid redd construction size emulates the size of the specimen creating it. In particular, the pit (i.e., excavation) is roughly the same length as the fish and the spoil pile (i.e., deposition) is approximately the same size as the pit. Thus, a general guideline for redd sizing and total substrate disturbance is typically twice the body length of the targeted specimen. Based on the habitat present and fish size captured during the August 2, 2018 sampling, mature Brook Trout within the system may be as small as 150 mm.

Observation of the presence or absence of redds indicate utilization of the reaches for reproductive purposes. The timing of spawning activity ranges based on latitude and temperature but is typically triggered when water temperature falls below 10^{o}C (Holm *et al*., 2010 and Blachfield and Ridgeway, 1997). This usually occurs between late October and mid-November in southern Ontario but can vary depending on weather (Findlay, pers. comm). Based on weather conditions in 2018, it is anticipated that spawning occurred early in the recommended window (i.e., late October) due to an early onset of cold temperatures and winter weather. This timing was further supported by Brook Trout spawning activity observed by Burnside Aquatic Staff in an adjacent subwatershed on October 23, 2018. Redds are typically observable for several weeks following spawning, and as such, the timing of the investigation was planned to provide the highest potential for observing Brook Trout spawning activities, near the end of peak spawning, to capture *in situ* activities as well as activity in the preceding weeks.

The site visit was conducted on November 8th, 2018 within a fair weather window when water clarity would maximize visibility. Though Brook Trout were only captured within Tributary 3 (Site 7 and Site 8) during sampling, Tributary 1 was also investigated for completeness. Spawning surveys were conducted at Site 2, Site 4, Site 7 and Site 8 where suitable habitat, substrates and groundwater indicators (i.e., Watercress) were observed during the initial aquatics assessment on June 14, 2018. Reaches were traversed from 100 m downstream to 50 m upstream of the Sites, or where accessed permitted, with efforts focused on meander bends and areas immediately adjacent to the road embankments (Figure 2). Water temperature was recorded as 6.8^{o}C and 5.4^{o}C in Tributary 1 and Tributary 3, respectively. Based on spawning habitat preference and professional experience the Aquatic Ecologist focused on pool tail-outs, glide features, and suitable habitat adjacent to cover. Substrates lacking periphyton were observed in some areas but were associated with higher water velocities (e.g., riffles) and displayed no pit or spoil pile definition or sign of disturbance. No redds, test dig sites, or disturbed substrates were observed as a result of fish activity throughout the investigation.

6.0 Potential Impacts and Recommended Mitigation Measures

This section outlines the potential impacts and recommended mitigation measures associated with each proposed alternative solution. Once the detailed design has been completed, the mitigation measures should be updated and reviewed to appropriately support the specific design.

6.1 Potential Impacts to Fish Habitat

Watercourses considered both "direct" and "indirect" fish habitat are present within the Study Area and are protected under the *Fisheries Act*. Tributary 1 and Tributary 2 have been categorized by the LSRCA and MNRF Aquatic Resource Area mapping as a cold-water watercourse, while the thermal regime of Tributary 3 is currently classified as unknown.

Construction activities that have the potential to impact fish or fish habitat must be constructed and operated in compliance with the federal *Fisheries Act*. Without authorization from Fisheries and Oceans Canada (DFO), the *Fisheries Act* prohibits any work, undertaking, or activity that results in serious harm to fish that are part of a Commercial, Recreational or Aboriginal (CRA) Fishery, or to fish, that support such a fishery.

The *Fisheries Act* defines serious harm to fish as "…the death of fish or permanent alteration to, or destruction of, fish habitat" (DFO, 2014a, 2014b). The *Fisheries Act* also has provisions that: prohibit the deposition of deleterious substances into waters used by fish; ensure the safe passage of fish; require flow of water and passage of fish; and require water intakes and diversions to have a fish guard or fish screen.

DFO has introduced measures to facilitate its review process by allowing proponents to self-assess if projects near water require DFO review. The Self-Assessment includes the identification of types of waterbodies and project activities, along with associated criteria, where DFO review is not required. DFO review may also not be required if a project's activities, despite not being included on the aforementioned activity list, is inclusive of all necessary avoidance and mitigation strategies to disrupt its potential Pathway of Effects (PoE), thereby precluding the possibility of unmitigated or residual effects. If residual effects are anticipated during the Self-Assessment, even following the application of feasible avoidance and mitigation strategies, then DFO review is recommended. Regardless of whether a project's activities are included in the DFO activity list or not, proponents are still required to avoid causing serious harm to fish by providing mitigation such as those described in the Measures to Avoid Causing Harm to Fish and Fish Habitat.

If a project is unable to avoid residual effects, then the project should be submitted to DFO for review. Once reviewed, if it is determined that the project will not cause serious harm to fish, the project may be allowed to proceed as planned, or with the condition of additional mitigation measures. If, however, it is determined that the project will cause serious harm to fish that are part of, or that support, a CRA Fishery, proponents must apply for a *Fisheries Act* authorization (Paragraph 35[2][b] *Fisheries Act*) from the Minister of Fisheries and Oceans. The authorization process requires proponents to demonstrate that measures and standards have been applied to first avoid, then mitigate, and finally, offset any residual serious harm to fish that are part of or support a CRA Fishery.

6.2 Alternative Solutions and Potential Impacts

Do Nothing

This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

The alternative solution of Do Nothing may lead to the continued degradation of road embankments which could require repair and bank stabilization (as needed). Bank stabilization works have the potential to negatively impact fish and fish habitat through the alteration of the bed and banks, sediment mobilization, and changes in flow characteristics.

Local Traffic Only

This alternative may include the following:

- Allow access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road.
- Maintain public access to Centennial Park from 10th Sideroad.
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

It is anticipated that the alternative solution of Local Traffic Only will lead to continued degradation of the road embankments which would require repair (as needed) for local

residences. Bank stabilization works have the potential to negatively impact fish and fish habitat through the alteration of the bed and banks, sediment mobilization, and changes in flow characteristics.

One-Way Road

This alternative may include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.
- Install appropriate signs/marking and public notice of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisitions.

It is anticipated that the alternative solution of creating a One-Way Road may result in modification to road embankments and ditches that could impact adjacent fish and fish habitat by means of permanent alteration (direct) or through sediment mobilization and salt application (indirect). Culvert replacement activities, if required, have the potential to negatively impact fish and fish habitat and are subject to site specific design and conditions.

Widen the Road

This alternative may include the following:

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – paved shoulder and improve ditching.
- Tree clearing at East end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

It is anticipated that the alternative solution of Widening the Road would lead to impacts to adjacent fish habitat due to the proximity of watercourses to the road embankment at the eastern end of the Study Area and proposed ditching activities at the western end of

the Study Area. In particular, channel realignment and permanent alteration would be anticipated in Tributary 1 and 3. Culvert replacement activities, if required, have the potential to negatively impact fish and fish habitat through sediment and erosion impacts.

Dead-End Road with Turnaround

This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build cul–de–sac or hammer head turnarounds.
- Perform regular maintenance as required.

It is anticipated that the alternative solution of creating a cul-de-sac and general repairs may result in permanent alteration to fish habitat by means of habitat alteration (direct) or through sediment mobilization (indirect); however, impacts would be subject to the location of the turnaround feature and supporting works. Culvert replacement activities, if required, have the potential to negatively impact fish and fish habitat and are subject to site specific design and conditions.

6.3 Recommended Mitigation Measures

With respect to the watercourses that flow through the Study Area, constraints exist with regards to development and encroachment. As such, the following recommendations should be implemented:

- From an aquatics and fisheries perspective, impacts would be reduced if works were conducted primarily on the southern embankment. Should road works include improvements within the ROW to the north of the roadway, consideration should be given to minimizing the footprint of the expansion as much as possible.
- Should expansion of the road be required, channel realignment of both Tributary 1 and Tributary 3 may be required. Necessary geomorphological, natural channel design works, and environmental studies should be conducted to support the

permitting and design of the work. In this instance, project review by DFO would be recommended and an Authorization under the *Fisheries Act* may be required.
- Should dewatering be deemed necessary during the construction and development phases, a Monitoring and Mitigation Plan will be required to ensure that water quantity and quality is not compromised in the watercourse. This will be covered in the detailed design phase of the project.
- As the proposed works are located within a LSRCA Regulated Area, a work permit will be required from LSRCA under Ontario Regulation 166/06.

Aquatic and Fisheries Screening and Mitigation Development

- A proponent-led Self-Assessment will be conducted by a qualified professional aquatic ecologist during the detailed design phase to determine whether a "serious harm to fish" can be avoided. If one cannot be avoided, the DFO will be consulted through a Request for Project Review to determine appropriate next steps.

Construction and Environmental Management

- If the preferred alternative requires in-water work, activities should be conducted in the dry which would require the isolation of the work areas. A fish salvage would be required to remove fish from the work area, prior to dewatering. A Licence to Collect Fish for Scientific Purposes (LCFSP) will be required from the MNRF prior to the salvage activities.
- Any proposed in-water works will require compliance with the appropriate in water work construction timing windows.
- Provide appropriate environmental support during bank stabilization works (as applicable) to ensure serious harm to fish is avoided and residual effects are minimized. This may include but is not limited to: developing a site specific design strategy, minimizing alteration below the High-Water Mark (HWM), minimize 'in-filling' as defined by DFO, utilize native and/or appropriately sized substrates, and incorporation bioengineering bank stabilization techniques to the extent feasible.
- An Erosion and Sediment Control Plan should be developed for incorporation into detailed design. Implementation of the sediment and erosion control measures shall conform to recognized standard specifications, such as Ontario Provincial Standards Specification (OPSS), and the requirements of the LSRCA.
- Sediment and erosion control measures (silt curtains, silt fence, rock check dams, etc.) should be installed and maintained during the work phases until the site has been stabilized. Control measures should be inspected daily to ensure they are functioning and maintained as required. If control measures are not functioning properly, no further work should occur until the problem is resolved.
- Temporary mitigation measures should be installed prior to the commencement of any clearing, grubbing, excavation, filling or grading works and should be maintained on a regular basis, prior to, and after precipitation events.

- In-water operation of heavy equipment should be prevented, and operation of any equipment on the banks of a watercourse should be minimized. Stockpiled material should be stored and stabilized at least 30 m from any watercourse. All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water.
- Water quality impacts related to surface water run-off should be mitigated to avoid downstream impacts by controlling surface water run-off within the boundaries of the site.
- All disturbed areas of the work site should be stabilized immediately, and re-vegetated as soon as conditions allow.
- All equipment and personal protective equipment must arrive on-site clean to prevent the potential transfer of invasive species (i.e., phragmites) to the local environment.

Spill Mitigation

- All equipment fueling, and maintenance should be done at least 30 m from the watercourse to ensure that no deleterious substances enter the waterway.
- The contractor will be required to develop Spill Prevention and Contingency Plans for construction and operational phases of the project. Personnel will be trained in how to apply the plans, and the plans will be reviewed to strengthen their effectiveness and ensure continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the Contingency Plan. A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Center at 1-800-268-6060.

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Town of Innisfil

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

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R.J. Burnside & Associates Limited

Report Prepared By: p.p 

Meaghan Luis, M.Sc. (Pl)
ML:slw

Report Reviewed By: 

Tricia Radburn,
MCIP, RPP, Senior Environmental Planner
ML:slw

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1.0 Introduction

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

As part of the EA process, R.J. Burnside & Associates Limited (Burnside) has completed a socio-economic assessment to characterize the local economy and social environment. Burnside has reviewed municipal planning documents, relevant policy, land use plans, and available data to determine the character of the local Study Area and vicinity.

Potential impacts to the social-economic conditions of the Study Area have been assessed in relation to several criteria, for each of the alternative solutions determined through the EA process, which are discussed in Section 7.0.

2.0 Study Area

2.1 Description of Study Area

The Study Area is generally surrounded by wooded areas and agricultural lands. The 7th Line is surrounded by natural features on both sides, with agricultural lands present surrounding the road to the east, close to Yonge Street. There are several residences/agricultural operations along the 7th Line, with a recreational park (Centennial Park) located at the west end of the Study Area, on the north side of 7th Line. No active commercial businesses are located within the Study Area, however there are some businesses located beyond the Study Area to the north east and south east. The Study Area, and associated land uses, are illustrated on Figure 1. It is not known if there are home-based businesses in the Study Area.

2.2 Description of Land Use

The predominant land uses in the Study Area are Natural Environmental Area and Agricultural Area (OPA No. 1, Schedule B). The permitted uses of the present land designations do not allow for commercial or industrial uses and are limited to uses that are pre-existing or facilitate agriculture and fish, forestry, wildlife and conservation management. There are no businesses directly within the Study Area. Centennial Park, to the west of the Study Area, provides recreational opportunities to residents, including children's camps in the summer, a popular dog park, playground, the use of a pond and pavilion, and snowshoeing are present as popular activities (Places of Innisfil).

Figure 1: Study Area



3.0 Methodology

The assessment of socio-economic impacts was completed in several steps, as follows:

- The socio-economic environment of the Study Area and broader region were characterized using existing secondary source information, aerial photographs, reports, and census data.
- Relevant socio-economic policies and plans were reviewed and summarized.
- Criteria were developed to assess potential impacts of the various alternative solutions on the socio-economic environment and to assess the compatibility of the various alternative solutions with relevant policy documents.

4.0 Background Review

Background data sources and policies reviewed for this study included:

- Provincial Policy Statement (2014);
- Growth Plan for the Greater Golden Horseshoe (2017);
- County of Simcoe Official Plan (2016);
- Town of Innisfill Official Plan (2009);
- Statistics Canada Census Data;
- County of Simcoe Transportation Master Plan (2018);
- Inspiring Innisfill 2020 *(*2017); and
- County of Simcoe Strategic Plan (2014).

5.0 Existing Conditions

5.1 Population Growth

According to Statistics Canada 2016 census, the population was estimated at approximately 35,566. From 2011 to 2016 the population increased by 11%, a significant degree of growth. This compares to the provincial average of 4.6% and the national average of 5.0%. According to the County of Simcoe Official Plan (OP), the population of the Town is projected to be 56,000 by 2031. Important industries in the area include sales and services, trades and equipment operators, and business and administration occupations. The area has been historically rural, with a strong tradition of agriculture, but growth in Barrie and the Greater Toronto Area (GTA) has meant greater residential development in the Town in recent years.

5.2 Agricultural Operations

The agricultural operations within the Study Area, located along 7th Line, produce mainly cash crops (based on air photo interpretation) with no signs of livestock operations. The Town has a historical record of agricultural beginnings, with mainly cash and specialty crops.

5.3 Existing Commercial Businesses and Industries

There are no existing commercial businesses or industries within the Study Area. A recreational park (Centennial Park) is located at the west end of the Study Area, on the north side of 7th Line. Sunset Speedway, a local racetrack is located to the southeast, approximately 770 m beyond the Study Area, on Yonge Street.

5.4 Social Conditions

The Study Area is mainly rural in nature, comprising of mainly natural lands with some agriculture present. There is a low density of residential dwellings. Businesses are not located within the Study Area, with very few businesses located adjacent to the Study Area. The area is popular for snowshoeing and recreation activities (Places of Innisfil) and offers a variety of outdoor recreational activities due to its rural setting.

6.0 Relevant Policies

6.1 Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) is the complimentary policy document to the *Planning Act*, issued under Section 3 of the *Planning Act*. The PPS is more than a set of individual policies. It is to be read in its entirety and the relevant policies are to be applied to each project. The language of each policy, including the Implementation and Interpretation policies, assists the Town in understanding how the policies are to be implemented.

The PPS states that municipal projects should be directed to existing settlement areas, create stronger and improved communities, and have little to no impact on the natural features of the area. In general projects should have consideration for future needs to ensure the benefits of the project are far-reaching. There is no implied priority in the order in which the policies appear.

Section 1.6 of the PPS contains specific guidance on Infrastructure and Public Service Facilities:

"1.6.1 Infrastructure and public services facilities shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate changes while accommodating projected needs.

Planning for infrastructure and public service facilities shall be coordinated and integrated with land use planning so that they are:

Financially viable over their life cycle, which may be demonstrated through asset management planning; and

Available to meet current and projected needs.

1.6.3 Before consideration is given to developing new infrastructure and public service facilities:

a) The use of existing infrastructure and public service facilities should be optimized; and

b) Opportunities for adaptive re-use should be considered, wherever feasible."

There are many more policies that are relevant to the assessment of the project, particularly 1.1.1 c., 1.1.3.4, 1.6.7.1, 1.6.8.4, 1.7.1.6 and the Natural Heritage and Water policies in Section 2.

Municipal projects that demonstrate little to no impact on the natural environment and create stronger communities can be completed in accordance with municipal policies.

6.2 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (2017) (GGH) is a Provincial Plan that directs how regional growth in the GGH is to be managed to the year 2041. The plan carries policies forward from the PPS, working to reduce development sprawl and providing direction in where intensification should take place. There are several provisions within the policy that are relevant to the 7th Line Improvements. Section 3.2.2. of the Growth Plan outlines the general provisions of Transportation for the Greater Golden Horseshoe. According to this policy, the transportation system within the GGH will be planned and managed to:

a) *"Provide connectivity among transportation modes for moving people and moving goods;*

b) *Offer a balance of transportation choices that reduces reliance upon the automobile and promotes transit and active transportation."*

Section 4 of the Growth Plan details the protection of natural features within the GGH. Within the Natural Heritage System:

iii. "the removal of other natural features, not identified as key natural heritage features and key hydrologic features is avoided, where possible. Such features should be incorporated into the planning and design of the proposed use wherever possible"

Climate change is also addressed in Section 4 of the Growth Plan. According to the Growth Plan, in planning to reduce Greenhouse Gas (GHG) emissions and address the impacts of climate change, municipalities are encouraged to:

a) "develop strategies to reduce greenhouse gas emissions and improve resilience through the identification of vulnerabilities to climate change, land use planning, planning for infrastructure including transit and energy, green infrastructure, and low impact development, and the conservation objectives in policy 4.2.9.1"

The potential improvements to 7th Line help address some of the larger themes of the Growth Plan by increasing connectivity locally within Innisfil with careful consideration of the natural heritage features which are present in the Study Area.

6.3 County of Simcoe Regional Official Plan

The County of Simcoe OP is prepared under the *Planning Act* R.S.O 1990 c.P. 13, as amended, (*Planning Act*) of the Province of Ontario. The County of Simcoe OP provides a policy context for land use planning taking into consideration the economic, social, and environmental impacts of land use and development decisions. The Study Area is largely comprised of greenlands and agricultural lands. Generally, development is not permitted within significant natural heritage features except in accordance with provincial and federal requirements. The agricultural land use designation works to protect the resource of prime agricultural lands and areas by minimizing competing uses.

The designations within the County of Simcoe OP prohibit significant development in the Study Area which may create competing land uses to agriculture.

6.4 Town of Innisfil Official Plan

The Study Area includes the land use designations of Natural Environmental and Agricultural Areas according to Schedule B - Land Use. The Natural Environmental land designation includes those natural heritage features considered significant at the provincial, regional or local level. Within the Agricultural Area designation, uses permitted shall be limited to agricultural uses, secondary agricultural uses, one single detached residence as an accessory use to an agricultural operation, garden suites, and other agricultural related uses which are compatible with and supportive of the agricultural community.

In conformance with the County of Simcoe OP, the Town of Innisfil OP prohibits significant commercial or residential development in the Study Area. Projects that improve municipal infrastructure are permitted under the OP and are considered for approval individually.

6.5 County of Simcoe Transportation Master Plan

The Transportation Master Plan for the County of Simcoe was completed in 2008. Within this report, Innisfil is listed as projecting large growth numbers within the County in the near future, with road network connectivity a main priority in coming years. Today, the current population in the Simcoe Area (including Barrie and Orillia) is approximately 438,000 based on 2006 Census data. With the Places to Grow legislation, the province has designated that the total population in the County is projected to grow to a total 667, 000 people by 2031. Development controls are in place in these lands in accordance with provincial policy and the *Planning Act*.

All roads in the Town are addressed by the Transportation Master Plan and all are included which form part of the document. The plan does include specific recommendations for sections of 7th Line, however not the sections of the road which are under study as part of this EA process. Improvements made to 7th Line through the various alternatives will increase road connectivity generally.

6.6 Inspiring Innisfil 2020

Inspiring Innisfil 2020 is a Community Strategic Plan that was created after gathering feedback from residents over the course of a year. The Plan outlines an overarching vision and goals for the community. The Plan is based upon three goals:

- *Grow*: embracing a managed level of growth
- *Connect*: creating increased transportation opportunities
- *Sustain*: Sustain Infrastructure and promoting environmental sustainability

Improving the safety and connectivity of 7th Line helps to fulfill the above objectives of the Plan.

7.0 Evaluation of Alternatives

The five alternative solutions were evaluated against socio-economic criteria to identify potential impacts and assess compatibility with applicable policies. Various socio-economic criteria have been selected as key indicators of socio-economic change in the Study Area as a result of the road improvements. These criteria will also effectively assess the compatibility of each alternative with the policies listed in Section 6.0 of this report.

The EA process involves the assessment of several alternative solutions considered for 7th Line road improvement including:

Do Nothing

This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

Local Traffic Only

This alternative may include the following:

- Allow access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road.
- Maintain public access to Centennial Park from 10th Sideroad.
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

One-Way Road

This alternative may include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.
- Install appropriate signs/marking and public notice of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisition.

Widen the Road

This alternative may include the following:

- Operate as a two-way road, fully open to the public.

- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – paved shoulder and improve ditching.
- Tree clearing at east end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

Dead-End Road with Turnaround

This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build cul–de–sac or hammer head turnarounds.
- Perform regular maintenance as required.

The criteria selected for the socio-economic evaluation of alternatives are as listed below, and Table 1 illustrates the evaluation of potential effects on the socio-economic environment within the Study Area.

- Adjacent Land Uses;
- Recreation;
- Aesthetics and Visual Impacts;
- Quality of Life (Health and Safety, Travel Time, Traffic);
- Considerations of Streetscape Design;
- Development Activity (active development applications);
- Network Access;
- Construction;
- Residential (nuisance impacts, access, excluding impacts to property value);
- Impacts to business;
- Place-making Opportunities;

- Agricultural Resources;
- Cycling and Pedestrian Environment; and
- Property Requirements (Acquisition of property related to project needs).

Table 1: Evaluation of Potential Effects on the Socio-economic Environment

Socio Economic Criteria	Alternative 1 Do Nothing	Alternative 2 Local Traffic Only	Alternative 3 One-Way Road	Alternative 4 Widen the Road	Alternative 5 Dead-end Road with Turnaround
Adjacent Land Use	No impacts to adjacent lands.	No impacts to adjacent lands.	No long-term impacts to adjacent land use (temporary impacts during the construction period).	No long-term impacts to adjacent land use (temporary impacts during the construction period).	No long-term impacts to adjacent land use (temporary impacts during the construction period).
Recreation	No impacts to recreation in the Study Area.	No impacts to recreation in the Study Area.	No impacts to recreation in the Study Area.	Nuisance impacts during the constriction period, but no impacts to park operation post construction.	Nuisance impacts during the constriction period, but no impacts to park operation post construction.
Aesthetics and Visual Impacts	No visual impacts in the Study Area.	No visual impacts in the Study Area. Signage installed to limit through traffic.	Signage installed on the road. No major impacts to aesthetics.	Potential for increased traffic with a two-lane road, a larger visual impact.	Potential for increased traffic with a two-lane road, a larger visual impact.
Quality of Life (Health and Safety, Traffic Time)	No impacts to quality of life (Health and Safety). Associated safety risks will remain with continued use of the road.	Road will be accessible to local traffic only. Traffic and driving time for residents may increase due to need for alternative travel routing.	Safety of road will improve as slopes and ditching are repaired and road is repaved. Minor nuisance effects during the construction period. Traffic and driving time for residents	Overall safety of road will improve with two lanes.	Overall safety of road will improve with two lanes. Traffic and driving time for residents may increase due to the cul-de-sac.

Socio Economic Criteria	Alternative 1 Do Nothing	Alternative 2 Local Traffic Only	Alternative 3 One-Way Road	Alternative 4 Widen the Road	Alternative 5 Dead-end Road with Turnaround
			may increase due to one-way road.		
Development Activity	No impacts to property development in the Study Area.	No impacts to property development in the Study Area.	No impacts to property development in the Study Area.	No impacts to property development in the Study Area.	No impacts to property development in the Study Area.
Network Access (e.g., providing alternate routes)	Network access will not be improved.	Network access will not be improved.	Network access will not be improved, no alternative routes created.	Network access will be improved with a two-way road.	Network access will not be improved.
Construction	No construction will take place (regular maintenance will take place as needed)	No construction will take place (regular maintenance will take place as needed)	Temporary construction will take place to upgrade the single-lane road.	Longer construction period required to widen the road.	Longer construction period required to build the cul-de-sac.
Residential (Nuisance impacts due to construction, access)	No impact to existing residential properties in the Study Area.	No impact to existing residential properties in the Study Area.	No nearby residential dwellings and low potential for impacts. Minor nuisance effects will be temporary during the construction period. Access for local residents will decrease due to one-way road.	No nearby residential dwellings and low potential for impacts. Minor nuisance effects will be temporary during the construction period.	No nearby residential dwellings and low potential for impacts. Minor nuisance effects will be temporary during the construction period. Local access for residents will decrease due to cul-de-sac.

Socio Economic Criteria	Alternative 1 Do Nothing	Alternative 2 Local Traffic Only	Alternative 3 One-Way Road	Alternative 4 Widen the Road	Alternative 5 Dead-end Road with Turnaround
Impacts to Business	No impacts to existing businesses.	No impacts to existing businesses.	No impacts to existing businesses.	No impacts to existing businesses.	No impacts to existing businesses.
Place-making Opportunities	No place making opportunities will be present within the Study Area.	No place making opportunities will be present within the Study Area.	No place making opportunities will be present within the Study Area.	No place making opportunities will be present within the Study Area.	Potential for place making opportunities.
Agricultural Resources (farm structures and incomes)	No impacts to agriculture.	No impacts to agriculture.	Temporary impacts to agricultural operations due to nuisance from construction period, no long-term impacts to agricultural production, operation or farm structures).	Temporary impacts to agricultural operations due to nuisance from construction period, no long-term impacts to agricultural production, operation or farm structures. Road will have closer proximity to agricultural operations overall, but no long-term negative impacts expected which will affect yields or income.	Temporary impacts to agricultural operations due to nuisance from construction period, no long-term impacts to agricultural production, operation or farm structures. Road will have closer proximity to agricultural operations overall, but no long-term negative impacts expected which will affect yields or income.

Socio Economic Criteria	Alternative 1 Do Nothing	Alternative 2 Local Traffic Only	Alternative 3 One-Way Road	Alternative 4 Widen the Road	Alternative 5 Dead-end Road with Turnaround
Pedestrian and Cycling Environment	No impacts to the existing cycling and pedestrian environment.	No impacts to the existing cycling and pedestrian environment.	No impacts to the existing cycling and pedestrian environment.	Potential for improved cycling and pedestrian environment.	Potential for improved cycling and pedestrian environment.
Property Requirements	No property acquisition needed.	No property acquisition needed.	No property acquisition needed.	Some property acquisition may be required at the west end of the Study Area.	Some property acquisition may be required at the east and west end of the Study Area to build the cul- de- sac or hammer head turn around.

8.0 Conclusions

Improvements made to 7th Line are supported by provincial, regional and town level policies. Road improvements to 7th Line, through Alternatives 4 and 5 will support existing land uses in the Study Area while providing the opportunity for improved network connectivity and overall safety of road users. Economically, the future growth of the Town will be served by the widening of the roadway, providing alternative routes and greater roadway network connectivity in the area as the area diversifies its services and businesses grow within the larger area.

9.0 References

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CULTURAL HERITAGE RESOURCE ASSESSMENT:
BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT

7TH LINE IMPROVEMENTS FROM YONGE STREET TO 10TH SIDEROAD
SCHEDULE 'C' CLASS ENVIRONMENTAL ASSESSMENT

TOWN OF INNISFIL
SIMCOE COUNTY, ONTARIO

DRAFT REPORT

Prepared for:

Deanna De Forest
R.J. Burnside & Associates Ltd.
128 Wellington Street W., Suite 301
Barrie, ON L4N 8J6

ASI File: 18CH-015

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ASI Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
416-966-1069 F 416-966-9723 asiheritage.ca

CULTURAL HERITAGE RESOURCE ASSESSMENT:
BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT

7TH LINE IMPROVEMENTS FROM YONGE STREET TO 10TH SIDEROAD
SCHEDULE 'C' CLASS ENVIRONMENTAL ASSESSMENT

TOWN OF INNISFIL
SIMCOE COUNTY, ONTARIO

EXECUTIVE SUMMARY

ASI was contracted by R.J. Burnside & Associates Ltd. to conduct a Cultural Heritage Resource Assessment as part of the 7th Line Improvements from Yonge Street to 10th Sideroad Schedule 'C' Class Environmental Assessment. The study area is located in the Town of Innisfil and focuses on 7th Line between Yonge Street and 10th Sideroad. The preferred alternative for the project involves the widening of 7th Line and the removal and replacement of existing culverts. The study area is generally located in a densely treed area within a rural agricultural context southwest of the settlement of Alcona.

The results of background historical research and a review of secondary source material revealed a study area with a rural land use history dating back to the early nineteenth century. A field review was conducted for the entire study area to document any additional potential cultural heritage resources.

Background research, data collection, and field review was conducted for the study area and it was determined that one cultural heritage resource is located within or adjacent to the 7th Line Improvements from Yonge Street to 10th Sideroad study area. Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage resources. In particular, no-go zones should be established adjacent to the identified cultural heritage resource (CHL 1) and instructions to construction crews should be issued in order to prevent impacts.

2. Where feasible, the profile and cross section of the preferred alternative should be altered to avoid all grading and tree removals associated with CHL 1.

3. Should avoidance of tree removals and grading adjacent to CHL 1 be determined to be infeasible, post-construction landscaping with historically-sympathetic native tree species should be employed to mitigate impacts to the heritage value of the resource. A qualified arborist or landscape architect should be consulted in this respect.

4. Given the potential cultural heritage value of the farmscape at 2399 7th Line (CHL 1), heritage planning staff at the Town of Innisfil should be contacted to determine if a resource-specific Heritage Impact Assessment (HIA) is required.

5. This report should be submitted to Kevin Jacobs, Assistant Clerk at the Town of Innisfil and the Ministry of Tourism, Culture, and Sport for review; and

6. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

PROJECT PERSONNEL

Senior Project Manager:	Annie Veilleux, MA, CAHP *Senior Heritage Specialist | Manager* *Cultural Heritage Division*
Project Manager:	John Sleath, MA *Associate Archaeologist | Project Manager* *Cultural Heritage Division*
Project Coordinator:	Sarah Jagelewski, BA (Hon) *Lead Archaeologist | Assistant Manager* *Environmental Assessment Division*
Report Preparation:	John Sleath Kirstyn Allam, Hon. BA, Dip. Advanced Museum Studies *Cultural Heritage Assistant, Cultural Heritage Division*
Graphics Preparation:	Adam Burwell, MSc *Archaeologist | Geomatics Specialist* *Operations Division*
Field Review:	John Sleath
Report Reviewers:	Annie Veilleux Kristina Martens, BA (Hon), Dip Heritage Conservation *Cultural Heritage Specialist | Project Manager - Cultural Heritage Division*

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1.0 INTRODUCTION

ASI was contracted by R.J. Burnside & Associates Ltd. to conduct a Cultural Heritage Resource Assessment as part of the 7th Line Improvements from Yonge Street to 10th Sideroad Schedule 'C' Class Environmental Assessment. The study area is located in the Town of Innisfil and focuses on 7th Line between Yonge Street and 10th Sideroad. The preferred alternative for the project involves the widening of 7th Line and the removal and replacement of existing culverts. The study area is generally located in a densely treed area within a rural agricultural context southwest of the settlement of Alcona (Figure 1).

The purpose of this report is to identify existing conditions of the 7th Line Improvements study area, present an inventory of cultural heritage resources located within or adjacent to the study area, identify impacts to cultural heritage resources, and propose appropriate mitigation measures. This research was conducted by John Sleath, Project Manager, under the senior project management of Annie Veilleux, Manager of the Cultural Heritage Division, both of ASI.

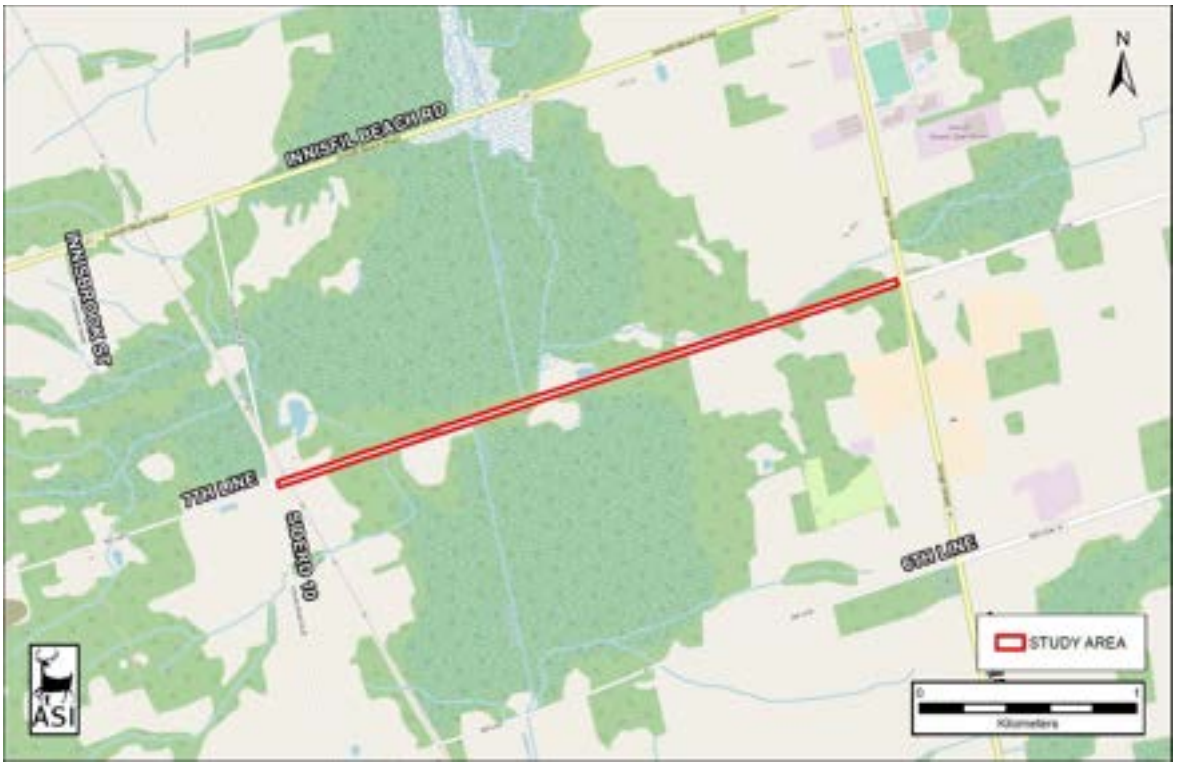


Figure 1: Location of the study area
Base Map: ©OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

2.0 BUILT HERITAGE RESOURCE AND CULTURAL HERITAGE LANDSCAPE ASSESSMENT CONTEXT

2.1 Legislation and Policy Context

This cultural heritage assessment considers cultural heritage resources in the context of improvements to specified areas, pursuant to the *Environmental Assessment Act*. This assessment addresses above ground cultural heritage resources over 40 years old. Use of a 40-year-old threshold is a guiding principle when conducting a preliminary identification of cultural heritage resources (Ministry of Tourism, Culture and Sport 2016). While identification of a resource that is 40 years old or older does not confer outright heritage significance, this threshold provides a means to collect information about resources that may retain heritage value. Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from retaining heritage value.

For the purposes of this assessment, the term cultural heritage resources is used to describe both cultural heritage landscapes and built heritage resources. A cultural landscape is perceived as a collection of individual built heritage resources and other related features that together form farm complexes, roadscapes and nucleated settlements. Built heritage resources are typically individual buildings or structures that may be associated with a variety of human activities, such as historical settlement and patterns of architectural development.

The analysis throughout the study process addresses cultural heritage resources under various pieces of legislation and their supporting guidelines. Under the *Environmental Assessment Act* (1990) environment is defined in Subsection 1(c) to include:

- cultural conditions that influence the life of man or a community, and;
- any building, structure, machine, or other device or thing made by man.

The Ministry of Tourism, Culture and Sport is charged under Section 2 of the *Ontario Heritage Act* with the responsibility to determine policies, priorities and programs for the conservation, protection and preservation of the heritage of Ontario and has published two guidelines to assist in assessing cultural heritage resources as part of an environmental assessment: *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (1992), and *Guidelines on the Man-Made Heritage Component of Environmental Assessments* (1980). Accordingly, both guidelines have been utilized in this assessment process.

The *Guidelines on the Man-Made Heritage Component of Environmental Assessments* (Section 1.0) states the following:

> When speaking of man-made heritage we are concerned with the works of man and the effects of his activities in the environment rather than with movable human artifacts or those environments that are natural and completely undisturbed by man.

In addition, environment may be interpreted to include the combination and interrelationships of human artifacts with all other aspects of the physical environment, as well as with the social, economic and cultural conditions that influence the life of the people and communities in Ontario. The *Guidelines on the Man-Made Heritage Component of Environmental Assessments* distinguish between two basic ways of visually experiencing this heritage in the environment, namely as cultural heritage landscapes and as cultural features.

Within this document, cultural heritage landscapes are defined as the following (Section 1.0):

> The use and physical appearance of the land as we see it now is a result of man's activities over time in modifying pristine landscapes for his own purposes. A cultural landscape is perceived as a collection of individual man-made features into a whole. Urban cultural landscapes are sometimes given special names such as townscapes or streetscapes that describe various scales of perception from the general scene to the particular view. Cultural landscapes in the countryside are viewed in or adjacent to natural undisturbed landscapes, or waterscapes, and include such land uses as agriculture, mining, forestry, recreation, and transportation. Like urban cultural landscapes, they too may be perceived at various scales: as a large area of homogeneous character; or as an intermediate sized area of homogeneous character or a collection of settings such as a group of farms; or as a discrete example of specific landscape character such as a single farm, or an individual village or hamlet.

A cultural feature is defined as the following (Section 1.0):

> …an individual part of a cultural landscape that may be focused upon as part of a broader scene, or viewed independently. The term refers to any man-made or modified object in or on the land or underwater, such as buildings of various types, street furniture, engineering works, plantings and landscaping, archaeological sites, or a collection of such objects seen as a group because of close physical or social relationships.

Additionally, the *Planning Act* (1990) and related *Provincial Policy Statement* (*PPS*), which was updated in 2014, make a number of provisions relating to heritage conservation. One of the general purposes of the *Planning Act* is to integrate matters of provincial interest in provincial and municipal planning decisions. In order to inform all those involved in planning activities of the scope of these matters of provincial interest, Section 2 of the *Planning Act* provides an extensive listing. These matters of provincial interest shall be regarded when certain authorities, including the council of a municipality, carry out their responsibilities under the *Act*. One of these provincial interests is directly concerned with:

> 2.(d) the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest

Part 4.7 of the *PPS* states that:

> The official plan is the most important vehicle for implementation of this Provincial Policy Statement. Comprehensive, integrated and long-term planning is best achieved through official plans.
> Official plans shall identify provincial interests and set out appropriate land use designations and policies. To determine the significance of some natural heritage features and other resources, evaluation may be required.
>
> Official plans should also coordinate cross-boundary matters to complement the actions of other planning authorities and promote mutually beneficial solutions. Official plans shall provide clear, reasonable and attainable policies to protect provincial interests and direct development to suitable areas.

> In order to protect provincial interests, planning authorities shall keep their official plans up-to-date with this Provincial Policy Statement. The policies of this Provincial Policy Statement continue to apply after adoption and approval of an official plan.

Those policies of relevance for the conservation of heritage features are contained in Section 2- Wise Use and Management of Resources, wherein Subsection 2.6 - Cultural Heritage and Archaeological Resources, makes the following provisions:

> 2.6.1 Significant built heritage resources and significant cultural heritage landscapes shall be conserved.

A number of definitions that have specific meanings for use in a policy context accompany the policy statement. These definitions include built heritage resources and cultural heritage landscapes.

A *built heritage resource* is defined as: "a building, structure, monument, installation or any manufactured remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Aboriginal community" (Ministry of Municipal Affairs and Housing 2014).

A *cultural heritage landscape* is defined as "a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Aboriginal community. The area may involve features such as structures, spaces, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association" (Ministry of Municipal Affairs and Housing 2014). Examples may include, but are not limited to farmscapes, historical settlements, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways, and industrial complexes of cultural heritage value.

In addition, significance is also more generally defined. It is assigned a specific meaning according to the subject matter or policy context, such as wetlands or ecologically important areas. With regard to cultural heritage and archaeology resources, resources of significance are those that are valued for the important contribution they make to our understanding of the history of a place, an event, or a people (Ministry of Municipal Affairs and Housing 2014).

Criteria for determining significance for the resources are recommended by the Province, but municipal approaches that achieve or exceed the same objective may also be used. While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation (Ministry of Municipal Affairs and Housing 2014).

Accordingly, the foregoing guidelines and relevant policy statement were used to guide the scope and methodology of the cultural heritage assessment.

2.2 Municipal Heritage Policies

The Town of Innisfil's *Official Plan* (2011) provides policy direction for development on properties with cultural heritage resources. These policies include:

> **Section Six: Cultural Heritage and Archaeology**

Intent:

Cultural Heritage and Archaeological policies apply to those properties that are of cultural heritage value or interest identified in the Town's registry of properties or those properties and areas identified through a heritage or archaeological analysis. It is intended that those properties and areas identified as having historical or archaeological significance be protected.

Goals:

To protect cultural heritage resources which are important to the identity and character of the Town.

Objectives:

1. To encourage the maintenance, restoration and enhancement of buildings, structures and areas which are considered of significant architectural or historical value.
2. To identify and preserve significant archaeological resources.
3. To identify and conserve significant cultural heritage landscapes.
4. To ensure that new development is sensitive to heritage resources.
5. To encourage and foster public awareness, participation and involvement in the conservation of cultural heritage resources

Policies:

6.1 A register of built heritage resources and heritage conservation districts that are of cultural heritage value or interest shall be established by the Town. The register will be kept by the Clerk and shall list all property situated in the municipality that has been designated by the municipality or by the Minister and shall contain, with respect to each property:

- A legal description of the property;
- The name and address of the owner; and
- A statement explaining the cultural heritage value or interest of the property and a description of the heritage attributes of the property.

6.3 The register may also include built heritage resources that have not been designated but that the Town Council or local heritage committee believes to be of cultural heritage value or interest.

6.4 A heritage committee shall be appointed to identify the register of built heritage resources, and shall not contain fewer than five members.

6.5 The heritage committee shall identify the register of built heritage resources based on the criteria provided in Sections 6.6 and 6.7 and may also identify significant cultural heritage landscapes.

6.6 Cultural Heritage Resources generally fall into one of two categories: those of historic value and those of architectural value.

a) Cultural Heritage Resources of historic value can be described as follows:
   - Those that serve as an example of the Town's past social, cultural, political or physical development;

- Those that serve as an example of outstanding work by a local or national personality; and
- Those that date from an early or significant period in the Town's development.

b) Cultural Heritage Resources of architectural value can be described as follows:
- Those that serve as a representative example of style, design or period of building;
- Those that serve as a representative example of a method of construction which was used during a certain time period or rarely used today;
- Those that serve as an important Town landmark; and
- Those that make an important contribution to the area composition or streetscape of which it forms a part.

6.7 Cultural Heritage Resources may also include property or area that is recognized by the Province as being archaeologically significant. By-laws under the Ontario Heritage Act may be passed to designate properties of historical or architectural significance.

6.8 The Town may establish design principles for buildings in proximity to Heritage Conservation Districts or Heritage Conservation buildings.

6.10 Development applications on lands adjoining or contiguous to a protected heritage property shall demonstrate that the heritage attributes of the protected heritage property will be conserved.

6.13 The Town will have regard for known built heritage resources, significant cultural heritage landscapes and known archaeological resources in the undertaking of municipal public works, such as roads and infrastructure projects carried under the Municipal Class Environmental Assessment (EA) process.

2.3 Data Collection and Methodology

In the course of the cultural heritage assessment, all potentially affected cultural heritage resources are subject to inventory. Short form names are usually applied to each resource type, (e.g. barn, residence). Generally, when conducting a preliminary identification of cultural heritage resources, three stages of research and data collection are undertaken to appropriately establish the potential for and existence of cultural heritage resources in a particular geographic area.

Background historical research, which includes consultation of primary and secondary source research and historical mapping, is undertaken to identify early settlement patterns and broad agents or themes of change in a study area. This stage in the data collection process enables the researcher to determine the presence of sensitive heritage areas that correspond to nineteenth and twentieth-century settlement and development patterns. To augment data collected during this stage of the research process, federal, provincial, and municipal databases and/or agencies are consulted to obtain information about specific properties that have been previously identified and/or designated as retaining cultural heritage value. Typically, resources identified during these stages of the research process are reflective of particular architectural styles, associated with an important person, place, or event, and contribute to the contextual facets of a particular place, neighbourhood, or intersection.

A field review is then undertaken to confirm the location and condition of previously identified cultural heritage resources. The field review is also used to identify cultural heritage resources that have not been previously identified on federal, provincial, or municipal databases.

Several investigative criteria are utilised during the field review to appropriately identify new cultural heritage resources. These investigative criteria are derived from provincial guidelines, definitions, and past experience. During the course of the environmental assessment, a built structure or landscape is identified as a cultural heritage resource if it is considered to be 40 years or older, and if the resource satisfies at least one of the following criteria:

Design/Physical Value:

- It is a rare, unique, representative or early example of a style, type, expression, material or construction method.
- It displays a high degree of craftsmanship or artistic merit.
- It demonstrates a high degree of technical or scientific achievement.
- The site and/or structure retains original stylistic features and has not been irreversibly altered so as to destroy its integrity.
- It demonstrates a high degree of excellence or creative, technical or scientific achievement at a provincial level in a given period.

Historical/Associative Value:

- It has a direct association with a theme, event, belief, person, activity, organization, or institution that is significant to: the Town of Innisfil; the Province of Ontario; or Canada.
- It yields, or has the potential to yield, information that contributes to an understanding of the history of: the Town of Innisfil; the Province of Ontario; or Canada.
- It demonstrates or reflects the work or ideas of an architect, artist builder, designer, or theorist who is significant to: the Town of Innisfil; the Province of Ontario; or Canada.
- It represents or demonstrates a theme or pattern in Ontario's history.
- It demonstrates an uncommon, rare or unique aspect of Ontario's cultural heritage.
- It has a strong or special association with the entire province or with a community that is found in more than one part of the province. The association exists for historical, social, or cultural reasons or because of traditional use.
- It has a strong or special association with the life or work of a person, group or organization of importance to the province or with an event of importance to the province.

Contextual Value:

- It is important in defining, maintaining, or supporting the character of an area.
- It is physically, functionally, visually, or historically linked to its surroundings.
- It is a landmark.
- It illustrates a significant phase in the development of the community or a major change or turning point in the community's history.
- The landscape contains a structure other than a building (fencing, culvert, public art, statue, etc.) that is associated with the history or daily life of that area or region.
- There is evidence of previous historical and/or existing agricultural practices (e.g. terracing, deforestation, complex water canalization, apple orchards, vineyards, etc.)
- It is of aesthetic, visual or contextual important to the province.

If a resource meets one of these criteria it will be identified as a cultural heritage resource and is subject to further research where appropriate and when feasible. Typically, detailed archival research, permission to enter lands containing heritage resources, and consultation is required to determine the specific heritage significance of the identified cultural heritage resource.

When identifying cultural heritage landscapes, the following categories are typically utilized for the purposes of the classification during the field review:

Farm complexes:	comprise two or more buildings, one of which must be a farmhouse or barn, and may include a tree-lined drive, tree windbreaks, fences, domestic gardens and small orchards.
Roadscapes:	generally two-lanes in width with absence of shoulders or narrow shoulders only, ditches, tree lines, bridges, culverts and other associated features.
Waterscapes:	waterway features that contribute to the overall character of the cultural heritage landscape, usually in relation to their influence on historical development and settlement patterns.
Railscapes:	active or inactive railway lines or railway rights of way and associated features.
Historical settlements:	groupings of two or more structures with a commonly applied name.
Streetscapes:	generally consists of a paved road found in a more urban setting, and may include a series of houses that would have been built in the same time period.
Historical agricultural landscapes:	generally comprises a historically rooted settlement and farming pattern that reflects a recognizable arrangement of fields within a lot and may have associated agricultural outbuildings, structures, and vegetative elements such as tree rows.
Cemeteries:	land used for the burial of human remains.

Results of the desktop data collection and field review are contained in Section 3.0, while Sections 4.0 and 5.0 contain conclusions and recommendations with respect to potential impacts of the undertaking on the identified cultural heritage resource. A cultural heritage resource inventory is provided in Section 7.0, while location mapping is in Section 8.0. Detailed mapping of the preferred alternative is provided in Appendix A.

3.0 BUILT HERITAGE RESOURCE AND CULTURAL HERITAGE LANDSCAPE ASSESSMENT

This section provides a brief summary of historical research and a description of identified above ground cultural heritage resources that may be affected by the proposed undertaking.

3.1 Background Historical Summary

A review of available primary and secondary source material was undertaken to produce a contextual overview of the study area, including a general description of physiography, as well as Indigenous and Euro-Canadian land use and settlement.

3.1.1 Physiography

The study area is located within the Peterborough Drumlin Field Physiographic Region, within the Lover's Creek subwatershed of the Lake Simcoe Watershed region. This region is generally suitable for agriculture; however, the immediate study area vicinity is generally low-lying and poorly drained, with the majority consisting of wetlands.

The Peterborough Drumlin Field extends from Simcoe County east to Hastings County and is generally characterized by rolling till plains overlying limestone bedrock. The region is approximately 4,532 km^2 and contains over 3000 drumlins in addition to many other drumlinoid hills and surface flutings (Chapman and Putnam 1984:169). The drumlins are composed of highly calcareous till but there are local differences in composition. The till plains of the regions were formed during the retreat of the Lake Ontario ice lobe of the Laurentide glacier and they indicate directionality of glacial advance and retreat. Till is produced from the advance of continental glacial ice. Soil and rock is carried forward by the ice, mixed and milled, producing a heterogeneous soil which is characteristic of glaciations (Chapman and Putnam 1984:10, 16).

The study area is within the Lover's Creek subwatershed of the Lake Simcoe watershed region. Lover's Creek drains an area of 59.9 square kilometres within the Town of Innisfil and the City of Barrie, through forests, wetlands, and grasslands as well as agricultural and urban areas (Lake Simcoe Region Conservation Authority 2012). The headwaters of the creek along 7th Line east of Highway 400 are in organic soils and the tributaries merge to flow northwards east of 10th Sideroad, draining into Lake Simcoe.

The study area includes a large wetland called Lovers Creek Swamp and 7th Line intersects with tributaries of Lover's Creek, the main branch of which has been channelized as the 8th Line Drain, a naturalized open storm drain, as well as smaller creeks that have also been channelized into ditches that follow beside or cross under 7th Line.

3.1.2 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier, approximately 13,500 before present (BP) (Ferris 2013:13). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988), and populations now occupied less extensive territories (Ellis and Deller 1990: 62-63).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines were then submerged. This period produces the earliest evidence of heavy wood working tools and is indicative of greater investment of labour in felling trees for fuel, to build shelter, or to produce tools, and is ultimately indicative of prolonged seasonal residency at sites (Brown 1995:13; Parker Pearson 1999:141). Between approximately 4,500-3,000 BP, there is evidence for construction of fishing weirs. These structures indicate not only the group sharing of resources, but also the organization of communal labour (Ellis *et al.* 1990; Ellis *et al.* 2009).

Between 3,000-2,500 BP, populations continued with residential mobility harvesting of seasonally available resources, including spawning fish. Exchange and interaction networks broaden at this time (Spence *et al.* 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence *et al.* 1990:155, 164). It is also during this period that maize was first introduced into southern Ontario, though it would have only supplemented people's diet (Birch and Williamson 2013:13-15). Bands likely retreated to interior camps during the winter.

From approximately 1,000 BP until approximately 300 BP, lifeways became more similar to that described in early historical documents. During the Early Iroquoian phase (AD 1000-1300), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By the second quarter of the first millennium BP, during the Middle Iroquoian phase (AD 1300-1450), this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). In the Late Iroquoian phase (AD 1450-1649) this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By AD 1600, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee[1] and the Huron-Wendat (and their Algonkian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat.

After the dispersal, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario, including Teiaiagon, near the mouth of the Humber River; and Ganestiquiagon, near the mouth of the Rouge River. Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these

[1] The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian–speaking groups - the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.

settlements with the upper Great Lakes through Lake Simcoe. The west branch of the Carrying Place followed the Humber River valley northward over the drainage divide, skirting the west end of the Oak Ridges Moraine, to the East Branch of the Holland River. Another trail followed the Don River watershed.

When the Senecas established Teiaiagon at the mouth of the Humber, they were in command of the traffic across the peninsula to Lake Simcoe and the Georgian Bay. Later, Mississauga and earliest European presence along the north shore, was therefore also largely defined by the area's strategic importance for accessing and controlling long established economic networks. Prior to the arrival of the Seneca, these economic networks would have been used by indigenous groups for thousands of years. While the trail played an important part during the fur trade, people would also travel the trail in order to exploit the resources available to them across south-central Ontario, including the various spawning runs, such as the salmon coming up from Lake Ontario or herring or lake trout in Lake Simcoe.

Due, in large part, to increased military pressure from the French upon their homelands south of Lake Ontario, the Haudenosaunee abandoned their north shore frontier settlements by the late 1680s, although they did not relinquish their interest in the resources of the area, as they continued to claim the north shore as part of their traditional hunting territory. The territory was immediately occupied or re-occupied by Anishinaabek groups, including the Mississauga, Ojibwa (or Chippewa) and Odawa, who, in the early seventeenth century, occupied the vast area extending from the east shore of Georgian Bay, and the north shore of Lake Huron, to the northeast shore of Lake Superior and into the upper peninsula of Michigan. Individual bands were politically autonomous and numbered several hundred people. Nevertheless, they shared common cultural traditions and relations with one another and the land. These groups were highly mobile, with a subsistence economy based on hunting, fishing, gathering of wild plants, and garden farming. Their movement southward also brought them into conflict with the Haudenosaunee.

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases to the north of Lake Ontario in the early nineteenth century, the Crown acknowledged the Mississaugas as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations for additional tracts of land as the need arose to facilitate European settlement.

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Living in both Euro-Canadian and Indigenous societies, the Métis acted as agents and subagents in the fur trade but also as surveyors and interpreters. Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). By the mid-twentieth century, Indigenous communities, including the Métis, began to advance their rights within Ontario and across Canada, and in 1982, the Métis were federally recognized as one of the distinct Indigenous peoples in Canada. Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003, 2016)

have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867.

The Study Area is in Treaty 18, or the Lake Simcoe-Nottawasaga Treaty, signed in 1818 by Ojibway chiefs who granted land along the shores of Lake Huron and southern Georgian Bay to the Crown (AANDC 2016).

3.1.3 Historical Euro-Canadian Land Use: Township Survey and Settlement

Historically, the study area is located in the former Township of Innisfil, County of Simcoe, in part of Lots 11-15, Concessions 6 and 7.

Simcoe County

The area, within what is now Simcoe County, was first inhabited by the Huron-Wendat. European goods reached the area before 1600 and missionaries and Jesuits arrived soon after. Sainte Marie among the Hurons was established in 1639 and became the first European settlement in Upper Canada. In 1798, the County of Simcoe was formed as part of the "Home District." The boundaries of the county were refined in 1821. Almost 20 years later, in 1843, the area was declared a separate district and attained county status in 1850, with Barrie as the county seat. At this time Simcoe County included portions of Grey and Dufferin Counties, and Muskoka and Parry Sound Districts. In 1881, the borders of Simcoe County were again redefined and the present townships of Tiny, Tay, Matchedash, Flos, Medonte, Orillia, Nottawasaga, Sunnidale, Vespra, Oro, Tosorontio, Essa, Innisfil, Adjala, Tecumseth, and West Gwillimbury were contained within. As of the late twentieth century, Simcoe County had two cities, seven towns, and eight villages (Mika and Mika 1983:394-398).

Township of Innisfil

The Township of Innisfil was surveyed in 1820 and the first settlement began that year. The township was named after the poetical name for Ireland, Innis Fáil, by its early settlers. Growth was slow during the first ten years of the township and the first sawmill was not erected until the 1830s and in 1835 a grist mill was constructed. Early settlement focused around Kempenfelt Bay and the southwestern area of the township was not settled until after 1840. By 1843, the first school was constructed and the following year the Innisfil Methodist Congregation built the first church. The first census of the township recorded a population of only 762 inhabitants. By 1850, the township had a population of 1,807.

Following the connection of the Northern Railway in 1853, the township became an important shipping hub for the lumber industry of central Ontario (Mika and Mika 1981:347-349). With the arrival of the railway a number of communities developed and prospered; Allandale, Lefroy, and Craigvale all boasted stations. On the western border of the township, Thornton was a stop for the Hamilton and Northwestern Railway. The community of St. Paul's was established at the corner of Penetanguishene Road (Yonge Street) and Mapleview Drive and was centered around St. Paul's Anglican Church (established 1851) and a schoolhouse, as depicted on the 1881 *Illustrated Historical Atlas* (Belden 1881). The small community consisted of a cluster of houses and would have been along the main path between Toronto and Georgian Bay along Penetanguishene Road. Other early post office communities included Bramley, Cherry Creek, Fennell, Holly, Killyleagh, Beaumont, Painswick, and Stroud. Today, Innisfil attracts large numbers of tourists and cottagers in the summertime who travel from Toronto via Highway 400 and Yonge Street.

Yonge Street

Yonge Street was conceived by Lieutenant-Governor John Graves Simcoe who envisioned it as a way to connect York (Toronto) to Lake Simcoe (Gentilcore and Head 1984:150). The construction of Yonge Street began in 1794 under the supervision of Augustus Jones, a well-known surveyor, and followed a well-used route utilized by Indigenous peoples for centuries. In the beginning, Yonge Street was largely impassable north of Bloor and only extended south to Queen Street (Mulvaney and Adam 1885:15). By 1797 Yonge Street had been extended north to Holland Landing. Yonge Street was frequently used by the North-West Company who encouraged the building of roads and used them for commercial purposes. The North-West Company even supplied funds for the improvement of Yonge Street and by 1810 the road was serviceable along its entire length. The land on both sides of Yonge Street was granted to settlers on the condition that they build a house, clear a portion of the land, and contribute to the construction of the road fronting the lot (Berchem 1977:28). Settlers were given one year to accomplish these requirements, or their claims would be considered forfeit. The original terminus of Yonge Street was the Pine Fort on the western branch of the Holland River.

7th Line

7th Line is depicted as an surveyed roadway in the 1871 *Hoggs's Map of the County of Simcoe* (Figure 2) and an unopened road allowance in the 1881 *Simcoe Supplement in the Illustrated Historical Atlas of the Dominion of Canada* (Figure 3). Early- and mid-nineteenth-century mapping depicts 7th Line remaining unopened in the central portion of the study area in the Lover's Creek Swamp (Figure 4 and Figure 5). The roadway appears to be constructed in the area immediately west of Yonge Street and east of 10th Sideroad where the topography is more prominent. 7th Line was constructed through Lover's Creek Swamp in the 1960s, first as a narrow gravel roadway and then later paved in asphalt in 2008 (Town of Innisfil 2014a). Due to the poor drainage and presence of watercourses, multiple culverts are located under the roadway. When the roadway was first opened, the dense tree cover over the narrow gravel roadway through Lover's Creek Swamp earned the roadway the local moniker of the 'Tunnel of Trees' (Figure 6). This tree cover was reduced in later years in the interest of public safety (Town of Innisfil 2014a).

3.1.4 Review of Historical Mapping

The 1871 *Hoggs's Map of the County of Simcoe* and the 1881 *Simcoe Supplement in the Illustrated Historical Atlas of the Dominion of Canada* were reviewed to examine the study area from the nineteenth century (Figures 2 and 3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases. In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historical mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

Historically, the study area is located in former Innisfil Township, County of Simcoe. Details of historical property owners and historical features in the study area are listed in Table 1.

Table 1: 7th Line Improvements Study Area – Nineteenth-century property owner(s) and historical features(s)

		1871 Hogg's Map		*1881 Illustrated Historical Atlas*	
Lot #	**Con #**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
11	6	W. Fisher (N 1/2) S. Donnelly (S1/2)	None	None	None
12		None	None	None	None
13		None (N 1/2) J. Cluff (S 1/2)	None	None	Watercourse
14		D. Barclay (N 1/2) S. Canning (S 1/2)	None	None	None
15		J. Black(N 1/2) A. Johnstone (S portion) J. Black (S portion) McCleary (S portion)	None None None None	J. Black (tenant)	None
11	7	J. Bowman (N 1/2) Canada Company (S1/2)	None	None	None
12		T. Parker	None	None	None
13		None	None	None	Watercourse
14		D. Boyce (N 1/2) M. Robinson (S 1/2)	None	None	None
15		J. Barclay (N 1/2) M. Robinson (S 1/2)	None	None	None

The nineteenth-century maps illustrate that 10th Sideroad and Yonge Street were historically surveyed, however, 7th Line is depicted as an unopened road allowance in the 1881 *Illustrated Historical Atlas*. No structures are shown within the study area in 1871 or in 1881. The existing tributaries of Lover's Creek are illustrated. The study area is depicted in a rural agricultural context throughout the nineteenth century.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report presents maps and aerial photographs from 1928, 1954, and 1994. These do not represent the full range of maps consulted for the purpose of this study but were judged to cover the full range of land uses that occurred in the area during this period.

The twentieth-century mapping revealed that the study area retained a rural agricultural character throughout the twentieth century. The 1928 map indicates that 7th Line was a path through the extensive wetland between 10th Sideroad and Yonge Street, with a bridge across the Lover's Creek (Figure 4). Lover's Creek swamp is evident in the low-lying areas at the centre of the study area. One farmstead is shown on the south side of 7th Line at the end of the road west of Yonge Street, in the location of the extant farmstead at 2399 7th Line. One structure is shown on the northwest corner of 7th Line and Yonge Street. The 1954 aerial photograph illustrates a clearing of agricultural fields on the west and east sides of the wetland, and that the study area remained relatively unchanged into the mid-twentieth century (Figure 5). 7th Line is depicted carrying a short distance east of 10th Sideroad, and west from Yonge Street, however the roadway does not carry through the wetlands. An archival photograph of the eastern end of the study area demonstrates this eastern portion of the roadway, with a dense tree canopy over the roadway (Figure 6). The 1994 map indicates that the road had been constructed across the wetland and that some limited residential development had occurred on both sides of the wetland (Figure 7). Centennial Park is depicted as a shaded area in the northwest limit of the study area.

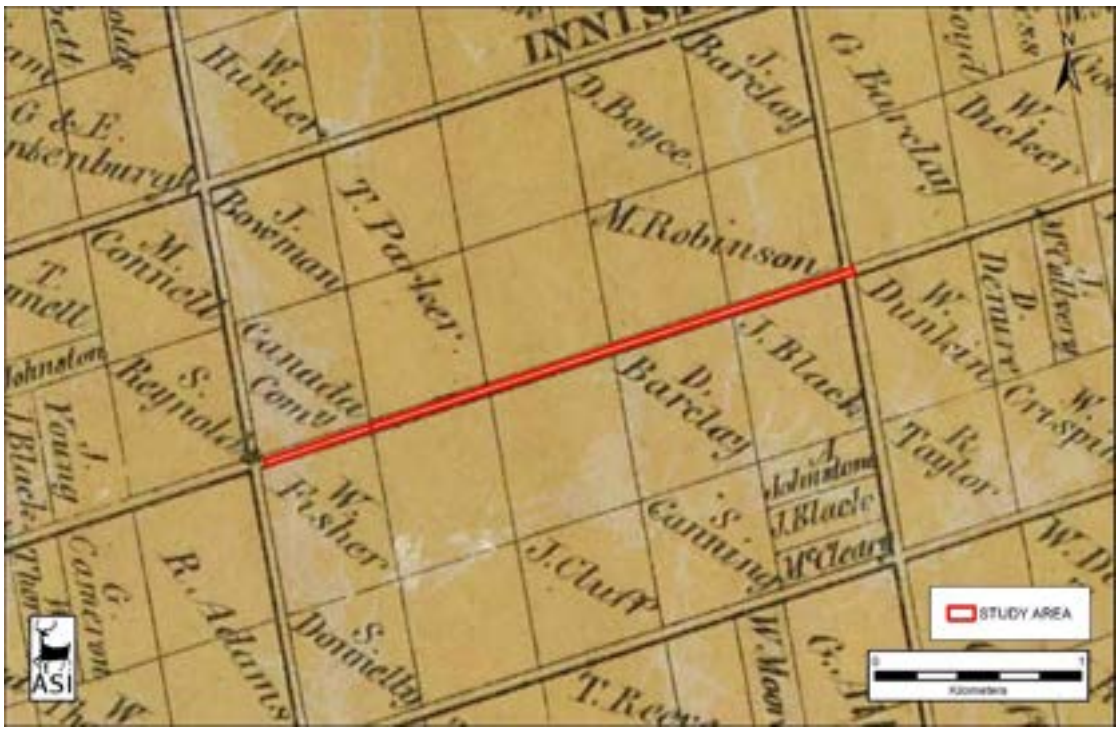


Figure 2: The study area overlaid on the 1871 *Hogg's Map* of Simcoe County

Base Map: Hogg 1871

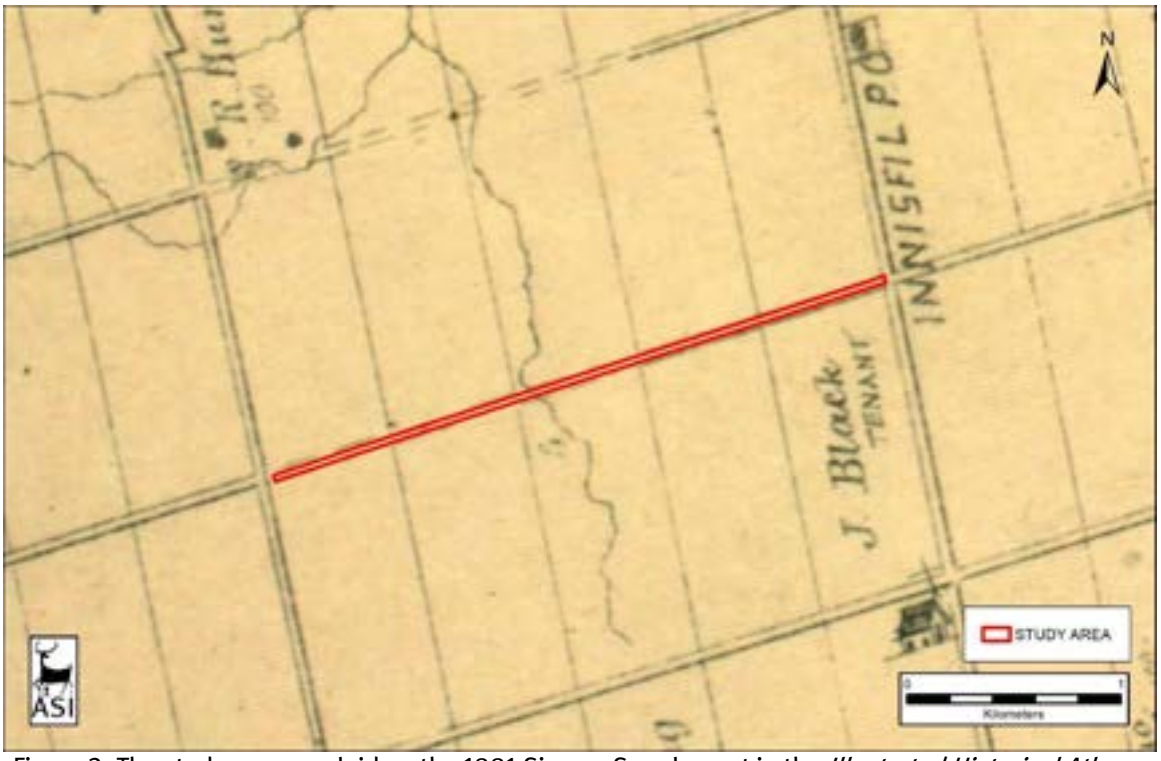


Figure 3: The study area overlaid on the 1881 Simcoe Supplement in the *Illustrated Historical Atlas*
Base Map: Belden 1881

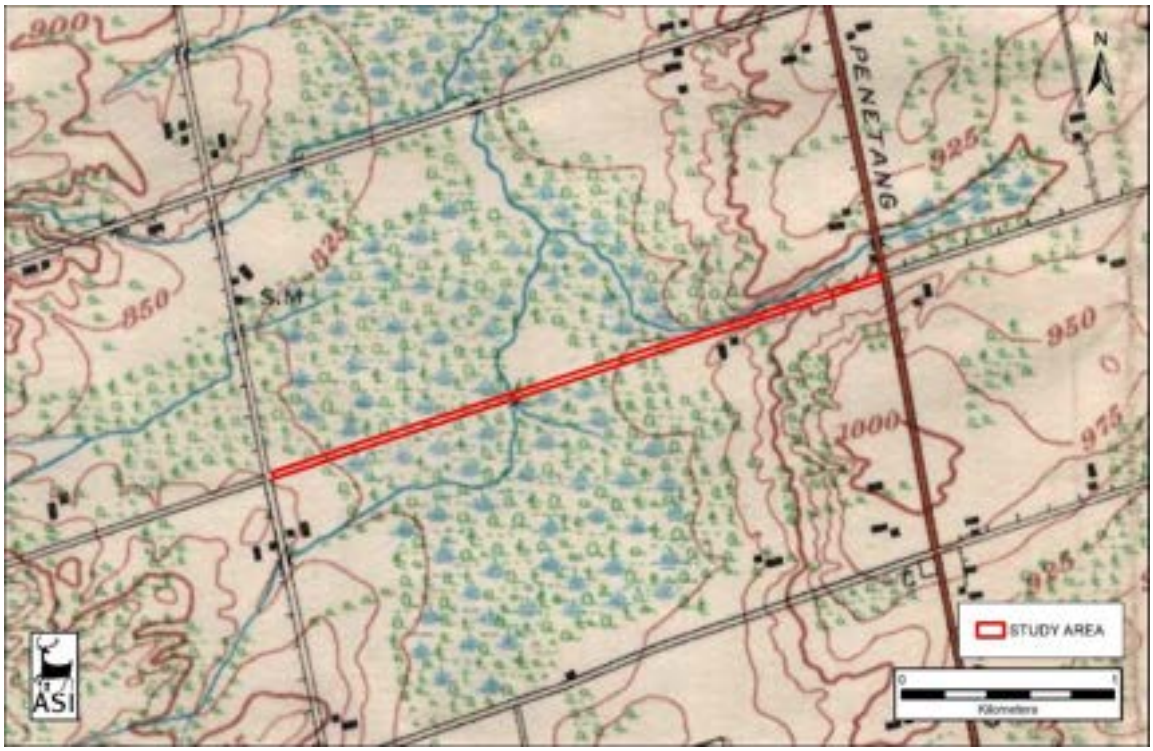


Figure 4: The study area overlaid on the 1928 Barrie NTS map
Base Map: NTS Sheet No. 105 (Department of Militia and Defense 1928)

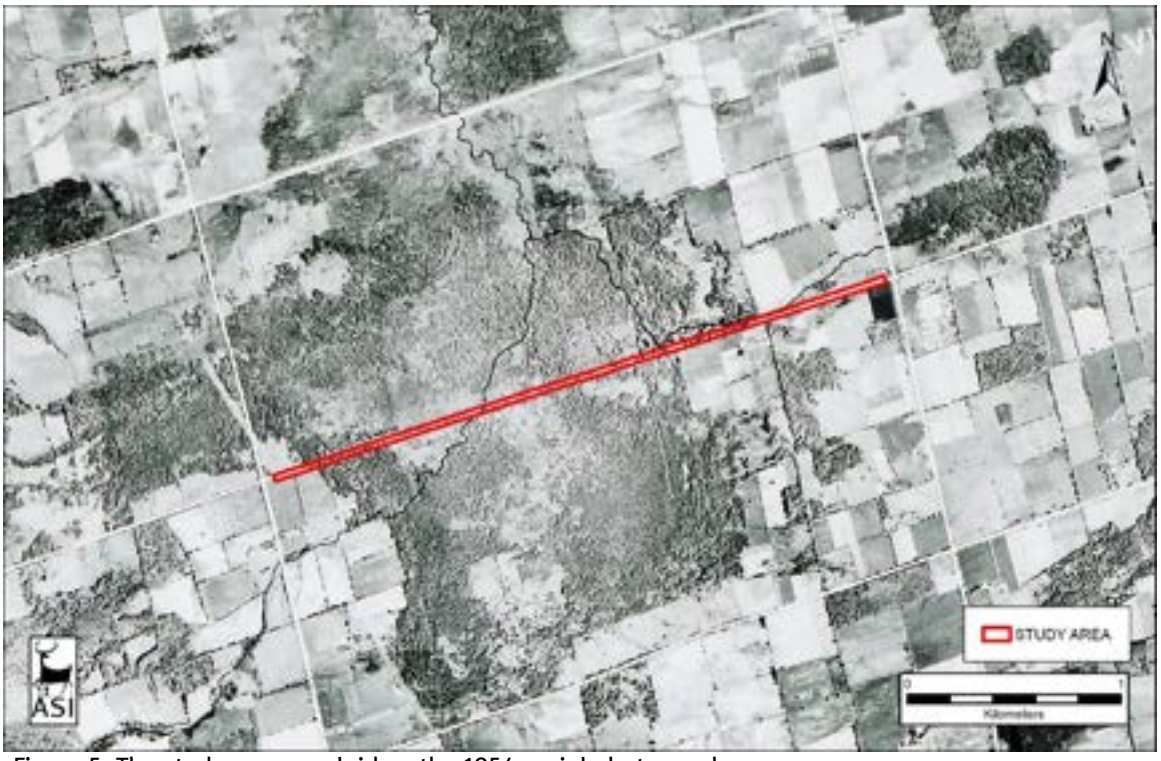


Figure 5: The study area overlaid on the 1954 aerial photograph
Reference: Plate 443.793 (Hunting Survey Corporation 1954)



Figure 6: Photograph of the dense tree cover in the 'Tunnel of Trees' on 7th Line west of Yonge Street, circa 1980.
Image Credit: PID ourstories:31299 (Our Stories Innisfil n.d.)

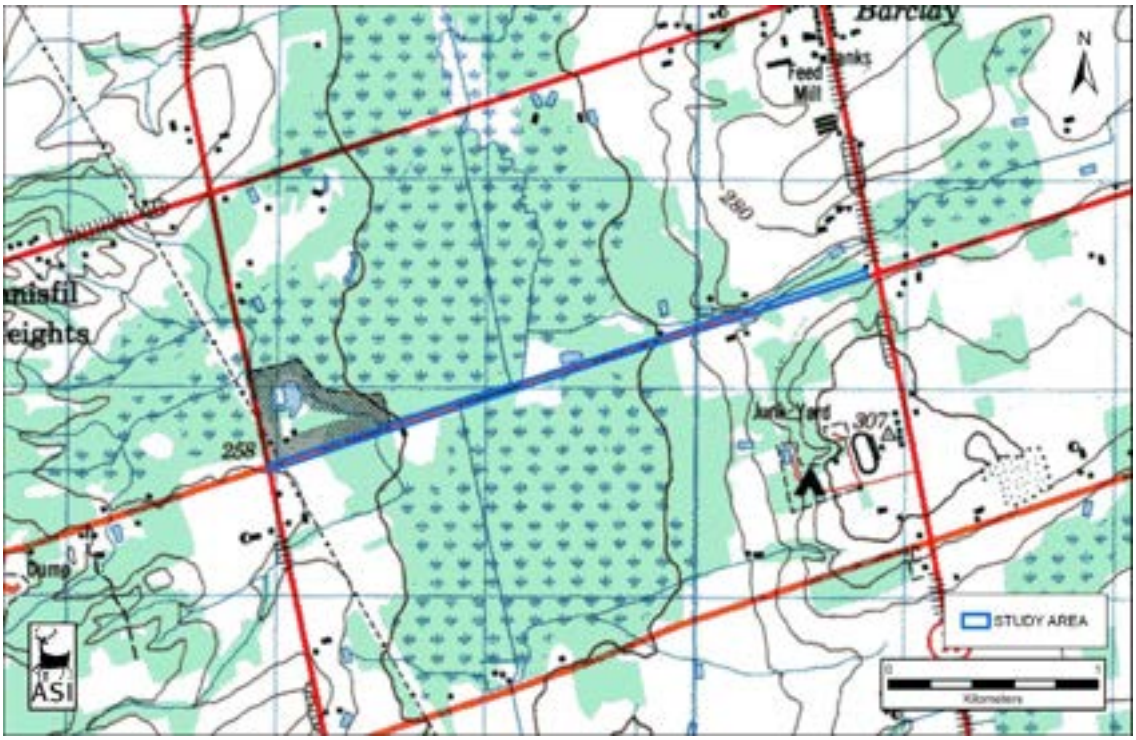


Figure 7: The study area overlaid on the 1994 Barrie NTS map
Base Map: NTS Sheet 30/M-13 (Department of Energy, Mines and Resources 1994)

3.2 Existing Conditions

3.2.1 Review of Existing Heritage Inventories

In order to make an identification of existing cultural heritage resources within the study area, a number of resources were consulted (MTCS 2016). They include:

- The Town of Innisfil's *Heritage Register* provides a list of cultural heritage resources that are designated under Part IV and Part V of the *Ontario Heritage Act*. The register also provides a list of non-designated properties that are of cultural heritage value or interest;[2]
- Simcoe County Interactive Map[3],
- The inventory of Ontario Heritage Trust easements;[4]
- The Ontario Heritage Trust's *Ontario Heritage Plaque Guide*, an online, searchable database of Ontario Heritage Plaques;[5]
- *Ontario's Historical Plaques* website;[6]
- Inventory of known cemeteries/burial sites in the Ontario Genealogical Society's online databases;[7]
- Parks Canada's *Canada's Historic Places* website: available online, the searchable register provides information on historic places recognized for their heritage value at the local, provincial, territorial, and national levels;[8]
- Parks Canada's *Directory of Federal Heritage Designations*, a searchable on-line database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses;[9]
- Canadian Heritage River System. The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage;[10] and,
- United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites.[11]

In addition, the following stakeholders were contacted to gather information on potential cultural heritage resources, active and inactive cemeteries, and areas of identified Indigenous interest within and/or adjacent to the study area:

- Kevin Jacobs, Assistant Clerk, Town of Innisfil, was contacted to gather any information on potential cultural heritage resources or concerns within and/or adjacent to the study area (email communication 13 August 2018 and 22 March 2019). Additional consultation with Kevin Jacobs was also conducted by Town of Innisfil structural engineers as part of the draft submission review

[2] Reviewed 06 July 2018 (https://innisfil.ca/getFileByName/HC_InnisfilHeritageRegisterJune2010(2).pdf)
[3] Reviewed 06 July 2018 (https://maps.simcoe.ca/public/)
[4] Reviewed 06 July 2018 (http://www.heritagetrust.on.ca/en/index.php/property-types/easement-properties)
[5] Reviewed 06 July 2018 (http://www.heritagetrust.on.ca/Resources-and-Learning/Online-Plaque-Guide.aspx)
[6] Reviewed 06 July 2018 (www.ontarioplaques.com)
[7] Reviewed 06 July 2018 (http://vitacollections.ca/ogscollections/2818487/data?grd=3186)
[8] Reviewed 06 July 2018 (http://www.historicplaces.ca/en/pages/about-apropos.aspx)
[9] Reviewed 06 July 2018 (http://www.pc.gc.ca/apps/dfhd/search-recherche_eng.aspx)
[10] Reviewed 06 July 2018 (http://chrs.ca/the-rivers/)
[11] Reviewed 06 July 2018 (http://whc.unesco.org/en/list/)

by the municipality. No additional information regarding previously identified resources was available at the time of report submission.

- The Ministry of Tourism, Culture and Sport (email communication 13 and 27 August 2018). A response confirmed that there are no identified Provincial Heritage Properties within or adjacent to the study area.[12]

A memorandum prepared by the Innisfil Heritage Committee (March 13, 2014) entitled "Considerations for Designating the 'Tunnel of Trees' Under the Ontario Heritage Act" was also reviewed for information on cultural heritage resources. The memorandum outlines the local recognition of the cedar forest in Lover's Creek Swamp as the 'Tunnel of Trees' due to the density of tree cover in the area when the roadway was constructed (Figure 6). The memorandum concluded that while the 'Tunnel of Trees' is worthy of protection because of its natural and scenic value, its cultural heritage value could not be supported. Further, the report notes that the designation of the trees in the Lover's Creek Swamp would impede the Town of Innisfil's ability to maintain 7th Line, which could have an impact on public safety. Due to these concerns, the section of 7th Line known as the 'Tunnel of Trees' was not subject to municipal designation under the *Ontario Heritage Act* or listed by the municipality (Town of Innisfil 2014b).

Based on the review of available provincial and federal data, there are no previously identified cultural heritage resources within and/or adjacent to the 7th Line from Yonge Street to 10th Sideroad study area.

3.2.2 7th Line Improvements from Yonge Street to 10th Sideroad Study Area– Field Review

A field review of the study area was undertaken by John Sleath of ASI on 31 July 2018 to document the existing conditions of the study area. The field review was preceded by a review of available, current and historical, aerial photographs and maps (including online sources such as Bing and Google maps). These large-scale maps were reviewed for any potential cultural heritage resources which may be extant in the study area. The existing conditions of the study area are described below. Identified cultural heritage resources are discussed in Section 3.2.3 and are mapped in Section 8.0 of this report.

The study area is focused on 7th Line and is approximately three kilometres in length between 10th Sideroad in the west and Yonge Street in the east. 7th Line is oriented in an east-west alignment and features two lanes of east and westbound vehicular traffic. The study area crosses a large wetland located within a rural agricultural context. The roadway, which lacks curbs and sidewalks and features narrow gravel shoulders and steep ditches, sits above the wetlands that border the majority of the study area both north and south of the right-of-way. Few residences are located adjacent to the study area. One farm with active agricultural fields is located on the south side of 7th Line, in the eastern portion of the study area.

The intersection of 7th Line and 10th Sideroad, at the western end of the study area, features active agricultural fields on the southeast and southwest, a residence and wooded area on the northwest, and a recreational park on the northeast. The intersection of 7th Line and Yonge Street, at the eastern end of the study area, features a residence on the northwest, wooded wetlands on the southwest, a vacant lot on the northeast, and active agricultural field on the southeast. Lover's Creek is located in the central portion of the study area, and follows a south-north orientation, eventually draining into Lake Simcoe approximately 11 kilometres north of 7th Line.

[12] Contacted 13 August 2018 at registrar@ontario.ca.



Plate 1: West portion of the study area, looking east on 7th Line from 10th Sideroad.



Plate 2: West portion of the study area, looking south on 10th Sideroad from 7th Line.



Plate 3: Recreational Park on the northeast corner of 7th Line and 10th Sideroad.



Plate 4: 7th Line with slope leading down to wetlands, looking east.



Plate 5: 7th Line with wetlands on both the north and south sides of the roadway, looking east.



Plate 6: Watercourse to the north of 7th Line, looking north.



Plate 7:Wetlands with marshgrass, looking south from 7th line.



Plate 8: Repaired portion of 7th Line with new culvert and asphalt repair, looking west.



Plate 9: Cedar-lined portion of 7th Line, looking west.



Plate 10: Residential properties along 7th Line, looking northeast.



Plate 11: Active agricultural field south of 7th Line in the east portion of the study area, looking southeast.



Plate 12: Eastern portion of the study area, looking west on 7th Line from Yonge Street.

3.2.3 7th Line Improvements from Yonge Street to 10th Sideroad Study Area– Identified Cultural Heritage Resources

Based on the results of the background research and field review, one cultural heritage resource was identified within and/or adjacent to the 7th Line from Yonge Street to 10th Sideroad study area (see Figures 8-9). The cultural heritage resource includes one cultural heritage landscape (CHL) (Table 2). A detailed description of this cultural heritage landscape is presented in Section 7.0 and mapping of the resource along with photographic plate locations is provided in Section 8.0 of this report.

Table 2: Summary of built heritage resources (BHR) and cultural heritage landscapes (CHL) in the study area

Feature ID	Location/Address	Resource Type	Heritage Recognition
CHL 1	2399 7th Line	Farmscape	Identified during field review

3.3 Screening for Potential Impacts

To assess the potential impacts of the undertaking identified cultural heritage resources are considered against a range of possible impacts as outlined in the document entitled *Ontario Heritage Tool Kit* (MCL 2006) which include:

- Destruction of any, or part of any, significant heritage attributes or features;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance;
- Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces;
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

A number of additional factors are also considered when evaluating potential impacts on identified cultural heritage resources. These are outlined in a document set out by the Ministry of Culture and Communications (now Ministry of Tourism, Culture and Sport) and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (October 1992) and include:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and
- Diversity: the number of different kinds of activities to affect a heritage resource.

Where any above-ground cultural heritage resources which may be affected by direct or indirect impacts are identified, appropriate mitigation measures should be developed. This may include completing a heritage impact assessment or documentation report, or employing suitable measures such as landscaping, buffering or other forms of mitigation, where appropriate. In this regard, provincial guidelines should be consulted for advice and further heritage assessment work should be undertaken as necessary.

3.3.1 Potential Impacts of the Proposed Undertaking

The proposed undertaking for the 7th Line Improvements from Yonge Street to 10th Sideroad Municipal Class EA study area consists of a preferred alternative involving roadway widening and the removal and replacement of existing culverts. These culverts were considered as part of this assessment, and were determined not to have potential for cultural heritage value.The preferred alternative will result in improvements to approximately three kilometres of 7th Line. Additional impacts include grading adjacent to the existing 7th Line ROW, tree removals, and small areas of property acquisition. Grading limits are depicted along with photographic plate locations and the location of the identified cultural heritage resource in Figures 8 and 9, with the full depiction of the proposed undertaking including property acquisition and tree removals in Appendix A.

The preferred alternative is anticipated to impact one identified cultural heritage resource, a farmscape at 2239 7th Line (CHL 1). This resource was identified during field review and features a late-nineteenth to early-twentieth-century barn, agricultural outbuildings, a twentieth century farmhouse, established treelines adjacent to 7th Line, and treed agricultural field dividers. The preferred alternative for the proposed undertaking involves the widening of the 7th Line ROW adjacent to the identified cultural heritage resource and will result in the encroachment of the ROW on the farmscape, grading, and tree removal. Additional property acquisition is also proposed to the northeast of the residence adjacent to the roadway. The proposed undertaking is anticipated to result in the removal of vegetation within the ROW as well as on lands associated with 2399 7th Line. No structures within the farmscape are anticipated to be impacted as a result of the proposed undertaking.

Table 3: Preferred Alternative - Potential Impacts to Cultural Heritage Resources

Feature ID	Potential Impact(s)	Proposed Mitigation Measures
CHL 1	• Impacts to CHL 1 are anticipated to include tree clearing and grading adjacent to the ROW, and proposed property acquisition to the northeast of the residence. • The residence, barn, and outbuildings are not anticipated to be impacted as a result of the proposed undertaking.	• Staging and construction activities should be suitably planned to avoid impacts to CHL 1. • Where feasible, grading limits and proposed tree removals should be altered in order to limit the impacts to CHL 1. • Where construction is anticipated to result in tree removal and grading impacts to CHL 1, post-construction landscaping with native tree species should be employed to mitigate impacts to the heritage value of the resource. • Given the potential cultural heritage value of the farmscape at 2399 7th Line, the Town of Innisfil

Feature ID	Potential Impact(s)	Proposed Mitigation Measures
		should determine if a resource-specific Heritage Impact Assessment (HIA) is required.

Impacts to the one identified cultural heritage resource are anticipated as a result of the preferred alternative. Based on available documentation, these impacts will result in the encroachment of the 7th Line ROW on CHL 1 with tree removals and grading impacting the property adjacent to the 7th Line ROW. Where feasible, the profile and cross section of the preferred alternative should be altered to avoid all grading and tree removals associated with CHL 1. Should avoidance of tree removals and grading adjacent to CHL 1 be determined to be infeasible, post-construction landscaping with historically-sympathetic native tree species should be employed to mitigate impacts to the heritage value of the resource. A qualified arborist or landscape architect should be consulted in this respect.

There are no direct impacts to the residence, barn, or outbuildings associated with CHL 1 anticipated as a result of the proposed undertaking.

Given the potential cultural heritage value of the farmscape at 2399 7th Line, heritage planning staff at the Town of Innisfil should be contacted to determine if a resource-specific Heritage Impact Assessment (HIA) is required.

4.0 CONCLUSIONS

The results of background historical research and a review of secondary source material, including historical mapping, revealed a study area with a rural land use history dating to the early nineteenth century. A review of federal registers and municipal and provincial inventories revealed that there are no previously identified features of cultural heritage value within the 7th Line Improvements from Yonge Street to 10th Sideroad Municipal Class EA study area. A field review conducted 31 July 2018, identified one potential cultural heritage resource.

Key Findings

- A field review of the study area confirmed that there is one cultural heritage resource consisting of one cultural heritage landscape (CHL) within the study area;
- The identified cultural heritage resource includes a nineteenth-century farmscape identified during field review.
- The identified cultural heritage resource is historically and contextually associated with late-nineteenth century land use patterns in the former Township of Innisfil.

Impact Assessment

- The preferred alternative is anticipated to result in impacts to the identified cultural heritage resource, a farmscape at 2399 7th Line (CHL 1).

- Anticipated impacts to CHL 1 include tree removal and grading adjacent to the 7th Line ROW and proposed property acquisition to the northeast of the residence.

- The residence, barn, and outbuildings associated with the farmscape at 2399 7th Line (CHL 1) are not anticipated to be directly impacted by the proposed undertaking.

5.0 RECOMMENDATIONS

The background research, data collection, and field review conducted for the study area determined that one cultural heritage resource is located within or adjacent to the 7th Line Improvements from Yonge Street to 10th Sideroad Municipal Class EA study area. Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage resources. In particular, no-go zones should be established adjacent to the identified cultural heritage resource (CHL 1) and instructions to construction crews should be issued in order to prevent impacts.

2. Where feasible, the profile and cross section of the preferred alternative should be altered to avoid all grading and tree removals associated with CHL 1.

3. Should avoidance of tree removals and grading adjacent to CHL 1 be determined to be infeasible, post-construction landscaping with historically-sympathetic native tree species should be employed to mitigate impacts to the heritage value of the resource. A qualified arborist or landscape architect should be consulted in this respect.

4. Given the potential cultural heritage value of the farmscape at 2399 7th Line (CHL 1), heritage planning staff at the Town of Innisfil should be contacted to determine if a resource-specific Heritage Impact Assessment (HIA) is required.

5. This report should be submitted to Kevin Jacobs, Assistant Clerk at the Town of Innisfil and the Ministry of Tourism, Culture, and Sport for review; and

6. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

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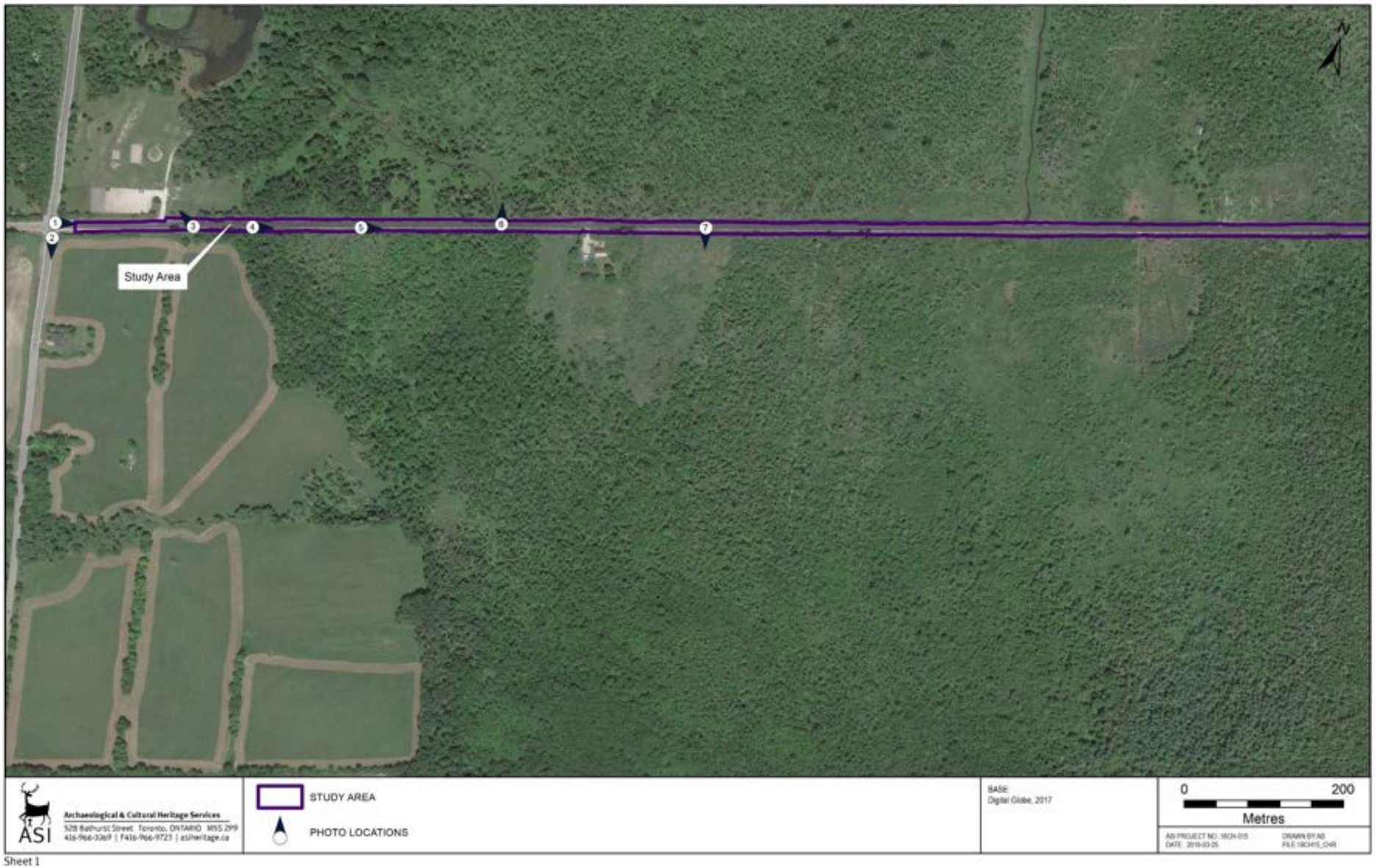
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7.0 CULTURAL HERITAGE RESOURCE INVENTORY

Table 4: Inventory of cultural heritage resources (CHR) in the study area

Feature ID	Address/Location	Resource Type	Heritage Recognition	Description	Photos
CHL 1	2399 7th Line	Farmscape	Identified during field review	Historical: -Lot occupied by J. Black in nineteenth century mapping -Structures depicted in similar location in 1928 topographical map Design: -Farmscape features a late-nineteenth or early-twentieth-century wooden barn with a gambrel roof and several agricultural outbuildings. -Mid-late-twentieth century residence is also present. -Mature treelines adjacent to the 7th Line ROW -Active agricultural fields located to the south and west. Context: -Located on the south side of 7th Line at the western limit of the original roadway. West of this farm, 7th Line is depicted as a cart trail until the second half of the twentieth century. -Reflects nineteenth-century settlement and agricultural practices in the Township of Innisfil	 Agricultural outbuildings associated with the farmscape at 2399 7th Line, looking south.  Treeline adjacent to the farmscape at 2399 7th Line, looking south.

8.0 CULTURAL HERITAGE RESOURCE MAPPING



Sheet 1

Figure 8: Location of Photographic Plates and Cultural Heritage Resources in the 7th Line study area (Sheet 1)

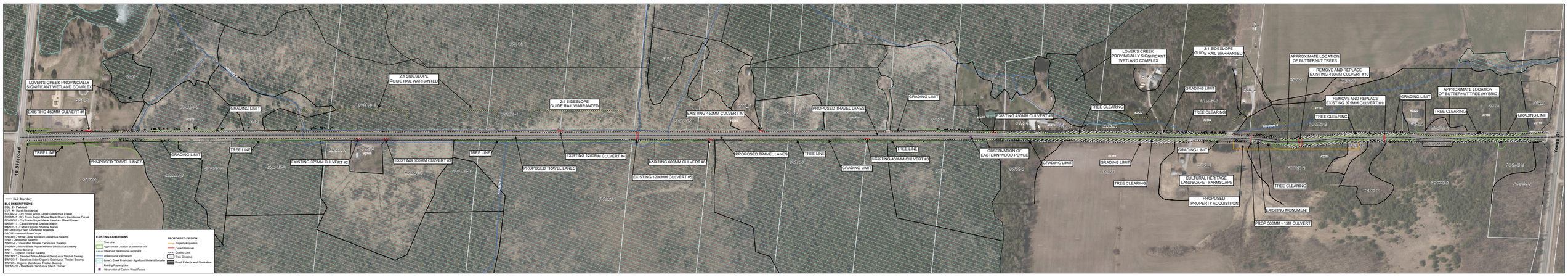


Sheet 1

Figure 9: Location of Photographic Plates and Cultural Heritage Resources in the 7th Line study area (Sheet 2)

APPENDIX A: PRELIMINARY DESIGN OF THE PROPOSED UNDERTAKING

7TH LINE PREFERRED ALTERNATIVE: WIDEN THE ROAD



1:1,000

STAGE 1 ARCHAEOLOGICAL ASSESSMENT
7TH LINE IMPROVEMENTS
FROM YONGE STREET TO 10TH SIDEROAD
PART OF LOTS 11-15, CONCESSIONS 6 AND 7
(FORMER TOWNSHIP OF INNISFIL)
TOWN OF INNISFIL
COUNTY OF SIMCOE, ONTARIO

ORIGINAL REPORT

Prepared for:

R.J. Burnside & Associates Ltd.
128 Wellington Street W., Suite 301
Barrie, ON L4N 8J6

Archaeological Licence #P450 (Parks)
Ministry of Tourism, Culture and Sport PIF# P450-0013-2018
ASI File: 18EA-016

4 December 2018

ASI
Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
416-966-1069 F 416-966-9723 asiheritage.ca

Stage 1 Archaeological Assessment
7th Line Improvements
From Yonge Street to 10th Sideroad
Part of Lots 11-15, Concessions 6 and 7
(Former Township of Innisfil)
Town of Innisfil
County of Simcoe, Ontario

EXECUTIVE SUMMARY

ASI was contracted by R.J. Burnside & Associates Ltd. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the 7th Line Improvements from Yonge Street to 10th Sideroad in the Town of Innisfil. This project involves improvements to the existing road cross-section.

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area. The Stage 1 property inspection, conducted on July 31, 2018, determined that parts of the Study Area exhibit archaeological potential.

In light of these results, the following recommendations are made:

1. Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, if impacted, prior to any construction activities;

2. The remainder of the Study Area does not retain archaeological potential on account of low and wet conditions, slopes in excess of 20 degrees, and deep and extensive land disturbance. These lands do not require further archaeological assessment; and,

3. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

ASI

PROJECT PERSONNEL

Senior Project Manager:	Lisa Merritt, MSc. (P094) *Partner / Director* *Environmental Assessment Division*
Project Coordinator:	Sarah Jagelewski, Hon. BA (R405) *Lead Archaeologist / Assistant Manager* *Environmental Assessment Division*
Project Director (Licensee):	Amanda Parks, MA (P450) *Associate Archaeologist / Project Manager* *Environmental Assessment Division*
Project Manager:	Eliza Brandy, MA (R1109) *Associate Archaeologist / Project Manager* *Environmental Assessment Division*
Field Director:	John Sleath, MA (P382) *Associate Archaeologist / Cultural Heritage Associate* *Cultural Heritage Division*
Report Preparation:	Eliza Brandy
Graphics:	Adam Burwell, MSc *Archaeologist / Geomatics Specialist* *Operations Division*
Report Reviewer:	Lisa Merritt

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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by R.J. Burnside & Associates Ltd. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the 7th Line Improvements from Yonge Street to 10th Sideroad in the Town of Innisfil (Figure 1). This project involves improvements to the existing road cross-section.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2018) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Tourism, Culture and Sport (MTCS 2011).

In the S & G, Section 1, the objectives of a Stage 1 archaeological assessment are discussed as follows:

- To provide information about the history, current land conditions, geography, and previous archaeological fieldwork of the Study Area;
- To evaluate in detail the archaeological potential of the Study Area that can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the Study Area; and,
- To recommend appropriate strategies for Stage 2 archaeological assessment, if necessary.

This report describes the Stage 1 archaeological assessment that was conducted for this project and is organized as follows: Section 1.0 summarizes the background study that was conducted to provide the historical and archaeological contexts for the project Study Area; Section 2.0 addresses the field methods used for the property inspection that was undertaken to document its general environment, current land use history and conditions of the Study Area; Section 3.0 analyses the characteristics of the project Study Area and evaluates its archaeological potential; Section 4.0 provides recommendations; and the remaining sections contain other report information that is required by the S & G, e.g., advice on compliance with legislation, works cited, mapping and photo-documentation.

1.1 Development Context

The Study Area is within the traditional territory and Treaty Territories of the Huron-Wendat First Nation and the Williams Treaties First Nations. These Nations include: Hiawatha First Nation, Curve Lake First Nation, Scugog Island First Nation, Alderville First Nation (Mississauga) and Rama First Nation, Georgina Island First Nation, and Beausoleil First Nation (Chippewa). The Study Area is also the traditional territory of the Haudenosaunee.

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (Ministry of the Environment 1990 as amended 2010) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000 as amended in 2007, 2011 and 2015).

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by R.J. Burnside & Associates Ltd. on June 19, 2018.

1.2 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use and the settlement history and any other relevant historical information pertaining to the Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990, 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2500 BP and exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). By 1500 BP there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2300 BP - it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch and Williamson 2013:13–15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 BP, lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (CE), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By 1300-1450 CE, this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). From 1450-1649 CE this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By 1600 CE, the communities within Simcoe County had formed the

Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee[1] and the Huron-Wendat (and their Algonkian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat.

Shortly after dispersal of the Huron-Wendat and their Algonquian allies, Ojibwa began to expand into southern Ontario and Michigan from a "homeland" along the east shore of Georgian Bay, west along the north shore of Lake Huron, and along the northeast shore of Lake Superior and onto the Upper Peninsula of Michigan (Rogers 1978:760–762). This history was constructed by Rogers using both Anishinaabek oral tradition and the European documentary record, and notes that it included Chippewa, Ojibwa, Mississauga, and Saulteaux or "Southeastern Ojibwa" groups. Ojibwa, likely Odawa, were first encountered by Samuel de Champlain in 1615 along the eastern shores of Georgian Bay. Etienne Brule later encountered other groups and by 1641, Jesuits had journeyed to Sault Sainte Marie (Thwaites 1896:11:279) and opened the Mission of Saint Peter in 1648 for the occupants of Manitoulin Island and the northeast shore of Lake Huron. The Jesuits reported that these Algonquian peoples lived "solely by hunting and fishing and roam as far as the "Northern sea" to trade for " Furs and Beavers, which are found there in abundance" (Thwaites 1896-1901, 33:67), and "all of these Tribes are nomads, and have no fixed residence, except at certain seasons of the year, when fish are plentiful, and this compels them to remain on the spot" (Thwaites 1896-1901, 33:153). Algonquian-speaking groups were historically documented wintering with the Huron-Wendat, some who abandoned their country on the shores of the St. Lawrence because of attacks from the Haudenosaunee (Thwaites 1896-1901, 27:37).

Other Algonquian groups were recorded along the northern and eastern shores and islands of Lake Huron and Georgian Bay - the "Ouasouarini" [Chippewa], the "Outchougai" [Outchougai], the "Atchiligouan" [Achiligouan] near the mouth of the French River and north of Manitoulin Island the "Amikouai, or the nation of the Beaver" [Amikwa; Algonquian] and the "Oumisagai" [Missisauga; Chippewa] (Thwaites 1896-1901, 18:229, 231). At the end of the summer 1670, Father Louys André began his mission work among the Mississagué, who were located on the banks of a river that empties into Lake Huron approximately 30 leagues from the Sault (Thwaites 1896-1901, 55:133-155).

After the Huron-Wendat had been dispersed, the Haudenosaunee began to exert pressure on Ojibwa within their homeland to the north. While their numbers had been reduced through warfare, starvation, and European diseases, the coalescence of various Anishinaabek groups led to enhanced social and political strength (Thwaites 1896-1901, 52:133) and Sault Sainte Marie was a focal point for people who inhabited adjacent areas both to the east and to the northwest as well as for the Saulteaux, who considered it their home (Thwaites 1896-1901, 54:129-131). The Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. From east to west, these villages consisted of Ganneious, on Napanee Bay, an arm of the Bay of Quinte; Quinte, near the isthmus of the Quinte Peninsula; Ganaraske, at the mouth of the Ganaraska River; Quintio, at the mouth of the Trent River on the north shore of Rice Lake; Ganatsekwyagon (or Ganestiquiagon), near the mouth of the Rouge River; Teyaiagon, near the mouth of the Humber River; and Quinaouatoua, on the portage between the western end of Lake Ontario and the Grand River (Konrad 1981:135). Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these settlements with the upper Great Lakes through Lake Simcoe. The inhabitants of these villages were agriculturalists, growing maize, pumpkins and squash, but their central roles were that of portage starting points and trading centres for Iroquois travel to the upper Great Lakes for the annual

[1] The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian–speaking groups – the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.

beaver hunt (Konrad 1974; Williamson et al. 2008:50–52). Ganatsekwyagon, Teyaiagon, and Quinaouatoua were primarily Seneca; Ganaraske, Quinte and Quintio were likely Cayuga, and Ganneious was Oneida, but judging from accounts of Teyaiagon, all of the villages might have contained peoples from a number of the Iroquois constituencies (ASI 2013).

During the 1690s, some Ojibwa began moving south into extreme southern Ontario and soon replaced, the Haudenosaunee by force. By the first decade of the eighteenth century, the Michi Saagiig Nishnaabeg (Mississauga Nishnaabeg) had settled at the mouth of the Humber, near Fort Frontenac at the east end of Lake Ontario and the Niagara region and within decades were well established throughout southern Ontario. In 1736, the French estimated there were 60 men at Lake Saint Clair and 150 among small settlements at Quinte, the head of Lake Ontario, the Humber River, and Matchedash (Rogers 1978:761). This history is based almost entirely on oral tradition provided by Anishinaabek elders such as George Copway (Kahgegagahbowh), a Mississauga born in 1818 near Rice Lake who followed a traditional lifestyle until his family converted to Christianity (MacLeod 1992:197; Smith 2000). According to Copway, the objectives of campaigns against the Haudenosaunee were to create a safe trade route between the French and the Ojibwa, to regain the land abandoned by the Huron-Wendat. While various editions of Copway's book have these battles occurring in the mid-seventeenth century, common to all is a statement that the battles occurred around 40 years after the dispersal of the Huron-Wendat (Copway 1850:88, 1851:91, 1858:91). Various scholars agree with this timeline ranging from 1687, in conjunction with Denonville's attack on Seneca villages (Johnson 1986:48; Schmalz 1991:21–22) to around the mid- to late-1690s leading up to the Great Peace of 1701 (Schmalz 1977:7; Bowman 1975:20; Smith 1975:215; Tanner 1987:33; Von Gernet 2002:7–8).

Robert Paudash's 1904 account of Mississauga origins also relies on oral history, in this case from his father, who died at the age of 75 in 1893 and was the last hereditary chief of the Mississauga at Rice Lake. His account in turn came from his father Cheneebeesh, who died in 1869 at the age of 104 and was the last sachem or Head Chief of all the Mississaugas. He also relates a story of origin on the north shore of Lake Huron (Paudash 1905:7-8) and later, after the dispersal of the Huron-Wendat, carrying out coordinated attacks against the Haudenosaunee. Francis Assikinack, an Ojibwa of Manitoulin Island born in 1824, provides similar details on battles with the Haudenosaunee (Assikinack 1858:308–309).

Doug Williams (Gidigaa Migizi) is a former chief of the Curve Lake First Nation and is a Pipe Carrier, Sweat Lodge Keeper and Associate Professor/Director of Studies for the Ph.D. Program of the Chanie Wenjack School of Indigenous Studies at Trent University. His oral histories were related to him by his grandparents, great uncle and their contemporaries. He also states that the Mississauga pushed the Haudenosaunee out of southern Ontario (Migizi 2018:42-44). He tells us that the Mississaugas were returning to their homeland along the north shore of Lake Ontario from the north shore of Lake Huron having departed from the north shore of Lake Ontario in the 1650s shortly after the dispersal to escape the spread of disease and the Haudenosaunee because of them having been armed by the British. He relates that the Mississauga were only away from their homeland for twenty years (Migizi 2018:39–40, 117–122). He also states that Mississauga (with the Odawa) began negotiating with Iroquoian-speaking peoples, by treaty and wampum, to share use of the north shore of Lake Ontario starting around AD 800 as the Iroquois moved north from their homelands south of the lake (Migizi and Kapyrka 2015).

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there is no interruption to Anishinaabek control and use of southern Ontario. While hunting in the territory was shared, and subject to the permission of the various nations for access to their lands, its occupation was by Anishinaabek until the assertion of British sovereignty, the British thereafter negotiating treaties with them. Eventually, with British sovereignty, tribal designations changed (Smith 1975:221–222; Surtees 1985:20–21). According to Rogers (1978), by the twentieth century, the Department of Indian Affairs had divided the "Anishinaubag" into three different tribes, despite the fact that by the early eighteenth century, this large Algonquian-speaking group, who shared the same cultural background, "stretched over a thousand miles from the St. Lawrence River to the Lake of the Woods." With British land purchases and treaties, the bands at Beausoleil Island, Cape Croker, Christian Island, Georgina and Snake Islands, Rama, Sarnia, Saugeen, the Thames, and Walpole, became known as "Chippewa" while the bands at Alderville, New Credit, Mud Lake, Rice Lake, and Scugog, became known as "Mississauga." The northern groups on Lakes Huron and Superior, who signed the Robinson Treaty in 1850, appeared and remained as "Ojibbewas" in historical documents.

The Michi Saagiig (Mississauga) Nishnaabeg left a minimal footprint archaeologically, as they were historically a highly mobile sustainably living society, but it is known through oral histories and traditional knowledge that the north shore of Lake Ontario has been their homeland for millennia (Kapyrka and Migizi 2016; Migizi and Kapyrka 2015). The Michi Saagiig are known as "the people of the big river mouths" and the "Salmon People", as their traditional territory span the north shore of Lake Ontario between Gananoque in the east to the north shore of Lake Erie, along the waterways from their headwaters to their outlets in Lake Ontario (Migizi 2018). Individual bands were politically autonomous and numbered several hundred people. Nevertheless, they shared common cultural traditions and relations with one another and the land. These groups were highly mobile, with a subsistence economy based on hunting, fishing, gathering of wild plants, and garden farming.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases throughout Ontario in the early nineteenth century, and entered into negotiations with various Nations for additional tracts of land as the need arose to facilitate European settlement.

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003, 2016) have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867
The Study Area is in Treaty 18, or the Lake Simcoe-Nottawasaga Treaty, signed in 1818 by Ojibway chiefs who granted land along the shores of Lake Huron and southern Georgian Bay to the Crown (AANDC 2016).

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Innisfil Township, County of Simcoe, in part of Lots 11-15, Concessions 6 and 7.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Township of Innisfil

The Township of Innisfil was surveyed in 1820 and the first settlement began that year. The township was named after the poetical name for Ireland, Innisfail, by its early settlers. Growth was slow during the first ten years of the township and the first sawmill was not erected until the 1830s and in 1835 a grist mill was constructed. Early settlement focused around Kempenfeldt Bay and the southwestern area of the township was not settled until after 1840. By 1843, the first school was constructed and the following year the Innisfil Methodist Congregation built the first church. The first census of the township recorded a population of only 762 inhabitants, by 1850, the township had a population of 1,807.

Following the connection of the Northern Railway in 1853, the township became an important shipping hub for the lumber industry of central Ontario (Mika and Mika 1981:347–349) With the arrival of the railway a number of communities developed and prospered, Allandale, Lefroy, and Craigvale all boasted stations. On the western border of the township, Thorton was a stop for the Hamilton and Northwestern Railway. The community of St. Paul's was established at the corner of Penetanguishene Road (Yonge Street) and Mapleview Drive, and was centered around St. Paul's Anglican Church (established 1851) and a schoolhouse as depicted on the 1879 Illustrated Historical Atlas (Belden 1881). The small community consisted of a cluster of houses, and would have been along the main path of anyone travelling between Toronto and Georgian Bay along Penetanguishene Road. Other early post office communities included Barclay, Bramley, Cherry Creek, Fennell, Holly, Innisfil, Killyleagh, Beaumont, Painswick, and Stroud. Today, Innisfil attracts large numbers of tourists and cottagers in the summertime who travel from Toronto via Highway 400 and Yonge Street along an extension which travels the length of the township built in the late seventeenth century by Colonel John Graves Simcoe from York (Toronto) to Lake Simcoe (Mika and Mika 1981: 347-349).

Yonge Street

Yonge Street was conceived by Lieutenant-Governor John Graves Simcoe who envisioned it as a way to connect York (Toronto) to Lake Simcoe (Gentilcore and Head 1984:150). The construction of Yonge Street began in 1794 under the supervision of Mr. Augustus Jones, a well-known surveyor. In the beginning, Yonge Street was largely impassable north of Bloor and only extended south to Queen Street (Mulvaney and Adam 1885:15). By 1797 Yonge Street had been extended north to Holland Landing. Yonge Street was frequently used by the North-West Company who encouraged the building of roads and used them for commercial purposes. The North-West Company even supplied funds for the improvement of Yonge Street and by 1810 the road was serviceable along its entire length. The land on both sides of Yonge Street was granted to settlers on the condition that they build a house, clear a portion of the land, and contribute to the construction of the road fronting the lot (Berchem 1977:28). Settlers were given one year to accomplish these requirements or their claims would be considered forfeit. The original terminus of Yonge Street was the Pine Fort on the western branch of the Holland River.

1.2.3 Historical Map Review

The undated patent plan for Innisfil Township (Chewett n.d.), 1871 Hogg's Map of the County of Simcoe (Hogg 1871) and the 1881 Illustrated Historical Atlas of the County of Simcoe, Township of Innisfil page (Belden 1881) were examined to determine the presence of historic features within the Study Area during the nineteenth century (Figures 2-4).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area

		Patent Plan	*1871*		*Map Title*	
Con #	**Lot #**	**Property Owner(s)**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
6	11	None	W. Fisher	None	None	None
	12	(illegible)	None	None	None	None
	13	John W. Leyman	None	None	None	None
	14	(illegible)	D. Barclay	None	None	None
	15	Canada Company	J. Black	None	J. Black (tenant)	None

		Patent Plan	*1871*		*Map Title*	
Con #	**Lot #**	**Property Owner(s)**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
7	11	Canada Company	Canada Company	None	None	None
	12	Alexander Cameron	T. Parker	None	None	None
	13	John Beatty	None	None	None	None
	14	(illegible)	M. Robinson	None	None	None
	15	John Pratt (?)	M. Robinson	None	None	None

The patent plan of Innisfil Township illustrates Lovers Creek through the Study Area. The maps do not illustrate any structures within or adjacent to the Study Area. The 1871 map indicates that the Innisfil Post Office was located along Yonge Street north of the Study Area. The 1881 map illustrates Lovers Creek running through the Study Area. 7th Line is shown as an informal road between 10th Sideroad and Lot 15, possibly it had not built across the wetland.

1.2.4 Twentieth-Century Mapping Review

The 1928 and 1986 National Topographic Series Barrie Sheets, as well as the 1954 aerial photograph of Innisfil, (Department of National Defence 1928; Department of Energy, Mines and Resources 1986; Hunting Survey Corporation Limited 1954) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 5-7).

The 1928 map indicates that 7th Line was a path through the extensive wetland between 10th Sideroad and Yonge Street. The map illustrates a culvert or similar structure where the path crosses over Lovers Creek, however it is unknown whether such a structure existed, as there is no structure shown at the intersection of the path and creek on the 1950 Barrie Sheet (Army Survey Establishment 1950). One farmstead is shown on the south side of 7th Line at the end of the road west of Yonge Street. One structure is shown on the northwest corner of 7th Line and Yonge Street. The 1954 aerial photograph illustrates a clearing of agricultural fields on the west and east sides of the wetland, and that the Study Area remained relatively unchanged into the mid-twenty-first century. The 1994 map indicates that the road had been constructed across the wetland and that additional residential development had occurred on both sides of the wetland, as well as the construction of Centennial Park.

A review of available Google satellite imagery shows that the Study Area has remained relatively unchanged since 2004.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MTCS through "Ontario's Past Portal"; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

A Stage 1 property inspection was conducted on July 30, 2018. It was noted that the majority of the Study Area is surrounded by wetland associated with Lovers Creek. The eastern and western ends of the Study Area include twentieth-century residential development. Centennial Park is located on the northeast corner of 10th Sideroad and 7th Line and features covered pavilions, playgrounds, a small pond, and a parking lot. The 7th Line ROW (approximately 20m wide) consists of a two-lane paved road with a steeply graded shoulder, raising the road above the wetland, with ditches and drainage on the north and south sides.

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is within the Peterborough Drumlin Field physiographic region on till plains (Figure 7). The Peterborough Drumlin Field extends from Simcoe County east to Hastings County and is generally characterized by rolling till plains overlying limestone bedrock. The region is approximately 4,532 square kilometres and contains over 3000 drumlins in addition to many other drumlinoid hills and surface flutings (Chapman and Putnam 1984:169). The drumlins are composed of highly calcareous till but there are local differences in composition. The till plains of the regions were formed during the retreat of the Lake Ontario ice lobe of the Laurentide glacier and they indicate directionality of glacial advance and retreat. Till is produced from the advance of continental glacial ice. Soil and rock is carried forward by

the ice, mixed and milled, producing a heterogeneous soil which is characteristic of glaciations (Chapman and Putnam 1984:10, 16).

Figure 8 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by organic peat, muck, or marl deposits; coarse-textured glaciolacustrine sand, gravel deposits; ice-contact stratified deposits; and stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain (Ontario Geological Survey 2010). Soils in the Study Area consist of Muck, a deep layer of well-decomposed organic material with very poor drainage; Bottom Land, an alluvial soil with variable drainage; Alliston sandy loam, a podzol with imperfect drainage; Guerin loam, a grey-brown podzolic with imperfect drainage; and Dundonald sandy loam, a grey-brown podzolic with good drainage (Figure 9).

The Study Area is within the Lover's Creek subwatershed of the Lake Simcoe watershed region. Lover's Creek drains an area of 59.9 square kilometres within the Town of Innisfil and the City of Barrie, through forests, wetlands, and grasslands as well as agricultural and urban areas (Lake Simcoe Region Conservation Authority 2012). The headwaters of the creek along 7th Line east of Highway 400 are in organic soils and the tributaries merge to flow northwards east of 10th Sideroad, draining into Lake Simcoe.

The Study Area includes a large wetland called Lovers Creek Swamp and 7th line intersects with tributaries of Lovers Creek, the main branch of which has been channelized as the 8th Line Drain, a naturalized open storm drain, as well as smaller creeks that have also been channelized into ditches that follow beside or cross under 7th Line.

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *BbGv*.

According to the OASD, three previously registered archaeological sites are located within one kilometre of the Study Area (Ministry of Tourism, Culture and Sport 2018). A summary of the sites is provided below.

Table 2: List of previously registered sites within one kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
BbGv-16	Poltree	Late Woodland	Camp	Warrick 1985
BbGv-17	Hunter	Late Woodland	Camp	Warrick 1985
BbGv-18	Blubettle	Late Woodland	Camp	Warrick 1985

According to the background research, no previous reports detail fieldwork within 50 m of the Study Area.

2.0 FIELD METHODS: PROPERTY INSPECTION

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the field direction of John Sleath (P382) of ASI, on July 31, 2018, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. It was a visual inspection only and did not include excavation or collection of archaeological resources. Fieldwork was only conducted when weather conditions were deemed suitable, per S & G Section 2. Previously identified features of archaeological potential were examined; additional features of archaeological potential not visible on mapping were identified and documented as well as any features that will affect assessment strategies. Field observations are compiled onto the existing conditions of the Study Area in Section 7.0 (Figures 10-14) and associated photographic plates are presented in Section 8.0 (Plates 1-20).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Study Area. These data are presented below in Section 3.1. Results of the analysis of the Study Area property inspection are presented in Section 3.2.

3.1 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (see Table 2);
- Water sources: primary, secondary, or past water source (Lovers Creek);
- Early historic transportation routes (Yonge St, 10th Sideroad);
- Proximity to early settlements (Stroud); and
- Well-drained soils (Dundonald sandy loam)

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area

can be documented as disturbed. The Municipal Heritage Register was consulted and no properties within the Study Area are Listed or Designated under the Ontario Heritage Act.

These criteria are indicative of potential for the identification of Indigenous and Euro-Canadian archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

3.2 Analysis of Property Inspection Results

The property inspection determined that parts of the Study Area exhibit archaeological potential (Plates 3, 14, 19, 20; Figures 11, 13, 14: shaded areas). These areas will require Stage 2 archaeological assessment, if impacted, prior to any construction activities. According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide.

A part of the study area is located in low and wet conditions, and according to the S & G Section 2.1 does not retain potential (Plates 5, 6, 8-12, 15, 16; Figures 11-14: dotted areas). The property inspection determined that some of lands within the Study Area are sloped in excess of 20 degrees, and according to the S & G Section 2.1 do not retain potential (Plate 16; Figure 13-14: hatched areas). The remainder of the Study Area has been subjected to deep soil disturbance events and according to the S & G Section 1.3.2 do not retain archaeological potential (Plates 1-20; Figures 13-14: cross-hatched areas). These areas do not require further survey.

3.3 Conclusions

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment, prior to any construction activities.

4.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, if impacted, prior to any construction activities;

2. The remainder of the Study Area does not retain archaeological potential on account of low and wet conditions, slopes in excess of 20 degrees, and deep and extensive land disturbance. These lands do not require further archaeological assessment; and,

3. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MTCS should be immediately notified.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI also advises compliance with the following legislation:

- This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act.*

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*.

- The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

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7.0 MAPS

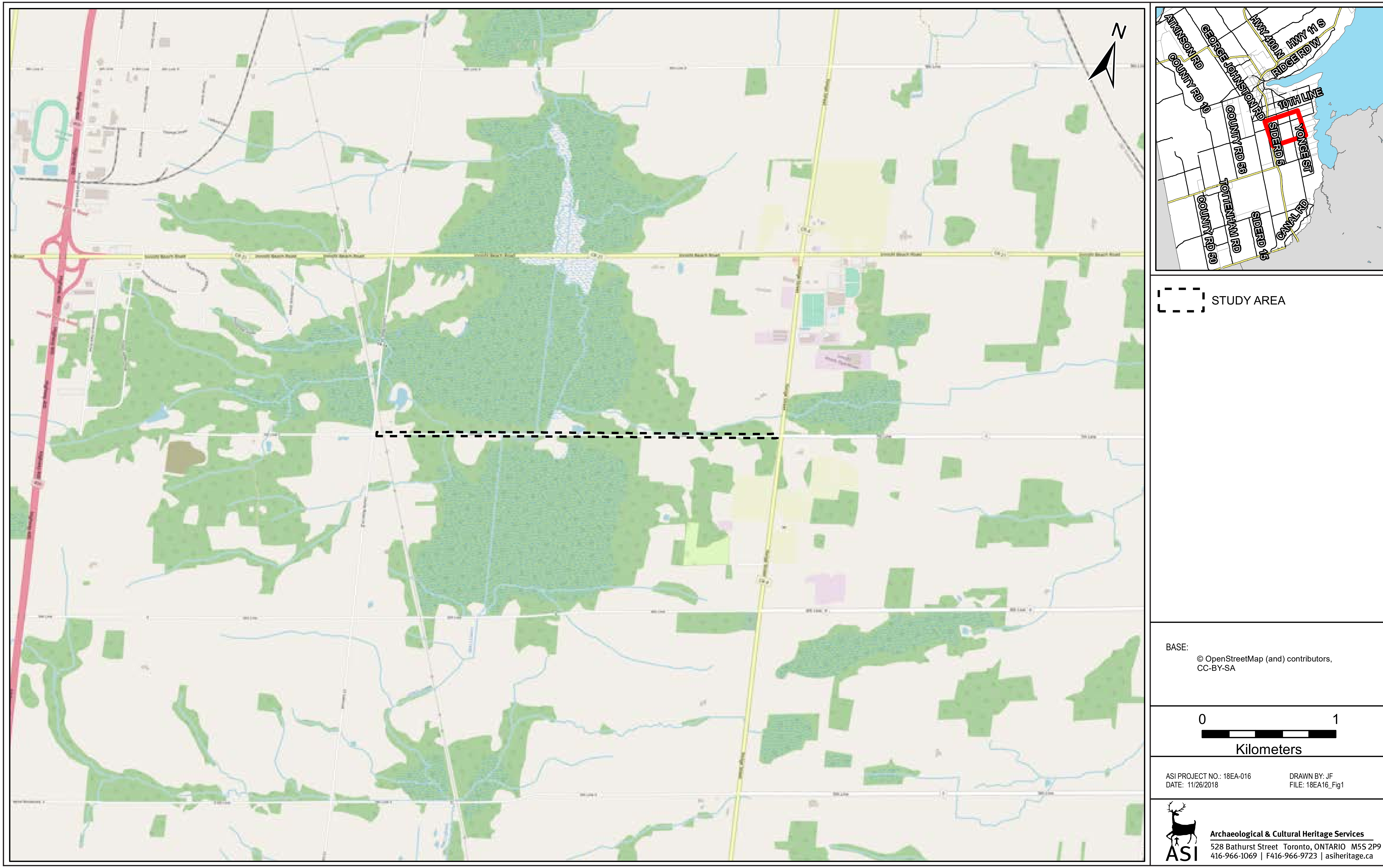


Figure 1: 7th Line Improvements from Yonge Street to 10th Sideroad

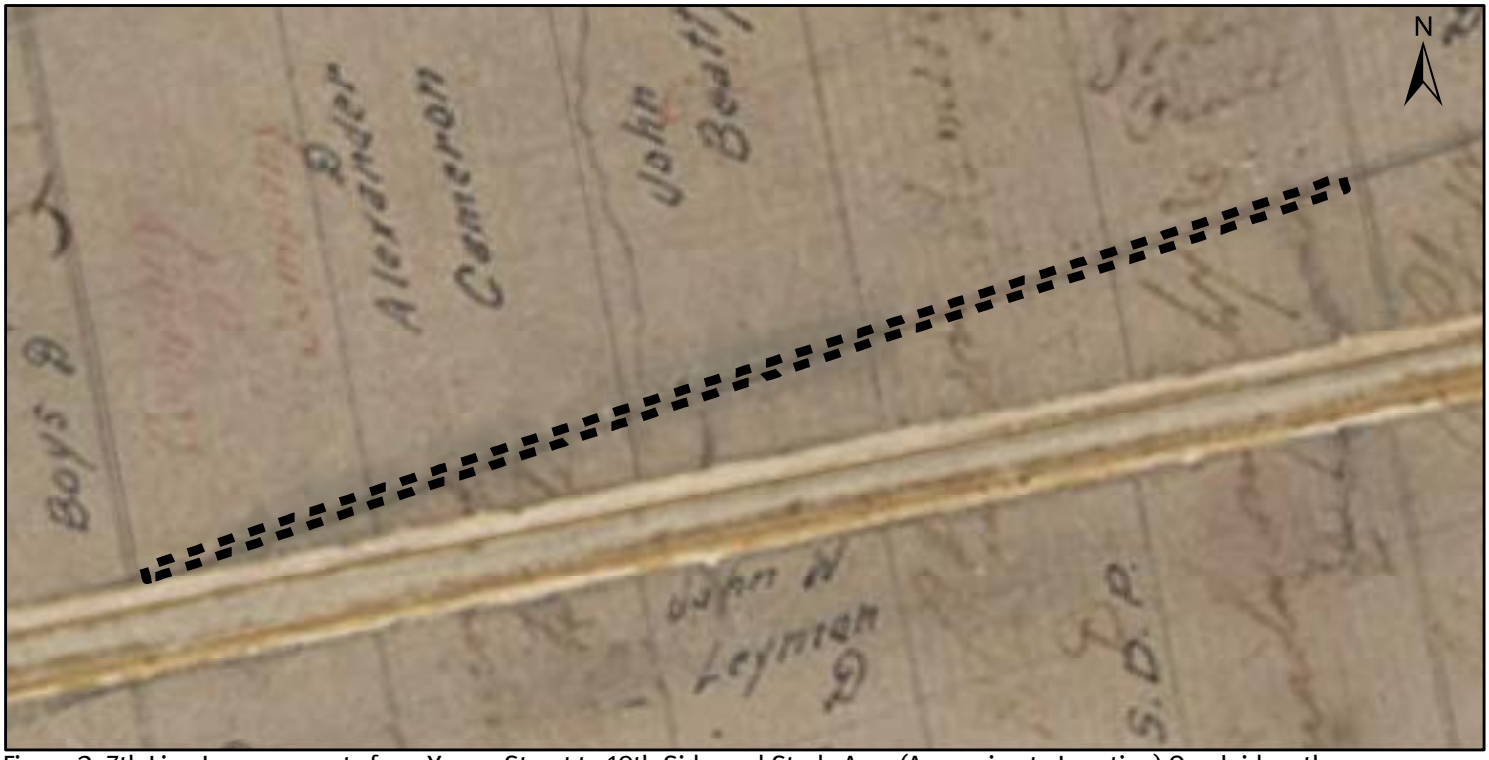


Figure 2: 7th Line Improvements from Yonge Street to 10th Sideroad Study Area (Approximate Location) Overlaid on the Undated Patent Plan of Innisfil Township

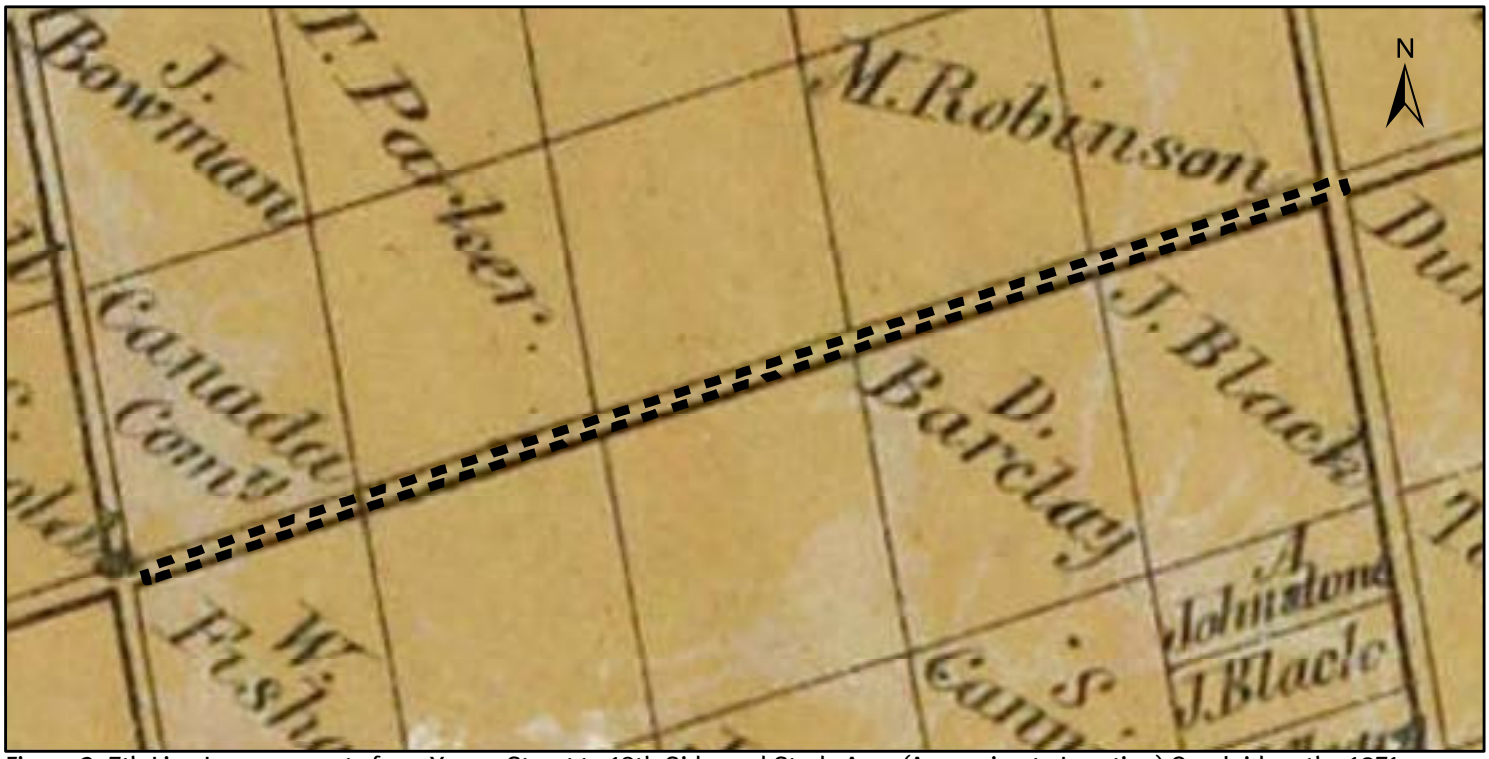


Figure 3: 7th Line Improvements from Yonge Street to 10th Sideroad Study Area (Approximate Location) Overlaid on the 1871 Hogg's Map of the County of Simcoe

Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 | F416-966-9723 | asiheritage.ca	STUDY AREA	Base: Patent Plan (Undated) Innisfil Township. 1871 Hogg's Map County of Simcoe.	0 500 Metres ASI PROJECT NO.: 18EA-016 DATE: 11/26/2018 DRAWN BY: AB/JF FILE: 18EA16_Hist_fig2_3

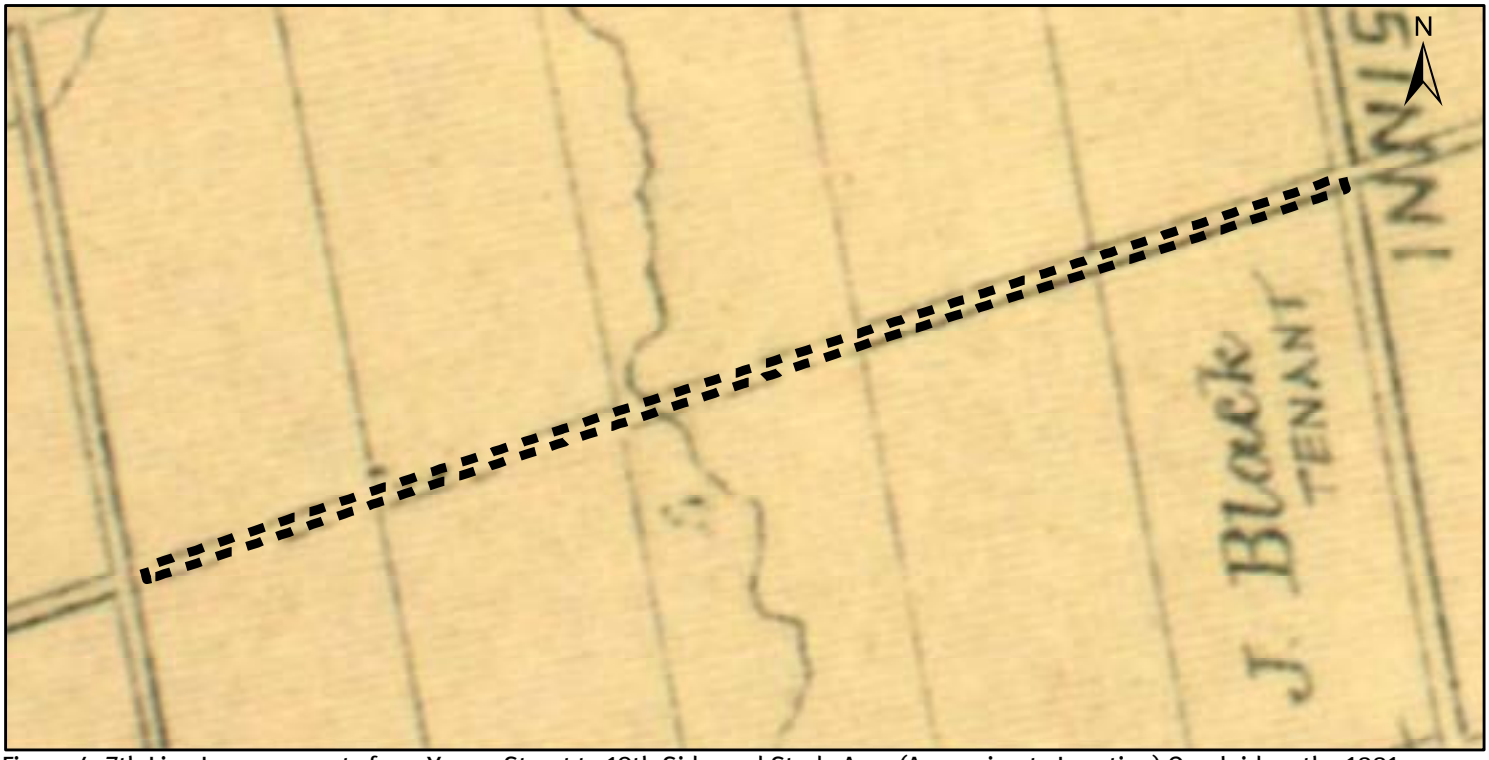


Figure 4: 7th Line Improvements from Yonge Street to 10th Sideroad Study Area (Approximate Location) Overlaid on the 1881 Map of the County of Simcoe, Township of Innisfil Page

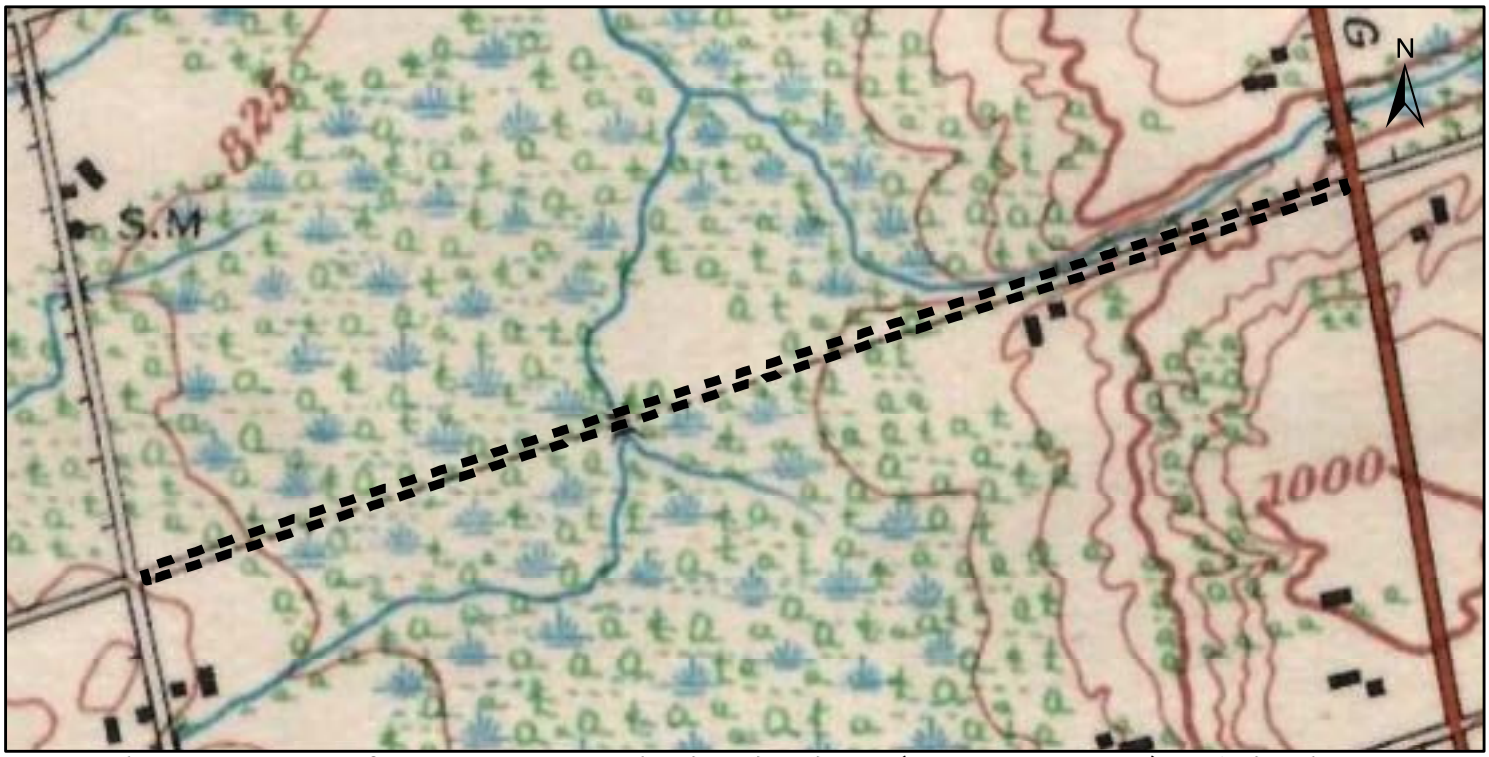


Figure 5: 7th Line Improvements from Yonge Street to 10th Sideroad Study Area (Approximate Location) Overlaid on the 1928 National Topographic Series Barrie Sheet

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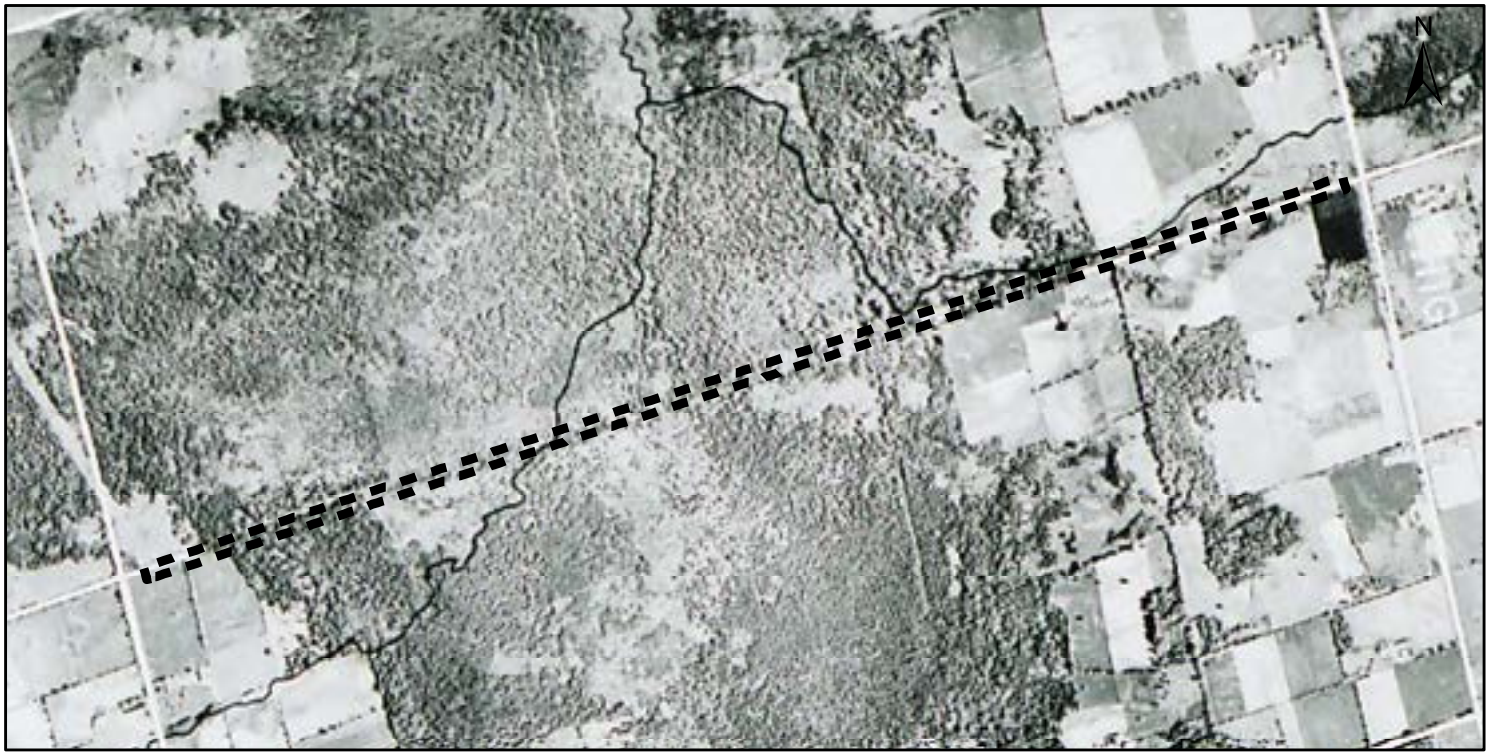
STUDY AREA

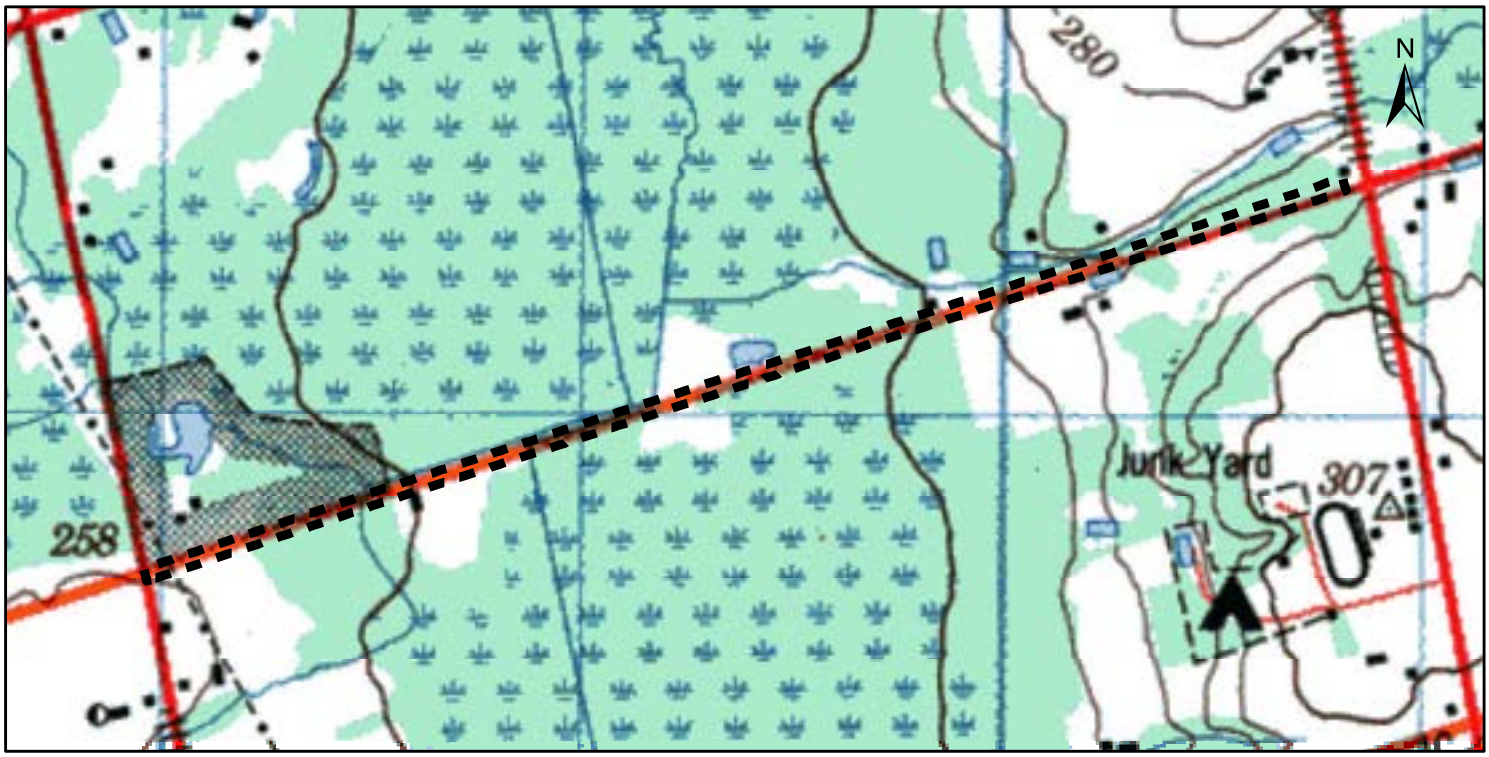
Base:
1881 Illustrated Historical Atlas.
Simcoe County
1928 NTS Map. Barrie Sheet

0 500
Metres

ASI PROJECT NO.: 18EA-016
DATE: 11/26/2018

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FILE: 18EA16_Hist_fig4_5





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STUDY AREA

Base:
1954 Aerial Photography
1994 NTS Map. Barrie Sheet

0 500
Metres

ASI PROJECT NO.: 18EA-016
DATE: 11/26/2018

DRAWN BY: AB/JF
FILE: 18EA16_Hist_fig6_7

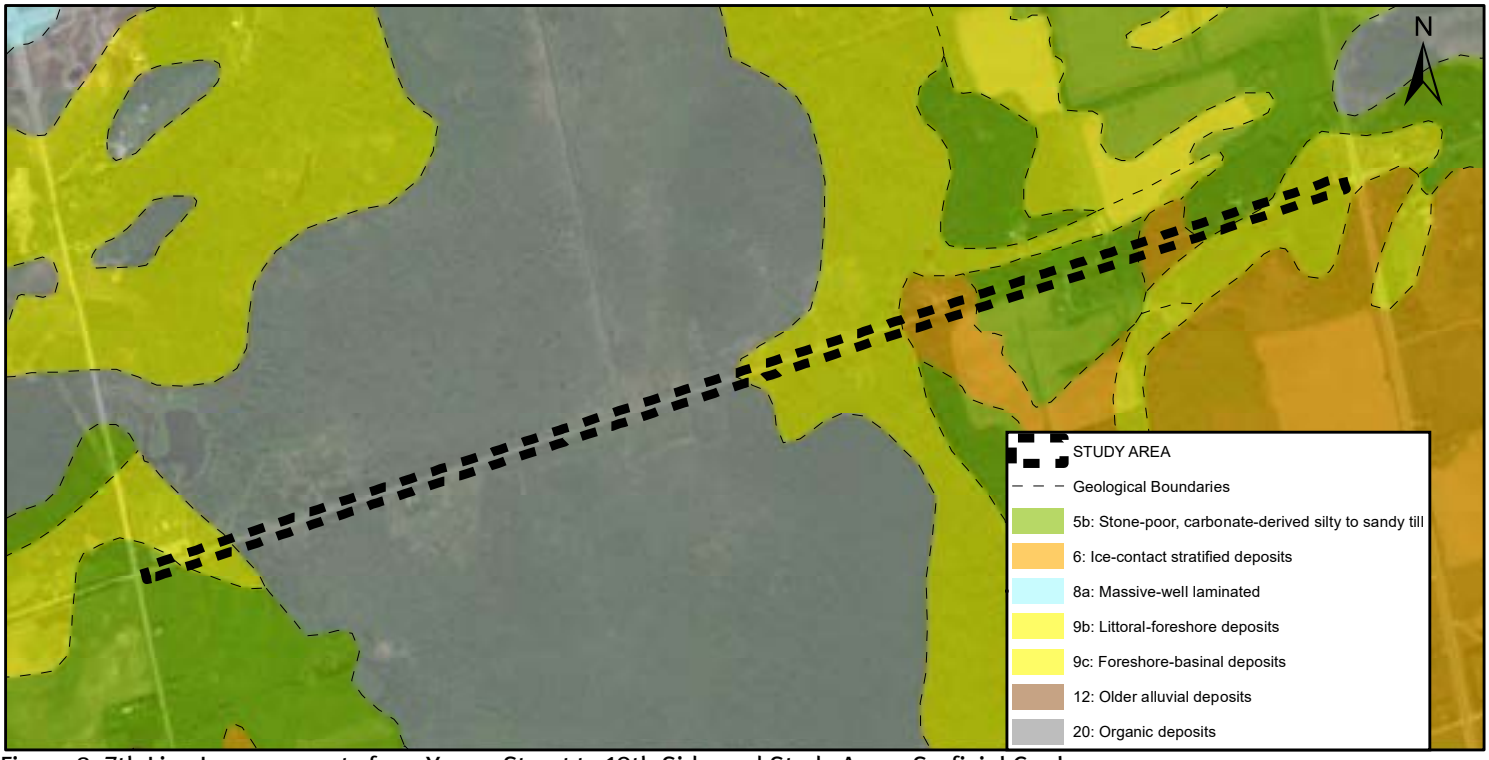


Figure 8: 7th Line Improvements from Yonge Street to 10th Sideroad Study Area - Surficial Geology

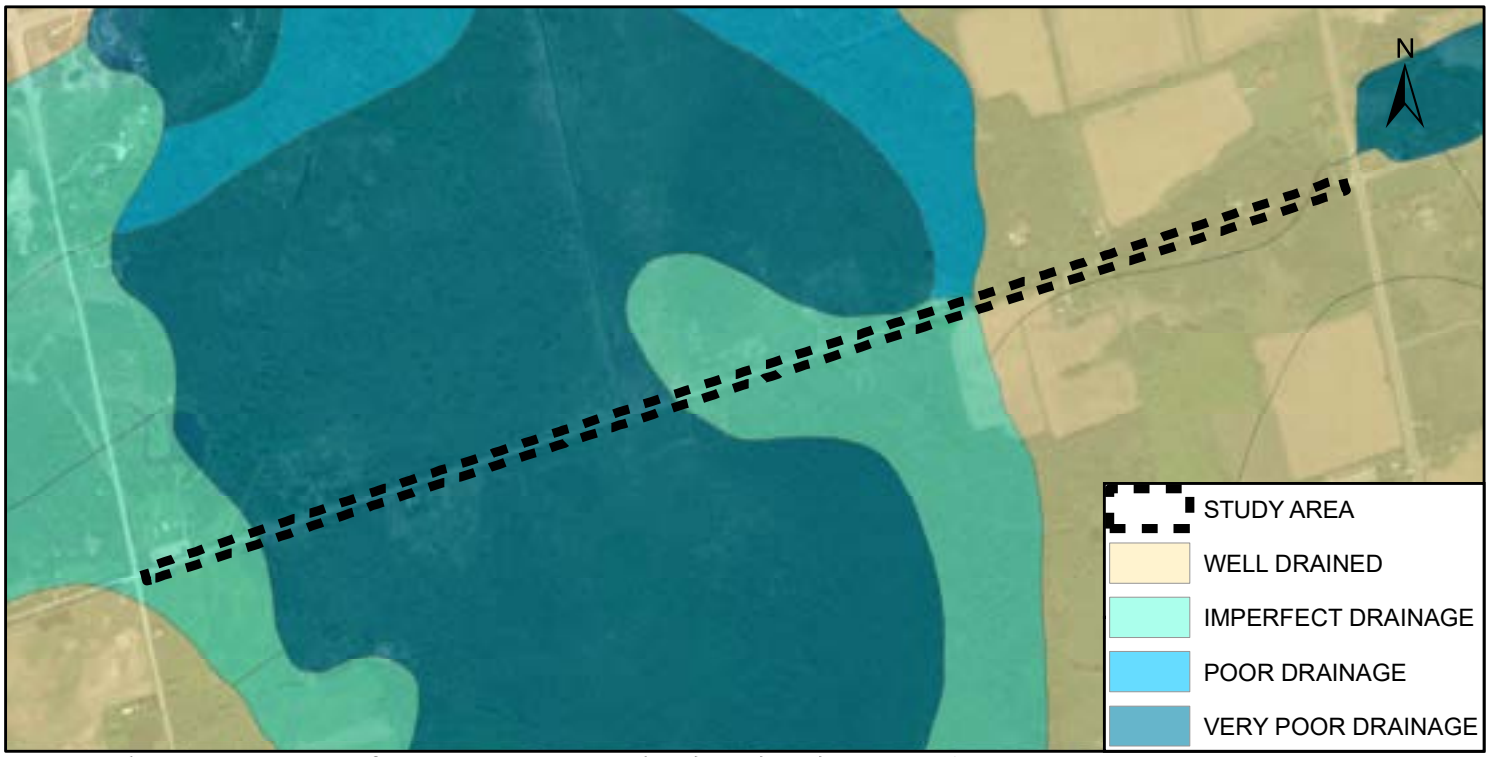


Figure 9: 7th Line Improvements from Yonge Street to 10th Sideroad Study Area - Soil Drainage

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 500
Metres

ASI PROJECT NO.: 18EA-016
DATE: 11/26/2018
DRAWN BY: JF
FILE: 18EA16_fig8_9_Geology



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STUDY AREA

KEY SHEET

BASE:
Digital Globe, 2017

0 400
Metres

ASI PROJECT NO.:18EA-016
DATE: 11/2/2018

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Figure 10: 7th Line Improvements from Yonge Street to 10th Sideroad - Results of the Property Inspection (Key Map)

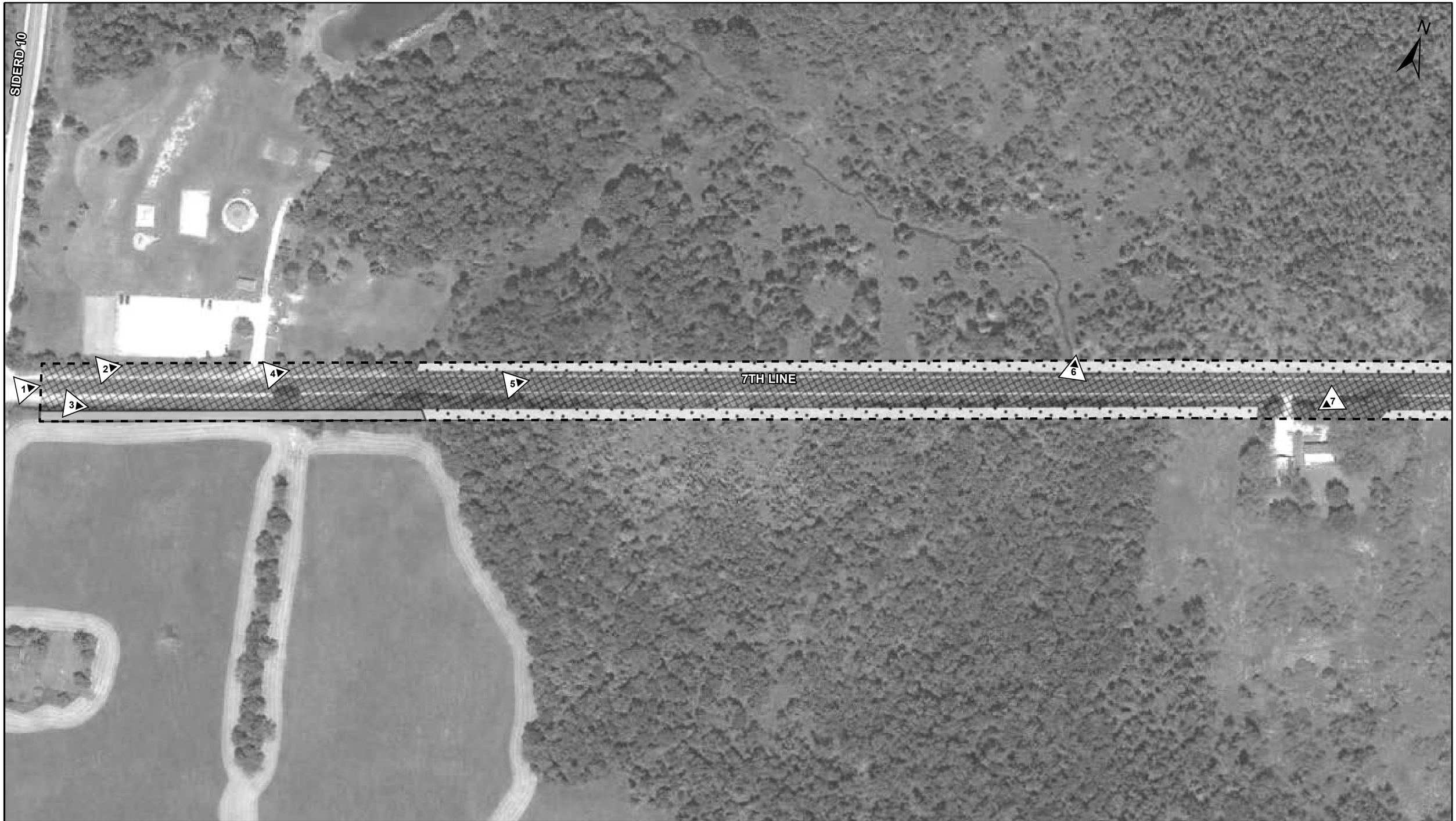


Figure 11: 7th Line Improvements from Yonge Street to 10th Sideroad - Results of the Property Inspection (Sheet 1)



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STUDY AREA
DISTURBED - NO POTENTIAL
LOW/WET - NO POTENTIAL
PHOTO LOCATIONS

BASE:
Digital Globe, 2017

0 100
Metres

ASI PROJECT NO.:18EA-016
DATE: 11/2/2018
DRAWN BY:AB/JF
FILE:18EA16_Fig12_Stage2_GS

Figure 12: 7th Line Improvements from Yonge Street to 10th Sideroad - Results of the Property Inspection (Sheet 2)



Figure 13: 7th Line Improvements from Yonge Street to 10th Sideroad - Results of the Property Inspection (Sheet 3)



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STUDY AREA
DISTURBED - NO POTENTIAL
POTENTIAL - TEST PIT SURVEY (5m)
SLOPE - NO POTENTIAL
LOW/WET - NO POTENTIAL
PHOTO LOCATIONS

BASE:
Digital Globe, 2017

0 100
Metres

ASI PROJECT NO.:18EA-016
DATE: 11/2/2018
DRAWN BY:AB/JF
FILE:18EA16_Fig14_Stage2_GS

Figure 14: 7th Line Improvements from Yonge Street to 10th Sideroad - Results of the Property Inspection (Sheet 4)

8.0 IMAGES



Plate 1: Northeast view of 7th Line at 10th Sideroad; Area within 20m wide ROW is disturbed, no potential



Plate 2: Northeast view of Centennial Park; Area is disturbed, no potential



Plate 3: East view of 7th Line; Area south of disturbed shoulder/ditch exhibits potential, requires Stage 2 survey



Plate 4: Northeast view of 7th Line; Area is disturbed, no potential



Plate 5: Northeast view of 7th Line; Area beyond disturbed ROW is low and wet, no potential



Plate 6: North view of creek tributary; Area is low and wet, no potential



Plate 7: Southwest view of 2747 - 7th Line; residential frontage is disturbed, no potential



Plate 8: Southwest view of 7th Line; Area beyond disturbed ROW is low and wet, no potential



Plate 9: North view of 8th Line Drain; Area beyond disturbed ROW is low and wet, no potential



Plate 10: Northeast view of channelized tributary; Area beyond disturbed ROW is low and wet, no potential

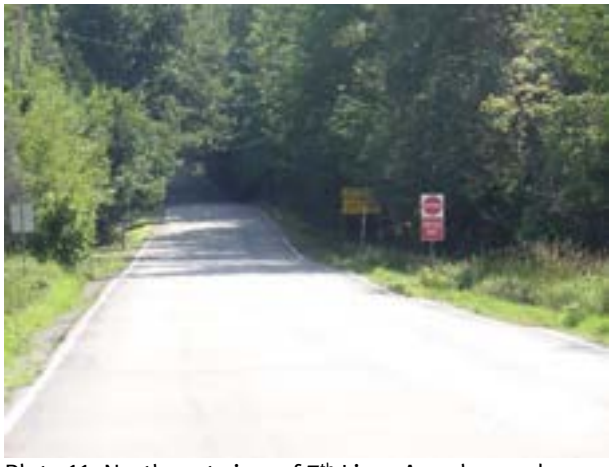


Plate 11: Northeast view of 7th Line; Area beyond disturbed ROW is low and wet, no potential



Plate 12: Northwest view of property access on 7th Line; Area beyond disturbed ROW is low and wet, no potential



Plate 13: West view of 2472/2482 7th Line; Area is disturbed, no potential



Plate 14: Northeast view of 7th Line; Area south of disturbed ROW exhibits potential, requires Stage 2 survey



Plate 15: Southwest view of 7th Line; Area beyond disturbed ROW is low and wet, no potential



Plate 16: South view of 2399 7th Line; Area beyond disturbed ROW is low and wet, no potential



Plate 17: Southwest view of 7th Line; Area beyond disturbed culvert and ROW is low and wet, no potential



Plate 18: West view of 7th Line; Area beyond disturbed ROW exhibits potential, requires Stage 2 survey



Plate 19: West view of 7th Line; Area beyond disturbed ROW exhibits potential, requires Stage 2 survey



Plate 20: West view of 7th Line at Yonge St.; Area beyond disturbed ROW exhibits potential, requires Stage 2 survey

Air Quality Impact Assessment Report, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
17345 Leslie Street, Suite 200
Newmarket ON L3Y 0A4 CANADA

May 2019
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R.J. Burnside & Associates Limited

Report Prepared By:



Kristina Zeromskiene, Ph.D
Air Emissions & Noise Scientist
KZ:slw

Report Reviewed By:



Harvey Watson, P.Eng.
Manager, Air & Noise
HW:slw

Executive Summary

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) to investigate the proposed improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4). This Air Quality Impact Assessment (AQIA) was completed as part of the EA Study in order to understand the impacts of the proposed road widening on local air quality.

Based on the forecasted traffic volumes, future predicted air quality levels with and without the road widening were compared to the existing air quality levels to understand the impact of a potential road improvement on local air quality. Typical contaminants from automobile exhaust were evaluated including particulate matter (PM2.5 and PM10), total suspended particulates (TSP), nitrogen dioxide (NO_2), carbon monoxide (CO), 1,3-butadiene, benzene, acrolein, acetaldehyde, and formaldehyde.

Air quality modelling was performed for above contaminants for the existing, and two future scenarios. The existing scenario results show the current (2018) impact of the local roads. The Future No Build scenario predicts emissions due to traffic in the vicinity of the Study Area for the future (2038) without the proposed road widening. The Future Build scenario predicts future (2038) emissions with the proposed road widening. The impacts were assessed on 0.5 hour, 1 hour, 8 hour, 24 hour and annual basis depending on the criterion averaging period. Modelled impacts for the local roads were added to the background measurements recorded by the Ministry of Environment, Conservation and Parks (MECP) for all three scenarios in order to understand the total cumulative effects of the proposed road widening on local air quality.

The results of the dispersion modelling show that the predicted ground level concentrations at all sensitive receptor locations were below the applicable MECP criteria.

Based on the comparison of predicted cumulative concentrations between Future Build and Future No Build scenarios, it was determined that the change is very small and the impact on local air quality due to 7th Line widening is negligible.

The selected sensitive receptors were chosen to represent all the receptors in the vicinity of the Study Area. All other receptors are expected to experience the same or smaller impact due to the proposed road widening.

A potential Greenhouse Gas emission effect from the proposed road widening was determined to be insignificant on a regional scale. The total annual emissions are expected to be well below 0.1% of the provincial levels. Similarly, the local impact is negligible.

Air Quality Impact Assessment Report, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

May 2019

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Appendix A Traffic Volumes
Appendix B Emission Factors
Appendix C Modelling Results
Appendix D Green House Gas Impact

Glossary of Terms and Acronyms

AAQC	Ambient Air Quality Criteria
AADT	Annual Average Daily Traffic
AQIA	Air Quality Impact Assessment
CAL3QHCR	Air Dispersion Model for Predicting Air Quality Impacts Near Roadways
BMP	Best Management Practices
Burnside	R.J. Burnside & Associates Limited
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria Air Contaminant
CO	Carbon Monoxide
CO_2e	Carbon Dioxide equivalent
ECCC	Environmental and Climate Change Canada
EA	Environmental Assessment
GHG	Greenhouse Gas
MECP	Ministry of the Environment, Conservation, and Parks
MOVES	Motor Vehicle Emission Simulator
MTO	Ministry of Transportation
MTO Guide	Ministry of Transportation "Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects" (2012)
NAAQO	National Ambient Air Quality Objective
NAPS	National Air Pollution Surveillance
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
O_3	Ozone
OTAQ	Office of Transportation and Air Quality
PM	Particulate Matter
PM2.5	Particulate Matter < 2.5 µm in diameter
PM10	Particulate Matter < 10 µm in diameter
SO_2	Sulphur Dioxide
Town	Town of Innisfil
TSP	Total Suspended Particulate Matter
US EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

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1.0 Introduction

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) to investigate the proposed improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

As part of the EA process R.J. Burnside & Associates (Burnside) has completed an Air Quality Impact Assessment (AQIA) to identify whether the change in traffic as a result of the 7th Line improvement will significantly change air quality within the Study Area.

1.1 Study Area

The Study Area covers a 3 km stretch of 7th Line between 10th Sideroad and Yonge Street in Innisfil, Ontario. It is generally bordered by a natural environment and agricultural lands with several residential dwellings south and north of the road. The study area with 500 m buffer is shown in Figure 1.

1.2 Sensitive Receptors

The air quality effects due to the proposed 7th Line widening were predicted at selected sensitive receptors. Sensitive receptors are described by the Ministry of Transportation (MTO) in their Guide "Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects" (MTO Guide) (MTO, 2012) as:

- Residences.
- Hospitals.
- Retirement homes.
- Childcare centres.
- Similar institutional buildings (like schools).

Residential properties are located on the north and south sides of the 7th Line. Eight residential properties were selected as representative sensitive receptors within the Study Area. They were selected at varying setbacks along 7th Line to illustrate the full extent in ground level air quality concentration at varying distances. All sensitive receptor locations are summarized in Table 1 and shown in Figure 2.

Figure 1: Study Area



Table 1: Sensitive Receptor Locations

ID	Address	Easting	Northing	Receptor Description
R1	7169 10 Sideroad, Innisfil	608029	4903715	1 storey house
R2	2747 7th Line, Innisfil	608640	4904031	1.5 storey house
R3	2592 7th Line, Innisfil	609308	4904416	2 storey house (assumed)
R4	2472 7th Line, Innisfil	609852	4904494	1.5 storey house
R5	2422 7th Line, Innisfil	610084	4904654	2-3 storey house (assumed)
R6	2399 7th Line, Innisfil	610262	4904508	1 storey house
R7	2320 7th Line, Innisfil	610600	4904745	2.5 storey house
R8	7118 Yonge Street, Innisfil	610833	4904813	1.5 storey house

Figure 2: Sensitive Receptors



1.3 Potential Pollutants

Transportation related contaminants are emitted due to fuel combustion, brake wear, tire wear, and road dust. According to MTO Guide, the Criteria Air Contaminants (CAC) and Volatile Organic Compounds (VOC) most relevant to transportation are:

- Carbon Monoxide (CO).
- Nitrogen Dioxide (NO_2).
- Total Suspended Particulate Matter (TSP).
- Particulate Matter 10 μm or less in diameter (PM10).
- Particulate Matter 2.5 μm or less in diameter (PM2.5).
- Selected VOCs (benzene, 1,3-butadiene, formaldehyde, acetaldehyde, and acrolein).

CACs are the common pollutants found in ambient air associated with environmental effects such as smog and acid rain and cause a variety of health effects. They include Particulate Matter (PM), Sulphur Dioxide (SO_2), Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and Ozone (O3). CACs come from a variety of sources and are mainly the products of fossil fuel combustion and industrial processes.

VOCs are compounds that have a high vapour pressure and can easily evaporate into the air. They occur naturally and are also produced by human activities such as cleaning, painting, etc. They are common indoors, where concentrations are typically higher than outdoors.

All of the above contaminants, except ozone, are considered primary air pollutant, i.e., they are directly emitted to the atmosphere. Ozone is formed in the atmosphere through photochemical reaction between NO_x and VOCs; therefore, it is considered a secondary pollutant. According to MTO Guide, its photochemical production from its precursors takes at least a few hours, which almost always ensures its transport out of the local environment. Considering this time delay, ozone was not included in this assessment.

1.4 Greenhouse Gas

Greenhouse Gases (GHGs) contribute to climate change by trapping heat within the earth's atmosphere. The major gases include carbon dioxide, methane, and nitrous oxide although there are many other gases that behave in a similar way. Burning of fossil fuels is the major source of GHGs.

A GHG impact assessment on a regional scale was completed as part of this AQIA. Total annual emissions were based on the annual vehicle kilometres travelled within the Study Area. Annual emissions were compared to the total provincial emissions due to transportation sector to estimate the magnitude of the effect of the 7th Line widening. Provincial emissions were taken from the most recent Environment and Climate Change Canada (ECCC) National Inventory Report on Greenhouse Gases (ECCC, 2018) for the 2016 calendar year.

2.0 Existing Ambient Air Quality Conditions

2.1 Climate

The ambient air monitoring station in Cookstown, Ontario was used to assess the climate in the vicinity of the Study Area. The Cookstown air monitoring station is located about 10 km south west of the Study Area in Innisfil. The Town of Innisfil has a humid continental climate characterized with warm and humid summers and cool winters. Local climate conditions were obtained from Environment and Climate Change Canada's

Cookstown meteorological station (station ID 6111859, Latitude 44°12'24.042" N, 79°41'41.088" W). According to the Canadian Climate Normals (calendar years 1981 to 2010) for this station, the mean annual temperature is estimated at 6.5°C. The warmest month of the year is July with an average temperature of 19.7°C and the coldest month is January with an average temperature of –7.9°C. The Cookstown meteorological station recorded a total average annual precipitation (snow and rain) of 826 mm, 664 mm of which was rain. Precipitation is distributed throughout the year, with most of the rain occurring between April and November. The maximum mean monthly rainfall is 81.1 mm and occurs in September. Climate Normals for the Cookstown station are summarized in Table 2.

Table 2: Cookstown WPCP Meteorological Station Climate Normals (1981-2010)

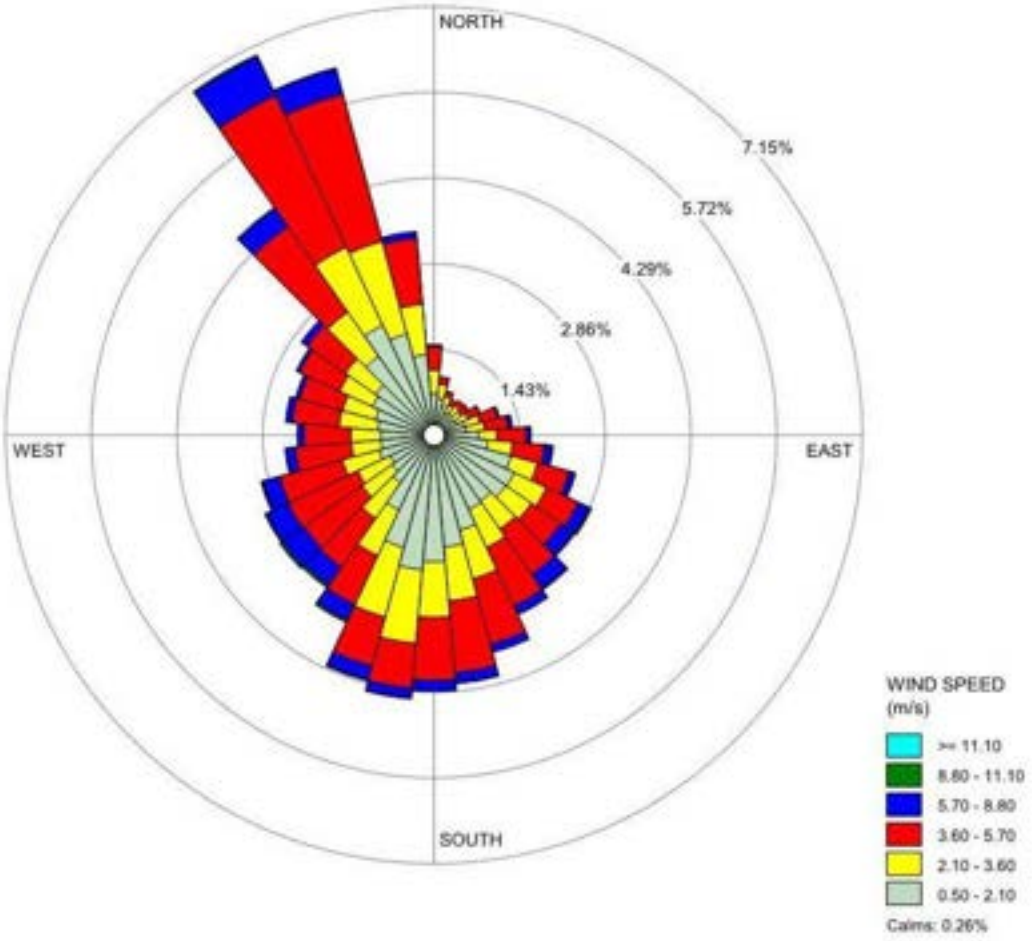
Meteorological Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Daily Average Temperature (°C)	-7.9	-6.7	-1.9	5.6	11.9	17.3	19.7	18.7	14.4	8.2	2.2	-4	6.5
Daily Maximum Temperature (°C)	-3.5	-2	2.9	10.9	18	23.4	25.8	24.8	20.2	13.2	5.9	-0.3	11.6
Daily Minimum Temperature (°C)	-12.2	-11.3	-6.6	0.3	5.7	11.1	13.5	12.5	8.6	3.2	-1.6	-7.7	1.3
Rainfall (mm)	18.6	18.5	30.1	57.6	75.2	80.5	70	80.2	81.1	68.9	58.9	24.1	664
Snowfall (cm)	37.6	34	23.1	7.9	0.4	0	0	0	0	3.6	20.7	35.5	163
Precipitation (mm)	56.2	52.6	53.1	65.4	75.5	80.5	70	80.2	81.1	72.6	79.6	59.6	826

Station Climate ID: 6111859; Latitude: 44°12'24.042" N, Longitude: 79°41'41.088" W.
Elevation: 243.80 m

The MECP provided the meteorological data set (station ID 61190) used in this AQIA. This data set covers the 2014 to 2018 calendar years. Based on the provided data, the average wind speed at the station was 3.09 m/s. The dominant wind direction was northwest. A wind rose depicting the relative frequency of wind directions including wind speeds is provided in Figure 3. The meteorological data set was used in the dispersion model (CAL3QHCR) to predict the concentration levels at selected sensitive receptors as described in Section 1.2.

The dispersion model starts with the emissions based on traffic and then predicts how these contaminants will be moved by the wind.

Figure 3: Wind Rose



2.2 Ambient Air Quality

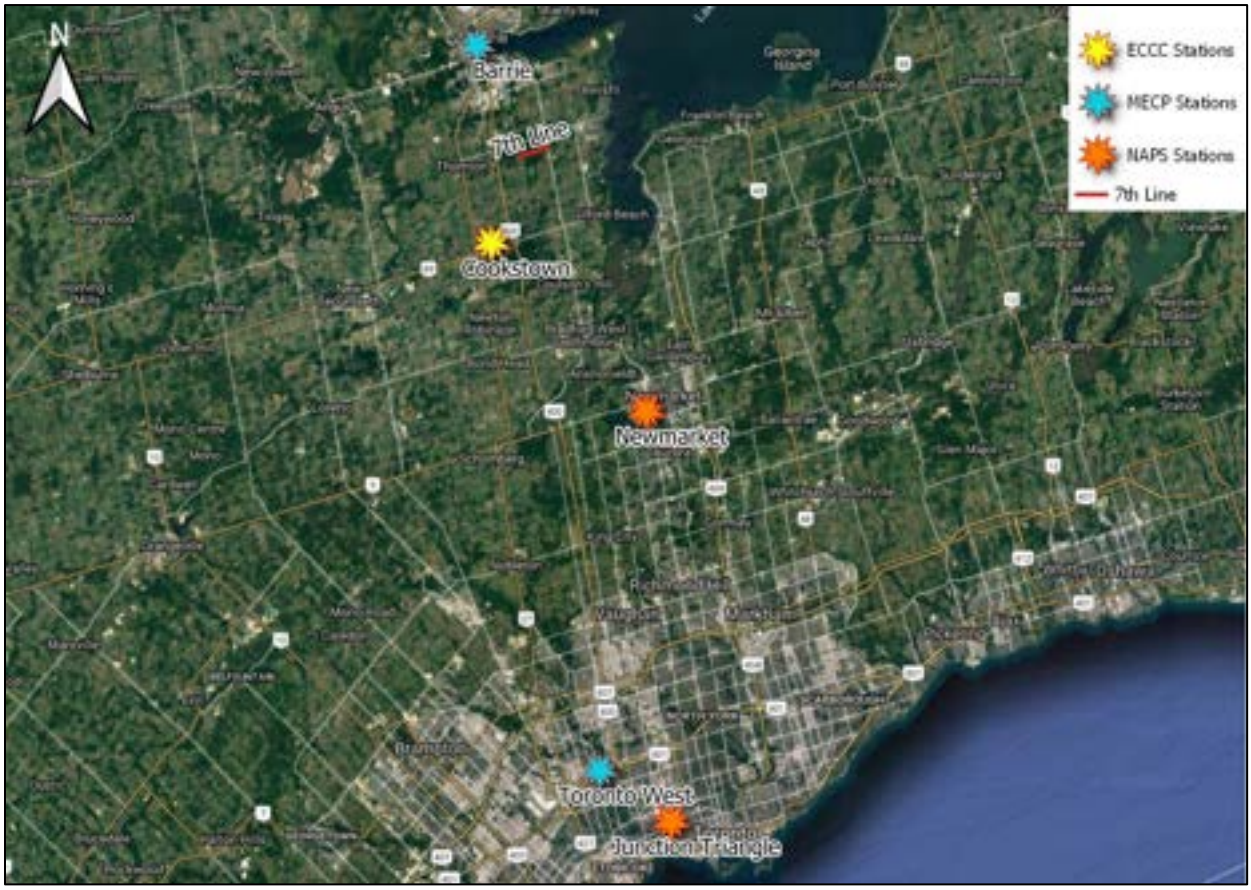
The MECP and National Air Pollution Surveillance (NAPS) stations in close proximity to the Study Area were reviewed to ensure the most representative background concentration would be selected. Not all contaminant concentrations are available at every station; therefore, a total of four stations were selected to fully characterize the background concentrations in the vicinity of the Study Area. Two MECP stations were selected to represent PM2.5, NO_2, and CO. MECP Barrie station was the nearest available station with the most recent data for PM2.5 and NO_2, while the nearest station with CO data was determined to be Toronto West. Two NAPS stations were selected to represent background concentrations for 1,3-butadiene, benzene, acetaldehyde, acrolein, and formaldehyde. The most recent data for 1,3-butadiene and benzene was used from Newmarket station. There was no recent or measured in closed proximity

data for acetaldehyde, acrolein, nor formaldehyde; therefore, data for 2001-2005 collected at Junction Triangle station in Toronto was used in this assessment. The stations and the most recent full five years of available data are summarized in Table 3. The locations of the selected stations are shown in Figure 4.

Table 3: Ambient Monitoring Stations Summary

Contaminant	Station ID	Station Location	Year
PM2.5	MECP 47045	83 Perry Street, Barrie, ON	2013-2017
NO_2	MECP 47045	83 Perry Street, Barrie, ON	2013-2017
CO	MECP 35125	125 Resources Road, Toronto, ON	2013-2017
1,3-Butadiene	NAPS 65101	Eagle St. & McCaffrey Rd., Newmarket, ON	2012-2016
Benzene	NAPS 65101	Eagle St. & McCaffrey Rd., Newmarket, ON	2012-2016
Acetaldehyde	NAPS 60418	Toronto Perth/Ruskin (Junction Triangle)	2001-2005
Acrolein	NAPS 60418	Toronto Perth/Ruskin (Junction Triangle)	2001-2005
Formaldehyde	NAPS 60418	Toronto Perth/Ruskin (Junction Triangle)	2001-2005

Figure 4: Meteorological and Ambient Monitoring Stations



Summary of background concentrations 90th percentile[1], maximum and average values for all contaminants is provided in Table 4.

Table 4: Background Data Summary

Contaminant	CAS#	Averaging period	90th Percentile (μg/m³)	Maximum (μg/m³)	Average (μg/m³)
CO	630-08-0	1hr	410	1904	288
		8hr	376	914	289
NO_2	11104-93-1	1hr	36.8	547.8	19.4
		24hr	35.8	167.6	19.4
		Annual	n/a	36.3	33.9
PM2.5	-	24hr	13.2	31.5	7.3
		Annual	n/a	7.6	7.3
PM10	-	24hr	24.5	58.3	13.4
TSP	-	24hr	44.0	105.0	24.2
		Annual	n/a	25.4	24.2
1,3-Butadiene	106-99-0	24hr	0.04	0.11	0.02
		Annual	n/a	0.026	0.022
Acetaldehyde	75-07-0	0.5hr	n/a	n/a	n/a
		24hr	3.30	5.58	1.95
Acrolein	107-02-8	1hr	n/a	n/a	n/a
		24hr	0.20	1.17	0.12
Benzene	71-43-2	24hr	0.63	1.19	0.36
		Annual	n/a	0.41	0.36
Formaldehyde	50-00-0	24hr	6.48	11.24	3.66

Notes:
- Acrolein concentrations are provided on a daily basis, thus hourly values could not be determined.
- PM10 concentrations based on PM2.5/PM10 ratio of 0.54 (Lall, 2004).
- TSP concentrations based on PM2.5/TSP ratio of 0.30 (Lall, 2004).

Fine particulate matter is associated with major health effects compared to larger particles. Due to their small size, they can penetrate deep into lungs. MECP monitoring stations record only background concentrations of PM2.5. Since PM10 and TSP background concentrations were not available, values were calculated based on monitored PM2.5 concentrations. Mean ratios of PM2.5/PM10=0.54±0.14, and PM2.5/TSP=0.30±0.11 derived by Lall, *et al.,* (2004) were used to calculate 90th percentile, maximum and average concentrations of PM10 and TSP. This method is

[1] 90th percentile of monitoring data is typically considered a conservative estimate of background air quality. 90th percentile is the level below which 90% of all the observed values occur.

used throughout the province to predict PM10 and TSP concentrations when the only measured values are for PM2.5. The MECP considers this method to be acceptably accurate.

2.3 Air Quality Assessment Criteria

Ontario regulates contaminants released into the environment in order to limit and even reduce concentrations of harmful substances in the atmosphere and to protect the environment and human health. As part of this regulation, the MECP has developed a number of sources of criteria as described below.

Ambient air criteria for contaminants associated with road traffic emissions were taken from Ontario's Ambient Air Quality Criteria (AAQC) developed by the MECP and is summarized in Table 5. According to the MECP "an AAQC is a desirable concentration of a contaminant in air, based on protection against adverse effects on health or the environment". The Canadian Ambient Air Quality Standards (CAAQS) coming into effect in 2020 were used for PM2.5. The Canadian National Ambient Air Quality Objectives (NAAQO) for a maximum desired level of annual NO_2 concentration was 60 ppb until recently. CCME developed new more stringent annual CAAQS for NO_2 for 2020 (17 ppb) and 2025 (12 ppb). The most stringent criterion for 2025 was used in this assessment. All criteria are summarized in the table below.

Table 5: Representative Contaminants and Air Quality Criteria

Contaminant	CAS#	Averaging Period	AAQC[1] (μg/m^3)	CAAQS[2] 2020 (μg/m^3)	CAAQS[2] 2025 (μg/m^3)	Limiting Effect
CO	630-08-0	1hr	36,200			Health
		8hr	15,700			Health
NO_2	10102-44-0	1hr	400	113 (60 ppb)	79 (42 ppb)	Health
		24hr	200			Health
		Annual		32 (17 ppb)	23 (12 ppb)	Health
PM2.5	-	24hr	30	27		Health
		Annual		8.8		Health
PM10	-	24hr	50			Health
TSP	-	24hr	120			Visibility
		Annual	60			Visibility
1,3-Butadiene	106-99-0	24hr	10			Health
		Annual	2			Health
Acetaldehyde	75-07-0	0.5hr	500			Health
		24hr	500			Health
Acrolein	107-02-8	1hr	4.5			Health

Contaminant	CAS#	Averaging Period	AAQC[1] (μg/m³)	CAAQS[2] 2020 (μg/m³)	CAAQS[2] 2025 (μg/m³)	Limiting Effect
		24hr	0.4			Health
Benzene	71-43-2	24hr	2.3			Health
		Annual	0.45			Health
Formaldehyde	50-00-0	24hr	65			Health

Notes:

[1] Ontario's Ambient Air Quality Criteria - https://www.ontario.ca/page/ontarios-ambient-air-quality-criteria-sorted-chemical-abstracts-service-registry-number

[2] Canadian Ambient Air Quality Standards:

NO_2 - http://gazette.gc.ca/rp-pr/p1/2017/2017-12-09/html/notice-avis-eng.html

PM2.5 - http://www.ec.gc.ca/default.asp?lang=En&n=56D4043B-1&news=A4B2C28A-2DFB-4BF4-8777-ADF29B4360BD

The sum of Nitrogen Dioxide (NO_2) and Nitric Oxide (NO) is considered Nitrogen Oxides (NO_x). Emissions of NO_x consist mainly of NO; however, NO is converted to NO_2 in the ambient air. NO_2 has an adverse effect at much lower concentrations than NO according to Ontario's Ambient Air Quality Criteria publication. Therefore, the AAQC is based on the NO_2 concentration. As a conservative assumption for this assessment, it was assumed that all NO is converted to NO_2.

3.0 Local Air Quality Assessment

Transportation is one of the largest sources of air pollution in Canada according to Environment and Climate Change Canada (ECCC).

The exhaust from the vehicles due to fuel combustion contains a number of pollutants that might be harmful to human health and the environment. The main contaminants include particulate matter, nitrogen dioxide, and carbon monoxide. However, there are many more contaminants associated with transportation. The magnitude of the emissions and the predicted change of those emissions due to proposed road widening were also evaluated in this AQIA.

3.1 Methodology

Following the MTO Guide, three scenarios were assessed for 7th Line widening, to evaluate the existing and future conditions with and without the proposed improvements. Those scenarios assess the future impact without the widening and future impact with the widening. The three scenarios are referred to as "Current", "Future Build" and "Future No Build". The future traffic forecasted for the year 2038 was used in the assessment. The scenarios use following information:

- Current (2018) Scenario:
  - Existing traffic volumes (assumed to be the same as prior to the road closure);
  - Existing roads.
- Future No Build (2038) Scenario:
  - Projected 20-year future traffic volumes on the roads within the Study Area if the 7th Line widening is not undertaken;
  - Existing roads.
- Future Build (2038) Scenario:
  - Projected 20-year future traffic volumes on the roads within the Study Area if the 7th Line widening is implemented;
  - Existing roads.

Ground level contaminant concentrations were predicted for all contaminants of interest for the three scenarios. Predicted values were added to the existing background ambient concentrations. The resulting cumulative concentrations were compared to the applicable criteria and the magnitude of the impact of the proposed road widening was determined.

For the future scenarios, background concentrations were assumed to remain the same. Based on data collected at the MECP ambient monitoring stations, concentrations of the key pollutants such as NO_2, CO, PM2.5, and some VOCs such as benzene decreased over the last 10 years between 16% and 53% (MECP, 2018). Assuming this trend will continue in the future, using current background values for the future scenario is a conservative approach.

3.2 Emission Factors

Transportation related emissions are associated with fuel combustion, brake wear, tire wear, as well as re-suspended road dust.

Emission factors for fuel combustion, brake wear and tire wear were estimated using Motor Vehicle Emission Simulator (MOVES) developed by the United States Environmental Protection Agency (US EPA) Office of Transportation and Air Quality (OTAQ). This emission modelling system estimates emissions for mobile sources covering a broad range of pollutants and conditions including the variety of vehicles (cars vs. trucks), ambient temperature, and vehicle speed. The summary of emission factors is provided in Appendix B. Weighted emission factors were derived based on the speed limit and vehicle type distribution for each road segment.

MOVES does not provide an emission factor for TSP. An exhaust emission factor for PM10 was used for TSP as, according to the US EPA, based on emissions test results, more than 97% of tailpipe particulate matter is PM10 or less.

Particulate emissions due to re-suspended road dust were estimated using the latest US EPA methodology for paved roads (US EPA, 2011). As a result, the total emission factors for particulate matter were a sum of tail pipe, brake wear, tire wear and road dust emission factors.

3.3 Traffic

Traffic volumes were provided for the morning (a.m.) and evening (p.m.) rush hours as well as annual average daily traffic (AADT). Due to the higher expected traffic volume, the p.m. rush hour represents the worst case scenario and was selected as a basis for this assessment.

The percentage of heavy vehicles was derived from the hourly vehicle counts on all surrounding roads. It was assumed that this percentage will remain the same in the future scenarios. The percentage of heavy vehicles on 7th Line was assumed to be similar to the percentage on the 7th Line segment east of Yonge Street. Conservatively, it was assumed that the percentage of heavy vehicles will double under the improved road scenario (Future Build). Current and future traffic volumes are summarized in Appendix A.

There are two intersections within the Study Area. Neither intersection is controlled by the traffic lights; therefore, uncontrolled intersections were assumed in dispersion modelling.

3.4 Air Dispersion Modelling

Dispersion modelling to determine maximum pollutant concentration was completed in accordance with the MTO Guide. The modelled impacts of contaminant emissions are assessed as 1-hour, 8-hour, 24-hour, and annual concentrations to match the appropriate criteria.

The appropriate model to assess the maximum impact is the US EPA CAL3QHCR model. The CAL3QHCR model estimates ground level air pollutant concentrations near roads from both moving and idling vehicles.

A site-specific meteorological data set was provided by the MECP for use with this AQIA. The CAL3QHCR ready meteorological data set covers the dates from January 1, 2014 to December 31, 2018.

The hourly data includes many factors, which affect the dispersion of air contaminants including wind speed, wind direction, temperature, mixing height and stability category.

As explained in Section 1.2, eight sensitive receptors along the 7th Line were selected for this assessment. All the receptors closest to the road were included in the assessment as well as several receptors further away from the road in order to show the change in air quality impact as the distance to the 7th Line increases.

The model is developed to incorporate the area road network and associated characteristics such as road width, traffic volume, and travel speed.

3.5 Modelling Results

The impact of the proposed 7th Line widening was assessed based on the predicted ground level concentrations at the selected sensitive receptors within the Study Area as shown in Figure 2 and existing background concentrations as monitored at MECP and NAPS stations.

Predicted ground level concentrations at the sensitive receptors with the highest predicted levels are summarized for each contaminant and averaging period in Table 6: through Table 8. Detailed results for all sensitive receptors are provided in Appendix C. The highest concentrations were predicted at the receptors R1 or R8. These receptors are located near the roads where traffic volumes are much higher that on the 7th Line. R1 is located next to 10th Sideroad and R8 is located next to Yonge Street. The elevated concentrations predicted at these receptors are mainly due to 10th Sideroad and Yonge Street, while 7th Line has a much smaller impact on both receptors.

The results are presented by contaminant and include background concentration (90th percentile or average for annual concentrations), maximum predicted concentration, receptor at which the maximum concentration occurs and cumulative concentrations (background plus predicted concentration). The predicted and cumulative concentrations are compared against applicable criteria.

Table 6 shows the maximum impact of the current traffic including the amount contributed by the roads within the Study Area and background levels. Table 7 shows the same information for the future scenario assuming that the widening was not undertaken (Future No Build). Table 8 shows the same information for the future scenario assuming that the widening of the 7th Line is implemented (Future Build).

Table 6 through Table 8 show that the contribution from all the roads in the area including the proposed widening is relatively small compared to the background values.

The cumulative concentrations predicted within the Study Area for all contaminants are below their applicable criteria as shown in the above-mentioned tables.

The maximum annual PM2.5 concentrations are predicted to be around 90% of the criteria. The annual average background concentration for PM2.5 is at 87% of the criterion. Since the prediction of the annual PM2.5 concentration is the result of adding the average background value to the maximum modelled value, the contribution of PM2.5 contaminants due the traffic in the Study Area is a small fraction of the cumulative concentration (less than 5%).

According to Air Quality in Ontario 2016 Report (MECP, 2018), fine particulate matter decreased 12% from 2007 to 2016. Considering the general trend in Ontario, average annual background concentrations and the very small contribution due to the roads within the Study Area it is reasonable to expect that cumulative PM2.5 concentrations will remain below their annual criteria within the Study Area in the future.

Similar to PM2.5, annual benzene concentrations are predicted to be around 90% of the annual criteria. The high concentrations are mainly due to the high background values. The contribution from the roads within the Study Area is less than 1% for all three scenarios.

The elevated background benzene concentration is not isolated to the Innisfil area, but observed across the Province of Ontario. Improvements to address benzene levels are being dealt with at a national and provincial level that in turn improves air quality at a local level. According to Air Quality in Ontario 2016 Report (MECP, 2018), over the 10-year period from 2007 to 2016, benzene concentrations have decreased by 28%.

Table 6: Maximum Predicted Concentrations – Current Scenario

Contaminant	Averaging Period	Criteria (μg/m^3)	Background Concentration (μg/m^3)	Sensitive Receptor	Predicted Maximum Concentration (μg/m^3)	Predicted % of Criteria	Cumulative Concentration (μg/m^3)	Cumulative % of criteria
CO	1hr	36,200	412.20	R8	26.28	0.07%	438.48	1.2%
	8hr	15,700	377.79	R8	19.84	0.13%	397.62	2.5%
NO2	1hr	79	31.96	R8	4.55	5.76%	36.51	46.2%
	24hr	200	26.88	R8	2.14	1.07%	29.02	14.5%
	Annual	23	15.32	R1	0.88	3.81%	16.20	70.4%
PM2.5	24hr	27	13.21	R1	0.61	2.25%	13.82	51.2%
	Annual	8.8	7.63	R1	0.27	3.10%	7.91	89.8%
PM10	24hr	50	24.46	R1	2.28	4.56%	26.74	53.5%
TSP	24hr	120	44.03	R1	10.71	8.93%	54.74	45.6%
	Annual	60	25.44	R1	4.80	8.00%	30.24	50.4%
1,3-Butadiene	24hr	10	0.04	R8	0.001	0.01%	0.04	0.4%
	Annual	2.0	0.03	R1	0.000	0.01%	0.03	1.3%
Acetaldehyde	0.5hr	500	3.30	R8	0.015	0.00%	3.31	0.7%
	24hr	500	3.30	R8	0.006	0.00%	3.30	0.7%
Acrolein	1hr	4.5	0.20	R8	0.002	0.04%	0.21	4.6%
	24hr	0.4	0.20	R8	0.001	0.21%	0.21	51.3%
Benzene	24hr	2.3	0.63	R8	0.006	0.26%	0.63	27.5%
	Annual	0.45	0.41	R1	0.002	0.51%	0.41	90.6%
Formaldehyde	24hr	65	6.48	R8	0.013	0.02%	6.49	10.0%

Notes:
90th percentile used as background concentrations for 1-hr, 8-hr, and 24-hr averaging periods
Average annual values use as background concentrations for annual averaging periods
24-hour 90th percentile used as background concentrations for acrolein 1-hour and acetaldehyde 0.5-hr averaging periods

Table 7: Maximum Predicted Concentrations – Future No Build Scenario

Contaminant	Averaging Period	Criteria (μg/m³)	Background Concentration (μg/m³)	Sensitive Receptor	Predicted Maximum Concentration (μg/m³)	Predicted % of Criteria	Cumulative Concentration (μg/m³)	Cumulative % of criteria
CO	1hr	36,200	412.20	R8	42.23	0.12%	454.43	1.3%
	8hr	15,700	377.79	R8	31.92	0.20%	409.71	2.6%
NO2	1hr	79	31.96	R8	7.32	9.26%	39.28	49.7%
	24hr	200	26.88	R8	3.44	1.72%	30.32	15.2%
	Annual	23	15.32	R1	1.41	6.12%	16.73	72.7%
PM2.5	24hr	27	13.21	R1	0.98	3.62%	14.19	52.5%
	Annual	8.8	7.63	R1	0.44	4.97%	8.07	91.7%
PM10	24hr	50	24.46	R1	3.66	7.32%	28.12	56.2%
TSP	24hr	120	44.03	R1	17.21	14.34%	61.24	51.0%
	Annual	60	25.44	R1	7.71	12.86%	33.16	55.3%
1,3-Butadiene	24hr	10	0.04	R8	0.001	0.01%	0.04	0.4%
	Annual	2.0	0.03	R1	0.000	0.02%	0.03	1.3%
Acetaldehyde	0.5hr	500	3.30	R8	0.024	0.00%	3.32	0.7%
	24hr	500	3.30	R8	0.009	0.00%	3.31	0.7%
Acrolein	1hr	4.5	0.20	R8	0.003	0.06%	0.21	4.6%
	24hr	0.4	0.20	R8	0.001	0.33%	0.21	51.4%
Benzene	24hr	2.3	0.63	R8	0.010	0.42%	0.64	27.6%
	Annual	0.45	0.41	R1	0.004	0.83%	0.41	90.9%
Formaldehyde	24hr	65	6.48	R8	0.020	0.03%	6.50	10.0%

Notes:

90th percentile used as background concentrations for 1-hr, 8-hr, and 24-hr averaging periods

Average annual values use as background concentrations for annual averaging periods

24-hour 90th percentile used as background concentrations for acrolein 1-hour and acetaldehyde 0.5-hr averaging periods

Table 8: Maximum Predicted Concentrations – Future Build Scenario

Contaminant	Averaging Period	Criteria (μg/m³)	Background Concentration (μg/m³)	Sensitive Receptor	Predicted Maximum Concentration (μg/m³)	Predicted % of Criteria	Cumulative Concentration (μg/m³)	Cumulative % of criteria
CO	1hr	36,200	412.20	R8	42.77	0.12%	454.97	1.3%
	8hr	15,700	377.79	R8	32.38	0.21%	410.16	2.6%
NO2	1hr	79	31.96	R8	7.51	9.51%	39.47	50.0%
	24hr	200	26.88	R8	3.55	1.78%	30.44	15.2%
	Annual	23	15.32	R1	1.41	6.14%	16.73	72.8%
PM2.5	24hr	27	13.21	R1	0.98	3.63%	14.19	52.5%
	Annual	8.8	7.63	R1	0.44	4.99%	8.07	91.7%
PM10	24hr	50	24.46	R1	3.67	7.34%	28.13	56.3%
TSP	24hr	120	44.03	R1	17.28	14.40%	61.31	51.1%
	Annual	60	25.44	R1	7.74	12.89%	33.18	55.3%
1,3-Butadiene	24hr	10	0.04	R8	0.001	0.01%	0.04	0.4%
	Annual	2.0	0.03	R1	0.000	0.02%	0.03	1.3%
Acetaldehyde	0.5hr	500	3.30	R8	0.025	0.01%	3.32	0.7%
	24hr	500	3.30	R8	0.010	0.00%	3.31	0.7%
Acrolein	1hr	4.5	0.20	R8	0.003	0.07%	0.21	4.6%
	24hr	0.4	0.20	R8	0.001	0.35%	0.21	51.4%
Benzene	24hr	2.3	0.63	R8	0.010	0.43%	0.64	27.6%
	Annual	0.45	0.41	R1	0.004	0.83%	0.41	90.9%
Formaldehyde	24hr	65	6.48	R8	0.021	0.03%	6.50	10.0%

Notes:
90th percentile used as background concentrations for 1-hr, 8-hr, and 24-hr averaging periods
Average annual values use as background concentrations for annual averaging periods
24-hour 90th percentile used as background concentrations for acrolein 1-hour and acetaldehyde 0.5-hr averaging periods

Table 6 through Table 8 show the maximum overall predicted concentrations. These concentrations are typically predicted at the receptors R1 and R8. As mentioned earlier, both receptors are close to either 10th Sideroad (R1) or Yonge street (R8). The impact at R1 and R8 from these major roads dominates the impact from the 7th Line. Added together with the existing background concentrations, this provides the overall worst case concentrations for Current, Future No Build, and Future Build scenario from all the roads within the Study Area.

In order to determine the most impacted receptors due to the proposed project, the change between the Future No Build and Future Build was assessed. Neither R1 nor R8 were found to be the most impacted receptors due to proximity to other major roads. Basically, the impact from Young St and 10th Line far outweighs the impact from 7th Line so the difference caused by the change due to 7th Line, as a percent, is very small.

The maximum predicted concentrations at the most impacted receptor are shown in Table 9. The most impacted receptor is the receptor that will experience the highest percent change in concentration due to the proposed undertaking. Based on the predicted concentration for Future Build and Future No Build scenarios, sensitive receptor R4 was determined to be the most impacted by the road widening. R4 is the closest receptor to 7th Line and is the least impacted by other roads within the Study Area.

Table 9 the highest impact (change in concentration) is expected to be below 2% for TSP. All other contaminant will change even less. Considering, the change in ground level concentrations between Future Build and Future No Build scenarios are below 1% for the rest of the contaminants, it can be concluded that the impact from the 7th Line widening will be negligible on the local air quality.

Table 9: Maximum Predicted Concentrations at the Most Impacted Receptor (R4) – Future No Build vs Future Build

Contaminant	Averaging Period	Criteria ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Sensitive Receptor	Future No Build Cumulative Concentration ($\mu g/m^3$)	Future Build Cumulative Concentration ($\mu g/m^3$)	[Future Build Cumulative Concentration] - [Future No Build Cumulative Concentration] ($\mu g/m^3$)	% Concentration Change
CO	1hr	36,200	412.20	R4	422.75	423.63	0.88	0.2%
	8hr	15,700	377.79	R4	385.88	386.68	0.80	0.2%
NO2	1hr	79	31.96	R4	33.24	33.57	0.33	1.0%
	24hr	200	26.88	R4	27.41	27.60	0.20	0.7%
	Annual	23	15.32	R4	14.70	14.76	0.06	0.4%
PM2.5	24hr	27	13.21	R4	13.61	13.66	0.05	0.4%
	Annual	8.8	7.63	R4	7.38	7.40	0.02	0.2%
PM10	24hr	50	24.46	R4	26.07	26.26	0.19	0.7%
TSP	24hr	120	44.03	R4	51.75	52.65	0.89	1.7%
	Annual	60	25.44	R4	26.62	26.91	0.29	1.1%
1,3-Butadiene	24hr	10	0.04	R4	0.04	0.04	0.00	0.1%
	Annual	2.0	0.03	R4	0.02	0.02	0.00	0.1%
Acetaldehyde	0.5hr	500	3.30	R4	3.30	3.30	0.00	0.0%
	24hr	500	3.30	R4	3.30	3.30	0.00	0.0%
Acrolein	1hr	4.5	0.20	R4	0.20	0.20	0.00	0.1%
	24hr	0.4	0.20	R4	0.20	0.20	0.00	0.1%
Benzene	24hr	2.3	0.63	R4	0.63	0.63	0.00	0.1%
	Annual	0.45	0.41	R4	0.36	0.37	0.00	0.0%
Formaldehyde	24hr	65	6.48	R4	6.48	6.49	0.00	0.0%

4.0 Regional Air Quality Assessment

The assessment of emission impacts associated with the proposed widening of 7th Line on a regional scale was based on the annual GHG emissions. Annual emissions were calculated using emission factors summarized in Table 10.

Table 10: Emission Factors for Energy Mobile Combustion Sources

Vehicles	Emission Factors (g/L fuel)		
	CO_2	CH_4	N_2O
Gasoline	2,307	0.33	0.28
Diesel	2,681	0.10	0.15

Source: National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in Canada. Part 2 Table A6-12: Emission Factors for Energy Mobile Combustion Sources.

Typical vehicle fuel consumption was taken from the Summary Report of Canadian Vehicle Survey (Natural Resources Canada, 2009). Auto manufacturers are continuously looking for ways to improve their vehicle fuel efficiency; therefore, the actual emissions for both current and future scenarios are expected to be even lower than the calculated 2009 fuel consumption. An average light vehicle (gasoline) was assumed to consume 10.7 L/100 km. An average truck (diesel) was assumed to consume 28.9 L/100 km. Based on the AADT and the length of each road segment within the Study Area; total kilometers travelled were estimated to calculate GHG emissions. Annual expected GHG emissions for existing and future conditions are summarized in Detailed GHG calculations for Current, Future No Build, and Future Build scenarios are provided in Appendix D.

Table 11. Annual concentrations for all GHGs including total CO_2 equivalent are estimated to be well below 0.1% of the provincial GHG levels associated with road transportation sector. Therefore, the impact of the proposed road widening on GHG emissions is considered to be negligible.

Detailed GHG calculations for Current, Future No Build, and Future Build scenarios are provided in Appendix D.

Table 11: Annual GHG Emissions within the Study Area

Contaminant	Annual Emissions (tonnes/year)							Annual Emissions (percentage of Provincial)		
	Current Scenario	Future - No Build	Increase from Current to Future No Build	Future Scenario Build	Increase from Current to Future Build	Increase from No Build to Build[2]	Total Provincial[1]	Current Scenario	Future No Build Scenario	Future Build Scenario
CO2	1,773	2,853	1,080	2,931	1,158	79	45,200,000	<0.01%	<0.01%	<0.01%
CH4	0.2	0.4	0.1	0.4	0.15	0.01	3,000	<0.01%	0.01%	0.01%
N2O	0.2	0.3	0.1	0.3	0.13	0.01	3,000	<0.01%	0.01%	0.01%
Total CO2e	1,838	2,957	1,119	3,038	1,200	81	46,100,000	<0.01%	<0.01%	<0.01%

5.0 Conclusions

The results of the dispersion modelling show that the predicted ground level concentrations at all sensitive receptor locations were below the applicable MECP criteria.

Based on the comparison of predicted cumulative concentrations between Future Build and Future No Build scenarios, it was determined that the change is very small and the impact on local air quality due to 7th Line widening is negligible.

The selected sensitive receptors were chosen to represent all the receptors in the vicinity of the Study Area. All other receptors are expected to experience the same or smaller impact due to the proposed road widening.

Potential air quality effects associated with the construction stage is expected to be temporary and localized to the surrounding area. It is recommended to monitor dust levels during construction stage and apply mitigation measures, such as water application, if needed to reduce the effect on surrounding residences.

6.0 References

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Appendix A: Traffic Volumes

Table A1: Current and Future Traffic Volumes

Appendix B: Emission Factors

Table B1: Emission Factors for Free Flow Links

Table B2: Emission Factors for Queue Links

Appendix C: Modelling Results

Table C1: Predicted CO Ground Level Concentrations – Current Scenario

Table C2: Predicted CO Ground Level Concentrations – Future No Build Scenario

Table C3: Predicted CO Ground Level Concentrations – Future Build Scenario

Table C4: Predicted NO_2 Ground Level Concentrations – Current Scenario

Table C 5: Predicted NO_2 Ground Level Concentrations – Future No Build Scenario

Table C6: Predicted NO_2 Ground Level Concentrations – Future Build Scenario

Table C7: Predicted PM2.5 Ground Level Concentrations – Current Scenario

Table C8: Predicted PM2.5 Ground Level Concentrations – Future No Build Scenario

Table C9: Predicted PM2.5 Ground Level Concentrations – Future Build Scenario

Table C10: Predicted PM10 Ground Level Concentrations – Current Scenario

Table C11: Predicted PM10 Ground Level Concentrations – Future No Build Scenario

Table C12: Predicted PM10 Ground Level Concentrations – Future Build Scenario

Table C13: Predicted TSP Ground Level Concentrations – Current Scenario

Table C14: Predicted TSP Ground Level Concentrations – Future No Build Scenario

Table C15: Predicted TSP Ground Level Concentrations – Future Build Scenario

Table C16: Predicted 1,3-Butadiene Ground Level Concentrations – Current Scenario

Table C17: Predicted 1,3-Butadiene Ground Level Concentrations – Future No Build Scenario

Table C18: Predicted 1,3-Butadiene Ground Level Concentrations – Future Build Scenario

Table C19: Predicted Acetaldehyde Ground Level Concentrations – Current Scenario

Table C20: Predicted Acetaldehyde Ground Level Concentrations – Future No Build Scenario

Table C21: Predicted Acetaldehyde Ground Level Concentrations – Future Build Scenario

Table C22: Predicted Acrolein Ground Level Concentrations – Current Scenario

Table C23: Predicted Acrolein Ground Level Concentrations – Future No Build Scenario

Table C24: Predicted Acrolein Ground Level Concentrations – Future Build Scenario

Table C25: Predicted Benzene Ground Level Concentrations – Current Scenario

Table C26: Predicted Benzene Ground Level Concentrations – Future No Build Scenario

Table C27: Predicted Benzene Ground Level Concentrations – Future Build Scenario

Table C28: Predicted Formaldehyde Ground Level Concentrations – Current Scenario

Table C29: Predicted Formaldehyde Ground Level Concentrations – Future No Build Scenario

Table C30: Predicted Formaldehyde Ground Level Concentrations – Future Build Scenario

Appendix D: GHG Impact

Table D1: Annual GHG Emissions – Current Scenario

Table D2: Annual GHG Emissions – Future Build Scenario

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Appendix A

Traffic Volumes

Table A1: Current and Future Traffic Volumes

Road Description		Scenario											
		Current				Future No Build				Future Build			
Road	Posted Speed (km/h)	Percent Cars (%)	Percent Large Vehicles (%)	Peak Hour (vph)	Daily Traffic (vpd)	Percent Cars (%)	Percent Large Vehicles (%)	Peak Hour (vph)	Daily Traffic (vpd)	Percent Cars (%)	Percent Large Vehicles (%)	Peak Hour (vph)	Daily Traffic (vpd)
10th Sideroad S	80	94.3	5.7	600	4,985	94.3	5.7	964	8,011	94.3	5.7	964	8,011
10th Sideroad N	80	94.7	5.3	658	5,420	94.7	5.3	1,057	8,710	94.7	5.3	1,057	8,710
7th Line W	80	98.4	1.6	130	1,299	98.4	1.6	209	2,100	96.8	3.2	230	2,300
7th Line E	50	98.4	1.6	130	1,299	98.4	1.6	209	2,100	96.8	3.2	230	2,300
Yonge St. N	80	94.7	5.3	952	8,705	94.7	5.3	1,530	13,988	94.7	5.3	1,530	13,988
Yonge St. S	80	94.9	5.1	1,035	8,935	94.9	5.1	1,663	14,358	94.9	5.1	1,663	14,358

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Appendix B

Emission Factors

Table B1: Emission Factors for Current and Future No Build Scenarios

Road	Weighted Emission Factors (g/VMT)									
	CO	NOx	PM2.5	PM10	TSP	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde
10th Sideroad S	1.11	0.21	0.07	0.24	1.15	0.00007	0.0006	0.00009	0.0006	0.0013
10th Sideroad N	1.11	0.21	0.06	0.24	1.11	0.00007	0.0006	0.00008	0.0006	0.0012
7th Line W	1.13	0.14	0.12	0.46	2.31	0.00005	0.0003	0.00003	0.0005	0.0005
7th Line E	1.56	0.15	0.12	0.50	2.35	0.00008	0.0004	0.00004	0.0007	0.0007
Yonge St. N	1.11	0.21	0.04	0.14	0.61	0.00007	0.0006	0.00008	0.0006	0.0012
Yonge St. S	1.11	0.20	0.04	0.14	0.60	0.00007	0.0006	0.00008	0.0006	0.0012

Table B2: Emission Factors for Future Build Scenario

Road	Weighted Emission Factors (g/VMT)									
	CO	NOx	PM2.5	PM10	TSP	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde
10th Sideroad S	1.11	0.21	0.07	0.24	1.15	0.00007	0.0006	0.00009	0.0006	0.0013
10th Sideroad N	1.11	0.21	0.06	0.24	1.11	0.00007	0.0006	0.00008	0.0006	0.0012
7th Line W	1.12	0.17	0.12	0.46	2.31	0.00006	0.0004	0.00005	0.0005	0.0008
7th Line E	1.55	0.20	0.13	0.50	2.35	0.00009	0.0006	0.00008	0.0007	0.0012
Yonge St. N	1.11	0.21	0.04	0.14	0.61	0.00007	0.0006	0.00008	0.0006	0.0012
Yonge St. S	1.11	0.20	0.04	0.14	0.60	0.00007	0.0006	0.00008	0.0006	0.0012

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Appendix C

Modelling Results

Table C1: Predicted CO Ground Level Concentrations - Current Scenario

Receptor ID	1-hr					8-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	412.2	19.8	432.0	36,200	1.2%	377.8	15.0	392.8	15,700	2.5%
R2	412.2	4.9	417.1	36,200	1.2%	377.8	4.0	381.8	15,700	2.4%
R3	412.2	2.9	415.1	36,200	1.1%	377.8	2.1	379.8	15,700	2.4%
R4	412.2	6.6	418.8	36,200	1.2%	377.8	5.0	382.8	15,700	2.4%
R5	412.2	3.9	416.1	36,200	1.1%	377.8	3.5	381.3	15,700	2.4%
R6	412.2	5.2	417.4	36,200	1.2%	377.8	3.5	381.3	15,700	2.4%
R7	412.2	7.5	419.7	36,200	1.2%	377.8	7.0	384.7	15,700	2.5%
R8	412.2	26.3	438.5	36,200	1.2%	377.8	19.8	397.6	15,700	2.5%

Table C2: Predicted CO Ground Level Concentrations - Future No Build Scenario

Receptor ID	1-hr					8-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	412.2	31.8	444.0	36,200	1.2%	377.8	24.2	402.0	15,700	2.6%
R2	412.2	7.9	420.1	36,200	1.2%	377.8	6.3	384.1	15,700	2.4%
R3	412.2	4.7	416.9	36,200	1.2%	377.8	3.3	381.1	15,700	2.4%
R4	412.2	10.5	422.7	36,200	1.2%	377.8	8.1	385.9	15,700	2.5%
R5	412.2	6.3	418.5	36,200	1.2%	377.8	5.7	383.5	15,700	2.4%
R6	412.2	8.3	420.5	36,200	1.2%	377.8	5.7	383.5	15,700	2.4%
R7	412.2	12.0	424.2	36,200	1.2%	377.8	11.1	388.8	15,700	2.5%
R8	412.2	42.2	454.4	36,200	1.3%	377.8	31.9	409.7	15,700	2.6%

Table C3: Predicted CO Ground Level Concentrations - Future Build Scenario

Receptor ID	1-hr					8-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	412.2	31.9	444.1	36,200	1.2%	377.8	24.3	402.1	15,700	2.6%
R2	412.2	8.4	420.6	36,200	1.2%	377.8	6.7	384.5	15,700	2.4%
R3	412.2	5.0	417.2	36,200	1.2%	377.8	3.4	381.2	15,700	2.4%
R4	412.2	11.4	423.6	36,200	1.2%	377.8	8.9	386.7	15,700	2.5%
R5	412.2	6.6	418.8	36,200	1.2%	377.8	5.9	383.7	15,700	2.4%
R6	412.2	8.8	421.0	36,200	1.2%	377.8	5.9	383.7	15,700	2.4%
R7	412.2	12.6	424.8	36,200	1.2%	377.8	11.5	389.3	15,700	2.5%
R8	412.2	42.8	455.0	36,200	1.3%	377.8	32.4	410.2	15,700	2.6%

Table C4: Predicted NO2 Ground Level Concentrations - Current Scenario

Receptor ID	1-hr					24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	32.0	3.7	35.7	79	45.2%	26.9	2.0	28.9	200	14.4%	14.5	0.9	15.4	23	66.9%
R2	32.0	0.7	32.7	79	41.3%	26.9	0.3	27.2	200	13.6%	14.5	0.1	14.6	23	63.5%
R3	32.0	0.4	32.4	79	41.0%	26.9	0.1	27.0	200	13.5%	14.5	0.0	14.6	23	63.3%
R4	32.0	0.8	32.8	79	41.5%	26.9	0.3	27.2	200	13.6%	14.5	0.1	14.6	23	63.6%
R5	32.0	0.6	32.5	79	41.2%	26.9	0.2	27.1	200	13.6%	14.5	0.1	14.6	23	63.4%
R6	32.0	0.7	32.7	79	41.4%	26.9	0.3	27.1	200	13.6%	14.5	0.1	14.6	23	63.4%
R7	32.0	1.1	33.1	79	41.9%	26.9	0.6	27.5	200	13.8%	14.5	0.2	14.7	23	63.9%
R8	32.0	4.6	36.5	79	46.2%	26.9	2.1	29.0	200	14.5%	14.5	0.7	15.2	23	66.2%

Table C5: Predicted NO2 Ground Level Concentrations - Future No Build Scenario

Receptor ID	1-hr					24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	32.0	6.0	37.9	79	48.0%	26.9	3.2	30.1	200	15.0%	14.5	1.4	15.9	23	69.3%
R2	32.0	1.1	33.1	79	41.9%	26.9	0.5	27.4	200	13.7%	14.5	0.1	14.7	23	63.8%
R3	32.0	0.7	32.6	79	41.3%	26.9	0.2	27.1	200	13.6%	14.5	0.1	14.6	23	63.5%
R4	32.0	1.3	33.2	79	42.1%	26.9	0.5	27.4	200	13.7%	14.5	0.2	14.7	23	63.9%
R5	32.0	0.9	32.9	79	41.6%	26.9	0.4	27.2	200	13.6%	14.5	0.1	14.6	23	63.6%
R6	32.0	1.1	33.1	79	41.9%	26.9	0.4	27.3	200	13.7%	14.5	0.1	14.6	23	63.6%
R7	32.0	1.8	33.8	79	42.8%	26.9	1.0	27.9	200	14.0%	14.5	0.3	14.8	23	64.3%
R8	32.0	7.3	39.3	79	49.7%	26.9	3.4	30.3	200	15.2%	14.5	1.1	15.6	23	68.0%

Table C6: Predicted NO2 Ground Level Concentrations - Future Build Scenario

Receptor ID	1-hr					24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	32.0	6.0	38.0	79	48.1%	26.9	3.2	30.1	200	15.0%	14.5	1.4	15.9	23	69.3%
R2	32.0	1.3	33.3	79	42.2%	26.9	0.6	27.5	200	13.8%	14.5	0.2	14.7	23	63.9%
R3	32.0	0.8	32.7	79	41.4%	26.9	0.3	27.2	200	13.6%	14.5	0.1	14.6	23	63.5%
R4	32.0	1.6	33.6	79	42.5%	26.9	0.7	27.6	200	13.8%	14.5	0.2	14.8	23	64.2%
R5	32.0	1.0	33.0	79	41.8%	26.9	0.4	27.3	200	13.6%	14.5	0.1	14.7	23	63.7%
R6	32.0	1.3	33.3	79	42.2%	26.9	0.5	27.3	200	13.7%	14.5	0.1	14.6	23	63.7%
R7	32.0	2.0	34.0	79	43.0%	26.9	1.2	28.0	200	14.0%	14.5	0.3	14.9	23	64.6%
R8	32.0	7.5	39.5	79	50.0%	26.9	3.6	30.4	200	15.2%	14.5	1.2	15.7	23	68.2%

Table C7: Predicted PM2.5 Ground Level Concentrations - Current Scenario

Receptor ID	1-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	13.2	0.6	13.8	27	51.2%	7.3	0.3	7.5	8.8	85.5%
R2	13.2	0.2	13.4	27	49.7%	7.3	0.1	7.3	8.8	83.2%
R3	13.2	0.1	13.3	27	49.3%	7.3	0.0	7.3	8.8	82.8%
R4	13.2	0.3	13.5	27	49.9%	7.3	0.1	7.3	8.8	83.3%
R5	13.2	0.1	13.3	27	49.4%	7.3	0.0	7.3	8.8	82.9%
R6	13.2	0.1	13.3	27	49.3%	7.3	0.0	7.3	8.8	82.9%
R7	13.2	0.3	13.5	27	49.9%	7.3	0.1	7.3	8.8	83.4%
R8	13.2	0.5	13.7	27	50.8%	7.3	0.2	7.4	8.8	84.5%

Table C8: Predicted PM2.5 Ground Level Concentrations - Future No Build Scenario

Receptor ID	1-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	13.2	1.0	14.2	27	52.5%	7.3	0.4	7.7	8.8	87.4%
R2	13.2	0.3	13.5	27	50.2%	7.3	0.1	7.4	8.8	83.6%
R3	13.2	0.2	13.4	27	49.5%	7.3	0.1	7.3	8.8	83.0%
R4	13.2	0.4	13.6	27	50.4%	7.3	0.1	7.4	8.8	83.9%
R5	13.2	0.2	13.4	27	49.7%	7.3	0.1	7.3	8.8	83.1%
R6	13.2	0.2	13.4	27	49.6%	7.3	0.1	7.3	8.8	83.1%
R7	13.2	0.4	13.6	27	50.5%	7.3	0.1	7.4	8.8	83.9%
R8	13.2	0.8	14.0	27	51.9%	7.3	0.3	7.5	8.8	85.7%

Table C9: Predicted PM2.5 Ground Level Concentrations - Future Build Scenario

Receptor ID	1-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	13.2	1.0	14.2	27	52.5%	7.3	0.4	7.7	8.8	87.4%
R2	13.2	0.4	13.6	27	50.3%	7.3	0.1	7.4	8.8	83.7%
R3	13.2	0.2	13.4	27	49.6%	7.3	0.1	7.3	8.8	83.1%
R4	13.2	0.5	13.7	27	50.6%	7.3	0.1	7.4	8.8	84.1%
R5	13.2	0.2	13.4	27	49.7%	7.3	0.1	7.3	8.8	83.2%
R6	13.2	0.2	13.4	27	49.7%	7.3	0.1	7.3	8.8	83.2%
R7	13.2	0.5	13.7	27	50.7%	7.3	0.1	7.4	8.8	84.1%
R8	13.2	0.9	14.1	27	52.1%	7.3	0.3	7.6	8.8	85.9%

Table C10: Predicted PM10 Ground Level Concentrations - Current Scenario

Receptor ID	24-hr				
	Background 90th percentile, $\mu g/m^3$	Maximum Concentration, $\mu g/m^3$	Maximum Concentration plus Background, $\mu g/m^3$	Criteria, $\mu g/m^3$	% of Criteria
R1	24.5	2.3	26.7	50	53.5%
R2	24.5	0.8	25.3	50	50.5%
R3	24.5	0.4	24.9	50	49.7%
R4	24.5	1.0	25.5	50	50.9%
R5	24.5	0.5	24.9	50	49.9%
R6	24.5	0.5	24.9	50	49.8%
R7	24.5	1.0	25.5	50	51.0%
R8	24.5	1.9	26.3	50	52.7%

Table C11: Predicted PM10 Ground Level Concentrations - Future No Build Scenario

Receptor ID	24-hr				
	Background 90th percentile, $\mu g/m^3$	Maximum Concentration, $\mu g/m^3$	Maximum Concentration plus Background, $\mu g/m^3$	Criteria, $\mu g/m^3$	% of Criteria
R1	24.5	3.7	28.1	50	56.2%
R2	24.5	1.3	25.8	50	51.5%
R3	24.5	0.7	25.1	50	50.2%
R4	24.5	1.6	26.1	50	52.1%
R5	24.5	0.8	25.2	50	50.5%
R6	24.5	0.7	25.2	50	50.4%
R7	24.5	1.7	26.1	50	52.3%
R8	24.5	3.0	27.5	50	55.0%

Table C12: Predicted PM10 Ground Level Concentrations - Future Build Scenario

Receptor ID	24-hr				
	Background 90th percentile, $\mu g/m^3$	Maximum Concentration, $\mu g/m^3$	Maximum Concentration plus Background, $\mu g/m^3$	Criteria, $\mu g/m^3$	% of Criteria
R1	24.5	3.7	28.1	50	56.3%
R2	24.5	1.4	25.9	50	51.7%
R3	24.5	0.7	25.2	50	50.4%
R4	24.5	1.8	26.3	50	52.5%
R5	24.5	0.9	25.3	50	50.7%
R6	24.5	0.8	25.3	50	50.5%
R7	24.5	1.9	26.3	50	52.6%
R8	24.5	3.2	27.7	50	55.3%

Table C13: Predicted TSP Ground Level Concentrations - Current Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	44.0	10.7	54.7	120	45.6%	24.2	4.8	29.0	60	48.3%
R2	44.0	4.0	48.0	120	40.0%	24.2	1.2	25.4	60	42.4%
R3	44.0	2.0	46.1	120	38.4%	24.2	0.6	24.8	60	41.4%
R4	44.0	4.8	48.8	120	40.7%	24.2	1.5	25.7	60	42.8%
R5	44.0	2.3	46.3	120	38.6%	24.2	0.7	24.9	60	41.5%
R6	44.0	2.2	46.2	120	38.5%	24.2	0.7	24.9	60	41.4%
R7	44.0	4.8	48.9	120	40.7%	24.2	1.5	25.6	60	42.7%
R8	44.0	8.5	52.5	120	43.7%	24.2	3.0	27.1	60	45.2%

Table C14: Predicted TSP Ground Level Concentrations - Future No Build Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	44.0	17.2	61.2	120	51.0%	24.2	7.7	31.9	60	53.2%
R2	44.0	6.4	50.4	120	42.0%	24.2	2.0	26.2	60	43.6%
R3	44.0	3.3	47.3	120	39.4%	24.2	1.0	25.2	60	42.0%
R4	44.0	7.7	51.8	120	43.1%	24.2	2.4	26.6	60	44.4%
R5	44.0	3.7	47.7	120	39.8%	24.2	1.1	25.3	60	42.2%
R6	44.0	3.5	47.5	120	39.6%	24.2	1.1	25.3	60	42.1%
R7	44.0	7.8	51.8	120	43.2%	24.2	2.4	26.5	60	44.2%
R8	44.0	13.6	57.6	120	48.0%	24.2	4.8	28.9	60	48.2%

Table C15: Predicted TSP Ground Level Concentrations - Future Build Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	44.0	17.3	61.3	120	51.1%	24.2	7.7	31.9	60	53.2%
R2	44.0	7.0	51.0	120	42.5%	24.2	2.2	26.4	60	43.9%
R3	44.0	3.6	47.6	120	39.7%	24.2	1.1	25.3	60	42.2%
R4	44.0	8.6	52.6	120	43.9%	24.2	2.7	26.9	60	44.8%
R5	44.0	4.1	48.1	120	40.1%	24.2	1.2	25.4	60	42.4%
R6	44.0	3.8	47.9	120	39.9%	24.2	1.2	25.4	60	42.4%
R7	44.0	8.6	52.6	120	43.8%	24.2	2.6	26.8	60	44.6%
R8	44.0	14.3	58.4	120	48.6%	24.2	5.0	29.2	60	48.6%

Table C16: Predicted 1,3-Butadiene Ground Level Concentrations - Current Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.042	0.0007	0.042	10	0.4%	0.022	0.0003	0.022	2	1.1%
R2	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R3	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R4	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R5	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R6	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R7	0.042	0.0002	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R8	0.042	0.0008	0.043	10	0.4%	0.022	0.0002	0.022	2	1.1%

Table C17: Predicted 1,3-Butadiene Ground Level Concentrations - Future No Build Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.042	0.0011	0.043	10	0.4%	0.022	0.0005	0.022	2	1.1%
R2	0.042	0.0002	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R3	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R4	0.042	0.0002	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R5	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R6	0.042	0.0002	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R7	0.042	0.0004	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R8	0.042	0.0012	0.043	10	0.4%	0.022	0.0004	0.022	2	1.1%

Table C18: Predicted 1,3-Butadiene Ground Level Concentrations - Future Build Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.042	0.0011	0.043	10	0.4%	0.022	0.0005	0.022	2	1.1%
R2	0.042	0.0002	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R3	0.042	0.0001	0.042	10	0.4%	0.022	0.0000	0.022	2	1.1%
R4	0.042	0.0003	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R5	0.042	0.0002	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R6	0.042	0.0002	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R7	0.042	0.0004	0.042	10	0.4%	0.022	0.0001	0.022	2	1.1%
R8	0.042	0.0012	0.043	10	0.4%	0.022	0.0004	0.022	2	1.1%

Table C19: Predicted Acetaldehyde Ground Level Concentrations - Current Scenario

Receptor ID	0.5-hr					24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	3.30	0.013	3.31	500	0.7%	3.30	0.006	3.30	500	0.7%
R2	3.30	0.002	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R3	3.30	0.001	3.30	500	0.7%	3.30	0.000	3.30	500	0.7%
R4	3.30	0.003	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R5	3.30	0.002	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R6	3.30	0.002	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R7	3.30	0.004	3.30	500	0.7%	3.30	0.002	3.30	500	0.7%
R8	3.30	0.015	3.31	500	0.7%	3.30	0.006	3.30	500	0.7%

Table C20: Predicted Acetaldehyde Ground Level Concentrations - Future No Build Scenario

Receptor ID	0.5-hr					24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	3.30	0.020	3.32	500	0.7%	3.30	0.009	3.30	500	0.7%
R2	3.30	0.003	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R3	3.30	0.002	3.30	500	0.7%	3.30	0.000	3.30	500	0.7%
R4	3.30	0.004	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R5	3.30	0.003	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R6	3.30	0.004	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R7	3.30	0.006	3.30	500	0.7%	3.30	0.003	3.30	500	0.7%
R8	3.30	0.024	3.32	500	0.7%	3.30	0.009	3.31	500	0.7%

Table C21: Predicted Acetaldehyde Ground Level Concentrations - Future Build Scenario

Receptor ID	0.5-hr					24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	3.30	0.020	3.32	500	0.7%	3.30	0.009	3.30	500	0.7%
R2	3.30	0.004	3.30	500	0.7%	3.30	0.002	3.30	500	0.7%
R3	3.30	0.003	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R4	3.30	0.006	3.30	500	0.7%	3.30	0.002	3.30	500	0.7%
R5	3.30	0.003	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R6	3.30	0.005	3.30	500	0.7%	3.30	0.001	3.30	500	0.7%
R7	3.30	0.007	3.30	500	0.7%	3.30	0.003	3.30	500	0.7%
R8	3.30	0.025	3.32	500	0.7%	3.30	0.010	3.31	500	0.7%

Table C22: Predicted Acrolein Ground Level Concentrations - Current Scenario

Receptor ID	1-hr					24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.204	0.0015	0.206	4.50	4.6%	0.204	0.0008	0.205	0.40	51.3%
R2	0.204	0.0002	0.204	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R3	0.204	0.0001	0.204	4.50	4.5%	0.204	0.0000	0.204	0.40	51.1%
R4	0.204	0.0003	0.204	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R5	0.204	0.0002	0.204	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R6	0.204	0.0003	0.204	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R7	0.204	0.0004	0.205	4.50	4.5%	0.204	0.0002	0.204	0.40	51.1%
R8	0.204	0.0017	0.206	4.50	4.6%	0.204	0.0008	0.205	0.40	51.3%

Table C23: Predicted Acrolein Ground Level Concentrations - Future No Build Scenario

Receptor ID	1-hr					24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.204	0.0024	0.207	4.50	4.6%	0.204	0.0013	0.206	0.40	51.4%
R2	0.204	0.0003	0.205	4.50	4.5%	0.204	0.0002	0.204	0.40	51.1%
R3	0.204	0.0002	0.204	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R4	0.204	0.0004	0.205	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R5	0.204	0.0003	0.205	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R6	0.204	0.0004	0.205	4.50	4.5%	0.204	0.0002	0.204	0.40	51.1%
R7	0.204	0.0007	0.205	4.50	4.6%	0.204	0.0004	0.205	0.40	51.1%
R8	0.204	0.0028	0.207	4.50	4.6%	0.204	0.0013	0.206	0.40	51.4%

Table C24: Predicted Acrolein Ground Level Concentrations - Future Build Scenario

Receptor ID	1-hr					24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.204	0.0024	0.207	4.50	4.6%	0.204	0.0013	0.206	0.40	51.4%
R2	0.204	0.0005	0.205	4.50	4.5%	0.204	0.0002	0.204	0.40	51.1%
R3	0.204	0.0003	0.204	4.50	4.5%	0.204	0.0001	0.204	0.40	51.1%
R4	0.204	0.0006	0.205	4.50	4.6%	0.204	0.0003	0.204	0.40	51.1%
R5	0.204	0.0004	0.205	4.50	4.5%	0.204	0.0002	0.204	0.40	51.1%
R6	0.204	0.0005	0.205	4.50	4.5%	0.204	0.0002	0.204	0.40	51.1%
R7	0.204	0.0008	0.205	4.50	4.6%	0.204	0.0005	0.205	0.40	51.2%
R8	0.204	0.0029	0.207	4.50	4.6%	0.204	0.0014	0.206	0.40	51.4%

Table C25: Predicted Benzene Ground Level Concentrations - Current Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.626	0.0052	0.631	2.3	27.4%	0.364	0.0023	0.367	0.45	81.5%
R2	0.626	0.0011	0.627	2.3	27.3%	0.364	0.0003	0.365	0.45	81.0%
R3	0.626	0.0005	0.626	2.3	27.2%	0.364	0.0002	0.364	0.45	81.0%
R4	0.626	0.0013	0.627	2.3	27.3%	0.364	0.0004	0.365	0.45	81.1%
R5	0.626	0.0007	0.627	2.3	27.2%	0.364	0.0002	0.365	0.45	81.0%
R6	0.626	0.0008	0.627	2.3	27.3%	0.364	0.0002	0.365	0.45	81.0%
R7	0.626	0.0020	0.628	2.3	27.3%	0.364	0.0006	0.365	0.45	81.1%
R8	0.626	0.0061	0.632	2.3	27.5%	0.364	0.0020	0.366	0.45	81.4%

Table C26: Predicted Benzene Ground Level Concentrations - Future No Build Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.626	0.0084	0.634	2.3	27.6%	0.364	0.0037	0.368	0.45	81.8%
R2	0.626	0.0017	0.628	2.3	27.3%	0.364	0.0005	0.365	0.45	81.1%
R3	0.626	0.0008	0.627	2.3	27.3%	0.364	0.0003	0.365	0.45	81.0%
R4	0.626	0.0021	0.628	2.3	27.3%	0.364	0.0007	0.365	0.45	81.1%
R5	0.626	0.0012	0.627	2.3	27.3%	0.364	0.0004	0.365	0.45	81.0%
R6	0.626	0.0013	0.627	2.3	27.3%	0.364	0.0004	0.365	0.45	81.0%
R7	0.626	0.0032	0.629	2.3	27.4%	0.364	0.0009	0.365	0.45	81.2%
R8	0.626	0.0097	0.636	2.3	27.6%	0.364	0.0032	0.368	0.45	81.7%

Table C27: Predicted Benzene Ground Level Concentrations - Future Build Scenario

Receptor ID	24-hr					Annual				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria	Background average, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	0.626	0.0084	0.634	2.3	27.6%	0.364	0.0037	0.368	0.45	81.8%
R2	0.626	0.0019	0.628	2.3	27.3%	0.364	0.0006	0.365	0.45	81.1%
R3	0.626	0.0009	0.627	2.3	27.3%	0.364	0.0003	0.365	0.45	81.0%
R4	0.626	0.0024	0.628	2.3	27.3%	0.364	0.0008	0.365	0.45	81.1%
R5	0.626	0.0013	0.627	2.3	27.3%	0.364	0.0004	0.365	0.45	81.1%
R6	0.626	0.0014	0.627	2.3	27.3%	0.364	0.0004	0.365	0.45	81.1%
R7	0.626	0.0035	0.629	2.3	27.4%	0.364	0.0010	0.365	0.45	81.2%
R8	0.626	0.0099	0.636	2.3	27.6%	0.364	0.0033	0.368	0.45	81.7%

Table C28: Predicted Formaldehyde Ground Level Concentrations - Current Scenario

Receptor ID	24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	6.48	0.012	6.49	65	10.0%
R2	6.48	0.002	6.48	65	10.0%
R3	6.48	0.001	6.48	65	10.0%
R4	6.48	0.001	6.48	65	10.0%
R5	6.48	0.001	6.48	65	10.0%
R6	6.48	0.001	6.48	65	10.0%
R7	6.48	0.004	6.48	65	10.0%
R8	6.48	0.013	6.49	65	10.0%

Table C29: Predicted Formaldehyde Ground Level Concentrations - Future No Build Scenario

Receptor ID	24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	6.48	0.020	6.50	65	10.0%
R2	6.48	0.002	6.48	65	10.0%
R3	6.48	0.001	6.48	65	10.0%
R4	6.48	0.002	6.48	65	10.0%
R5	6.48	0.002	6.48	65	10.0%
R6	6.48	0.002	6.48	65	10.0%
R7	6.48	0.006	6.49	65	10.0%
R8	6.48	0.020	6.50	65	10.0%

Table C30: Predicted Formaldehyde Ground Level Concentrations - Future Build Scenario

Receptor ID	24-hr				
	Background 90th percentile, µg/m³	Maximum Concentration, µg/m³	Maximum Concentration plus Background, µg/m³	Criteria, µg/m³	% of Criteria
R1	6.48	0.020	6.50	65	10.0%
R2	6.48	0.003	6.48	65	10.0%
R3	6.48	0.001	6.48	65	10.0%
R4	6.48	0.004	6.49	65	10.0%
R5	6.48	0.002	6.48	65	10.0%
R6	6.48	0.003	6.48	65	10.0%
R7	6.48	0.007	6.49	65	10.0%
R8	6.48	0.021	6.50	65	10.0%

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Appendix D

Green House Gas Impact

Table D1: Annual GHG Emissions - Current Scenario

Emissions, tonnes/ year

Road Segment	Daily Traffic (vpd)	Percent Cars (%)	Percent Large Vehicles (%)	Segment Length, m	CO_2, tonnes/yr	CH_4, tonnes/yr	N_2O, tonnes/yr
10th Sideroad S	4,985	94.3	5.7	495	249	0.03	0.03
10th Sideroad N	5,420	94.7	5.3	503	274	0.04	0.03
7th Line W	1,299	98.4	1.6	1966	238	0.03	0.03
7th Line E	1,299	98.4	1.6	1089	132	0.02	0.02
Yonge St. N	8,705	94.7	5.3	501	438	0.06	0.05
Yonge St. S	8,935	94.9	5.1	496	443	0.06	0.05
				Total	**1,773**	**0.2**	**0.2**

Table D2: Annual GHG Emissions - Future No Build Scenario

Emissions, tonnes per year

Road	Daily Traffic (vpd)	Percent Cars (%)	Percent Large Vehicles (%)	Segment Length, m	CO_2, tonnes/yr	CH_4, tonnes/yr	N_2O, tonnes/yr
10th Sideroad S	8,011	94.3	5.7	495	401	0.05	0.04
10th Sideroad N	8,710	94.7	5.3	503	440	0.06	0.05
7th Line W	2,100	98.4	1.6	1966	385	0.05	0.04
7th Line E	2,100	98.4	1.6	1089	213	0.03	0.02
Yonge St. N	13,988	94.7	5.3	501	704	0.09	0.08
Yonge St. S	14,358	94.9	5.1	496	711	0.09	0.08
				Total	**2,853**	**0.4**	**0.3**

Table D3: Annual GHG Emissions - Future Build Scenario

Emissions, tonnes per year

Road	Daily Traffic (vpd)	Percent Cars (%)	Percent Large Vehicles (%)	Segment Length, m	CO_2, tonnes/yr	CH_4, tonnes/yr	N_2O, tonnes/yr
10th Sideroad S	8,011	94.3	5.7	495	401	0.05	0.04
10th Sideroad N	8,710	94.7	5.3	503	440	0.06	0.05
7th Line W	2,300	96.8	3.2	1966	435	0.06	0.05
7th Line E	2,300	96.8	3.2	1089	241	0.03	0.03
Yonge St. N	13,988	94.7	5.3	501	704	0.09	0.08
Yonge St. S	14,358	94.9	5.1	496	711	0.09	0.08
				Total	**2,931**	**0.4**	**0.3**

Noise Impact Assessment Report, 7th Line from Yonge Street to 10th Sideroad, Environmental Assessment, Schedule C

Town of Innisfil

R.J. Burnside & Associates Limited
6990 Creditview Road, Unit 2
Mississauga ON L5N 8R9 Canada

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R.J. Burnside & Associates Limited

Report Prepared By:



Harvey Watson, P.Eng.
Manager, Air & Noise
HW:slw

Report Reviewed By:



Kristina Zeromskiene, Ph.D.
Air & Noise Scientist
KZ:slw

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Appendices

Appendix A Sample Noise Modelling Printout

Glossary of Terms and Acronyms

AADT	Annual Average Daily Traffic
Burnside	R.J. Burnside & Associates Limited
EA	Environmental Assessment
MECP	Ministry of the Environment, Conservation and Parks
MTO	Ontario Ministry of Transportation
Noise Guide	Ontario Ministry of Transportation Environmental Guide for Noise, October 2006
OPOR	Outdoor Point of Reception
ORNAMENT	Ontario Road Noise Analysis Method
POR	Point of Reception
Town	The Town of Innisfil

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1.0 Introduction

The Town of Innisfil (Town) has initiated a Schedule C Municipal Class Environmental Assessment (EA) for improvements to the 7th Line from 10th Sideroad (County Road 54) to Yonge Street (County Road 4).

As part of the EA process, R.J. Burnside & Associates Limited (Burnside) has completed a Noise Study, on behalf of the Town to identify whether the change in traffic as a result of the proposed 7th Line improvements will significantly change noise levels within the Study Area and vicinity, and if any potential mitigation measures are required.

The EA will investigate the following alternative solutions for improvement:

1. Do Nothing.
2. Local Traffic Only.
3. One-Way Road.
4. Widen the Road.
5. Dead-End Road with Turnaround.

The Noise Study has been completed for the preferred alternative of Widening the Road.

The Noise Study was completed in accordance with the requirements of a Schedule C undertaking as outlined in the Municipal Engineers Association Municipal Class Environmental Assessment Document (October 2000, as amended 2007, 2011 & 2015), which is an approved process under the *Ontario Environmental Assessment Act.*

2.0 Study Area

As per the Ontario Ministry of Transportation (MTO) Environmental Guide for Noise (Noise Guide) (MTO, 2006), the Study Area for the 7th Line EA has been determined by calculating the setback distance from 7th Line to the point where there is no predicted increase in noise impacts from 7th Line above the future ambient sound level (100 metres).

The Study Area is 7th Line from 10th Sideroad to Yonge Street, in the Town of Innisfil, and is illustrated on Figure 1.

Figure 1: Study Area 7th Line from 10th Sideroad to Yonge Street.



3.0 Noise Assessment

3.1 Sensitive Receptors

Noise sensitive land use, as described by the Ministry of the Environment, Conservation and Parks (MECP, 2013), means:

- a property of a person that accommodates a dwelling and includes a legal nonconforming residential use; or
- a property of a person that accommodates a building used for a noise sensitive commercial purpose; or
- a property of a person that accommodates a building used for a noise sensitive institutional purpose.

Based on aerial imagery there are twelve residential land uses near 7th Line that are considered to be noise sensitive land uses. There are no institutional or commercial purpose sensitive land uses within the Study Area.

POR02 (2747 7th Line) and POR07 (2472 7th Line) are residential dwellings and were determined to be the most impacted points of reception and selected for analysis for the purpose of this assessment. Figure 2 illustrates all sensitive receptors within the Study Area.

POR02 and POR07 are the closest noise sensitive land uses to the proposed road improvements. The rest of the buildings along the road corridor are at the same

distance or further from the road. Since the road noise decreases with the distance, all other dwellings are expected to experience the same or lower sound levels than the selected representative receptors as a result of the proposed road improvements.

Figure 2: Sensitive Receptors.



The “most exposed side” of the dwelling must be assessed according to the MTO Noise Guide. The most exposed side refers to the closest side of the dwelling unit even if there is no Outdoor Point of Reception (OPOR) associated with this side and without the shielding of the building. However, required mitigation measures (if applicable) should be based on sound levels predicted at the OPOR.

3.2 Noise Impact Assessment Criteria

The noise impact due to the proposed road improvements was assessed based on MTO Noise Guide criteria. According to the MTO Noise Guide, where an increase in sound level is predicted, mitigation measures may be required as summarized in Table 1.

Table 1: Mitigation Effort Required for the Projected Noise Level with the Proposed Improvements above the Ambient.

Change in Noise Level Above Ambient/Projected Noise Levels with Proposed Improvements	Mitigation Effort Required
< 5 dBA[1] change AND < 65 dBA	• None
≥5 dBA change OR ≥65 dBA	• Investigate noise control measures on Right-of-Way. • Introduce noise control measures within Right-of-Way and mitigate to ambient if technically, economically and administratively feasible. • Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row receivers.

Mitigation measures, if applicable, must attempt to achieve levels that otherwise would be experienced without the proposed project if technically, economically, and administratively feasible.

3.3 Noise Impact Assessment Methodology

The Noise Impact Assessment followed the MTO Noise Guide. In order to determine the potential noise impact, future predicted sound levels with and without the proposed road improvements were compared for the Plane of Window (POW) and OPOR, which coincides with the most exposed side of the noise sensitive receptors. Sound levels were predicted using traffic noise prediction model ORNAMENT (Ontario Road Noise Analysis Method), implemented through the STAMSON (version 5.04) computer program as required by MECP and MTO.

The future sound levels were predicted based on the Annual Average Daily Traffic (AADT) value forecasted 10 years into future as required by the MTO for three scenarios: Present, Future No Build, and Future Build. Future No Build scenario represents conditions in the future without proposed road improvements; while Future Build scenario represents conditions with the proposed road improvement (in the future). The AADT and percentages of commercial vehicles are summarized in Table 2.

[1]dBA (A-weighted decibel) is an expression of the relative loudness of sounds in air as perceived by the human ear.

Table 2: Stamson 7th Line Traffic Inputs for the Road Widening Alternative.

Time Frame	AADT	Day Night Split [1]	Posted Speed Limit [2]	% of Medium Trucks	% of Heavy Trucks
Present	1300	90 / 10	50 / 80	0.6 %	1.04 %
Future No Build	1648	90 / 10	50 / 80	0.6 %	1.04 %
Future Build	1813	90 / 10	50 / 80	0.6 %	1.04 %
[1] The day-night traffic volume was split 90% - 10% as per STAMSON Technical Document recommendation. [2] The speed limit on 7th Line decreases from 80kph to 50 kph at approximately the halfway point of the study area. POR02 is located within the 80 kph zone and POR07 is located in the 50 kph zone.					

Road traffic volumes for the remaining alternative solutions are summarized in Table 3. Since widening the road produces the largest increase in road traffic and that alternative is the preferred solution, it was selected for this assessment. The other alternatives were not considered.

Table 3: Traffic Volumes for the considered alternative solutions.

Alternative Solution	AADT
	Future
Do Nothing	1648
Local Traffic Only	564
One-Way Road	824
Dead-End Road with Turnaround	89
Widen the Road	1813

3.4 Results

The MECP provides the following table of impacts and how they should be interpreted:

Table 4: Interpretation of Adjusted Impact Level.

Adjusted Impact Level	Impact Rating
0-2.99 dB	Insignificant
3-4.99 dB	Noticeable
5-9.99 dB	Significant
10+dB	Very Significant

Predicted sound levels and the expected change in sound levels due to the worst-case proposed road improvements (road widening) are summarized in Table 5 and sample noise modelling printouts can be found in Appendix A.

Table 5: Predicted (Modelled) Sound Levels for Future No Build and Future Build Scenarios.

Receiver Location	Existing Sound Levels	Future Sound Levels for No Build Scenario	Future Sound Levels for Build Scenario	Change due to Proposed Road Improvement (Future Build – Future No Build)
	Leq (16hr) (dBA)	Leq (16hr) (dBA)	Leq (16hr) (dBA)	(dB)
POR2 – 2747 7th Line	51.4	52.4	54.0	1.6
OPOR2 – 2747 7th Line	52.2	53.2	54.7	1.5
POR7 – 2472 7th Line	48.2	49.3	51.2	1.9
OPOR7 – 2472 7th Line	48.9	49.9	51.9	2.0

As shown in Table 5, the increases in road traffic noise impacts as a result of the proposed road improvements is predicted to be less than 5 dB at POR02 and POR07.

Since the predicted future sound levels were calculated at locations that are expected to receive the largest increase, the sound level increase at the rest of the residential dwellings and other sensitive land uses within the Study Area are expected to be the same or lower than the chosen representative noise sensitive receptors.

Therefore, the impact at any location within the Study Area need not be assessed further and no mitigation is required.

4.0 Conclusions

If the 7th Line road improvement is constructed, the increase in sound levels expected throughout the Study Area will increase less than 5 dBA; therefore, investigation of mitigation measures will not be required.

Based on the MECP interpretation of the noise impact levels, the noise impact due to the widening of the 7th Line is considered to be insignificant.

5.0 References

Ministry of the Environment (MOE). Computer Program STAMSON Version 5.04.

Ministry of Transportation (MTO). Environmental Guide for Noise. October 2006.

Ministry of the Environment and Climate Change (MECP). Environmental Noise Guideline. Stationary and Transportation Sources – Approval and Planning. Publication NPC-300., August 2013.

Ministry of the Environment (MOE). ORNAMENT – Ontario Road Noise Analysis Method for Environment and Transportation. Technical Document., October 1989.

Transit Noise and Vibration Impact Assessment, Office of Planning and Environment Federal Transit Administration, May 2006 (FTA, 2006).

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Appendix A

Sample Noise Modelling Printout

STAMSON 5.0 NORMAL REPORT Date: 13-05-2019 09:18:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: expor2.te Time Period: 16 hours
Description: Current POR2 May2019

Road data, segment # 1: 7th Line

Car traffic volume : 1151 veh/TimePeriod
Medium truck volume : 7 veh/TimePeriod
Heavy truck volume : 12 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 7th Line

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.20 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 7th Line

Source height = 1.01 m

ROAD (0.00 + 51.43 + 0.00) = 51.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	57.93	0.00	-5.05	-1.46	0.00	0.00	0.00	51.43

Segment Leq : 51.43 dBA

Total Leq All Segments: 51.43 dBA

TOTAL Leq FROM ALL SOURCES: 51.43

STAMSON 5.0 NORMAL REPORT Date: 13-05-2019 09:28:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: fnbpor2.te Time Period: 16 hours
Description: Future No-Build POR2 May2019

Road data, segment # 1: 7th Line

Car traffic volume : 1459 veh/TimePeriod
Medium truck volume : 9 veh/TimePeriod
Heavy truck volume : 15 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 7th Line

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.20 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 7th Line

Source height = 1.00 m

ROAD (0.00 + 52.44 + 0.00) = 52.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.95	0.00	-5.05	-1.46	0.00	0.00	0.00	52.44

Segment Leq : 52.44 dBA

Total Leq All Segments: 52.44 dBA

TOTAL Leq FROM ALL SOURCES: 52.44

STAMSON 5.0 NORMAL REPORT Date: 13-05-2019 13:38:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: fbpor2.te Time Period: 16 hours
Description: Future Build POR2 May 2019

Road data, segment # 1: 7th Line

Car traffic volume : 1578 veh/TimePeriod
Medium truck volume : 19 veh/TimePeriod
Heavy truck volume : 34 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 7th Line

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.20 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 7th Line

Source height = 1.20 m

ROAD (0.00 + 53.97 + 0.00) = 53.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.47	0.00	-5.05	-1.46	0.00	0.00	0.00	53.97

Segment Leq : 53.97 dBA

Total Leq All Segments: 53.97 dBA

TOTAL Leq FROM ALL SOURCES: 53.97

STAMSON 5.0 NORMAL REPORT Date: 13-05-2019 09:20:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: expor7.te Time Period: 16 hours
Description: Current POR7 May2019

Road data, segment # 1: 7th Line

Car traffic volume : 1151 veh/TimePeriod
Medium truck volume : 7 veh/TimePeriod
Heavy truck volume : 12 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 7th Line

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 7th Line

Source height = 1.01 m

ROAD (0.00 + 48.24 + 0.00) = 48.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	53.08	0.00	-3.52	-1.33	0.00	0.00	0.00	48.24

Segment Leq : 48.24 dBA

Total Leq All Segments: 48.24 dBA

TOTAL Leq FROM ALL SOURCES: 48.24

STAMSON 5.0 NORMAL REPORT Date: 13-05-2019 09:29:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: fnbpor7.te Time Period: 16 hours
Description: Future No-Build POR7 May2019

Road data, segment # 1: 7th Line

Car traffic volume : 1459 veh/TimePeriod
Medium truck volume : 9 veh/TimePeriod
Heavy truck volume : 15 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 7th Line

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 7th Line

Source height = 1.00 m

ROAD (0.00 + 49.25 + 0.00) = 49.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	54.09	0.00	-3.52	-1.33	0.00	0.00	0.00	49.25

Segment Leq : 49.25 dBA

Total Leq All Segments: 49.25 dBA

TOTAL Leq FROM ALL SOURCES: 49.25

STAMSON 5.0 NORMAL REPORT Date: 13-05-2019 13:39:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: fbpor7.te Time Period: 16 hours
Description: Future Build POR7 May 2019

Road data, segment # 1: 7th Line

Car traffic volume : 1578 veh/TimePeriod
Medium truck volume : 19 veh/TimePeriod
Heavy truck volume : 34 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 7th Line

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 7th Line

Source height = 1.20 m

ROAD (0.00 + 51.24 + 0.00) = 51.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	56.06	0.00	-3.50	-1.32	0.00	0.00	0.00	51.24

Segment Leq : 51.24 dBA

Total Leq All Segments: 51.24 dBA

TOTAL Leq FROM ALL SOURCES: 51.24

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Evaluation of Alternatives

7th Line EA – Evaluation of Alternatives	B1
7th Line EA – Evaluation of Design Alternatives	B2
Widen and Reconstruction – Cost Estimate	B3

7th Line (West) Improvements, 10th Line to Yonge Street- Evaluation of Alternatives

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
A	**NATURAL ENVIRONMENT**					
1	**Vegetation/Tree**	No impact over existing conditions. Minor tree removal may be required for road maintenance. No construction will be outside the existing right-of-way.	No impact over existing conditions. Minor tree removal may be required for road maintenance. No construction will be outside the existing right-of-way.	Grading and tree clearing required at the east end of the corridor.	Grading and greater amount of tree clearing required at the east end of the corridor to accommodate improved horizonal and vertical alignment.	Grading and the greatest amount of tree clearing required at the east end of the corridor. Removal of vegetation to accomodate turn around locations.
	Rating	◔	◔	◑	◕	●
2	**Terrestrial Habitat (breeding birds, turtles, general wildlife, habitat connectivity)**	No impact over existing conditions. No construction will be outside the existing right-of-way. Ongoing maintenance of road and shoulders may pose a risk to nesting turtles.	No impact over existing conditions. No construction will be outside the existing right-of-way. Ongoing maintenance of road and shoulders may pose a risk to nesting turtles.	Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved. Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds.	Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved. Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds.	Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved. Vegetation removal may impact breeding birds. Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds. Closing road through some of the PSW may allow for increased wildlife movement across 7th line. Some habitat area removed to accomodate turn around location.
	Rating	◔	◔	◑	◑	◔
3	**Fisheries / Aquatic Habitat**	Potential for impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to continued washout and sediment mobilization, changes in flow characteristic. Maintenance work will be within the existing right-of-way.	Potential for impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to continued washout and sediment mobilization, changes in flow characteristic. Maintenance work will be within the existing right-of-way.	Some impact over existing conditions. May result in modification to road embankments and ditches that could impact adjacent fish and fish habitat through permanent alteration (direct) or through sediment mobilization (indirect). Culvert replacement activities may impact fish and fish habitat and are subject to site specific design and conditions.	Impacts to adjacent fish habitat. Channel realignment and permanent alteration would be anticipated in Tributary 3 (east end). Temporary impact due to road construction and culvert replacement works and through sediment and erosional impacts.	May result in permanent alteration of fish habitat (direct) or sediment mobilization (indirect); however, impacts would be subject to the location of the turnaround feature and supporting works. Road upgrades are anticipated to result in permanent alteration in Tributary 3 (east end). Culvert replacement activities, if required, have the potential to negatively impact fish and fish habitat
	Rating	◔	◔	◕	◕	◕
4	**Designated Sites (PSW)**	Maintenance work will be completed within the existing right-of-way. Potential impact from siltation due to continued washouts.	Maintenance work will be completed within the existing right-of-way. Potential impact from siltation due to continued washouts.	Potential for short term impact due to siltation during construction activities. Repaired slopes and upgraded ditching may reduce long term impact due to siltation.	Potential for short term impact due to siltation during construction activities. Repaired slopes and upgraded ditching may reduce long term impact due to siltation.	Potential for short term impact due to siltation during construction activities. Repaired slopes and upgraded ditching may reduce long term impact due to siltation.Closing the road through some of the PSW could reduce impact of road on some vegetation communities. Some vegetation removal to accomodate turn around location.
	Rating	◔	◔	◔	◔	◔
5	**Species at Risk (Barn Swallow, bats, Butternut)**	No impact over existing conditions. Minor tree removal may be required for road maintenance. Maintenance work will be completed within the existing right-of-way.	No impact over existing conditions. Minor tree removal may be required for road maintenance. Maintenance work will be completed within the existing right-of-way.	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Grading and vegation removal will impact two Butternut trees.	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Grading and vegation removal will impact two Butternut trees.	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Grading and vegation removal will impact two Butternut trees.
	Rating	○	○	◑	◑	◑
6	**Groundwater Resources and Drainage Features**	No impact over existing conditions. Culvert maintenance and replacement to be completed as needed.	No impact over existing conditions. Culvert maintenance and replacement to be completed as needed.	Localized dewatering may be required for culvert replacement.	Increased paved surfaces could impact stormwater runoff rates and quality.Stormwater attenuation and management may be required. Localized dewatering may be required for culvert replacement.	Increased paved surfaces in the east end. Decreased pave surface between turnarounds. Stormwater attenuation and management may be required. Localized dewatering may be required for culvert replacement.
	Rating	○	○	◔	◑	◔
	SUMMARY NATURAL ENVIRONMENT	○	○	◔	◑	◑

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	Widen the Road	5) Dead-end Road with Turn Around
B	**SOCIO-CULTURAL ENVIRONMENT**					
1	**Conformity to Municipal Policies and Development Planning - road network and connectivity,**	No planning constraints identified.	Does not improve connectivity of transportation network.	Limits connectivity of transportation network.	Conforms to intention of connectivity of transportation network. Offers parallel alternative route.	Does not improve connectivity of transportation network.
	Rating	○	●	◑	○	●
2	**Place-making Opportunities (tunnel of trees)**	Place-making opportunties based on existing conditions," tunnel of trees"	Place-making opportunities limited to the local residents. No place-making opportunities for the public.	Some impact to local "tunnel of trees" with improvements due to grading and vegetation removal at east end of corridor.	Impact to local "tunnel of trees" with improvements due to grading and vegetation removal at east end of corridor.	Impact to local "tunnel of trees" with improvements due to grading and vegetation removal at east end of corridor. Opportunity to view PSW via unopened right-of-way.
	Rating	○	◑	◑	◕	◔
3	**Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes, memorial)**	No impact over existing conditions.	No impact over existing conditions	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas. Potential impact to cultural heritage landscape (farmscape). Impact to location of private memorial.	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas. Potential impact to cultural heritage landscape (farmscape). Impact to location of private memorial.	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas. Potential impact to cultural heritage landscape (farmscape). Impact to location of private memorial.
	Rating	○	○	◑	◑	◑
4	**Local Residents Nuisance Impacts (noise, traffic, visual impact)**	No impact over existing conditions. Visual impact of deteriorating road condition. Continued temporary closures and detours from washouts, ect.	Possible reduction in traffic. Difficult to enforce. Enforcement or effective barrier is required. Visual impact of deteriorating road condition.	Possible reduction in traffic. Minimal increase in noise. Long term impact as a result of longer travel distance. Visual impact of improved road condition.	Possible increase in traffic above existing conditions. Minimal increase in noise. Visual impact of tree and vegetation removal, improved road condition. Temporary impact due to construction activities.	Likely reduction in some traffic. Minimal increase in noise. Long term impact as a result of longer travel distance. Visual impact of tree and vegetation removal, improved road condition. Temporary impact due to construction activities.
	Rating	◑	◑	◕	◑	◕
5	**Municipal services (snow removal, garbage pick up,)**	No impact over existing conditions.	Local residents would be responsible for maintenance of the road if privatized.	Potential change to current route and schedule.	Temporary impact due to construction activities.	Temporary impact due to construction activities, potential change to regular service route. Design of turn-around would need to accommodate maintenance and service vehicles.
	Rating	○	◕	◑	◔	◑
6	**Quality of Life (safety of traveled road, travel time)**	No impacts above existing conditions. Washouts, deterioration and associated hazards would continue.	May reduce users and slow continued deterioration of the road. Associated hazards would continue.	Improved road condition. Increased local travel time and distance.Likely reduction in some traffic.	Improved road condition. No reduction in travel time or distance. Potential for increased traffic.	Improved road condition. Increased local travel time and distance. Likely reduction in some traffic.
	Rating	◕	◑	◑	◔	◔
7	**Recreation (access to park, Pedestrian/Cyclist Safety and Connectivity)**	No impact above existing conditions. Continued access to park. Washouts, deterioration and associated hazards would continue.	Reduced connectivity, access for pedestrians and cyclists. Access to park to be maintained from 10th sideroad only. Washouts, deterioration and associated hazards would continue.	Reduced connectivity, access for pedestrians and cyclists.Improved road conditions. Access to park to be maintained from 10th sideroad and 7th Line.	Improved road condition and connectivity. Access to park maintained.	Reduced connectivity, access for pedestrians and cyclists. Potential opportunity for connecting trail on unopened right-or-way. Improved road conditions. Access to park to be maintained from 10th sideroad only.
	Rating	◑	◕	◑	○	◔
8	**Land Acquisition Requirements**	None required.	None required.	Some property acquisition for improvements.	Some property acquisition for improvements.	Greatest property acquisition required for improvements.
	Rating	○	○	◑	◑	◕
9	**Conformity to Agency Policy (LSRCA, MNRF,County of Simcoe)**	Potential for impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to continued washout and sediment mobilization.	Potential for impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to continued washout and sediment mobilization.	Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Road improvements within the LSRCA regulated limit and near water crossings will require permits.
	Rating	◔	◔	◔	◔	◔
	SUMMARY SOCIO-CULTURAL ENVIRONMENT	○	◔	◑	◔	◑

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	Widen the Road	5) Dead-end Road with Turn Around
C	**FINANCIAL FACTORS**					
1	**Estimated Capital Costs**	No capital costs to implement.	Low costs for signs and notification to the public.	Moderate costs for road improvements, vegetation clearing.	High costs for road improvements and vegetation clearing.	High costs for road improvements and vegetation clearing.
	Rating	○	◔	◑	◕	◕
2	**Estimated Operation and Maintenance Cost**	On-going costs for road maintenance, anticipated to increase over time.	On-going costs for road maintenance, anticipated to increase over time.	Low costs for regular maintenance.	Moderate costs for regular maintenance due to regular traffic use.	Low costs for regular maintenance due to reduced traffic use.
	Rating	●	●	◑	◕	◔
3	**Property Acquisition Cost**	No property acquisition anticipated for improvments. Property acquisition needed for road footprint located outside ROW.	No property acquisition anticipated for improvments. Property acquisition needed for road footprint located outside ROW.	Property acquisition needed for road footprint located outside ROW.	Potential for some property acquisition.	Potential for greatest amount of property acquisition.
	Rating	◔	◔	◔	◑	◕
	SUMMARY FINANCIAL FACTORS	◔	◑	◔	◑	◑

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	Widen the Road	5) Dead-end Road with Turn Around
D	**TECHNICAL FACTORS**					
1	**Addresses future traffic control and operation requirements (Level of service, delay, queues, intersection LOS and mobility)**	Accomodates future traffic growth, however continued deterioration due to increased traffic volumes.	Enforcement or effective barrier is required. Requires existing and potential through traffic to use other routes which may increase congestion in the short term until the surrounding network improvements are implemented.	Enforcement or effective barrier is required. Requires existing and potential through traffic to use other routes which may increase congestion in the short term until the surrounding network improvements are implemented.	May increase traffic in the short term. Maintains an alternate parallel route within road network. Maintains direct travel routes.	Provides greatest reduction in traffic. Would divert through traffic to alternative routes. Would require out of the way travel routes for local residents.
	Rating	●	◕	◕	◔	◑
2	**Addresses sight distance, and operational safety**	Does not accommodate improved sight distance or safety of road surface.	Does not accommodate improved sight distance or safety of road surface.	Improved sight distances and safety of road surface. Less potential for conflicts. Long one-way will be unfamiliar and petential to be disobeyed. One-way access to properties.	Improved sight distances and safety of road surface. Maintains two-way access to properties.	Improved sight distances and safety of road surface. Less traffic and potential conflicts.
	Rating	●	●	◑	◔	○
3	**Accomodates access to adjacent properties**	Maintains two-way access to properties.	Maintains two-way access to properties.	Access to property from one direction only.	Maintains two-way access to properties.	Access to property from one direction only.
	Rating	○	○	◑	○	◑
	SUMMARY TECHNICAL FACTORS	●	◕	◑	◔	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	Widen the Road	5) Dead-end Road with Turn Around
E	**PROBLEM STATEMENT**					
1	**Addresses Problem Statement**	No	Partially	Yes	Yes	Yes
	SUMMARY PROBLEM STATEMENT	**Not Preferred**	**Not Preferred**	**Preferred**	**Preferred**	**Preferred**

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	Widen the Road	5) Dead-end Road with Turn Around
OVERALL SUMMARY	**Not Preferred**	**Not Preferred**	**Most Preferred**	**Most Preferred**	**Least Preferred**

ORDER OF PREFERENCE

Most Preferred ○

More Preferred ◔

Somewhat Preferred ◑

Less Preferred ◕

Least Preferred ●

7th Line (West) Improvements-Evaluation of Design Solutions (Road Widening)

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Widen on north side with paved shoulders	2) Widen on south side with paved shoulders	3) Widen the Road both sides	4) Combination of north and south side with paved shoulders
A	**NATURAL ENVIRONMENT**				
1	**Vegetation/Tree Removal**	Tree clearing required	Tree clearing required	Tree clearing required	Tree clearing required
	Rating	◔	◔	◔	◔
2	**Terrestrial Habitat (breeding birds, turtles, general wildlife, habitat connectivity)**	Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds. Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved.	Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds. Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved.	Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds.Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved.	Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds.Rehabilitation of road and shoulders may pose risk to nesting turtles over short term due to construction and over long term if shoulders are paved.
	Rating	◔	◔	◔	◔
3	**Fisheries / Aquatic Habitat**	Potential for impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to channel realignment and permanent alteration in Tributary 3 (east end). Culvert replacement activities may impact fish and fish habitat and are subject to site specific design and conditions.	Some impact over existing conditions. Channel realignment can be avoided with modification to road embankments and ditches. Possible impact to fish and fish habitat through sediment mobilization (indirect).Culvert replacement activities may impact fish and fish habitat and are subject to site specific design and conditions.	Impacts to adjacent fish habitat. Channel realignment and permanent alteration would be anticipated in Tributary 3 (east end). Temporary impact due to road construction and culvert replacement works and through sediment and erosional impacts.	Some impact over existing conditions. Channel realignment can be avoided with modification to road embankments and ditches. Possible impact to fish and fish habitat through sediment mobilization (indirect). Culvert replacement activities, if necessary may impact fish and fish habitat and are subject to site specific design and conditions.
	Rating	◕	◔	◕	◔
4	**Designated Sites (PSW, wooded area)**	Potential for short term impact due to tree removal, siltation during construction activities.	Potential for short term impact due to tree removal, siltation during construction activities.	Potential for short term impact due to siltation during construction activities.	Potential for short term impact due to tree removal, siltation during construction activities.
	Rating	◔	◔	◔	◔
5	**Species at Risk (Bats, Butternut)**	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR.	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR.Grading and vegation removal will impact two Butternut trees.	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Grading and vegation removal will impact two Butternut trees.	Improvements will require vegetation and tree removal at the east end of the corridor, which may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Direct impact two Butternut trees may be avoided if ditching is improved on north side.
	Rating	◑	◕	◕	◔
6	**Water Resources (groundwater, drainage features, source water protection)**	No impact over existing conditions. Culvert maintenance and replacement completed as needed.	No impact over existing conditions. Culvert maintenance and replacement completed as needed.	No impact over existing conditions. Culvert maintenance and replacement completed as needed.	No impact over existing conditions. Culvert maintenance and replacement completed as needed.
	Rating	○	○	○	○
7	**Impact on Climate Change (greenhouse gas emissions, carbon sinks, resilience or vulnerability)**	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions.	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions.	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions.	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions.
	Rating	◔	◔	◔	◔
	SUMMARY NATURAL ENVIRONMENT	◔	◔	◔	○

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Widen on north side with paved shoulders	2) Widen on south side with paved shoulders	3) Widen the Road on both sides	4) Combination of north and south side with paved shoulders
B	**SOCIO-CULTURAL ENVIRONMENT**				
1	**Conformity to Municipal Policies and Development Planning - road network and connectivity,**	Conforms to intention of connectivity of transportation network. Offers parallel alternative route.	Conforms to intention of connectivity of transportation network. Offers parallel alternative route.	Conforms to intention of connectivity of transportation network. Offers parallel alternative route.	Conforms to intention of connectivity of transportation network. Offers parallel alternative route.
	Rating	○	○	○	○
2	**Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes, memorial)**	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas.	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas. Potential impact to cultural heritage landscape (farmscape). Impact to location of private memorial.	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas. Impact to location of private memorial.	Potential for archaeological resources. Area is partially disturbed. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas. Potential impact to cultural heritage landscape (farmscape) with shift to avoid watercourse. Impact to location of private memorial.
	Rating	◔	◕	◑	◕
3	**Local Residents Nuisance Impacts (noise, traffic, visual impact)**	Visual impact of tree and vegetation removal. Improved road condition. Temporary impact due to construction activities.	Visual impact of tree and vegetation removal. Improved road condition. Temporary impact due to construction activities.	Visual impact of tree and vegetation removal. Improved road condition. Temporary impact due to construction activities.	Visual impact of tree and vegetation removal. Improved road condition. Temporary impact due to construction activities.
	Rating	◔	◔	◔	◔
4	**Municipal services (snow removal, garbage pick up,)**	Temporary impact due to construction activities.	Temporary impact due to construction activities.	Temporary impact due to construction activities.	Temporary impact due to construction activities.
	Rating	◔	◔	◔	◔
5	**Quality of Life (safety of traveled road, travel time)**	Improved road condition. No reduction in travel time or distance. Potential for increased traffic.	Improved road condition. No reduction in travel time or distance. Potential for increased traffic.	Improved road condition. No reduction in travel time or distance. Potential for increased traffic.	Improved road condition. No reduction in travel time or distance. Potential for increased traffic.
	Rating	○	○	○	○
6	**Recreation (access to park, Pedestrian/Cyclist Safety and Connectivity)**	Improved road condition and connectivity. Access to park maintained.Improved access and safety for pedestrians and cyclist with paved shoulder.	Improved road condition and connectivity. Access to park maintained.Improved access and safety for pedestrians and cyclist with paved shoulder.	Improved road condition and connectivity. Access to park maintained.Improved access and safety for pedestrians and cyclist with paved shoulder.	Improved road condition and connectivity. Access to park maintained.Improved access and safety for pedestrians and cyclist with paved shoulder.
	Rating	○	○	○	○
7	**Land Acquisition Requirements**	Some property acquisition for improvements.	Property acquisition for improvements.	Limited property acquisition for improvements.	Limited property acquisition for improvements.
	Rating	◑	◕	◔	◔
8	**Conformity to Agency Policy (LSRCA, MNRF,County of Simcoe)**	Potential for impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to channel realignment and permanent alteration in Tributary 3. Possible impact to fish and fish habitat through sediment mobilization. Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Potential for some impact to watercourse and quality aquatic habitat (Brook Trout) adjacent to roadway due to channel realignment and permanent alteration in Tributary 3. Possible impact to fish and fish habitat through sediment mobilization. Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Road improvements within the LSRCA regulated limit and near water crossings will require permits.
	Rating	◕	◔	◑	◔
	SUMMARY SOCIO-CULTURAL ENVIRONMENT	◔	◔	○	○

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Widen on north side with paved shoulders	2) Widen on south side with paved shoulders	3) Widen the Road both sides	4) Combination of north and south side with paved shoulders
C	**FINANCIAL FACTORS**				
1	**Estimated Capital Costs**	Moderate costs for road improvements, vegetation clearing.	Moderate costs for road improvements, vegetation clearing.	Moderate costs for road improvements, vegetation clearing.	Moderate costs for road improvements, vegetation clearing.
	Rating				
2	**Estimated Operation and Maintenance Cost**	Low costs for regular maintenance.	Low costs for regular maintenance.	Low costs for regular maintenance.	Low costs for regular maintenance.
	Rating				
3	**Property Acquisition Cost**	Some property acquisition needed for road footprint located outside ROW.	Property acquisition needed for road footprint located outside ROW.	Limited property acquisition needed for road footprint located outside ROW.	Limited property acquisition needed for road footprint located outside ROW.
	Rating				
	SUMMARY FINANCIAL FACTORS				

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Widen on north side with paved shoulders	2) Widen on south side with paved shoulders	3) Widen the Road both sides	4) Combination of north and south side with paved shoulders
D	**TECHNICAL FACTORS**				
1	**Addresses future traffic control and operation requirements (Level of service, delay, queues, intersection LOS and mobility)**	May increase traffic in the short term. Maintains an alternate parallel route within road network. Maintains direct travel routes.	May increase traffic in the short term. Maintains an alternate parallel route within road network. Maintains direct travel routes.	May increase traffic in the short term. Maintains an alternate parallel route within road network. Maintains direct travel routes.	May increase traffic in the short term. Maintains an alternate parallel route within road network. Maintains direct travel routes.
	Rating	◔	◔	◔	◔
2	**Addresses sight distance, and operational safety**	Improved sight distances and safety of road surface. Maintains two-way access to properties.	Improved sight distances and safety of road surface. Maintains two-way access to properties.	Limited improvement to sight distances and safety of road surface. Maintains two-way access to properties.	Improved sight distances and safety of road surface. Maintains two-way access to properties.
	Rating	○	○	◔	○
3	**Accomodates access to adjacent properties**	Maintains two-way access to properties.	Maintains two-way access to properties.	Maintains two-way access to properties.	Maintains two-way access to properties.
	Rating	○	○	○	○
4	**Design constraints (topography)**	Minimize need cut into slopes on south side. Maintains two-way access to properties.	Would require grading of slope of south side. Maintains two-way access to properties.	Limits required grading of slopes on south side.Maintains two-way access to properties.	Limiting side slopes may require the need for guiderail. Maintains two-way access to properties.
	Rating	○	◑	◔	◔
	SUMMARY TECHNICAL FACTORS	○	○	◔	○

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Widen on north side with paved shoulders	2) Widen on south side with paved shoulders	3) Widen the Road	4) Combination of north and south side with paved shoulders
E	**PROBLEM STATEMENT**				
1	**Addresses Problem Statement**	Yes	Yes	Yes	Yes
	SUMMARY PROBLEM STATEMENT	**Preferred**	**Preferred**	**Preferred**	**Preferred**

CRITERIA FOR EVALUATING ALTERNATIVES	1) Widen on north side with paved shoulders	2) Widen on south side with paved shoulders	Widen the Road	4) Combination of north and south side with paved shoulders
OVERALL SUMMARY	**Less Preferred**	**Least Preferred**	**Less Preferred**	**Most Preferred**

ORDER OF PREFERENCE

Most Preferred ○

More Preferred ◔

Somewhat Preferred ◑

Less Preferred ◕

Least Preferred ●

7th Line (West) Improvements-Evaluation of Design Alternatives (Road Cross-Section, East End)

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
A	**NATURAL ENVIRONMENT**		
1	**Vegetation/Tree Removal**	Vegetation clearing needed with improved ditching	Vegetation clearing needed with improved ditching
	Rating	◑	◑
2	**Terrestrial Habitat (breeding birds, turtles, general wildlife, habitat connectivity)**	Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds. Paved shoulders may limit nesting opportunities and pose risk to nesting turtles over short term due to construction.	Vegetation removal may impact breeding birds.Vegetation removal will be subject to timing restriction to avoid direct impact to breeding birds. Paved shoulders may limit nesting opportunities and pose risk to nesting turtles over short term due to construction.
	Rating	◔	◔
3	**Fisheries / Aquatic Habitat**	Potential for indirect impact to watercourse and aquatic habitat adjacent to roadway due to new ditches and ditch improvements, culvert replacement, where needed.	Potential for indirect impact to watercourse and aquatic habitat adjacent to roadway due to new ditches and ditch improvements, culvert replacement, where needed.
	Rating	◔	◔
4	**Designated Sites (PSW, wooded area)**	Potential for short term impact due to tree removal, siltation during construction activities.	Potential for short term impact due to tree removal, siltation during construction activities.
	Rating	◔	◔
5	**Species at Risk (Bats, Butternut)**	Vegetation and tree removal at the east end of the corridor may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Grading and vegation removal will impact two Butternut trees.	Vegetation and tree removal at the east end of the corridor may impact SAR bat and Monarch breeding habitat. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Grading and vegation removal will impact two Butternut trees.
	Rating	◑	◑
6	**Water Resources (groundwater, drainage features, source water protection)**	No significant impact over existing conditions. Additional paved surfaces are not anticipated to significantly increase run-off.	No significant impact over existing conditions. Additional paved surfaces are not anticipated to significantly increase run-off.
	Rating	○	○
7	**Impact on Climate Change (greenhouse gas emissions, carbon sinks, resilience or vulnerability)**	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions. Longer construction time may have minor impact on air emissions over the short terms	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions. Shorter lifespan before repair required.
	Rating	◔	◔
	SUMMARY NATURAL ENVIRONMENT	◔	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
B	**SOCIO-CULTURAL ENVIRONMENT**		
1	**Conformity to Municipal Policies and Development Planning - road network and connectivity**	Maintains connectivity of transportation network. Provides for improved safety and maintenance of the road.	Maintains connectivity of transportation network.Provides for improved safety and maintenance of the road.
	Rating	○	○
2	**Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes, memorial)**	Some potential for archaeological and cultural resources. Stage 2 Archaeological Assessment required prior to disturbance	Some potential for archaeological and cultural resources. Stage 2 Archaeological Assessment required prior to disturbance
	Rating	◔	◔
3	**Local Residents Nuisance Impacts (noise, traffic, visual impact)**	Nuisance impact anticipated during reconstruction as a result of noise, reduced access. Longer construction time.	Nuisance impact anticipated during reconstruction as a result of noise, reduced access, but less time anticipated for rehabilitation
	Rating	◑	◔
4	**Quality of Life (Safety of traveled road, Pedestrian/Cyclist Safetytravel time)**	Improved condition of road. Improved access and safety for pedestrians and cyclist with paved shoulder. Reconstructed pavement more durable over the long term.	Improved condition of road. Improved access and safety for pedestrians and cyclist with paved shoulder. Limited lifespan of paved surface.
	Rating	○	◑
5	**Conformity to Agency Policy (LSRCA, MNRF,County of Simcoe)**	Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Road improvements within the LSRCA regulated limit and near water crossings will require permits.
	Rating	◔	◔
6	**Land Acquisition Requirements**	Some property acquisition required.	Some property acquisition required.
	Rating	◑	◑
	SUMMARY SOCIO-CULTURAL ENVIRONMENT	◔	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
C	**FINANCIAL FACTORS**		
1	**Estimated Capital Costs**	High capital costs for construction.	Moderate capital costs for construction.
	Rating	◑	◔
2	**Estimated Operation and Maintenance Cost**	Reduced costs for road maintenance, anticipated to increase over long term.	Reduced costs for road maintenance, anticipated to increase over medium term.
	Rating	◔	◑
3	**Property Acquisition Cost**	Some property acquisition required.	Some property acquisition required.
	Rating	◔	◔
	SUMMARY FINANCIAL FACTORS	◔	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
D	**TECHNICAL FACTORS**		
1	**Addresses future traffic control and operation requirements (Level of service, delay, queues)**	Accomodates future traffic growth and connectivity.	Accomodates future traffic growth and connectivity.
	Rating	○	○
2	**Addresses sight distance, and operational safety**	Accommodates improved safety of road surface with improved vertical and horizontal alignment.	Accommodates safety of road surface. Limited opportunity to improve vertical and horizontal alignment.
	Rating	○	◑
3	**Accomodates access to adjacent properties**	Maintains two-way access to properties.	Maintains two-way access to properties.
	Rating	○	○
4	**Design constraints (topography, base materials)**	Improved road profile to meet TAC standards. Dewatering is not anticipated.	Dewatering is not anticipated. Limited opportunity to improve vertical and horizontal alignment.
	Rating	○	◑
	SUMMARY TECHNICAL FACTORS	○	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
E	**PROBLEM STATEMENT**		
1	Addresses Problem Statement	yes	yes
	SUMMARY PROBLEM STATEMENT	**Preferred**	**Preferred**

CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
OVERALL SUMMARY	**Most Preferred**	**Least Preferred**

ORDER OF PREFERENCE

Most Preferred ○

More Preferred ◔

Somewhat Preferred ◑

Less Preferred ◕

Least Preferred ●

7th Line (West) Improvements-Evaluation of Design Alternatives (Road Cross-Section, West End)

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
A	**NATURAL ENVIRONMENT**		
1	**Vegetation/Tree Removal**	Limited vegetation clearing needed for ditch clean-out.	Limited vegetation clearing needed for ditch clean-out
	Rating	◔	◔
2	**Terrestrial Habitat (breeding birds, turtles, general wildlife, habitat connectivity)**	Construction will be within the existing right-of-way. Paved shoulders may limit nesting opportunities and pose risk to nesting turtles over short term due to construction.	Construction will be within the existing right-of-way. Paved shoulders may limit nesting opportunities and pose risk to nesting turtles over short term due to construction.
	Rating	◔	◔
3	**Fisheries / Aquatic Habitat**	Potential for indirect impact to watercourse and aquatic habitat adjacent to roadway due to ditch clean-out and culvert replacement, if needed. Reconstruction work will be within the existing right-of-way.	Potential for indirect impact to watercourse and aquatic habitat adjacent to roadway due to ditch clean-out and culvert replacement, if needed. Reconstruction work will be within the existing right-of-way.
	Rating	◔	◔
4	**Designated Sites (PSW, wooded area)**	Reconstruction work will be completed within the existing right-of-way. Potential impact to PSW from sediment during construction will required mitigation using appropriate controls.	Resurfacing work will be completed within the existing right-of-way. Potential impact to PSW from sediment during construction will required mitigation using appropriate controls.
	Rating	◔	◔
5	**Species at Risk (Bats, Butternut)**	No impact anticipated over existing conditions. Minor tree/vegetation removal may be required for road reconstruction. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Construction work will be completed within the existing right-of-way.	No impact anticipated over existing conditions. Minor tree/vegetation removal may be required for road reconstruction. Vegetation removal will be subject to timing restriction to avoid direct impact to SAR. Construction work will be completed within the existing right-of-way.
	Rating	○	○
6	**Water Resources (groundwater, drainage features, source water protection)**	Potential for temporary impact to groundwater and drainage features during excavation and dewatering for road reconstruction and culvert replacement as needed.	No significant impact over existing conditions. Additional paved surfaces are not anticipated to significantly increase run-off. Raising of the road surface may impact hydraulics of area.
	Rating	◔	◑
7	**Impact on Climate Change (greenhouse gas emissions, carbon sinks, resilience or vulnerability)**	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions. Road reconstruction excavation is not anticipated to unearth carbon-rich peat deposits beneath the road. Longer construction time may have minor impact on air emissions over the short terms.	Vegetation removal is not anticipated to significant impact the availablility of carbon sinks. Improvemements are not anticipate to increase traffic and associated greenhouse gas emissions over existing conditions. Shorter lifespan before repair required.
	Rating	◔	◔
	SUMMARY NATURAL ENVIRONMENT	○	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
B	**SOCIO-CULTURAL ENVIRONMENT**		
1	**Conformity to Municipal Policies and Development Planning - road network and connectivity,**	Maintains connectivity of transportation network. Provides for improved safety and maintenance of the road.	Maintains connectivity of transportation network.Provides for improved safety and maintenance of the road.
	Rating	○	○
2	**Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes, memorial)**	Some potential for archaeological and cultural resources at the limits of the west end. Stage 2 Archaeological Assessment required prior to disturbance	Some potential for archaeological and cultural resources at the limits of the west end. Stage 2 Archaeological Assessment required prior to disturbance.
	Rating	◔	◔
3	**Local Residents Nuisance Impacts (noise, traffic, visual impact)**	Nuisance impact anticipated during reconstruction as a result of noise, reduced access. Longer construction time.	Nuisance impact anticipated during reconstruction as a result of noise, reduced access, but less time anticipated for rehabilitation
	Rating	◑	◔
4	**Quality of Life (Safety of traveled road, Pedestrian/Cyclist Safetytravel time)**	Improved condition of road. Improved access and safety for pedestrians and cyclist with paved shoulder.Reconstructed pavement more durable over the long term.	Improved condition of road. Improved access and safety for pedestrians and cyclist with paved shoulder.Limited lifespan of paved surface.
	Rating	○	◑
5	**Conformity to Agency Policy (LSRCA, MNRF,County of Simcoe)**	Road improvements within the LSRCA regulated limit and near water crossings will require permits.	Road improvements within the LSRCA regulated limit and near water crossings will require permits. Raising of the road surface may impact hydraulics of area and does not conform to LSRCA policy.
	Rating	◔	◑
6	**Land Acquisition Requirements**	Property acquisition not anticipated at the west end.	Property acquisition not anticipated at the west end.
	Rating	○	○
	SUMMARY SOCIO-CULTURAL ENVIRONMENT	○	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
C	**FINANCIAL FACTORS**		
1	**Estimated Capital Costs**	High capital costs for construction.	Moderate capital costs for construction.
	Rating	●	◑
2	**Estimated Operation and Maintenance Cost**	Reduced costs for road maintenance, anticipated to increase over long term.	Reduced costs for road maintenance, anticipated to increase over medium term.
	Rating	◔	◑
3	**Property Acquisition Cost**	No property acquisition anticipated for improvements at the west end.	No property acquisition anticipated for improvments at the west end.
	Rating	○	○
	SUMMARY FINANCIAL FACTORS	◔	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
D	**TECHNICAL FACTORS**		
1	**Addresses future traffic control and operation requirements (Level of service, delay, queues, intersection LOS and mobility)**	Accomodates future traffic growth and connectivity.	Accomodates future traffic growth and connectivity.
	Rating	○	○
2	**Addresses sight distance, and operational safety**	Accommodates improved safety of road surface with improved vertical and horizontal alignment.	Accommodates safety of road surface.Limited opportunity to improve vertical and horizontal alignment.
	Rating	○	◑
3	**Accomodates access to adjacent properties**	Maintains two-way access to properties.	Maintains two-way access to properties.
	Rating	○	○
4	**Design constraints (topography)**	Subsurface materials, will require excavation and replacement for road improvements. Dewatering is not anticipated.	Limited subsurface excavation required. Dewatering is not anticipated. Presence of peat material below the road represents a geotechnical concern with the added weight of raised road surface.
	Rating	◔	◑
	SUMMARY TECHNICAL FACTORS	○	◔

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
E	**PROBLEM STATEMENT**		
1	Addresses Problem Statement	yes	yes
	SUMMARY PROBLEM STATEMENT	**Preferred**	**Preferred**

CRITERIA FOR EVALUATING ALTERNATIVES	1) Full reconstruction with paved shoulders	2) Rehabilitation with paved shoulders
OVERALL SUMMARY	**Most Preferred**	**Least Preferred**

ORDER OF PREFERENCE

Most Preferred ○

More Preferred ◔

Somewhat Preferred ◑

Less Preferred ◕

Least Preferred ●

7th Line
Yonge St to 10th Sideroad
Town of Innisfil
EA Cost Estimate - Full Road Reconstruction

Project No.: 300042232
Date Prepared: April 5, 2019

Item No.	Description	Unit	Estimated Quantity	Unit Price	Total Price
1.0 General Works					
1.01	Mobilization & Demobilization	LS	100%	$ 50,000.00	$ 50,000.00
1.02	Bonding and Insurance	LS	100%	$ 50,000.00	$ 50,000.00
1.03	Traffic Control Signing	LS	100%	$ 50,000.00	$ 50,000.00
1.04	Construction Layout	LS	100%	$ 25,000.00	$ 25,000.00
	SUBTOTAL - General Works			**$**	**175,000.00**

Item No.	Description	Unit	Estimated Quantity	Unit Price	Total Price
2.0 7th Line – Yonge St to 10th Sideroad					
2.01	Clearing and Grubbing	ha	1.6	$ 35,000.00	$ 56,000.00
2.02	Siltation Control Fencing	m	3500	$ 25.00	$ 87,500.00
2.03	Tree Preservation Fencing	m	500	$ 25.00	$ 12,500.00
2.04	Saw Cut Existing Asphalt	m	50	$ 100.00	$ 5,000.00
2.05	Full Depth Removal of Asphalt	m2	25000	$ 6.00	$ 150,000.00
2.06	Earth Excavation	t	30000	$ 11.00	$ 330,000.00
2.07	Granular 'A' - Roadway	t	13000	$ 18.00	$ 234,000.00
2.08	Granular 'B' - Roadway	m2	35000	$ 12.00	$ 420,000.00
2.09	Granular 'A' - Shouldering	m2	11000	$ 5.00	$ 55,000.00
2.1	Hot Mix Asphalt (40 mm) - Surface Course	t	2800	$ 90.00	$ 252,000.00
2.11	Hot Mix Asphalt (60 mm) - Base Course	t	4100	$ 90.00	$ 369,000.00
2.12	500 mm Dia. CSP Culverts (Driveway)	m	55	$ 300.00	$ 16,500.00
2.13	500 mm Dia. CSP Culverts (Road Crossing)	m	30	$ 600.00	$ 18,000.00
2.14	600 mm Dia. CSP Culverts (Driveway)	m	12	$ 500.00	$ 6,000.00
2.15	1200 mm Dia. CSP Culverts (Driveway)	m	12	$ 1,000.00	$ 12,000.00
2.16	1200 mm Dia. CSP Culverts (Road Crossing)	m	24	$ 1,500.00	$ 36,000.00
2.17	Topsoil (100mm)	m2	30000	$ 5.00	$ 150,000.00
2.18	Seed and Mulch	m2	30000	$ 2.00	$ 60,000.00
2.19	Erosion Control Blanket	m2	12000	$ 5.00	$ 60,000.00
2.19	Steel Beam Guide Rail End Treatment	ea	6	$ 6,000.00	$ 36,000.00
2.2	Steel Beam Guide Rail	m	930	$ 120.00	$ 111,600.00
2.21	Line Painting	m	3500	$ 3.00	$ 10,500.00
2.22	Stop Bars	m	10	$ 150.00	$ 1,500.00
2.23	Road Signs	ea	10	$ 300.00	$ 3,000.00
2.24	Ditch Regrading	m	2000	$ 25.00	$ 50,000.00
2.25	Coir Logs	ea	50	$ 200.00	$ 10,000.00
2.26	Rip Rap	m2	500	$ 50.00	$ 25,000.00
2.27	Dust Control				
	a) Calcium Chloride	kg	5000	$ 1.50	$ 7,500.00
	b) Water	m3	1000	$ 15.00	$ 15,000.00
	SUBTOTAL - 7th Line - West			**$**	**2,599,600.00**

SUMMARY OF ITEMS AND UNIT PRICES		
Subtotal - General Works	**$**	**175,000.00**
Subtotal - 7th Line - Yonge St to 10th Sideroad	**$**	**2,599,600.00**
Contingency (30%)	**$**	**832,380.00**
SUBTOTAL	**$**	**3,606,980.00**

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Consultation Record

7th Line EA – Project Contact List	C1
Class Environmental Assessment Study – Public Notices (Notice of Commencement and Notice of Completion)	C2
Local Residents (Letter, Correspondence and Meeting Minutes)	C3
Technical Advisory Committee	C4
EA Study Correspondence (Agency, Indigenous Communities and Public)	C5
Online Forum	C6
Public Open House No. 1 Summary Report	C7
Public Open House No. 2 Summary Report	C8

Group (Internal Use Only)	Agency/ Organization	Title	First Name	Last Name	Position	Address 1	Address 2	City	Prov.	Postal Code	Email	Telephone	Fax	Contact Instructions	Contact Info Current As Of	Comments Received	Response Given
A - Federal	Canada Post Central & West Region (Ontario)	Sir	Madam			4567 Dixie Road		Mississauga	ON	L4W 5A5							
A - Federal	Fisheries and Oceans Canada				Fisheries Protection Program						FisheriesProtection@dfo-mpo.gc.ca	855-852-8320		**EMAIL** only	2016/07/13	180807_Email from DFO, Confirmation of receipt of submission. Thank you for contacting Fisheries & Oceans Canada, Fisheries Protection Prg.	
B - Provincial	Hydro One		Linda	McGee							Linda.McGee@HydroOne.com					181121_Email from Linda McGee Attach is a mark-up of Barrie M3 that runs through described area, towers are approx 120 m north & south of 7th Line.	
B - Provincial	Hydro One Networks Inc.										Zone3aScheduling@hydroone.com					180809_Email from Jenny SEO, Initial review confirms no Hydro One Transmission (above 115 kV) facilities in subject area, Pls note there may also be Hydro One Distribution facilities in study area (i.e., distribution wires operating below 115 kV). In order to cover off the impact to all Hydro One assets, forward EA to Zone3aScheduling@hydroone.com. Be advised that this is a preliminary assessment based on current info. No further consultation with Hydro One Networks Inc. is required if no changes are made to current info. 180803_Email from Renée Pettigrew (Renee.Pettigrew@HydroOne.com), Pls update Contact List to remove Andrew Spencer & replace with SecondaryLandUse@ HydroOne.com. This will ensure the Notice is sent to correct person.	180809_Email from SLW to Zone3aScheduling@hydroone.com Pls see attached notice being forwarded as per the email, below.
B - Provincial	Hydro One Networks Inc.										SecondaryLandUse@HydroOne					180809_Email from Jenny SEO, Initial review confirms no Hydro One Transmission (above 115 kV) facilities in subject area, Pls note there may also be Hydro One Distribution facilities in study area (i.e., Distribution wires operating below 115 kV). In order to cover off the impact to all Hydro One assets, forward EA to Zone3aScheduling@hydroone.com. Be advised that this is a preliminary assessment based on current info. No further consultation with Hydro One Networks Inc. is required if no changes are made to current info. 180803_Email from Renée Pettigrew (Renee.Pettigrew@HydroOne.com), Pls update Contact List to remove Andrew Spencer & replace with SecondaryLandUse@ HydroOne.com. This will ensure the Notice is sent to correct person.	
B - Provincial	Hydro One Networks Inc.	Mr.	Andrew	Spencer	Transmision & Stations	483 Bay Street	North Tower, 15th Floor	Toronto	ON	M5G 2P5		416-345-5114	416-345-5443		2015/10/01	180803_Email from Renée Pettigrew (Renee.Pettigrew@HydroOne.com), Pls update Contact List to remove Andrew Spencer & replace with SecondaryLandUse@ HydroOne.com. This will ensure the Notice is sent to correct person.	
B - Provincial	Ministry of the Environment, Conservation and Parks	Mr.	Trevor	Bell							Trevor.bell@ontario.ca					180808_Email from Trevor Bell, Chunmei Liu is responsible for projects in Innisfil. Resp. of EA Coord. in Central Region: Halton, Peel, & Muskoka: Trevor Bell; York & Durham: Emilee O'leary Simcoe and Toronto: Chunmei Liu; Anticipated turnaround for response to NOC is 30 days.	180731_Email from DDF, Follow up of voicemails & NOC & Project Info. Form for 7th Line MCEA, previously emailed to central region dedicated email address; require feedback MECP regarding recommended list of Indigenous communities to contact with notice as part of the MCEA. Info. request is time sensitive as it relates to publication of NOC & coord. of distribution of notice to potentially interested local residents, agencies & Indigenous communities. Understand you may not be EA coord. assigned to this particular NOC, however, would appreciate, if you could provide contact info. for EA coord. assigned, as well as let me know anticipated turn-around time for responses to notifications through dedicated email addresses for future reference & project planning purposes.
B - Provincial	Ministry of the Environment, Conservation and Parks Central Region	Ms.	Chunmei	Liu	Environmental Resource Planner & EA Coordinator; Air, Pesticides and Environmnetal Planning	Place Nouveau 5775 Yonge Street	9th Floor	Toronto	ON	M2M 4J1	chunmei.liu@ontario.ca	416-326-4886		Presently responsible for City of Toronto and Simcoe County. Multiple contacts per Region; email should be placed to all people of this position as listed on INFO GO at time of agency list preparation and name confirmed.	2018/04/10	180815_Email with letter from C.Liu in response to NOC. Provided MECP Areas of Interest and guidance on MCEA process. Indicated as a Sch C, an Air Quality Impact Assessment is required as part of the EA. MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter. provided list of three communities to be consulted - Beausoleil FN, Chippewas of Rama FN, Chippewas of Georgina Island FN. Requested a copy of the ESR for technical review prior to filing the final report.	

Group (Internal Use Only)	Agency/ Organization	Title	First Name	Last Name	Position	Address 1	Address 2	City	Prov.	Postal Code	Email	Telephone	Fax	Contact Instructions	Contact Info Current As Of	Comments Received	Response Given
	Ministry of the Environment, Conservation and Parks - Central Region Technical Support Section										eanotification.cregion@ontario.ca			**ELECTRONIC** EA preferred			
B - Provincial	Ministry of the Environment, Conservation and Parks, Environmental Approvals Branch										MEA.NOTICES.EAAB@ontario.ca			**EMAIL only the Notice of Completion**	2016/07/13		
B - Provincial	Ministry of the Environment, Conservation and Parks, Species at Risk Branch		Clairissa	Myschowoda	Permissions and Compliance						SAROntario@ontario.ca					190524_Email MECP has accepted responsibility for the admin. Of ESA. ESA authorizations has being centralized from 25 MNRF district offices into one, newly formed Permissions and Compliance team within the new SAR Branch in MECP. This branch is staffed by former MNRF employees with experience in the ESA. To facilitate communications, MECP has established a one-window e-mail, sarontario@ontario.ca, for applications, report submissions & other	190523_Email from DDF Burnside is completing a Sch C MCEA, road improvements of 7th Line, Innisfil ON. Project is nearing completion (Phase 4), MNRF participated on a TAC. As the MECP is now the agency responsible for SAR in Ontario, pls contact us with level of interest & participation the MECP may have at this stage in the project concerning SAR. MNRF will remain involved in the project regarding potential impacts to natural heritage values not related to the ESA. Project info. can be found on the Town of Innisfil webpage at: https://www.getinvolvedinnisfil.ca/7thline
B - Provincial	Ministry of Municipal Affairs Central Municipal Service Office	Mr.	Ross	Lashbrook	Manager, Community Planning & Development	College Park 777 Bay Street	13th Floor	Toronto	ON	M5G 2E5	ross.lashbrook@ontario.ca	416-585-6063	416-585-6882		2018/04/11	181118_Email from Ross Lashbrook, Pls remove Shawn Parry (has taken new position) and replace with myself.	
B - Provincial	Ministry of Natural Resources and Forestry		Graham	Findlay							graham.findlay@ontario.ca					081319_Email from G. Findlay, retiring from MNRF. Alternate contact is Suzanne Robinson.	
	Ministry of Natural Resources and Forestry		Suzanne	Robinson							suzanne.robinson@ontario.ca						
B - Provincial	Ministry of Natural Resources and Forestry Midhurst (Huronia) (Southern Region)	Mr.	Ken	Mott	District Planner	2284 Nursery Road		Midhurst	ON	L9X 1N8	ken.mott@ontario.ca	705-725-7500	705-725-7584	Multiple contacts per district; email should be placed to all people of this position as listed on Info GO at time of agency list preparation and name confirmed.	2018/06/07		
B - Provincial	Ministry of Natural Resources and Forestry Midhurst (Huronia) (Southern Region)	Ms.	Kim	Benner	District Planner	2284 Nursery Road		Midhurst	ON	L9X 1N8	kim.benner@ontario.ca	705-725-7534	705-725-7584	Multiple contacts per district; email should be placed to all people of this position as listed on Info GO at time of agency list preparation and name confirmed.	2018/06/07	180803_Email from Kim Benner, Out of office August 7, will respond as soon as possible when I return.	
B - Provincial	Ministry of the Environment Conservation and Parks Barrie District Office				Duty Officer	54 Cedar Pointe Drive	Unit 1203	Barrie	ON	L4N 5R7		705-739-6441	705-739-6440		4/10/2018		
B - Provincial	Ministry of Tourism, Culture and Sport Culture Division	Mr.	Dan	Minkin	Heritage Planner	401 Bay Street	Suite 1700	Toronto	ON	M7A 0A7	dan.minkin@ontario.ca					180807_Email from Karla Barboza, Thanks, 7th Line EA file # will be MTCS File# 0009433, & has been assigned to Dan Minkin, Heritage Planner; Pls include Dan & Karla Barboza to Contact List & remove Laura Hatcher Notices for other new projects can be sent directly to me.	
B - Provincial	Ministry of Tourism, Culture and Sport Culture Division		Karla	Barboza		401 Bay Street	Suite 1700	Toronto	ON	M7A 0A7	Karla.Barboza@ontario.ca					180807_Email from Karla Barboza, Thanks, 7th Line EA file # will be MTCS File# 0009433, & has been assigned to Dan Minkin, Heritage Planner; Pls include Dan & Karla Barboza to Contact List & remove Laura Hatcher Notices for other new projects can be sent directly to me.	
B - Provincial	Ministry of Tourism, Culture and Sport Culture Division	Ms.	Laura	Hatcher	Team Lead, Heritage Land Use Planning (Acting), Culture Services Unit	401 Bay Street	Suite 1700	Toronto	ON	M7A 0A7	laura.e.hatcher@ontario.ca	416-314-3108	416-314-7175		2016/07/13	180807_Email from Karla Barboza, Thanks, 7th Line EA file # will be MTCS File# 0009433, & has been assigned to Dan Minkin, Heritage Planner; Pls include Dan & Karla Barboza to Contact List & remove Laura Hatcher Notices for other new projects can be sent directly to me.	
	County of Simcoe	Mr.	John	Daly	County Clerk	1110 Highway 26		Midhurst	ON	L9X 1N6	john.daly@simcoe.ca		705-725-1285				
	City of Barrie		Jeff	Carswell	Deputy City Clerk	70 Collier Street	City Hall, P.O. Box 400	Barrie	ON	L4M 4T5	jeff.carswell@barrie.ca	705-739-4220 ext. 4450	705-739-4206				
E - Utilities	Bell Canada	Mr.	Scott	Moon	Implementation Department	5115 Creekbank Road	3rd Floor, West Tower	Mississauga	ON	L4W 5R1	scott.moon@bell.ca	905-219-4558	416-701-6489				
E - Utilities	Bell Canada, Municipal Operations Centre	Mr.	John	Lachapelle		100 Borough Drive	Floor 5 Blue	Scarborough	ON	M1P 4WZ							
E - Utilities	Enbridge Gas Distribution Inc.	Mr.	Vince	Cina	Supervisor, Planning and Design	500 Consumers Road		North York	ON	M2J 1P8						181119_Email Enbridge Pipelines Inc. does not have any assets in the area Amy Robinson 519-339-0517	

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E-Utilities	Enbridge Pipelines Inc.	Ms.	Ann	Newman	Crossing Co-ordinator	1086 Modeland Road.	Building 1050, 1st Floor	Sarnia	ON	N7S 6L2	ann.newman@enbridge.com					180803_Email from Ann Newman, thanks, Will be away from August 2-10, If you are inquiring about ROW or crossing info. or are looking for lands related info pls contact Eastern Region ROW group at: est.reg.crossing@enbridge.com	
E - Utilities	Enbridge Pipelines Inc.		Arlene	Howard	Lands & ROW Administrator - Crossings, Eastern Region	Western Research Park	1086 Modeland Road, Bldg. 1050 1st Floor	Sarnia	ON	N7S 6L2	est.reg.crossing@enbridge.com	519-339-0080	519-339-0510			180816_Email from Arlene Pls be advised the Enbridge Pipelines Inc. has no facilities within proposed scope of work, therefore has no concerns.	
E - Utilities	InnPower		Danny	Persaud		7251 Yonge Street		Innisfil	ON	L9S 0J3	dannyp@innpower.ca					180803_Email from Michael Davidson, in response to NOC email of 180808-Pls be advised Michael Davison is no longer with InnPower, Redirect correspondence to Danny Persaud (dannyp@innpower.ca)	
E - Utilities	InnPower	Mr.	Michael	Davison	Operations Manager	7251 Yonge Street		Innisfil	ON	L9S 0J3	michaeld@innpower.ca	705-431-4321 ext. 208				180803_Email from Michael Davidson, Pls be advised Michael Davison is no longer with InnPower, Redirect correspondence to Danny Persaud (dannyp@innpower.ca)	
E - Utilities	InnPower	Mr.	Tony	Mendicino	Engineering Technologist	7251 Yonge Street		Innisfil	ON	L9S 0J3	tonym@innpower.ca	705-431-4321 ext 248					
E - Utilities	Rogers Communications	Ms.	Marian	Wright	Planning Coordinator	3573 Wolfedale Road		Mississauga	ON	L5C 3T6		905-897-3914; 888-764-3771					
E - Utilities	Trans Canada Corporation MHBC Planning, Urban Design & Landscape Architecture	Ms.	Darlene	Presley	Plannng Co-ordinator, EA contact	442 Brant Street, Suite 204		Burlington	ON	L7R 2G4	dpresley@mhbcplan.com	905-639-8686 ext. 229 Cell: 705-627-2302	905-761-5589	Contact MHBC Planning, Urban Design & Landscape Architecture for EA-related queries, head office for more information.	2016/10/20	180803_Email from Darlene Presley, Pls be advised vacation July 27-August 7, will periodically checking emails, & respond to request as soon as possible. If urgent/require immediate assistance pls contact Deborah Shore (dshore@mhbcplan.com)	
E - Utilities	Trans-Northern Pipelines Inc.	Mr.	Satish	Korpal	Coordinator, Crossings and Facilities	45 Vogell Road	Suite 310	Richmond Hill	ON	L4B 3P6	skorpal@tnpi.ca	905-770-3353 ext. 211	905-770-8675			181116_Email from Cliff Lee, Pls remove from circulation list, as TNPI currently has no, nor likely will ever have in foreseeable future facilities north of Hwy 407 across the entire GTHA.	
E - Utilities	Zayo										Utility.Circulations@zayo.com	416-649-7527			2016/07/13	180803_Email from Zayo, Thanks, submission has been placed in queue & will be replied to within 15 business days. 180815_Email from Ian Fleming, Utility Circulation, Zayo has no existing plant in the study area. No markup and no objection.	
F - Other	Lake Simcoe Region Conservation Authority		Taylor	Stevenson	Senior Environmental Regulations Analyst/Capital Projects Analyst	120 Bayview Parkway	Box 282	Newmarket	ON	L3Y 4X1	tstevenson@lsrca.on.ca					181119_Email bounced	
F - Other	Lake Simcoe Region Conservation Authority				Planner	120 Bayview Parkway	Box 282	Newmarket	ON	L3Y 4X1	info@lsrca.on.ca	905-895-1281	905-853-5881	Contact agency to determine appropriate contact for specific project. Send 1 hard copy of EA.	2017/02/01		
F - Other	Innisfil Mayor, Deputy Mayor, Council, Management & Colleagues															180808_Email from Magda to Innisfil staff (Mayor, Deputy Mayor, Council, Management & Colleagues) with NOCommencement.	
F - Other	Innisfil Municipal Heritage Committee	Ms.	Deb	Crawford	Chairperson	2101 Innisfil Beach Road	c/o Kevin Jacob, Assistant Clerk	Innisfil	ON	L9S 1A1	kjacob@innisfil.ca	705-436-3710 ext. 2414	705-436-7120	Email address is for Assistant Clerk but the contact name is the Chairperson			
	County of Simcoe	Mr.	Christian	Meile	Director, Transportation & Engineering	1110 Highway 26		Midhurst	ON	L9X 1N6	christian.meile@simcoe.ca						
	County of Simcoe	Mr.	John	Daly	County Clerk	1110 Highway 26		Midhurst	ON	L9X 1N6	john.daly@simcoe.ca		705-725-1285				
F - Other	County of Simcoe	Ms.	Alysya	Wang		1110 Hwy 26		Midhurst	ON	L9X 1N6	alysya.wang@simcoe.ca					180803_Email from Leesa Schoenmaker, Out of office for extended period of time, Contact Alysya Wang (alysya.wang@simcoe.ca) or Jennifer DeCaire (jennifer.decaire@simcoe.ca)	
F - Other	County of Simcoe	Ms.	Jennifer	DeCaire		1110 Hwy 26		Midhurst	ON	L9X 1N6	jennifer.decaire@simcoe.ca					180803_Email from Leesa Schoenmaker, Out of office for extended period of time, Contact Alysya Wang (alysya.wang@simcoe.ca) or Jennifer DeCaire (jennifer.decaire@simcoe.ca)	
F - Other	County of Simcoe	Ms.	Leesa	Schoenmaker	Administrative Assistant, Paramedic Services	1110 Hwy 26		Midhurst	ON	L9X 1N6	leesa.schoenmaker@simcoe.ca	705-726-9300 ext. 1091	705-722-6601			180803_Email from Leesa Schoenmaker, Out of office for extended period of time, Contact Alysya Wang (alysya.wang@simcoe.ca) or Jennifer DeCaire (jennifer.decaire@simcoe.ca)	
F - Other	South Simcoe Police Service	Mr.	Andrew	Fletcher	Chief of Police	2137 Innisfil Beach Road		Innisfil	ON	L9S 1A2		(705) 436-2141					

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F - Other	Office of the Fire Marshal, Local Fire Department(s)	Mr.	John	Pegg	Fire Chief	1214 20 SideRoad		Lefroy	ON	L0L 1W0	innisfilfire@innisfil.ca	705-436-2763	705-456-6318				
F - Other	Simcoe County District School Board				Planner	1170 Highway 26		Midhurst	ON	L9X 1N6							
F - Other	Simcoe Muskoka Catholic District School Board	Ms.	Jennifer	Sharpe	Manager of Planning and Properties	46 Alliance Blvd		Barrie	ON	L4M 5K3		705- 722-3555 ext. 351	705-722-6534				
F - Other	Innisfil Heights Ratepayers Association	Ms.	Lynn	Iwanow	President	1931 Innisbrook Street		Innisfil	ON	L9S 5A3	lynn.iwanow@gmail.com	905-715-9007					
F - Other	Innisfil District Association	Ms.	Deborah	McGrath	President	PO Box 7057		Innisfil	ON	L9S 1A8	info@innisfilaction.com	705-436-7772					
F - Other	Greater Innisfil Chamber of Commerce					PO BOX 7072 STN Main		Innisfil	ON	L9S 1A8		705-431-4199					
F - Other	BonSecour Track and Trail Snowmobile Club	Mr.	Gord	Wagg	President	c/o 660 9th Line		Innisfil	ON	L9S 3Y5	bonsecour@rogers.com						
F - Other	Barrie Cycling Club										info@barriecycling.com						
F - Other	Simcoe County Student Transportation Consortium					64 Cedar Pointe Drive	Suite #1403	Barrie	ON	L4N 5R7		705-733-8965					
F - Other	Town Councillor - Ward 3		Donna	Orsatti							dorsatti@innisfil.ca					181027_POH#1_Sign-in Sheet_requested to be added to Contact list	
	Town of Innisfil		Derek	Wantuch	Development Engineering Peer Review						dwantuch@innisfil.ca	x 3258				181027_POH#1_Sign-in Sheet_requested to be added to Contact list 190408_POH#2_Sign-in Sheet_requested to be added to Contact list	
	Town of Innisfil		Switzer	Glenn													
	Town of Innisfil		Eisses	Kevin	Council						keisses@innisfil.ca					190408_POH#2_Sign-in Sheet_requested to be added to Contact list	
	Innisfil Journal		Shane	MacDonald	Journalist						shanemacdonald@simcoe.com					190408_POH#2_Sign-in Sheet_requested to be added to Contact list	
	Town of Innisfil		Lynn	Dollin	Council						ldollin@innisfil.ca					190408_POH#2_Sign-in Sheet_requested to be added to Contact list	

Agency/ Organization	Title	First Name	Last Name	Position	Address 1	Address 2	City	Prov.	Postal Code	Email	Telephone	Fax	Contact Instructions	NOCm Follow Up Phone Call	Comments Received	Response Given
Aamjiwnaang First Nation	Chief	Joanne	Rogers	Chief	Aamjiwnaang Administration Office	978 Tashmoo Avenue	Sarnia	ON	N7T 7H5	jrogers@aamjiwnaang.ca; Aamjiwnaang.chief@gmail.com	**DO NOT CALL** 519-336-8410	519-336-0382	**DO NOT CALL** - See consultation protocol at: http://www.aamjiwnaangenvironment.ca/PDFs/AAMJIWNAANG%20CONSULTATION%20PROCESS.pdf **MAIL**			
Alderville First Nation		Jesse	Johnson	Consultation Coordinator	11696 2nd Line Road	P.O. Box 46	Roseneath	ON	K0K 2X0	jesse.johnson@alderville.ca			**EMAIL**preferred		181116_Email from Joanne Smoke, Pls correspond with new Consult. Coord., Jesse Johnson who has taken over for Skye Anderson. Previously mentioned, Alderville FN, although part of the Williams Treaty area, is quite a distance geographically from your site, so Alderville is confident that the local FN (Rama, Georgina or Beausoleil) with provide their input. By all means, continue to keep Alderville in the loop.	
Alderville First Nation	Ms.	Joanne	Smoke	Lands and Resources Liaison Chief Admin. Officer	11696 2nd Line Road	P.O. Box 46	Roseneath	ON	K0K 2X0	jsmoke@alderville.ca	905-352-2929		**EMAIL**preferred	180913_Phone Call Left 2nd msg on personal vm for Joanne Smoke, will try again September 17. 180912_Phone call Left Msg on personal vm for Joanne Smoke, will call back September 13/17.		
Aundeck-Omni-Kaning	Chief	Patsy	Corbiere	Chief			Little Current	ON		corbierep@aokfn.com	705-368-2228		**EMAIL**preferred	180912_Phone Call Left written msg for Chief Patsy Corbiere with Logan, Chief is best person to contact but in mtgs all this week, Burnside to call back end of week of September 21.		
Beausoleil First Nation	First Nation Administrator	A. Dan	Monague	First Nation Administrator	11 O'Gemaa Miikaan Street		Christian Island	ON	L9M 0A9	info@chimnissing.ca	705-247-2051	705-247-2239	**EMAIL** preferred.	180913_Phone Call Left vm msg via automated attendant (spell out last name press #1) on Dan Monague's personal vm. 180912_Phone Call Left written msg for Dan Monague with Melissa, currently in a meeting.		
Chippewas of Georgina Island	Ms.	Janice	Taylor	Band Manager	R.R #2	P.O. Box N13	Sutton West	ON	L0E 1R0	NA	705-437-1337	705-437-4597	**MAIL**	18/09/13 180912_Phone Call Spoke to Janice Taylor, no capacity to currently review study & make comment but requested to still send info. as reference in case there is future interest. Note: currently not supporting reclamation centres where septic is pumped into Lake Simcoe.		
Chippewas of Georgina Island	Chief	Donna	Big Canoe	Chief	R.R #2	P.O. Box N13	Sutton West	ON	L0E 1R0	NA	705-437-1337	705-437-4597	**MAIL**			
Chippewas of Kettle and Stony Point First Nation	Ms.	Valerie	George	Consultation Coordinator	Kettle and Stony Point FN, 6247 Indian Lane	RR#2	Forest	ON	N0N 1J1	valerie.george@kettlepoint.org	519-786-2125	519-786-2108	**EMAIL** preferred	180912_Phone Call Spoke to Valerie George, was not aware of, did not receive letter; would prefer email correspondence for this project & future (easier to manage/file).		
Chippewas of Mnjikaning First Nation (Rama)		Sharday	James		5884 Rama Road	Suite 200	Rama	ON	L0K 1T0		Toll-free: 866-854-2121 705-325-3611	705-325-0879	**MAIL**	180913_Phone Call Automated attendant (dialed last name), put through to Holly Nolland vm, 2nd msg. 180912_Phone Call Put through to Chief Rodney, received & left msg on Holly Nolland vm, need to call back.	190401_Email from S. James no comments at this time, but we wish to be updated as the project continues. Would appreciate a digital copy of EA upon completion at which time we will make comments if anything is of concern. Pls continue to contact us in the future of any projects that may impact our traditional territories. 181122_Email from S. James regarding Notice EA, pls send copy on completion. 181119_Email from Hollie Nolan, contact has changed from Chief Rodney Noganosh to Sharday James; future correspondence to be sent to Sharday's attention.	190401_Email from DDF, Thanks for interest in EA; contact info. will remain on our project contact list to receive future notices about this project, and digital copy of EA report upon completion. 181123_Email from M. Koehler, will send.
Chippewas of Mnjikaning First Nation (Rama)		Rodney	Noganosh	5884 Rama Road	Suite 200	Rama	ON	L0K 1T0		Toll-free:1-866-854-2121; (705) 325-3611	(705) 325-0879		**MAIL**			
Chippewas of Nawash First Nation	Chief	Greg	Nadjiwon	Chief	c/o Band Office	135 Lakeshore Blvd.	Neyaashiinigmling	ON	N0H 2T0	chiefsdesk@nawash.ca	519-534-1689 Admin Office		**EMAIL** preferred	180913_Phone Call Put through to personal vm via Allison, out of the office, left 2nd msg. 180912_Phone Call Put through to personall vm, out of the office until tomorrow, call back.		

Agency/ Organization	Title	First Name	Last Name	Position	Address 1	Address 2	City	Prov.	Postal Code	Email	Telephone	Fax	Contact Instructions	NOCm Follow Up Phone Call	Comments Received	Response Given
Chippewas of the Thames First Nation	Chief	Henry	Myeengun	Chief						myeengun@cottfn.com	519-289-5555	519-289-2230	**EMAIL & MAIL**	9/12/2018_Phone Call Away until September 17.		
Chippewas of the Thames First Nation		Fallon	Burch	Consultation Coordinator						fburch@cottfn.com			**EMAIL & MAIL**		190411_Email attach LTR response, we have no concerns & prefer to be removed from the mailing list & not receive further notices, however if there are substantive changes pls inform.	190416_Email from DDF Thanks for LTR, we will remove your contact info. for future notices, as requested.
Chippewas of the Thames First Nation	Ms.	Rochelle	Smith	Consultation Coordinator						rsmith@cottfn.com	519-289-5555 x252		**EMAIL & MAIL**	180913_Phone Call Put through to Rochelle, left msg, will call again Sept 17, confirmed receipt of "Minimal Concern", continue to send correspondence. 180912_Rochelle called back (Staff was on a call), then returned her call Sept 13. 180912_Phone Call Put through to Rochelle Smith, left vm on direct line, call back.		
Chippewas of the Thames First Nation	Chief	Henry	Myeengun	Chief	320 Chippewa Road		Muncey	ON	N0L 1Y0				**EMAIL & MAIL**			
Chippewas of the Thames First Nation	Ms.	Rochelle	Smith (interim)	Consultation Coordinator	320 Chippewa Road		Muncey	ON	N0L 1Y0				**EMAIL & MAIL**			
Curve Lake First Nation	Ms.	Kaitlin	Hill	Engagement & Consultation Coordinator (A)	22 Winookeedaa Road		Curve Lake	ON	K0L 1R0	KaitlinH@curvelake.ca	705-657-8045 ext. 239	705-657-8708	**EMAIL** preferred	180913_Phone Call Put through to Kaitlin, "out of the office" on vm, left msg on personal vm, 2nd msg. 180912_Phone Call Put through to Kaitlin, "out of the office" on vm, left msg on personal vm, call back.		
Hiawatha First Nation	Mr.	Tom	Cowie	Land/Resources Community Consultation	123 Paudash Street	R.R.#2	Keene	ON	K0L 2G0	tcowie@hiawathafn.ca; cc: choward@hiawathafn.ca; cc: info@hiawathafn.ca	705-295-4421		**EMAIL** preferred	180913_Phone Call Put through to Tom Cowie, "cannot come to phone" on vm, left msg on personal vm, 2nd msg. 180912_Phone Call Put through to Tom Cowie, "cannot come to phone" on vm, left msg on personal vm, call back.		
M'Chigeen First Nation	Chief	Linda	Debassige	Chief	53 Why 511	Box 333	M'Chigeeng	ON	P0P 1G0	NA	705-377-5362	705-377-4980	**MAIL**	180912_Phone Call Not in the office until late Thursday, call Monday September 17, 2018.		
Métis Nation of Ontario	Consultation Assessment Coordinator	Jesse	Fieldwebster	Consultation Assessment Coordinator	255 Cranston Crescent	P.O. Box 4	Midland	ON	L4R 4K6	consultations@metisnation.org	705-526-6335 ext. 220	705-526-7537	**EMAIL**preferred	180913_Phone Call returned, Jesse Fieldwebster confirmed no concerns & to continue correspondence. 180912_Phone Call left msg on personal vm.		
Mississaugas of the Credit First Nation	Chief	R. Stacey	LaForme	Chief	2789 Mississauga Road	RR #6	Hagersville	ON	N0A 1H0		905-768-1133	519-768-1225		EMAIL Consultation Manager, per Chief's direction, see row below.		
Mississaugas of Credit First Nation		Fawn	Sault	Consultation Manager	2789 Mississauga Road	RR #6	Hagersville	ON	N0A 1H0	fawn.sault@mncfn.ca	905-768-4260 x 102		**EMAIL** preferred	180912_Phone Call Spoke to Fawn Sault, Innisfil is out of their territory, no further correspondence required.		
Mississaugas of Scugog Island First Nation	Chief	Kelly	LaRocca	Chief	22521 Island Road	R.R. #5	Port Perry	ON	L9L 1B6		905-985-3337 x223	905-985-8828	**EMAIL** preferred.	180913_Phone Call Spoke to assistant to Chief (Kathy Richards) and passing msg along to Chief Kelly LaRocca (returned from conference today), call back end of week September 21 if no response. 180912_Phone Call Directed to assistant to Chief (Kathy Ricchards), need to call back Thursday Sept 13 or Monday September 17 2018.		

Agency/ Organization	Title	First Name	Last Name	Position	Address 1	Address 2	City	Prov.	Postal Code	Email	Telephone	Fax	Contact Instructions	NOCm Follow Up Phone Call	Comments Received	Response Given
Mississaugas of Scugog Island First Nation	Mr.	Dave	Mowat	Community Consultation Specialist	22521 Island Road		Port Perry	ON	L9L 1B6	dmowat@scugogfirstnation.co	905-985-3337 ext. 263		**EMAIL** preferred.	180912_Phone Call Spoke to Dave Mowat and he ackowledged Town of Innisfil would be deferred to Treaty #18 Georgina Island- will check emails and would respond directly to email if necessary.	180924_Email from Dave Mowat, Scogog will not require further notification for this particular project. 180919_Email from Dave Mowat, the area lies within Treaty #18 (Chippewas), Scogog have no comment or concern at this time.	180924_Email from DDF, Thanks, for response, comments will become part of public record for project. Based on comments below, kindly confirm if Scogog would like to continue to receive notices. If not, Scogog will be removed from contact list.
Mohawks Council of Akwesasne	Ms.	Karla	Ransom	Executive Assistant	PO Box 90		Akwesasne	QC	H0M 1A0	Karla.Ransom@akwesasne.com	613-575-2250		**EMAIL** preferred, bounces back, pls mail	180913_Phone Call Forwarded to Karla Ransom, left written msg with person in department; Noreen called back on behalf of Karla and noted receipt of NOC - have already forwarded to Grand Chief and Council and Noreen will follow up again; continue to send info. 180912_Phone Call Alternate temporary # given due to phones acting up: 613-936-1548 (was not successful) - call again.		
Mohawks of the Bay of Quinte	Chief Chief Assistant	Charles	Maracle		24 Meadow Drive		Deseronto	ON	K0K 1X0	rdonm@mbq-tmt.org; cc. charlesm@mbq-tmt.org	613-396-3424 ext. 106	613-396-3627	**EMAIL** preferred		190506_Email from Charlotte Gurnsey official response letter attached "would be concerned if the preliminary archaelogoical investigations found burial remains …traditional process must be followed for repatriation and re-interment of remains".	
													EMAIL preferred			
Mohawks of the Bay of Quinte	Ms.	Nicole	Storms	Environmental Services Officer						nicoles@mbq-tmt.org	613-396-3424 ext. 125		**EMAIL** preferred		191001_Email Vacancy altert- emails to research to be forwarded to Lisa Maracle, Director of Community Services. 180808_Nicole Storms, Ack. invite to participate. MBQ has limited resources & capacity, however would be concerned if the preliminary archaeological investigations found artifacts or burial remains. There is a traditional process that must be followed for the repatriation or re-interment of remains. Pls forward Archaeological Assessments to Amy Brant at research@mbq-tmt.org The MBQ expect Project be implemented in an environmentally sensible manner, consistent with laws & regulations. Appreciate efforts in determine proper use of lands of interest to community, the prevention or mitigation of anticipated & nonanticipated effects of proposed Project, & efforts to ensure maximum benefit to our community & generations to come.	191001_Email from DDF forwarded Stage 2 email to Lisa Maracle. 191001_Email from DDF to Amy Brant, per request attached the Stage 2 AA report. 181204_Email from DDF to Amy Brant, As per request, attach Stage 1 Rpt. 181108_Email from DDF, Thanks for email comments of 180808, following NOC, 7th Line EA, comments are appreciated & will become part of the public record for Prj. Completed Stage 1 Arch. Assess. concluded that parts of the study area exhibit arch potential & recommended a Stage 2 Arch. Assess. of those lands be completed, if impacted. A Stage 2 Arch. Assess.is planned for later stages of Prj., following selection of preferred alternative & evaluation of potential impact of design alternatives A copy Stage 1 report will be forwarded to Amy Brant via email. Innisfil has arranged a POH to describe proposed alternative solutions, encourage, gather & respond to public comments, identify next steps in the process. Following completion of the POH, & in consideration of comments received, the preferred solution will be identified and design alternatives will be evaluated.
Saugeen First Nation	Chief	Lester	Anoquot	Chief	6493 Highway 21	R.R #1	Southampton	ON	N0H 2L0	lester.anoquot@saugeen.org; cc: band.admin@saugeen.org	519-797-2781	519-797-2978	**EMAIL** preferred address to Chief & cc.Band Admin. (Cheree Urscheler)	180912_Phone Call Doran Ritchie would have forwarded instructions, reconstructive meeting last Tuesday (possible changes - nothing confirmed yet) - Chief is off & Council away on travel, pushed back for business, continue to send info. to Chief and cc band.		
Saugeen Ojibway Nation (SON)	Mr.	Doran	Ritchie	Land Use Planning	25 Maadookii Subdivision		Neyaashiinigmiing	ON	N0H 2T0	d.ritchie@saugeenojibwaynation.ca;	519-534-5507		**EMAIL** preferred.	180913_Phone Call Spoke to Michael Johnson, confirmed Doran will be in next week & to call back. 180912_Phone Call Doran Ritchie will be back in the office tomorrow, & to call back then.	180807_Email (jkeeshig@saugeenojibwaynation.ca) failed; bu other email has not been returned.	
Sheguiandah	Chief	Andrew	Aguonie	Chief	142 Ogemah Miikan		Sheguiandah	ON	P0P1W0	NA	705-368-2781	705-368-3697	**MAIL**	180913_Phone Call Left written msg with Jessica for Chief Aguonie. 180912_Phonce Call Not in the office - call back tomorrow mid-day.		
Six Nations of the Grand River	Ms.	Dawn	LaForme	Consultation Admin Assistant	2498 Chiefwood Road	P.O. Box 5000	Ohswegan	ON	N0A 1M0	dlaforme@sixnations.ca	519-445-2201 band office - ask for Land Resources Department	LandS and Resources department 519-753-0665 x5431	**EMAIL** preferred	180912_Phone Call Confirmed receipt of email, will flag & forward to Joanne (not in office every day), continue to send info. will get back if any concerns.		

Agency/ Organization	Title	First Name	Last Name	Position	Address 1	Address 2	City	Prov.	Postal Code	Email	Telephone	Fax	Contact Instructions	NOCm Follow Up Phone Call	Comments Received	Response Given
Six Nations of the Grand River	Ms.	Joanne	Thomas	Consultation Supervisor	2498 Chiefwood Road	P.O. Box 5000	Ohswegan	ON	N0A 1M0	jthomas@sixnations.ca	519-445-2201		**EMAIL** preferred	180912_ see note above with Dawn LaForme.		
Walpole Island First Nation (Bkejwanong Territory)	Mr.	Dean	Jacobs	Consultation Manager	Bkejwanong Territory, 117 Tahgahoning Road	RR#3	Wallaceburg	ON	N8A 4K9	dean.jacobs@wifn.org	519-627-1481 band office 519-627-1475 x101 direct line Dean Jacobs	519-627-0440	**EMAIL** preferred	180913_Phone Call Self directed to Dean Jacobs email "can't come to the phone right now" follow up end of next week September 21. 180912_Phone Call Left msg on personal vm, will call back tomorrow or Monday.		
Wikwemikong	Duke	Peltier	Chief		19A Complex Drive		Wikwemikong	ON	P0P 2J0	inquiries@wikwemikong.ca	705-859-3122	705-859-3851	**EMAIL** preferred.	180913_Phone Call Left vm msg with reception (#401) - call back by end of next week Sept 21, 2018. 180912_Phone Call Left msg on personal vm - will call back tomorrow or Monday.		
Wikwemikong		Jacko	Exex. Assis. To Chief & Council		19A Complex Drive		Wikwemikong	ON	P0P 2J0	mjacko@wiky.net	705-859-3122 x255	705-859-3851	**EMAIL** preferred.	180913_Phone Call Left msg on person vm of M.Jacko-requested confirmation of email addresses in addition to confirmation etc. 180912_Phone Call Assistant gone for the day - call back tomorrow or Monday.		
Williams Treaty First Nation	Ms.	Karry	Sandy-Mackenzie	Claims Coordinator	8 Creswick Court		Barrie	ON	L4M 2S7	inquiries@williamstreatiesfirstnations.ca k.a.sandy-mckenzie@rogers.com	705-792-5087		**EMAIL** preferred	180913_Phone Call Left msg on presonal vm - call back end of next week Sept. 21, 2018. 180912_Phone Call Left msg on personal vm - will call back tomorrow or Monday.		
Zhiibaahaasing First Nation	Chief	Irene	Sagon Kells	Chief	P.O. Box 1 36 Sagon Rd.		Zhiibaahaasing	ON	P0P 1X0	zhiiband@manitoulin.net	705-283-3963	705-283-3964	**EMAIL** preferred	180912_Phone Call Chief Irene is away all week - call back Monday.		

Notice of Study Commencement

Municipal Class Environmental Assessment

7th Line (West) Improvements from Yonge Street to 10th Side Road

The Study

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town is initiating a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. The site location and approximate extent of the Study Area are shown on the map.



Alternative solutions being considered for improvements include:

1) **Do Nothing**
2) **Permanently Close the Road**
3) **One-Way Road**
4) **Widen the Road**
5) **Cul-de-sac Road**

or a combination of alternatives.

The Process

The Study will follow Schedule C of the *Municipal Class Environmental Assessment* (Municipal Engineers Association, October 2000, as amended in 2007, 2011, & 2015) process, which is an approved process under the *Ontario Environmental Assessment Act*. The study will evaluate alternative solutions with consideration for the natural, cultural, technical and economic environment, and recommend a preferred solution in consultation with the public, Indigenous communities and agencies. At the conclusion of the study, the process will be documented in an Environmental Study Report (ESR), prepared for public review.

Input Invited

Consultation is important to this study. The Town would like to ensure that anyone interested in this study has the opportunity to provide input into the planning and design of the project. The Town is inviting public input on local experience with road conditions in the study area and the alternative solutions being considered. Information about this project can be found at getinvolvedinnisfil.ca/7thline.The web site will be updated with project information as it becomes available throughout the study. To provide comment or to request additional information concerning this Study or if you would like to be added to the Project Contact List to receive future project notices, please email 7thLineEAWestofYonge@rjburnside.com or contact either of the following Project Team members:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3226
mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Coordinator
R. J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005.*

Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

This Notice Advertised on August 9th and August 16th, 2018

Have your say by visiting getinvolvedinnisfil.ca/7thline

NOTICE OF STUDY COMPLETION
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7th Line (West) Improvements from Yonge Street to 10th Side Road

The Study

The Town of Innisfil (Town) has completed a Municipal Class Environmental Assessment (MCEA) to consider options for improvements to the 7th Line from Yonge Street to 10th Side Road to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. The preferred solution is to widen the road (to minimum standards) with paved shoulders and reconstruction of the road surface. The approximate extent of the Study Area is shown on the map.



The Process

The Study followed Schedule C of the Municipal Class Environmental Assessment process described in the Municipal Engineers Association guide (October 2000, as amended in 2007, 2011, & 2015), which is an approved process under the *Ontario Environmental Assessment Act*. The Study evaluated alternative solutions with consideration for the natural, cultural, technical and economic environment and included consultation with the public, stakeholders, Indigenous communities and agencies. A Notice of Study Commencement inviting public input was published on August 9 and 16, 2018. Two Public Open Houses (POH) were held on November 27, 2018 and April 8, 2019.

Environmental Study Report

An Environmental Study Report (ESR) has been prepared to document the planning and decision-making process for this Study. By this notice, the ESR will be placed on the public record for a 30-day review period starting October 10, 2019 and ending November 11, 2019 in accordance with the requirements of the MCEA process. An electronic copy of the ESR is available for viewing getinvolvedinnisfil.ca/7thline and hard copies are available at the following location(s):

Town of Innisfil, Town Hall
2101 Innisfil Beach Road
Innisfil, ON L9S 1A1
[Mon-Fri: 8:30 am – 4:30 pm]
T 705-436-3710

Innisfil ideaLAB and Library, Churchill Branch
2282 4th Line
Innisfil, ON, L0L 1K0
Tues-Thurs: 3:00 pm – 7:00 pm, Sat.: 10:00am – 3:00pm
T 705-431-7410

Please provide your written comments on the ESR by contacting either of the following Project Team members (contact details below) by November 11, 2019.

Meredith Goodwin, C.E.T.
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3220
mgoodwin@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Lead
R. J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

If concerns arise regarding this Study which cannot be resolved through discussion with the Town, the person or party with the concern may submit a written request to the Minister of the Environment, Conservation and Parks to make an order for the Study to comply with Part II of the *Environmental Assessment Act* (referred to as a Part II Order), which addresses Individual Environmental Assessments. Part II Order Requests must be submitted using a standard form available on the Provincial Forms Repository website (http://www.forms.ssb.gov.on.ca/). The form can be found by searching either "Part II Order" or "012-2206E" (the form ID number) on the Repository's main page. The completed form for Part II Order Request must be received by the Minister (addresses are provided on the bottom of the form) by 4:30 p.m. on November 11, 2019. A copy of the completed form for Part II Order Request should also be sent the Director, Environmental Approvals Branch and to the Town of Innisfil Project Team by this time and date. If no request is received by November 11, 2019, the Town intends to proceed with detailed design and construction as outlined in the ESR subject to Provincial agency approval and Municipal priorities and budgets.

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005.*
Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.
This Notice first advertised on October 10, 2019.

Innisfil

2101 Innisfil Beach Road
Innisfil, Ontario L9S 1A1
705.436.3710
Office Hours:
Monday to Friday
8:30am to 4:30pm

Community Bulletin

Follow us on
@townofinnisfil
Like us on
Town of Innisfil

AUGUST 09, 2018

Upcoming Council Meetings

Wednesday, September 05, 2018
- 7:00 p.m. - Council Meeting - Town Hall Council Chambers

Upcoming Board/Committee Meetings

Innisfil Community Health Committee
August 14, 2018 at 1 p.m., Innisfil Town Hall, Community Room
South Simcoe Police Services Board Meeting
August 27, 2018 at 7 p.m., Innisfil Town Hall, Community Room
Meetings subject to change. Please visit the Town's website to view the most updated listing.

Employment Opportunities

- Senior Engineering Technologist - Development Focus (closes August 13, 2018)
- Building Manager (closes August 16, 2018)
- Rink Helper (part-time, seasonal student position) (closes August 15, 2018)

For more information please visit the employee opportunities section at www.innisfil.ca

innservices

WATER RESTRICTIONS IN PLACE - AUGUST 9, 2018

InnServices is planning a service interruption for the Town of Innisfil to perform system upgrades. To ensure there is an ample supply of water for everyone to use, a Stage 2 Outdoor Water Use Ban will be in place:

From Thursday, August 9, 2018 at 5 a.m. To Friday, August 10, 2018 at 1 a.m.

Innisfil

Rules Under the Ban

Use of municipal water for watering lawns and gardens, or washing vehicles, sidewalks, patios, decks, windows, or driveways is not permitted. We are asking all residents of Innisfil to consciously conserve water on this day. If everyone pitches in and helps, chances are you won't even notice any disruption!

FAQs

Will I have water on August 9th?
InnServices is filling all water reservoirs prior to the interruption on August 9th. If everyone consciously conserves water this day, chances are you won't notice any disruption.

Does this affect me if I am on well water?
No. This service interruption only affects residents who use Town water services.

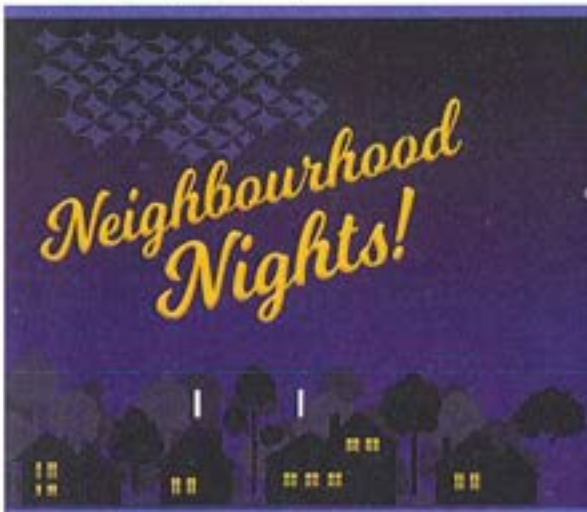
How long will service be interrupted?
Service will be interrupted for approximately 20 hours.

Why is this service interruption necessary?
The Innisfil Lakeshore Water Treatment Plant is being expanded to accommodate the current and future needs of the residents and businesses in the Town of Innisfil.

What if there is a fire?
Essential services such as Fire & Rescue Services will not be affected. InnServices has worked closely with Fire & Rescue to ensure there is enough water available in case of emergency.

What else can I do to help conserve water?
- Take a short shower instead of a full bath.
- Fill a basin or pan with water to wash fruits and vegetables.
- Turn the tap water off while brushing your teeth, shaving, or washing your face.
- Skip laundry today and do it tomorrow when you have a full load.

Are there any exceptions to the Water Use Ban?
- The Town of Innisfil has discretion to decide when water can be used.
- For other restrictions please consult the by-law.



Come out and get to know your neighbours!

Enjoy an array of games and activities for all ages, all in the comfort of your own neighbourhood.

August 15, 6:30-8pm
Corner of Shore Acres Drive & Neilly Road (Parking Lot), Gilford

August 22, 6:30-8pm
Dempster Park, Stroud

September 12, 6:30-8pm
Nantyr Shores Secondary School, Alcona

Innisfil

Notice of Study Commencement

Municipal Class Environmental Assessment
7th Line (West) Improvements from Yonge Street to 10th Side Road

Innisfil

BURNSIDE

The Study

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town is initiating a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. The site location and approximate extent of the Study Area are shown on the map.



Alternative solutions being considered for improvements include:

1) Do Nothing
2) Permanently Close the Road
3) One-Way Road
4) Widen the Road
5) Cul-de-sac Road
or a combination of alternatives.

The Process

The Study will follow Schedule C of the *Municipal Class Environmental Assessment* (Municipal Engineers Association, October 2000, as amended in 2007, 2011, & 2015) process, which is an approved process under the *Ontario Environmental Assessment Act*. The study will evaluate alternative solutions with consideration for the natural, cultural, technical and economic environment, and recommend a preferred solution in consultation with the public, Indigenous communities and agencies. At the conclusion of the study, the process will be documented in an Environmental Study Report (ESR), prepared for public review.

Input Invited

Consultation is important to this study. The Town would like to ensure that anyone interested in this study has the opportunity to provide input into the planning and design of the project. The Town is inviting public input on local experience with road conditions in the study area and the alternative solutions being considered. Information about this project can be found at getinvolvedinnisfil.ca/7thline. The web site will be updated with project information as it becomes available throughout the study. To provide comment or to request additional information concerning this Study or if you would like to be added to the Project Contact List to receive future project notices, please email 7thLineEAWestofYonge@rjburnside.com or contact either of the following Project Team members:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3226
mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Coordinator
R. J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005*.

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This Notice Advertised on August 9th and August 16th, 2018

Have your say by visiting getinvolvedinnisfil.ca/7thline

R.J. Burnside & Associates Limited 128 Wellington Street Suite 301 Barrie ON L4N 8J6 CANADA
telephone (705) 797-2047 **fax** (705) 797-2037 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

June 1, 2018

Via: hand delivery

Dear Resident:

Re: Notice of Project
7th Line (West) Municipal Class Environmental Assessment
from 10th Side Road to Yonge Street

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town is initiating a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road.

The Town has retained R.J. Burnside & Associates Limited (Burnside) to complete the Municipal Class EA following the process described in the Municipal Engineers Association Guide for Municipal Class EAs (October 2000, as amended in 2007, 2011 and 2015).

Over the next couple of months, consultant field staff will be conducting environmental studies, geotechnical investigations, and topographic surveys along 7th Line, from 10th Sideroad to Yonge Street to assess the existing condition of the corridor in support of the Municipal Class EA. During this time, you may notice people taking measurements and photographs, surveyors, drilling rigs, and paint markings indicating the location of underground utilities.

The Town would like to ensure that anyone interested in this study can get involved and provide input on the project. A public Notice of Commencement for the Municipal Class EA will be published in the coming weeks to invite the public to comment on the project. Additional opportunities to comment will be provided throughout the EA process, including during a Public Open House planned for later stages of the Municipal Class EA.

As a resident of the 7th Line, the Town would like to hear from you about your issues, concerns or comments. Enclosed is a questionnaire designed to provide you with the opportunity to provide your feedback. Your comments will be incorporated into the planning of the project and the development of options for improvement.

Please return the completed form to one of the project team members identified on the questionnaire, or email your responses to 7thLineEAWestofYonge@rjburnside.com.

If you have any questions, please contact Magdalena Koehler, C.E.T., CAPM, Capital Project Manager for the Town of Innisfil via e-mail at mkoehler@innisfil.ca or by telephone at 705-436-3740 Extension 3226.

Your participation in the Municipal Class EA process is appreciated.

Yours truly,

R.J. Burnside & Associates Limited



Deanna De Forest, B.Sc. EP
Senior Environmental Assessment Coordinator

DDF

Enclosure(s) Project Response Form

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

Project Response Form

7th Line (West) Municipal Class Environmental Assessment Study
From 10th Side Road to Yonge Street

We are interested in knowing your thoughts about this project and your answers to the following questions:

a) What are the issues you feel must be addressed as part of this project?

b) What do you feel would be the best solution for the greatest improvement?

General Comments/Questions/Suggestions:

Please check all that apply:

- ☐ I/We have no comments to provide and wish to be removed from the project contact list.
- ☐ I/We wish to be kept informed about the project progress and would like to remain on the project contact list to receive future notices about the project.
- ☐ I/We would be interested in meeting with the project team during later stages of the project to discuss details of the options for improvements.

(Please Print)

Name: _____ Date:_____

Address: _____

_____

Phone No.: _____

Email: _____

Prefer to be contacted by: Email ☐ Mail ☐ Phone ☐

Request personal contact information to remain confidential ☐

Please return this completed form to one of the project team members below, or email your responses to 7thLineEAWestofYonge@rjburnside.com

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil, ON L9S 1A1
Tel: 705-436-3740 Ext. 3226
E-Mail: mkoehler@innisfil.ca

Deanna De Forest. BSc. EP
Environmental Assessment Coordinator
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON
Tel: 705-797-4357]
E-Mail: deanna.deforest@rjburnside.com

Information will be collected and maintained to meet the requirements of the *Environmental Assessment Act* and for the purpose of creating a record that will be available to the general public as described in Section 37 of the *Freedom of Information and Protection of Privacy Act*. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

Sylvia Waters

From: Deanna De Forest
Sent: Wednesday, June 20, 2018 10:44 AM
To: Magdalena Koehler; John reid
Cc: Terry Reid; Drew Davidge
Subject: RE: 300042232 7th line road improvements- tree tags

Good morning,
I can confirm the trees are tagged as part of the tree inventory to identify and locate trees within the 7th Line right-of-way. For inventory purposes, only trees with a diameter of 10 cm or greater are tagged.

Regards,
Deanna De Forest

From: Magdalena Koehler [mailto:mkoehler@innisfil.ca]
Sent: Wednesday, June 20, 2018 9:15 AM
To: John reid <c.johnreid@gmail.com>; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Cc: Terry Reid <terrylreid@gmail.com>; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: RE: 7th line road improvements

Good morning John,
The section of 7th Line between 10 SR & Yonge St is currently undergoing Class Environmental Assessment (that was just initiated and the initial correspondence was recently sent to the residents).
There is various field investigations that are happening at this time: the tags may be for tree assessment/inventory. I'm copying our consultant to confirm the purpose of those tags.

Thank you,
Magda

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
705-436-3740 Ext. 3226
1-888-436-3710 (toll free)

From: John reid <c.johnreid@gmail.com>
Sent: June 15, 2018 5:32 PM
To: Magdalena Koehler <mkoehler@innisfil.ca>
Cc: Terry Reid <terrylreid@gmail.com>
Subject: 7th line road improvements

Good afternoon Magdalena - I have question regarding the 7th line assessment taking place. I was trimming our grass in front of our property (2482 7th Line) and noticed several trees with tags, they are just small round aluminium tags with a 4 digit # (0117, 0118, etc). Can you advise what the purpose of these tags are, they seem to be only on spruce and ash trees, some dead some living?
Thanks for your assistance, have a great week end.

John Reid
c.johnreid@gmail.com

Innisfil *Road Closure: 7th Line 10 Sideroad to Yonge St. – Resident Meeting*

Minutes

MEETING DATE: June 14, 2017 **TIME:** 5:30 pm

LOCATION: Ops Meeting room 2

Attendance: See sign in sheet.

Items:	Notes:
Introductions:	• Jason Inwood – Manager of Operations, Innisfil • Doug Lougheed – Council Member, Innisfil • Carolina Cautillo – Project Manager, Roads, Traffic and Transportation, Innisfil • Deana Deforest – EA Coordinator, RJ Burnside • Dan Cole – Operations Supervisor, Innisfil • Kristi Williams – Sr. Admin. Coordinator, Innisfil
Update on Current Plans:	*DSR-107-18 Safety Needs, 7th Line between Yonge St. and 10th Sideroad:* • Report will be on the website Friday June 15, 2018. • Report presented to Council – Wednesday June 20, 2018. *Environmental Assessment (EA):* • RJ Burnside to carry out environmental assessment (EA). • Notices sent for EA. • Initial investigations have started. • Aimed at identifying alternatives. • One year to complete EA. • We don't want to wait one year to address closure, due to current conditions. • Mandatory requirement to do EA before construction. • Notice of commencement in a few weeks. *Communication with Residents:* • Open houses will take place. • Letter and questionnaire handed out. • Looking for public feedback. • Input opportunities through EA process. • Feedback and results gets evaluated against alternative solutions to pick best option. • Questionnaire – comments would be appreciated. Keep eyes open for EA notice which will have options listed.

	• Dedicated website for this EA.
Discussion of Current Conditions:	*Shoulder Deterioration:* • Shoulder area doesn't exist in tunnel section. • Area along shoulders is settling and eroding. • Concern with vehicles passing. • Concern – how much can the road take along shoulder. • Deterioration in last month. • Trees and banks. • Safety concerns for users. *Action:* • Would like to do something before EA is complete. • Daily patrol on road for conditions.
Options for Mitigation:	*Hard Closure Option:* • Inconvenient to those living on roadway and hard to decide spot to close. • Narrow platform so turning around is hard. • Issues for student transportation, garbage, municipal law and winter operations is difficult due to size of trucks for turning around. • How to keep residents accessible to their homes over the winter without the equipment small enough to maintain. *One Way Designation:* • Keep people to safe portion of road. • Reduce through traffic. • Less inconvenient for residents living on road. • Decision to make – which direction to use. • For Operations – easiest to go from Yonge St. to 10 Sideroad. • All services for the road will be consulted i.e. waste, mail etc. • If we narrow road, drivers will slow down. *Action:* • Yonge St. and 10 Sideroad are County roads so we will be having discussions with them. • No intention to take down signage that is currently in place.
Questions & Answers & Comments:	*Soil Stabilization:* • Asked if we have looked into soil stabilization.

	Time Period for One Way: • Is one way road permanent solution? • No – until road is reconstructed and researched. • EA process is one year, preliminary design to detailed design then construction. • Design takes usually one year. • This temporary solution would probably be two years. • When would this be in place? • Once signs are installed after we get approval at Council. • Will provide communication to local residents. • Should be a few weeks for turnaround. • Will be shared with media partners. *Resident Input for One Way:* • Do residents have say in which direction we do one way? • We want to hear everyone's preference. • What is going to stop people from going either way? • If Council designates this a one way road, the police can enforce this rule and ticket drivers. • This would be law. • Preferred direction Yonge St. to 10 Sideroad. • Would leave the first 10 meters or so for people to enter the park facility before starting the one way. *Traffic Calming:* • Speed bumps were suggested. • Suggested County could put in traffic lights on Yonge St. • Option to put flashing light on 10 Sideroad. • Suggestion – stop light in the center. • Looked at that option last fall, with the tunnel near Yonge St. will back cars up. • Concern – areas where we need to narrow the road are separate from each other and driveways in between that would be trapped between signals. *Traffic Volume:* • Traffic flow was around 1,100 cars on 7th Line. • Will changing direction change that significantly? • Change it somewhat at least one time of day. • May cut traffic to a third of current volume. • Drivers are flying down the road. *6th Line:* • What will happen once the 6th Line is closed for work?

	• None of the 6th Line west of 20th Sideroad has work planned in the next five years. • Study for 6th Line to be a four lane road – will probably happen when bridge at Highway 400 becomes an interchange. *Widening of 7th Line:* • Heard the 7th Line will be widened? • It may be considered as an option after the EA is done. *Elevation to 7th Line:* • Elevation was added the last time they did work to the 7th Line, will it be taken away or added to? • EA will look at around four options. • Options evaluated through process and preferred solution. • Planning process. *Temporary Repairs:* • Can they add ground up asphalt until study done? • No, we need to look at stabilization issue. *Budget for Work:* • Money has been set aside in budget for this work. • Being proactive for this solution. • Will brief new Council on this priority. *Speeding Concerns:* • South Simcoe Police seems to not stop anyone. • Speed is a concern. • Jason to take speed concerns to the Chief of SSP. *Bull Rushes:* • Dead bull rushes blocking view, can they clean up? • Will be looked at. *Dumping Concern:* • Concern about dumping on the north side, near 2522 Yonge St. *Ditch Work:* • Is there anything going to be done with ditches? • Creek going east. • We did creek west on south side.

	• We can look at ditches but probably won't see anything for a year or two due to the amount of ditching planned throughout town. • Worried about gravity feed and no sump pump in house. *Berms:* • Who would we speak to about berms? • Site alteration by-law, on the website. • Customer Service will be able to find the right person for you. *8th Line Construction:* • When will construction happen on 8th Line? • Not sure, County has been doing prep work on intersections.

Adjourned: 6:35pm

R.J. Burnside & Associates Limited 128 Wellington Street West Suite 301 Barrie ON L4N 8J6 CANADA
telephone (705) 797-2047 **fax** (705) 797-2037 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Minutes of Meeting

Meeting Date:	Thursday, June 21, 2018 at 1:30 p.m. **Project No.:** 300042232
Project Name:	7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment
Meeting Subject:	Technical Advisory Committee (TAC) Meeting #1
Meeting Location:	Town of Innisfil, Operations Office Meeting Room 2, 7253 Yonge Street, Innisfil
Date Prepared:	June 29, 2018

Those in attendance were:

Carolina Cautillo	Town of Innisfil	ccautillo@innisfil.ca
Steven Montgomery	Town of Innisfil	smontgomery@innisfil.ca
Scott Mackenzie	Town of Innisfil	smakcenzie@innisfil.ca
Dan Cole	Town of Innisfil	dcole@innisfil.ca
Graham Findlay	Ministry of Natural Resources and Forestry (MNRF)	graham.findlay@ontario.ca
Taylor Stevenson	Lake Simcoe Region Conservation Authority (LSRCA)	t.stevenson@lsrca.on.ca
Christian Meile	County of Simcoe	christian.meile@simcoe.ca
Drew Davidge	R.J. Burnside & Associates Limited (Burnside)	drew.davidge@rjburnside.com
Deanna De Forest	R.J. Burnside & Associates Limited	deanna.deforest@rjburnside.com

Regrets were:

Magdalena Koehler	Town of Innisfil	mKoehler@innisfil.ca
Kevin Jacobs,	Town of Innisfil	kjacob@innisfil.ca
Tony Mendicino	InnServices Utilities Inc.	tonym@innpower.ca

The following items were discussed		**Action by**
1.0	**Purpose of the Project**	
1.1	The problem/opportunity statement was reviewed "The Town of Innisfil has identified the need for improvements to 7th Line between 10th Side Road and Yonge Street to address the road surface, road base and subgrade performance	

The following items were discussed		Action by
	deficiencies, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road." It was noted that the Town of Innisfil (Town) is completing a Schedule C Municipal Class Environmental Assessment (EA) to review solutions for improvements. The question was raised as to why this section of Line 7th was selected. It was noted that the road has been closed (local traffic only) do to deteriorating road conditions and safety issues with respect roadside safety (trees and steep embankments) which prompted this process. The purpose of the TAC Meeting #1 was reviewed, which was to: • Introduce the project to key stakeholders. • Review the problem/opportunity statement. • Seek input on the list of alternative solutions. • Request background information from stakeholders. • Confirm if any agencies have any future plans in this area.	
2.0	**Study Area**	
	An overview of the study area, key features and project considerations was provided. A copy of the presentation materials is enclosed.	
	• Study area includes the 7th Line from Yonge Street to 10th Side road right-of-way (ROW) plus 5 m. • Key natural features include the Provincially Significant Wetland (PSW), LSRCA regulated area, watercourse crossings, terrestrial and aquatic habitat, potential for Species at Risk (SAR). • Key technical considerations include erosion, encroachment of trees, drainage issues.	
3.0	**Background Information**	
	• Committee members provided information about the study area and key considerations: • LSRCA noted Ecological Land Classification, hydraulic modelling, fisheries and aquatic survey data may be available as shapefiles. Burnside to submit data request to Frank Pinto of LSRCA via Taylor Stevenson. • LSRCA provided hard copies of floodplain, meander belt and PSW mapping. Noted this information is also available on database.	Burnside

The following items were discussed		Action by
	• LSRCA noted the study area is within the Regulated Limit and therefore works would require a permit from the LSRCA. • LSRCA and MNRF noted there were no planned stewardship programs in the study area. • MNRF noted the PSW Evaluation can be made available. The specific request should be included in the written request for information made to the MNRF. • MNRF noted the potential for SAR in the area, including Blandings Turtle. • The County of Simcoe noted the Transportation Master Plan update included widening of Yonge Street the medium term (2031), this will be subject to an EA, which is not anticipated to commence for several years. Nothing was planned for the intersections at the limit of the study area. • The County of Simcoe will review if any intersection or turning movement data for Yonge Street and/or 10th Side Road and 7th Line is available. • Burnside noted that a traffic study will be completed as part of the EA.	Burnside County
4.0	**Review of Alternative Solutions**	
	Preliminary Alternative Solutions were reviewed for input: 1) Do Nothing; 2) Permanently Close the Road; 3) One-Way Road; 4) Widen the Road; or 5) Cul-de-sac road; or 6) Or a combination of alternatives: • LSRCA noted the works should ensure there is no increased flooding caused by raising or widening the road and ensure that erosion and sedimentation plans are in place. • LSRCA inquired if the alternatives would require raising the road that not much could be done without impacting floodplain within the wetland area. An effort should be made to maintain existing grades and keep road as close to the same footprint as possible. Modification to ditches may be an option. • Burnside noted that the narrowest parts of the road is outside the wetland. • The Town discussed the possibility of including a semi urban design of the road to limit the road footprint. LSRCA noticed a peak flow control would be required if curb and gutter/storm sewer	Burnside

<table>
<tr><th colspan="2">The following items were discussed</th><th>Action by</th></tr>
<tr><td></td><td>system is used. LSRCA inquired if road closure could occur where there are not houses. The Town indicated the existing washout areas are between houses and there is no turn around at the moment.</td><td></td></tr>
<tr><td></td><td>• The option of a cul-de-sac was discussed including the potential to provide trail or emergency access, but would be designed to stop vehicle through access.
• The Town explained the road will be converted temporarily to one-way to mitigate impacts while the EA process is completed. This was approved by council and it is anticipated to be implemented in July 2018.</td><td></td></tr>
<tr><td>3.0</td><td>Schedule</td><td></td></tr>
<tr><td></td><td>The objectives timing of future TAC meetings was reviewed. Participation in TAC meetings was discussed:</td><td></td></tr>
<tr><td></td><td>• MNRF expressed their interest in review of the technical studies.
• LSRCA noted interest in the technical studies and design alternatives. Noted that an LSRCA engineer may attend future TAC meetings.
• County to be kept informed of future TAC meetings and will attend TAC meetings as needed.</td><td></td></tr>
<tr><td></td><td>
<table>
<tr><th>TAC</th><th>Purpose</th><th>Proposed Date</th></tr>
<tr><td>TAC#1</td><td>Introduce the project, study area, background information, input into alternative solutions</td><td>June 21, 2018 (during Phase 1)</td></tr>
<tr><td>TAC#2</td><td>Review Studies</td><td>October 4, 2018 (during Phase 2)</td></tr>
<tr><td>TAC#3</td><td>Review preliminary preferred solution, review POH#1 materials, mitigation measures, possible design alternatives</td><td>November 15, 2018 (during Phase 2)</td></tr>
<tr><td>TAC#4</td><td>Summary evaluation of design solutions, review POH#2</td><td>February 21, 2019 (during Phase 3)</td></tr>
<tr><td>TAC#5</td><td>Review Environmental Study Report (ESR)</td><td>May 27, 2019 (during Phase 4)</td></tr>
</table>
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The following items were discussed		Action by
	updated as it may include additional area to the southwest. • TAC members may provide more input once the preliminary preferred is selected and details can be provided.	
2.**0**	**Overview of Potential Impacts of the Alternatives**	
2.1	A plan view illustration of the travel lane and road right-of-way (ROW) for each of the alternatives on an aerial photo of the study corridor was presented and reviewed. Key features and project considerations were identified based on the findings of the supporting studies. A copy of the presentation materials is enclosed.	
2.2	Study area includes the 7th Line from Yonge Street to 10th Side road ROW plus 5 m. Key natural features include the Provincially Significant Wetland (PSW), LSRCA regulated area, watercourse crossings, terrestrial and aquatic habitat, potential for Species at Risk (SAR). Key technical considerations include erosion, encroachment of trees, and drainage issues. Potential impacts of the alternative solutions include: • Continued washouts and traffic safety concerns. • Increased storm water run-off rates. • Siltation of adjacent aquatic features and vegetation communities. • Impact to fish and fish habitat due to culvert replacement and rehabilitation. • Tree Removal / Impact to Terrestrial habitat. • Impact to Species at Risk and potential habitat (Butternut, Monarch, SAR Bats, Turtles). • Altered travel route. • Archaeological potential and Cultural Heritage Landscape Feature. • Property acquisition.	
2.3	• The Town noted the “Tunnel of Trees” is not considered a heritage feature under the heritage act. It may be considered a local feature, but any designation would add prohibitive restrictions on the operation and maintenance of the road. • LSRCA noted impacts to wetland and woodland will require compensation. Impacts should include potential habitat fragmentation and connectivity. Details of compensation are determined on a case-by-case basis but may require 3:1 ratio for permanent loss of wetland and 2:1 ratio for permanent loss of woodland.	Burnside

<table>
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<tr><td></td><td>

LSRCA noted a preference for Alternative 5, Dead-end Road with a turn-around as it has the potential to limit traffic access through the PWS and provide improved habitat connectivity in the long term. However, it was noted that this alternative represents the greatest short-term impact to the PSW as a result of the additional land needed within the PSW to construct the turn-around. Other impacts to the PSW include some construction impacts as a result of culvert replacement.
The Town is to confirm its authority to restrict property access to undeveloped lots as a result of the dead-end.
It was noted that Alternative 2 (Close the Road to the Public) would be a challenge to enforce. Design solutions may include making the road a private road that could be gated or signed. As a private road, rules of trespassing could be enforced. It was noted Alternative 2 may have an impact on available municipal services. It was also noted the cost of maintenance may need to be borne by the residents if the road is private.
The Town is to assess the implications and feasibility of Alternative 2, to be included and noted in the PIC materials.
The County of Simcoe noted they had no real preference among the alternatives being considered.
LSRCA noted additional comments on the supporting studies would be provided by email.

</td><td>Town</td></tr>
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The option of a cul-de-sac was discussed including the potential to provide trail or emergency access, but it would be designed to stop vehicle through access.
The Town explained the road will be converted temporarily to one-way to mitigate impacts while the EA process is completed. This was approved by Council and it is anticipated to be implemented in July 2019.

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The following items were discussed				Action by
	TAC#3	Review preliminary preferred solution, review POH#1 materials, mitigation measures, possible design alternatives	*November 15, 2018 (during Phase 2)*	
	TAC#4	Summary evaluation of design solutions, review POH#2	*February 21, 2019 (during Phase 3)*	
	TAC#5	Review Environmental Study Report (ESR)	*May 27, 2019 (during Phase 4)*	
4.**0**	**TAC Meetings**			
	A save the date invitation to future TAC meetings will be emailed to attendees. Alterations and/or attendance will be confirmed via email two weeks in advance of the scheduled TAC meeting. TAC meetings will be documented with meeting minutes. **TAC Meeting #3 is scheduled for November 15, 2018.**			Burnside

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

R.J. Burnside & Associates Limited



Deanna De Forest, B.Sc., E.P.
Environmental Assessment Coordinator
DDF:jb

Enclosure(s): TAC#2 Presentation Material
Distribution: All Attendees

Cecil Gratrix	Burnside	cecil.gratrix@rjburnside.com
Graham Findlay	Ministry of Natural Resources and Forestry (MNRF)	graham.findlay@ontario.ca
Dan Cole	Town of Innisfil	dcole@innisfil.ca
Tony Mendicino	InnServices Utilities Inc.	tonym@innpower.ca

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BURNSIDE

7th Line Improvements
From Yonge Street to 10th Line
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
Technical Advisory Committee Meeting #2

Welcome





R.J. BURNSIDE & ASSOCIATES LIMITED

Purpose of Technical Advisory Committee #2

Comments/Questions
Your feedback on the draft reports

Overview of potential impacts of the Alternative Solutions

Criteria to be considered in the Evaluation of Alternatives

Supporting Studies

- Aquatic Habitat Assessment Report
- Noise Impact Assessment Report
- Socio-economic Assessment Report
- Stormwater Report
- Terrestrial Habitat Assessment Report
- Traffic Assessment Report
- Tree Assessment Report
- Cultural Heritage Resources Assessment Report
- Geotechnical Report
- Stage 1 Archaeological Assessment Report

Alternative Solutions

- Do Nothing
- Permanently Close the Road to the Public (local traffic only)
- One-Way Road
- Widen the Road
- Cul-de-sac road (Dead-End road with turn around)

Or a combination of alternatives

Alternative Solutions

Legend

EXISTING CONDITIONS
- Butternut Tree
- Observation of Eastern Wood Pewee
- Tree Line
- Lover's Creek Provincially Significant Wetland Complex
- Observed Watercourse Alignment
- Watercourse: Permanent
- Existing Property Line

PROPOPSED DESIGN
- Property Acquisition
- Culvert Removal
- Grading Limit
- Tree Clearing
- Road Extents and Centreline

- ELC Boundary

ELC DESCRIPTIONS
CGL_2 - Parkland
CVR_4 - Rural Residential
FOCM2-2 - Dry Fresh White Cedar Coniferous Forest
FODM5-7 - Dry Fresh Sugar Maple Black Cherry Deciduous Forest
FOMM5-2 - Dry Fresh Sugar Maple Hemlock Mixed Forest
MASM1-1 - Cattail Mineral Shallow Marsh
MASO1-1 - Cattail Organic Shallow Marsh
MEGM3 Dry-Fresh Graminoid Meadow
OAGM1 - Annual Row Crops
SWCM1 - White Cedar Mineral Coniferous Swamp
SWD - Deciduous Swamp
SWD2-2 - Green Ash Mineral Deciduous Swamp
SWDM4-3 White Birch Poplar Mineral Deciduous Swamp
SWT - Thicket Swamp
SWT3 - Organic Thicket Swamp
SWTM3-3 - Silender Willow Mineral Deciduous Thicket Swamp
SWTO3-1 - Speckled Alder Organic Deciduous Thicket Swamp
SWTO5 - Organic Deciduous Thicket Swamp
THDM2-11 - Hawthorn Deciduous Shrub Thicket

Do Nothing, Close the Road

Do Nothing
This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

Permanently Close the Road (local traffic only)

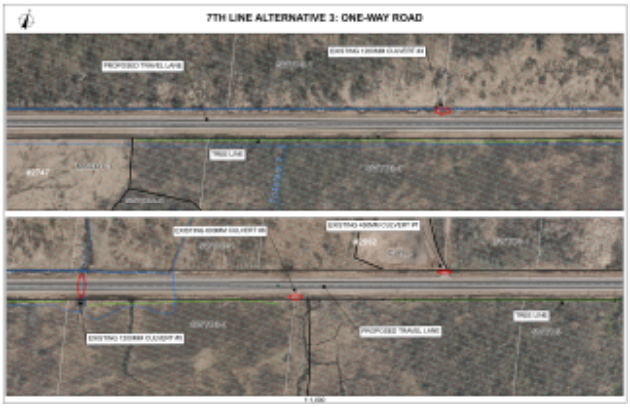
- Allow access to local traffic only, closing the road to non-local traffic.
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

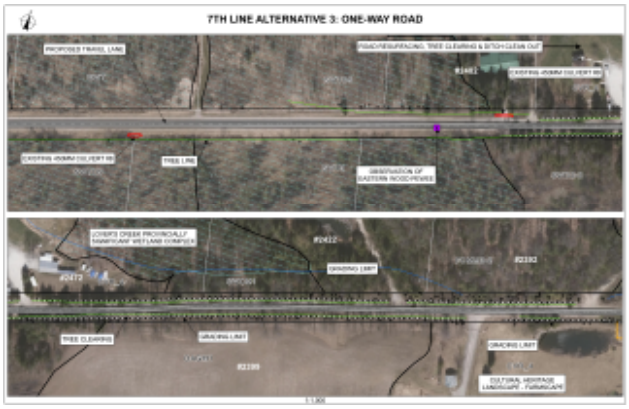


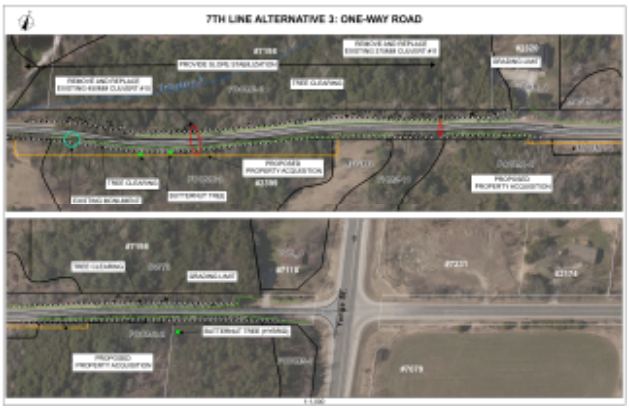
One-Way Road

- Operate as a one-way road fully open to the public.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road.
- Install appropriate signage/marking and public notices of the change.
- Perform regular maintenance as required.
- No property acquisitions (save road realignment).





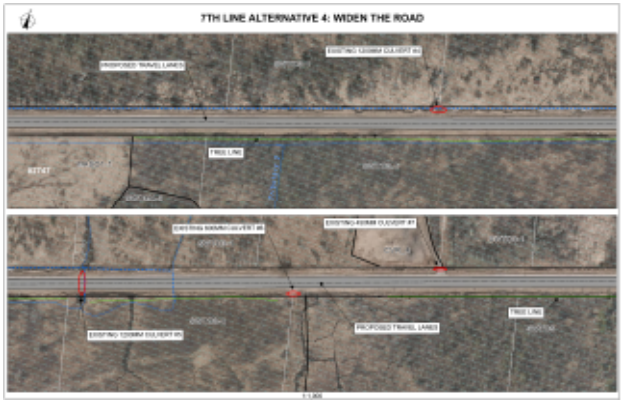


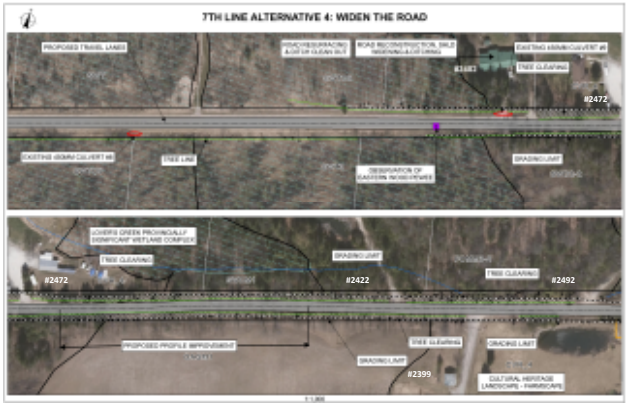


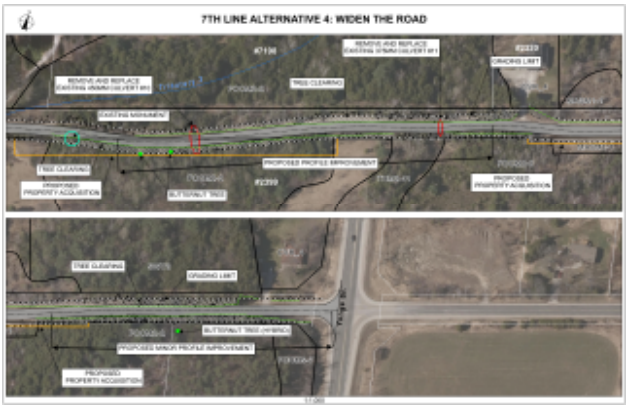
Widen the Road

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road, improve horizontal and vertical alignment.
- West end – widen shoulder (in some areas) and improve ditching.
- Tree clearing at east end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Some property acquisition may be required.







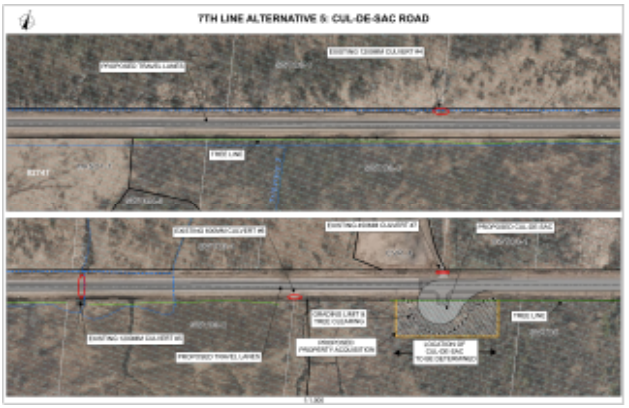


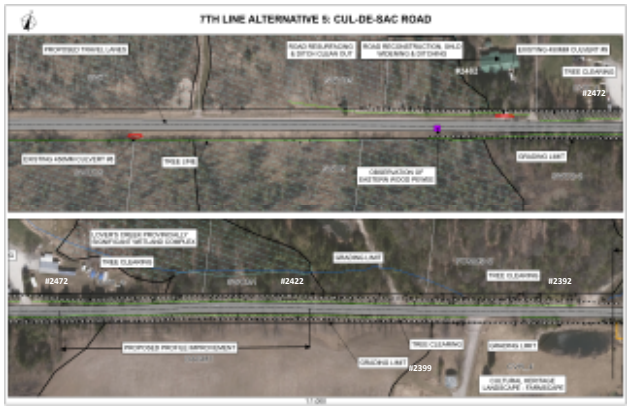
Road Closure with Cul-de-Sac

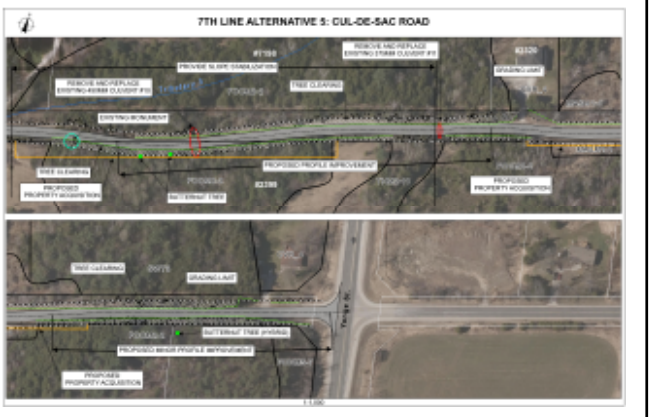
This alternative may include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required at the west end and to build cul–de–sac or hammer head turn arounds.
- Perform regular maintenance as required.









Discussion of Criteria to be considered in the Evaluation of Alternatives

Natural Environment- Provincially Significant Wetland, Tree removal, Species at Risk (Bats, Butternut, Aquatic habitat impact and alteration

Socio-Economic Environment - Memorial, drive time/route, property access, "tunnel of trees", property acquisition

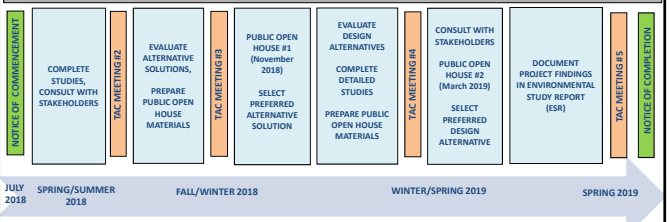
Technical Environment – Sight lines, safety

Economic Environment – Capital costs, operational cost, maintenance cost,



EA Project Timeline

Municipal Class EA 7th Line Improvements from 10th Line to Yonge Street



TAC	Purpose	Proposed Date
TAC#1	Introduce the project, study area, background information, input into alternative solutions	June 21, 2018 (during Phase 1)
TAC#2	Review Studies	October 4, 2018 (during Phase 2)
TAC#3	Review preliminary preferred solution, review POH#1 materials, mitigation measures, possible design alternatives	November 15, 2018 (during Phase 2)
TAC#4	Summary evaluation of design solutions, review POH#2	February 21, 2019 (during Phase 3)
TAC#5	Review Environmental Study Report (ESR)	May 27, 2019 (during Phase 4)

R.J. Burnside & Associates Limited 128 Wellington Street West Suite 301 Barrie ON L4N 8J6 CANADA
telephone (705) 797-2047 **fax** (705) 797-2037 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Minutes of Meeting

Meeting Date:	Thursday, November 15, 2018 at 1:30 p.m. **Project No.:** 300042232.0000
Project Name:	7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment
Meeting Subject:	Technical Advisory Committee (TAC) Meeting #3
Meeting Location:	Town of Innisfil, Operations Office Meeting Room 2 7253 Yonge Street, Innisfil, ON
Date Prepared:	February 15, 2019

Those in attendance were:

Carolina Cautillo	Town of Innisfil (Town)	ccautillo@innisfil.ca
Magdalena Koehler	Town of Innisfil	mkoehler@innisfil.ca
Steven Montgomery	Town of Innisfil	smontgomery@innisfil.ca
Kevin Jacobs	Town of Innisfil	kjacob@innisfil.ca
Derek Wantuch	Town of Innisfil	dwantuch@innisfil.ca
Denise Devenish	Town of Innisfil	ddevinish@innisfil.ca
Drew Davidge	R.J. Burnside & Associates Limited (Burnside)	drew.davidge@rjburnside.com
Deanna De Forest	R.J. Burnside & Associates Limited	deanna.deforest@rjburnside.com

Regrets were:

Graham Findlay	Ministry of Natural Resources and Forestry (MNRF)	graham.findlay@ontario.ca
Taylor Stevenson	Lake Simcoe Region Conservation Authority (LSRCA)	t.stevenson@lsrca.on.ca
Christian Meile	County of Simcoe (County)	christian.meile@simcoe.ca
Dan Cole	Town of Innisfil	dcole@innisfil.ca
Tony Mendicino	InnServices Utilities Inc.	tonym@innpower.ca

The following items were discussed	**Action by**
1. Comments and Questions on Draft Public Open House (POH)	
1.1 General comments on the draft materials were discussed:	

	The following items were discussed	Action by
	Slide 3 – Revise date of interim closure of 7th Line to November 2017, Increase font size of street names within study area on study area map and include the location of the dog park on study area map. Slide 4 – Include figure of speed zones. Slide 5 – Stormwater management attenuation should be considered, should the road be widened. Slide 6 – Add the location of the farmscape. Slide 8 – Update slide deck to number the alternative solutions. Slide 9 – Reword to note that safety concerns are not addressed under Construction. Slide 12 – Reword "2-way access to properties" to "access to property from east or west". Slide 13 – Add times 2 to title. Slide 17 – Add direction to right of way boundary, i.e., north side, south side. Revise one-way width to 4.5 m wide travel lane.	
1.2	Questions on the draft materials were discussed: Question: What is the expectation of 7th Line if improved 6th Line or Innisfil Beach road is blocked in the future? Answer: *Each alternative would impact the ability to use the 7th Line as detour in the event of an emergency road closure of an adjacent road. The road will not be specifically designed to accommodate increased traffic during these closure times, but this scenario can be considered in our screening criteria during the evaluation of alternative solutions.* Question: Is property acquisition still required under the Do Nothing alternative? Answer: *Yes, the existing road is located outside the existing right-of-way at a location in the eastern end of the corridor. The Towns Real Estate staff indicated that property acquisition is anticipated to acquire appropriate right-of way with for the existing roadway sits.*	

The following items were discussed	Action by

2. Schedule

The objectives timing of future TAC meetings was reviewed.

TAC	Purpose	*Proposed Date*
TAC#1	Introduce the project, study area, background information and input into alternative solutions.	*June 21, 2018 (during Phase 1)*
TAC#2	Review Studies.	*October 4, 2018 (during Phase 2)*
TAC#3	Review preliminary preferred solution, review POH #1 materials, mitigation measures, possible design alternatives.	*November 15, 2018 (during Phase 2)*
TAC #4	Summary evaluation of design solutions, review POH #2.	*February 21, 2019 (during Phase 3)*
TAC #5	Review Environmental Study Report.	*May 27, 2019 (during Phase 4)*

3. TAC Meetings

A save the date invitation to future TAC meetings will be emailed to attendees. Alterations and/or attendance will be confirmed via email two weeks in advance of the scheduled TAC meeting. TAC meetings will be documented with meeting minutes.

TAC Meeting #4 is scheduled for February 21, 2019 (revised to February 28, 2019).

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

R.J. Burnside & Associates Limited



Deanna De Forest, B.Sc., E.P.
Environmental Assessment Coordinator
DDF:rm

Enclosure(s) TAC #3 Draft POH Material

Distribution:

All Attendees

Graham Findlay	MNRF	Via: Email – graham.findlay@ontario.ca
Taylor Stevenson	LSRCA	Via: Email – t.stevenson@lsrca.on.ca
Christian Meile	County of Simcoe	Via: Email – christian.meile@simcoe.ca
Dan Cole	Town of Innisfil	Via: Email – dcole@innisfil.ca
Tony Mendicino	InnServices Utilities Inc.	Via: Email – tonym@innpower.ca
Cecil Gratrix	Burnside	Via: Email – ccecil.gratrix@rjburnside.com

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BURNSIDE

ROAD IMPROVEMENTS
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD
TOWN OF INNISFIL
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Public Open House (POH #1)

Welcome

Please sign in → Take a comment sheet → Staff are here for your questions, comments or concerns → Complete the comment sheet. Public input is an important part of the Class EA process

R.J. Burnside & Associates Limited

Project Purpose:

Problem / Opportunity Statement:

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town is initiating a Municipal Class Environmental Assessment (EA) to consider options for improvement to address:

- the road surface,
- road base,
- erosion control,
- drainage deficiencies, road side encroachment and
- associated safety risks

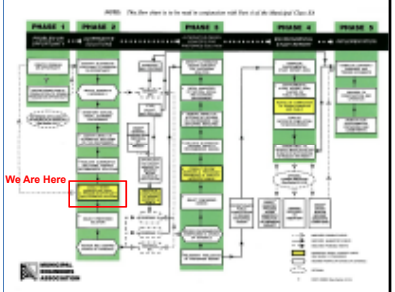
for the continued use and maintenance of the road .

Purpose of this POH is to:

- Provide a summary of the Project.
- Present an evaluation of the various alternative solutions based on physical, natural, social, cultural / heritage and economic environment factors.
- Obtain input on the Alternative Solutions.

Municipal Class EA Process

This project is being considered as a Schedule 'C' Project (Phases 1 to 4), as defined in the Municipal Engineers Association Class EA document



BURNSIDE 2

Project Considerations

The Study Area includes the 7th Line from Yonge Street to the 10th Sideroad



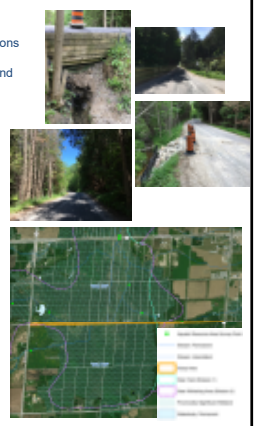
In the Spring of 2018, the 7th Line was closed (local traffic only) due to deteriorating road conditions and safety issues with respect roadside safety.

The Town of Innisfil Transportation Master Plan Update (TMP Update) (2018) identified the reconstruction of the road within the study area in the medium term horizon (2022 to 2031)

On June 20th, Innisfil Council adopted a by-law to temporarily permit the 7th Line to operate as a one-way road from Yonge Street to 10th Sideroad pending the outcome of the Municipal Class EA process

Key technical considerations include erosion, encroachment of trees, and drainage issues

Key natural features in the Study Area include the Lovers Creek Provincially Significant Wetland (PSW), Lake Simcoe Region Conservation Authority (LSRCA) regulated area, watercourse crossings, terrestrial and aquatic habitat, and the potential for Species at Risk (SAR).



BURNSIDE 3

Technical Environment

Land Use and Access

Study area has approximately 7 active driveway accesses.

Centennial Park is located at the west end of the study area and is open year-round.

The 'dog park' within Centennial Park (October 2014) has increased use of the park.



Intersections

7th Line and 10th Sideroad: Operates well during both AM and PM peak hours.

7th Line and Yonge Street: AM peak hours are good but PM peak hours show the eastbound movement experiences longer delays.



Operating Speeds

The road is currently built for speeds lower than the posted and operating speeds.

On average, vehicles are traveling 13 km/hr above the posted speed.



A significant reduction in traffic volume observed during the interim road closure in 2018, compared to the last record of 2014, supports the general opinion that 7th Line is used as an alternative route to Innisfil Beach Road (County Road 21).

During interim road closure over 55% of the traffic was through traffic

BURNSIDE 4

Technical Environment

Stormwater

Existing stormwater is conveyed through roadside ditches (not well defined in some areas); driveway culverts; and road-crossing culverts.

There is currently no stormwater management provided for quality or quantity control.

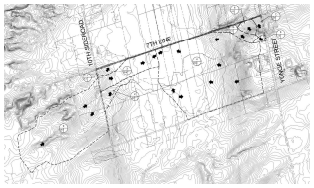
Portions of the road have been eroded by an existing watercourse and a lack of defined ditches in some areas.











Socio-Cultural Environment

Cultural Heritage

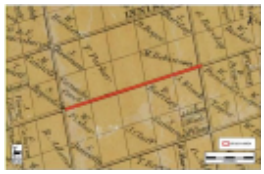
One cultural heritage landscape (CHL) feature was identified in the Study Area – a farmscape at 2399 7th Line

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area.

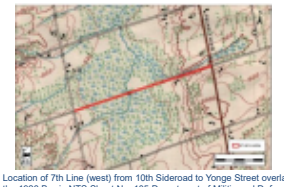
The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 archaeological assessment (test pit survey), if impacted, prior to any construction activities.



Feature ID CHL 1: Agricultural outbuildings associated with the farmscape at 2399 7th Line, looking south.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1871 Hogg's Map of Simcoe County.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1928 Barrie NTS Sheet No. 105 Department of Militia and Defense

Natural Environment

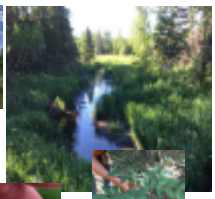
Habitat within the Study Area for:

- Amphibians
- Breeding Reptiles
- Fish Habitat and Passage
- Breeding Birds

Potential for Species at Risk

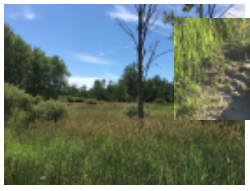
- Butternut trees
- Roosting Bat habitat within the forested area (several bat species are Endangered).
- Monarch Butterfly (Special Concern) and Swamp Milkweed, a host plant and nectar source
- The Marshes and Swamps are considered sensitive as they are located within the Provincially Significant wetland complex.





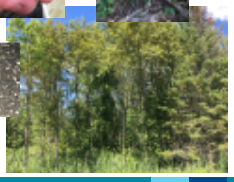


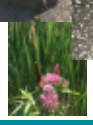












Alternative Solutions

The evaluation of alternatives is a step-by-step process that focuses on alternatives that are feasible within the project environment and meet the project objectives outlined in the Problem/Opportunity Statement, specifically, to address the deteriorating road condition and associated safety issues.

The Alternatives include:

- Do Nothing
- Local Traffic Only
- One-Way Road
- Widen the Road
- Dead-End Road with Turn Around

Or a combination of alternatives





Alternative 1: Do Nothing



Do Nothing (Maintain the Status Quo)

Mandatory requirement for consideration in a Class EA. Maintain the status quo. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

Pros:

- Operate as a two-way road fully open to the public.
- Maintains existing road network
- Accommodates future traffic growth
- No construction or widening
- No property acquisition is required
- Limited tree removal (some tree removal may be required to accommodate road maintenance)
- No impact to cultural heritage features
- No costs to implement

Cons:

- Potential for continued washouts and associated traffic concerns.
- Continued deterioration due to increased traffic volumes
- Potential siltation of adjacent watercourses, wetland and vegetation communities
- Ongoing maintenance of the road shoulders may pose a risk to wildlife and nesting turtles
- Ongoing cost for road maintenance, which is anticipated to increase over time
- Does not address the problem statement

Alternative 2: Local Traffic Only



Local Traffic Only

Allow access to local traffic only, closing the road to non-local traffic. May include change to a Private Road. Maintain public access to the park from 10th Sideroad. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

Pros:

- May reduce traffic and slow deterioration of the road
- No property acquisition is required
- Limited tree removal (some tree removal may be required to accommodate road maintenance)
- No impact to cultural heritage features over existing conditions
- Low cost for signs and notice to the public

Cons:

- Difficult to enforce
- Does not improve connectivity of the road network
- Potential for continued washouts and associated traffic concerns
- Potential siltation of adjacent watercourses, wetland and vegetation communities due to continued roadside washouts
- Ongoing maintenance of the road shoulders may pose a risk to wildlife and nesting turtles
- Local residents would be responsible for road maintenance if made a private road
- Ongoing cost for road maintenance anticipated to increase over time

Alternative 3: One-Way Road



One-Way Road

Operate as a one-way road fully open to the public. Maintain public access to the park from the 10th Sideroad and from the 7th Line. Install appropriate signage/marking and public notices of the change. No road widening. Repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

Pros:

- Improved road condition
- Improved sight distances and safety of road surface
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities
- Likely reduction in some traffic and slow deterioration of the road
- Moderate costs for improvements. Low cost regular maintenance

Cons:

- Difficult to enforce
- Tree clearing at the east end due to grading. This will impact Species at Risk Butternut trees

Cons:

- Potential impact wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Rehabilitation of the road shoulders may pose a risk to nesting turtles during construction and over long term if shoulders are paved.
- Potential temporary impact to adjacent watercourses and fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. This impact is subject to design conditions and timing restrictions.
- Limits connectivity of the road network. Increased local travel time and distances. One-way access to properties
- Potential change to current route and schedule for municipal services
- Potential for impact to cultural heritage features including farmscape, private memorial.
- Property acquisition may be required

Alternative 4: Widen the Road



Widen the Road

Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

Pros:

- Improved road condition
- Provides connectivity to transportation network. Offers parallel alternative route
- Maintains direct travel route
- Two-way access to properties
- Improved sight distances and safety of road surface
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities

Cons:

- Tree clearing at the east end of corridor due to grading. This will impact to Species at Risk Butternut trees

Cons:

- Potential impact to wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Rehabilitation of the road shoulders may pose a risk to nesting turtles during construction and over long term if shoulders are paved.
- Channel realignment and permanent alteration of adjacent watercourse at east end. Potential temporary impact to fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. These impacts are subject to design conditions and timing restrictions.
- Potential for impact to cultural heritage features including farmscape, private memorial
- Possible increase in some traffic
- Temporary impact due to construction activities
- Property acquisition may be required
- High costs for improvements. Moderate cost regular maintenance

Alternative 5: Dead-End Road with Turn Around



Dead-end Road with Turn Around

Operate as a two-way road open to the public with no through traffic. Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment. Repair slopes and replace culverts where required to ensure long term viability of the road. Construct two cul-de-sac or hammer head turnarounds. Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles. Perform regular maintenance as required

Pros:

- Improved road condition
- Likely reduction in traffic
- Potential for reduced impact to wetland and vegetation communities over long term
- Improved wildlife habitat connectivity, movement across 7th Line
- Opportunity to view PSW from unopened right-of-way.
- Low cost for regular maintenance due to reduced traffic use
- Two-way access to properties
- Improved sight distances and safety of road surface
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities

Cons:

- Potential impact wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Rehabilitation of the road shoulders may pose a risk to nesting turtles during construction and over long term if shoulders are paved.
- Channel realignment and permanent alteration of adjacent watercourse at east end, and elsewhere depending on the location of the turn around.
- Potential temporary impact to fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. This impact is subject to design conditions and timing restrictions.
- Potential for some impact to cultural heritage features including farmscape, private memorial
- Does not improve connectivity of transportation network. Longer local travel distance. Access to properties restricted or from one direction
- Temporary impact due to construction activities
- Property acquisition required
- High costs for improvements.

Evaluation of Alternative Solutions

ORDER OF PREFERENCE	
Most Preferred	○
More Preferred	◔
Somewhat Preferred	◑
Less Preferred	◕
Least Preferred	●

	CRITERIA FOR EVALUATING ALTERNATIVES	Do Nothing	Local Traffic Only	One-Way Road	Widen the Road	Dead-end Road with Turn Around
a	NATURAL ENVIRONMENT					
1	Vegetation/Tree					
2	Terrestrial Habitat (breeding birds, turtles, general wildlife, habitat connectivity)					
3	Fisheries / Aquatic Habitat					
4	Designated Sites (PSW)					
5	Species at Risk (Barn Swallow, bats, Butternut)					
6	Groundwater Resources and Drainage Features					
	SUMMARY NATURAL ENVIRONMENT					

	CRITERIA FOR EVALUATING ALTERNATIVES	Do Nothing	Local Traffic Only	One-Way Road	Widen the Road	Dead-end Road with Turn Around
a	SOCIO-CULTURAL ENVIRONMENT					
1	Conformity to Municipal Policies and Development Planning - road network and connectivity,					
2	Place-making Opportunities					
3	Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes, memorial)					
4	Local Residents Nuisance Impacts (noise, traffic, visual impact)					
5	Municipal services (snow removal, garbage pick up,)					
6	Quality of Life (safety of traveled road, travel time)					
7	Recreation (access to park, Pedestrian/Cyclist Safety and Connectivity)					
a	Land Acquisition Requirements					
8	Conformity to Agency Policy (LSRCA, MNRF,County of Simcoe)					
	SUMMARY SOCIO-CULTURAL ENVIRONMENT					

Evaluation of Alternative Solutions

ORDER OF PREFERENCE	
Most Preferred	○
More Preferred	◔
Somewhat Preferred	◑
Less Preferred	◕
Least Preferred	●

	CRITERIA FOR EVALUATING ALTERNATIVES	Do Nothing	Local Traffic Only	One-Way Road	Widen the Road	Dead-end Road with Turn Around
c	FINANCIAL FACTORS					
1	Estimated Capital Costs					
2	Estimated Operation and Maintenance Cost					
3	Property Acquisition Cost					
	SUMMARY FINANCIAL FACTORS					

	CRITERIA FOR EVALUATING ALTERNATIVES	Do Nothing	Local Traffic Only	One-Way Road	Widen the Road	Dead-end Road with Turn Around
b	TECHNICAL FACTORS					
1	Addresses future traffic control and operation requirements (Level of service, delay, queues, intersection LOS and mobility)					
2	Addresses sight distance, and operational safety					
3	Accomodates access to adjacent properties					
	SUMMARY TECHNICAL FACTORS					

CRITERIA FOR EVALUATING ALTERNATIVES	Do Nothing	Local Traffic Only	One-Way Road	Widen the Road	Dead-end Road with Turn Around
SUMMARY PROBLEM STATEMENT	No	Partially	Yes	Yes	Yes
SUMMARY PROBLEM STATEMENT	Not Preferred	Not Preferred	Preferred	Preferred	Preferred

CRITERIA FOR EVALUATING ALTERNATIVES	Do Nothing	Local Traffic Only	One-Way Road	Widen the Road	Dead-end Road with Turn Around
OVERALL SUMMARY	Not Preferred	Not Preferred	Most Preferred	Most Preferred	Least Preferred

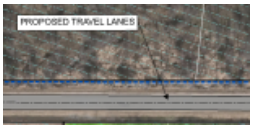
Preliminary Preferred Solution

Alternative 3: One-Way Road



Operate as a one-way road fully open to the public. Maintain public access to the park from 10th Sideroad and 7th Line. Install appropriate signage/marking and public notices of the change. No road widening. Repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

Alternative 4: Widen the Road



Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

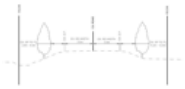
Preliminary Preferred Solution

Existing Road Cross-Section

TYPICAL EXISTING SECTIONS EAST END OF ROAD

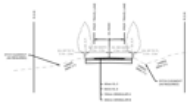


TYPICAL EXISTING SECTION WEST END OF ROAD



Typical One-Way Cross Section

TYPICAL ONE WAY SECTION EAST END OF ROAD

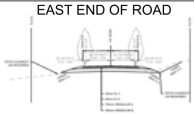


TYPICAL ONE WAY SECTION WEST END OF ROAD

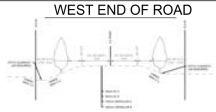


Road Widening Cross Section

TYPICAL RESURFACING SECTION EAST END OF ROAD



TYPICAL RECONSTRUCTION SECTION WEST END OF ROAD



Possible Design Alternatives

Alternative 3: One-Way Road

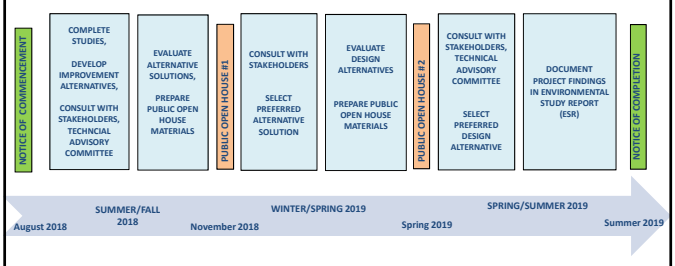
- One-way road from Yonge Street to 10th Sideroad
- One-way road from 10th Sideroad to Yonge Street

Alternative 4: Widen the Road

- Widen the road to the north or south, or a combination
- Paved shoulder or gravel shoulder
- Realignment to the north to avoid heritage feature, or
- Realignment to the south to avoid watercourse

EA Project Timeline

Municipal Class EA 7th Line Improvements from 10th Line to Yonge Street



Next Steps….

- Review public, stakeholder and Agency comments generated from this Public Open House (please submit comments by January 11, 2019);
- Comments received by January 11, 2019 will be incorporated into a Public Open House summary which will include a summary of your written comments along with project related responses ;
- Select Preferred Alternative;
- Public Open House #2 – Design Alternatives
- Select Preferred Design Alternative
- Issue Notice of Study Completion and provide Environmental Study Report (ESR) for final public review and comment for a period of 30 days.

Thank you for attending

Help shape decisions made in this Study

- Please complete the comment sheet and deposit it in the "Comment Sheet" box, or return this completed form to one of the project team members below, or email your comments to 7thLineEAWestofYonge@rjburnside.com
- Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH.
- If you would like more information or if you have any questions or concerns please contact:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil, ON, L9S 1A1
Telephone: (705) 436-3740 ext. 3226
Email: mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P
Project Manager
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON, L4N 8J6
Telephone: (705) 797-4357
Email: deanna.deforest@rjburnside.com

Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

R.J. Burnside & Associates Limited 128 Wellington Street West Suite 301 Barrie ON L4N 8J6 CANADA
telephone (705) 797-2047 **fax** (705) 797-2037 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Minutes of Meeting

Meeting Date:	Thursday, February 28, 2019 at 1:30 p.m. **Project No.:** 300042232.0000
Project Name:	7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment
Meeting Subject:	Technical Advisory Committee (TAC) Meeting #4
Meeting Location:	Town of Innisfil, Operations Office Meeting Room 2 7253 Yonge Street, Innisfil, ON
Date Prepared:	September 6, 2019

Those in attendance were:

Carolina Cautillo	Town of Innisfil (Town)	ccautillo@innisfil.ca
Magdalena Koehler	Town of Innisfil	mkoehler@innisfil.ca
Steven Montgomery	Town of Innisfil	smontgomery@innisfil.ca
Drew Davidge	R.J. Burnside & Associates Limited (Burnside)	drew.davidge@rjburnside.com
Deanna De Forest	R.J. Burnside & Associates Limited	deanna.deforest@rjburnside.com

Regrets were:

Graham Findlay	Ministry of Natural Resources and Forestry (MNRF)	graham.findlay@ontario.ca
Taylor Stevenson	Lake Simcoe Region Conservation Authority (LSRCA)	t.stevenson@lsrca.on.ca
Christian Meile	County of Simcoe (County)	christian.meile@simcoe.ca
Dan Cole	Town of Innisfil	dcole@innisfil.ca
Tony Mendicino	InnServices Utilities Inc.	tonym@innpower.ca

The following items were discussed		**Action by**
1.	**Comments and Questions on Draft Public Open House #2 (POH#2)**	
1.1	Edits to the draft materials were discussed: Slide 10 – Add subtitle “Your Feedback” for chart.	

The following items were discussed	Action by

Slide 14 –Avoid direct impact to Butternut- con.

Slide 15 – Edits to cons.

1.2 Comments on the draft materials were discussed:

- Add lot lines to the roll out – see legend
- Address traffic calming comment

2. Schedule

The objectives timing of future TAC meetings was reviewed.

TAC	Purpose	*Proposed Date*
TAC#1	Introduce the project, study area, background information and input into alternative solutions.	*June 21, 2018 (during Phase 1)*
TAC#2	Review Studies.	*October 4, 2018 (during Phase 2)*
TAC#3	Review preliminary preferred solution, review POH #1 materials, mitigation measures, possible design alternatives.	*November 15, 2018 (during Phase 2)*
TAC #4	Summary evaluation of design solutions, review POH #2.	*February 21, 2019- rev Feb. 28, 2019. (during Phase 3)*
TAC #5	Review Environmental Study Report.	*May 27, 2019 (during Phase 4)*

3. TAC Meetings

A save the date invitation to future TAC meetings will be emailed to attendees. Alterations and/or attendance will be confirmed via email two weeks in advance of the scheduled TAC meeting. TAC meetings will be documented with meeting minutes.

TAC Meeting #5 is scheduled for May 27, 2019.

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

R.J. Burnside & Associates Limited



Deanna De Forest, B.Sc., E.P.
Environmental Assessment Coordinator
DDF:rm

Enclosure(s) TAC #4 Draft POH #2 Material

Distribution: to file

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

BURNSIDE

ROAD IMPROVEMENTS
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD
TOWN OF INNISFIL
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Public Open House (POH #2)

Welcome

Please sign in → Take a comment sheet → Staff are here for your questions, comments or concerns → Complete the comment sheet. Public input is an important part of the Class EA process

Project Purpose:

Problem / Opportunity Statement:

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town is initiating a Municipal Class Environmental Assessment (EA) to consider options for improvement to address:

- the road surface
- road base
- erosion control
- drainage deficiencies
- road side encroachment
- associated safety risks

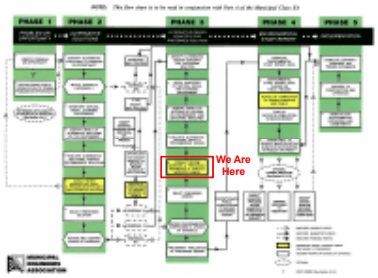
for the continued use and maintenance of the road.

Purpose of this POH is to:

- Provide a summary of the Project
- Present an evaluation of the design alternatives based on physical, natural, social, cultural / heritage and economic environment factors
- Obtain input on the Design Alternative

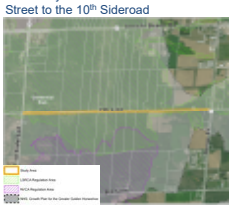
Municipal Class EA Process

This project is being considered as a Schedule 'C' Project (Phases 1 to 4), as defined in the Municipal Engineers Association Class EA document.



Project Considerations

The Study Area includes the 7th Line from Yonge Street to the 10th Sideroad



In the fall of 2017, the 7th Line was closed (local traffic only) due to deteriorating road conditions and safety issues with respect roadside safety.

The Town of Innisfil Transportation Master Plan Update (TMP Update) (2018) identified the reconstruction of the road within the study area in the medium term horizon (2022 to 2031).

On June 20th, Innisfil Council adopted a by-law to temporarily permit the 7th Line to operate as a one-way road from Yonge Street to 10th Sideroad pending the outcome of the Municipal Class EA process.

Key technical considerations include erosion, encroachment of trees, and drainage issues.

Key natural features in the Study Area include the Lovers Creek Provincially Significant Wetland (PSW), Lake Simcoe Region Conservation Authority (LSRCA) regulated area, watercourse crossings, terrestrial and aquatic habitat, and the potential for Species at Risk (SAR).











Technical Environment



Land Use and Access

Study area has approximately 7 active driveway accesses.

Centennial Park is located at the west end of the study area and is open year-round.

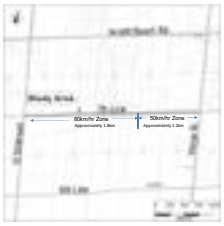
The 'dog park' within Centennial Park (October 2014) has increased use of the park.



Intersections

7th Line and 10th Sideroad: Operates well during both AM and PM peak hours.

7th Line and Yonge Street: AM peak hours are good but PM peak hours show the eastbound movement experiences longer delays.



Operating Speeds

The road is currently built for speeds lower than the posted and operating speeds.

On average, vehicles are traveling 13 km/hr above the posted speed.



A significant reduction in traffic volume observed during the interim road closure in 2017, compared to the last record of 2014, supports the general opinion that 7th Line is used as an alternative route to Innisfil Beach Road (County Road 21).

During interim road closure over 55% of the traffic was through traffic.

Technical Environment

Stormwater

Existing stormwater is conveyed through roadside ditches (not well defined in some areas); driveway culverts; and road-crossing culverts.

There is currently no stormwater management provided for quality or quantity control.

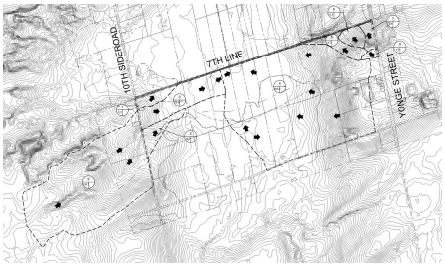
Portions of the road have been eroded by an existing watercourse and a lack of defined ditches in some areas.











Socio-Cultural Environment

Cultural Heritage

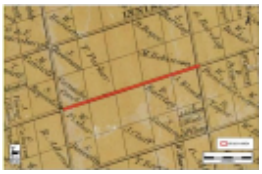
One cultural heritage landscape (CHL) feature was identified in the Study Area – a farmscape at 2399 7th Line.

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area.

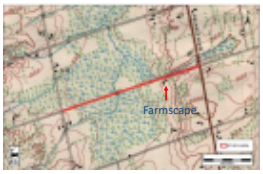
The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 archaeological assessment (test pit survey), if impacted, prior to any construction activities.



Feature ID CHL 1: Agricultural outbuildings associated with the farmscape at 2399 7th Line, looking south.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1871 Hogg's Map of Simcoe County.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1928 Barrie NTS Sheet No. 105 Department of Militia and Defense

Natural Environment

Habitat within the Study Area for:

- Amphibians
- Breeding Reptiles
- Fish Habitat and Passage
- Breeding Birds

Potential for Species at Risk

- Butternut trees
- Roosting Bat habitat within the forested area (several bat species are Endangered)
- Monarch Butterfly (Special Concern) and Swamp Milkweed, a host plant and nectar source
- The Marshes and Swamps are considered sensitive as they are located within the Provincially Significant wetland complex

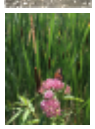


















Alternative Solutions

The evaluation of alternatives is a step-by-step process that focuses on alternatives that are feasible within the project environment and meet the project objectives outlined in the Problem/Opportunity Statement, specifically, to address the deteriorating road condition and associated safety issues.

Phases 1 and 2 of the EA process evaluated the following alternatives:

1) Do Nothing
2) Local Traffic Only
3) One-Way Road
4) Widen the Road
5) Dead-End Road with Turn Around

One-Way Road and Widen the Road were selected as preliminary preferred alternatives and brought forward for review and feedback from the public and stakeholders during Public Open House #1 in November 2018.

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
SUMMARY PROBLEM STATEMENT	No	Partially	Yes	Yes	Yes
SUMMARY PROBLEM STATEMENT	Not Preferred	Not Preferred	Preferred	Preferred	Preferred

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
OVERALL SUMMARY	Not Preferred	Not Preferred	Most Preferred	Most Preferred	Least Preferred

Your Feedback

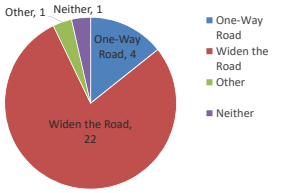
Public Open House #1 was held as a "drop-in" style session conducted at the Town of Innisfil, Town Hall, Community Rooms B and C on November 27, 2018.

- 25 people attended
- 11 written comment sheets were received from local stakeholders during and following the Public Open House
- The Town of Innisfil conducted an online survey at getinvolvedinnisfil.ca/7thline – 17 comment forms were received

Comments received following the Notice of Commencement and Public Open House #1 are summarized under the following general themes. All feedback received is documented as part of the final Environmental Study Report for the EA.

	Comment
Safety	• Users of 7th Line temporary One-Way Road still driving in both directions • Cut the trees back and make the road straight
Traffic	• 7th Line should be widened for two-way traffic as an alternative to Innisfil Beach Road and 6th Line • Temporary One-Way Road adds travel time and longer driving distances • Accommodate growth and minimize traffic congestion • Provide traffic calming measures
Natural Environment	• Minimize impact to Provincially Significant Wetland and wildlife • Discourage development in this area • Provide access to recreational, hiking/biking opportunities • Minimize tree removal

Preferred Solution



Widen the Road was selected as the Preferred Solution based on the evaluation of the alternatives and feedback received during and following the Public Open House #1.

- 22 selected the Widen the Road alternative as preferred
- 4 selected the One-Way alternative as preferred
- 1 noted neither the Widen the Road or One-Way option was preferred
- 1 comment sheet noted a preference for Dead-End Road with Turn Around instead of Widen the Road or One-Way options

Alternative 4: Widen the Road

Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.



Alternative Design Solutions

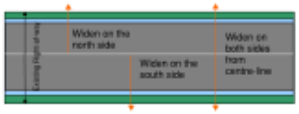
Alternative design solutions are evaluated for each end of the study area based on existing road design features and the preferred alternative to widen the road.

Road Widening

The approach to road widening is based on road cross-section and design options which include three basic design alternatives:

- Widen on the north side only, with paved shoulders
- Widen on the south side only, with paved shoulders
- Widen on both sides, with paved shoulders

Or a combination



Road Cross-Section

The road cross-section design options for widening include two design alternatives:

- Road Rehabilitation – pulverize existing asphalt surface, place new Granular A (gravel) and repave asphalt layers
- Road Reconstruction – excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Or a combination

TYPICAL EXISTING SECTIONS EAST END OF ROAD

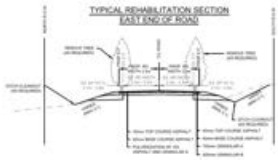


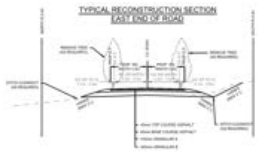
TYPICAL EXISTING SECTION WEST END OF ROAD



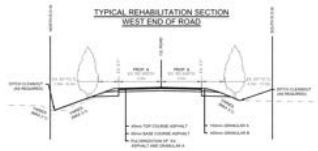
Alternative Design Solutions

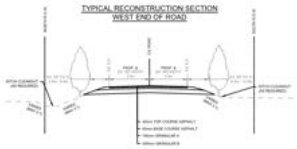
Road Cross-Section East End





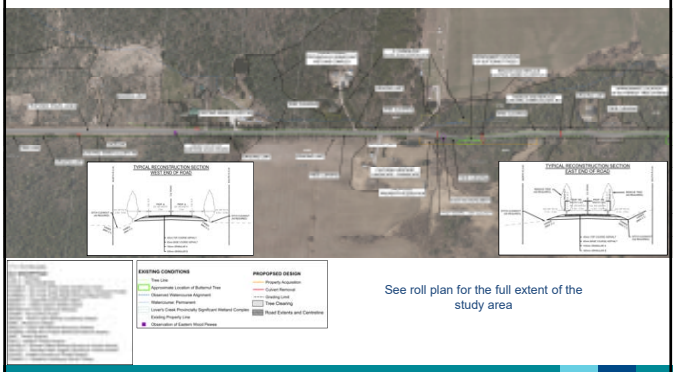
Road Cross-Section West End





Preliminary Preferred Design

Widen the Road – Best Fit Combination of North and South side with paved shoulders and reconstruction of the road surface



See roll plan for the full extent of the study area

Preliminary Preferred Design



Widen the Road – Best Fit Combination

There are existing constraints located on both sides of the 7th Line that would be impacted by widening strictly on one side or the other, or on both sides. A "best fit" combined approach to widening was considered practical to avoid or minimize impact to adjacent features. The "best fit" is based on the local roadway width and existing right-of-way, and considering road profiles that would minimize impact to adjacent property and natural features by limiting side slopes and utilizing guiderail.

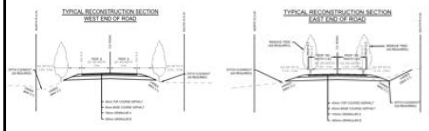
Pros:

- Operate as a two-way road fully open to the public
- Improved sight distances and safety of road
- Improved access and safety for pedestrians and cyclist with paved shoulder
- Provides connectivity to transportation network. Offers parallel alternative route
- Maintains direct travel route
- Access to properties from east or west
- Minimal impact to watercourse channel at east end. Channel realignment can be avoided with modification to road alignment, embankments and ditches
- Direct impact to Species at Risk Butternut trees as a result of tree removal and grading at east end. Possible indirect impact

Cons:

- Potential impact to wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Paving of the road shoulders may pose a risk to nesting turtles during construction and over long term due to removal of gravel substrate
- Possible impact to fish and fish habitat through sediment mobilization (indirect)
- Potential for impact to cultural heritage features including farmscape, private memorial
- Possible increase in traffic
- Temporary impact due to construction activities
- Property acquisition may be required. Property acquisition needed for road footprint located outside ROW
- Potential impact to archaeological resources, farmscape. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas

Preliminary Preferred Design



Design Cross-Section

- Road Reconstruction – Excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Pros:

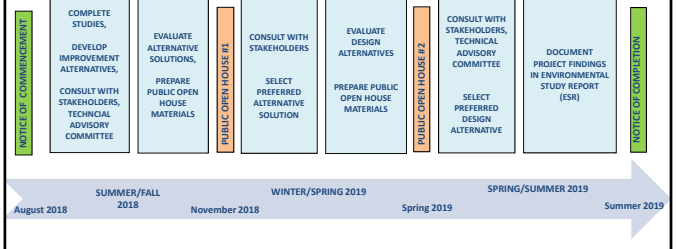
- Improved safety of road profile to meet TAC (Transportation Association of Canada) standards with improved vertical and horizontal alignment
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities
- Reduced costs for road maintenance, anticipated to increase over long term
- Accommodates future traffic growth and connectivity

Cons:

- Potential temporary impact to fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. These impacts are subject to design conditions and timing restrictions
- Limiting side slopes may require the need for guierail in some loctions
- Vegetation clearing needed with improved ditching at the east end. Vegetation removal will be subject to timing restriction to avoid direct impact to Species at Risk. May require compensation / replacement of trees
- Potential siltation of adjacent watercourses, wetland and vegetation communities during construction
- Noise, reduced access, longer construction time anticipated during construction
- High capital costs for construction

EA Project Timeline

Municipal Class EA 7th Line Improvements from 10th Line to Yonge Street



Next Steps….

- Review public, stakeholder and Agency comments generated from this Public Open House (please submit comments by DATE 2019);
- Comments received by DATE, 2019 will be incorporated into a Public Open House summary which will include a summary of your written comments along with project related responses ;
- Select Preferred Design Alternative
- Issue Notice of Study Completion and provide Environmental Study Report (ESR) for final public review and comment for a period of 30 days.

Thank you for attending
Help shape decisions made in this Study

- Please complete the comment sheet and deposit it in the "Comment Sheet" box, or return this completed form to one of the project team members below, or email your comments to 7thLineEAWestofYonge@rjburnside.com
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Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil, ON, L9S 1A1
Telephone: (705) 436-3740 ext. 3226
Email: mkoehler@innisfil.ca

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Project Manager
R.J. Burnside & Associates Limited
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Barrie, ON, L4N 8J6
Telephone: (705) 797-4357
Email: deanna.deforest@rjburnside.com

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Deanna De Forest

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Tuesday, August 13, 2019 2:48 PM
To: Deanna De Forest
Cc: Robinson, Suzanne (MNRF)
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements draft ESR review comments

Deanna I have given your updated comment summary table a read and find you have adequately addressed our June 25, 2019 comments.

Please note I retire from the MNRF at the end of this week. Should you have any questions or require further input from the MNRF regarding the final environmental study report or detailed design stage of the project those can be directed to Suzanne Robinson at this office.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

Please Note: As of July 2, 2019, I will no longer have voicemail services with my office phoneline. Should I miss your call it will be re-directed to Shannon Lawless with whom you can leave a message. Alternatively, you can email me directly or send your questions or request to midhurstinfo@ontario.ca where your inquiry will be forwarded back to me or otherwise actioned to another staff member.

From: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Sent: August 12, 2019 10:15 AM
To: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements draft ESR review comments

Hi Graham,
I've attached the excel sheet with responses provided to your comments on the draft EA Environmental Study Report (ESR) for the 7th Line EA for your review. Please let me know if you have any comments or concerns, or feel your comments have been addressed. A copy of your comments and the responses will be included as an appendix in the final ESR.
Thank you very much for your comments and your contribution to our Technical Advisory Committee for this project.

Regards,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Tuesday, June 25, 2019 4:48 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #5 meeting

Hi Deanna please accept my apologies for not responding to your message requesting confirmation of my attendance to the TAC#5 meeting, and requesting comments on the draft ESR.

Recognizing these are late attached for your attention are my comments on the draft ESR in the provided comment table.

Do not hesitate to call with any questions.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

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Town of Innisfil

7th Line from Yonge Street to 10th Sideroad EA - Environmental Study Report

Draft Report Comments

NAME: Garaham Findlay	**AGENCY: Ministry of Natural Resurces and Forestry**

No.	Reference	Reviewer	Comment	Addressed (Y/N)	Response	Date Comment Satisfied
1	Page i	Graham Findlay (GF)	Circulation of the report should have included: 1/Department of Fisheries and Oceans - Fisheries Protection Program (DFO) - potential Impacts to fish/fish habitats; 2/ Ministry of the Environment, Conservation and Parks (MECP) - potential impacts to species at risk (endangered, threatened and special concern species). As circulated it could be inferred that the MNRF would provide initial opinion on potential impacts related to all natural heriatge values, including fish and species at risk habitats. This is not the case, no comment does not mean acceptance of conclusions and recommendations concerning impact avoidance on SAR or fish habitat values.		The Draft ESR was provided to MNRF as member of the project Technical Advisory Committee (TAC) along with other TAC members and the proponent for review and comment. The DFO self-assessment process was implemented to assess potential impacts to fish and fish habitat. Following the transfer of responsibility for species at risk in Ontario to MECP, the MECP was contacted on May 23, 2019 to assess the level of interest and participation the MECP may wish to have in the project concering species at risk . MECP did not indicate a specific interest in the project. MECP and DFO will be contacted again to notify them of the opportunity to comment on the final ESR, available for review and comment for 30 days following the Notice of Completion for the project.	
2	Pg 56 - 57 … Vegetation and Wildlife sections	GF	Vegetation removal is estimated to be 8629sqm - It would benefit the discussion concerning potential impacts to the provincially signficant wetland and various widlife habitats if the area of vegetation impact was scaled within the area of the ROW relative to adjacent features or habitats adjacent to the ROW. How much of the impacted vegetation would be PSW, and scale that to the adjacent area of PSW for a relative comparison of impact. Potential impacts to wildlife habitats are not scaled for potential habitat lost within the ROW relative to the adjacent contiguous forested habitats. The reader is left to imagine the extent of wetland lost relative to the actual area of wetland present; the extent of for example potential breeding/area-senstive bird or bat maternity colony habitat lost relative to the actual area of forested habitats within and adjacent to the ROW. The conclusions as presented are generalized statements not developed on any sort of comparative analysis of habitats (impacted vs available/remaining).		The estimated area of vegetation removal is described in this section for trees in the east end of the Study Area.The section notes that significant impacts to vegetation in the PSW, in the west end of the Study Area, are not anticipated. Impacts in the west end of the study area are anticipated to be limited to areas of ditching and culvert replacement. The comment is noted and the report will be updated to include an estimated area of impact compared with an estimate of potential available contiguous forested habitats in the study area and greater area beyond the limit of the study area (those areas beyond the study area will not be identified at the community level), with the qualification that the extent of impact is limited to an estimate based on desk top review and preliminary design and is subject to refinement during detailed design.	
3	Pg 57 Significant Wildife Habitat (SWH)	GF	Page 20 lists a number of other candidate SWH in addition to deer (turtle nesting area, bat maternity colonies, turtle wntering areas, woodland area sensitive bird breeding habitat and woodland raptor nesting habitat). This section only spoke to potential impacts to deer habitats.		p 57 will be updated to list the other candidate SWH discussed in the report.	

No.	Reference	Reviewer	Comment	Addressed (Y/N)	Response	Date Comment Satisfied
4	Pg 57-59 Species of Special Concern and Species at Risk	GF	As noted in comment #1 above, review of these sections should be completed by the MECP.		comment noted	
5	Pg 65 Groundwater	GF	Point 2 under Mitigation Measures notes "Some groundwater at depth is under artesian pressure and may require depressurization". In doing so could that impact groundwater discharge areas in area tributaries, potentially impacting brook trout spawning habitats? Should this be deemed necessary we recommend the DFO be consulted regarding assessing for potential impacts to brook trout spawning habitats.		The recommendation to consult DFO will be included in ESR to carryforward to detail design, when more detailed information is available.	
6	Pg 68-70 Wildlife/Habitat Mitigation	GF	A number of vegetation clearing recommendations are provided for various wildlife (e.g. migratory birds, turtles and bats) which although they overlap there is inconsistency in recommended vegetation clearing timing retriction periods. As previously provided in our October 9, 2018 comments, to reduce confusion over when vegetation should be cleared as the active season for bats encompasses all the the proposed timing restrictions we recommend vegetation clearing be restricted between April 1 to October 31, in any given year.		ESR will be updated to provide an overall vegetation removal timing window that encompases all timing restrictions eg To reduce the risk of potential impact to wildlife, including Species ar Risk, vegetation clearing should not be completed between April 1 to Oct 31 to avoid the active period for the following: Breeding Birds; avoid tree clearing (including grubbing) during active window for breeding birds/SAR birds, generally April 1 to August 31 of any calendar year.....	
7	Pg 71 Fish and Fish Habitat - Mitigation Measures	GF	It is recommended that in-water work be completed between July 15 to September 30 in recognition of coldwater habitats in Tributaries 1 and 3. As similarly provided in our October 9, 2018 comments, in light of the above noted wildlife habitat vegetation clearing recommendation, terrestrial vegetation clearing and in-water construction activities may need to be coordinated in order to maintain compliance to both sets of work timing recommendations. That is, in anticipation of proposed in-water work, site preparation (terrestrial vegetation clearing) may need to be completed earlier in accordance to the vegetation clearing timing restriction.		The ESR section will be updated to note vegetation clearing may need to be completed in advance of in-water work to meet vegetation clearing timing restriction.	

Sylvia Waters

From: Deanna De Forest
Sent: Friday, May 24, 2019 3:05 PM
To: Sylvia Waters
Cc: Sylvia Radovic
Subject: FW: 7th Line, Yonge Street to 10th Sideroad, Innisfil- Municipal Class EA,
Attachments: DRAFT-Proponents Guide to Preliminary Screening-May 2019.pdf

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Friday, May 24, 2019 2:57 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: 7th Line, Yonge Street to 10th Sideroad, Innisfil- Municipal Class EA,

Hi Deanna,

Thank you for reaching out.

As you may know, the Ministry of the Environment, Conservation and Parks (MECP) has accepted responsibility for the administration of the Endangered Species Act (ESA). Work associated with ESA authorizations has being centralized from 25 Ministry of Natural Resources and Forestry district offices into one, newly formed Permissions and Compliance team within the new Species at Risk Branch in MECP. This branch is staffed by former MNRF employees with experience in the ESA.

To facilitate communications with our clients, the MECP has established a one-window e-mail account, sarontario@ontario.ca, for applications, report submissions and other communications relating to applications and authorizations under the ESA. sarontario@ontario.ca will also be the primary contact for clients who wish to determine whether their proposed activity is likely to contravene the ESA. Staff in this new branch will continue to be available to provide advice to you.

To support our new centralized model, we have been working on the attached guide to help clients work through the preliminary screening process; including providing advice to clients on how they can gather the information you have requested from publicly available information sources. Please feel free to contact us at sarontario@ontario.ca if you think your activity is likely to contravene the ESA and if you would like further advice on authorization options.

Please see the attached guide for your use.

Clairissa Myschowoda
Permissions and Compliance,
Species at Risk Branch
Ministry of the Environment, Conservation and Parks

From: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Sent: Thursday, May 23, 2019 12:31 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Magdalena Koehler <mkoehler@innisfil.ca>; Carolina Cautillo <ccautillo@innisfil.ca>; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: 7th Line, Yonge Street to 10th Sideroad, Innisfil- Municipal Class EA,

Hello,
R.J. Burnside is completing a Schedule C Municipal Class EA for road improvements of the 7th Line in Innisfil Ontario. The project is nearing completion of the Municipal Class EA process (Phase 4), following its initiation in the summer of 2018 with the participation of the MNRF on a Technical Advisory Committee for the project. Since the MECP is now the agency responsible for Species At Risk (SAR) in Ontario, could you please let us know the level of interest and participation the MECP may have at this stage in the project concerning SAR. MNRF will remain involved in the project regarding potential impacts to natural heritage values not related to the Endangered Species Act.
Project information can be found on the Town of Innisfil webpage at:
https://www.getinvolvedinnisfil.ca/7thline

Please contact me if you require any additional information.
Regards,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

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Client's Guide to Preliminary Screening for Species at Risk

Ministry of the Environment, Conservation and Parks

Species at Risk Branch, Permissions and Compliance

DRAFT - May 2019

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1.0 Purpose, Scope, Background and Context

1.1 Purpose of this Guide

This guide has been created to:

- help clients better understand their obligation to gather information and complete a preliminary screening for species at risk before contacting the ministry,
- outline guidance and advice clients can expect to receive from the ministry at the preliminary screening stage,
- help clients understand how they can gather information about species at risk by accessing publicly available information housed by the Government of Ontario, and
- provide a list of other potential sources of species at risk information that exist outside the Government of Ontario.

It remains the client's responsibility to:

- carry out a preliminary screening for their projects,
- obtain best available information from all applicable information sources,
- conduct any necessary field studies or inventories to identify and confirm the presence or absence of species at risk or their habitat,
- consider any potential impacts to species at risk that a proposed activity might cause, and
- comply with the *Endangered Species Act* (ESA).

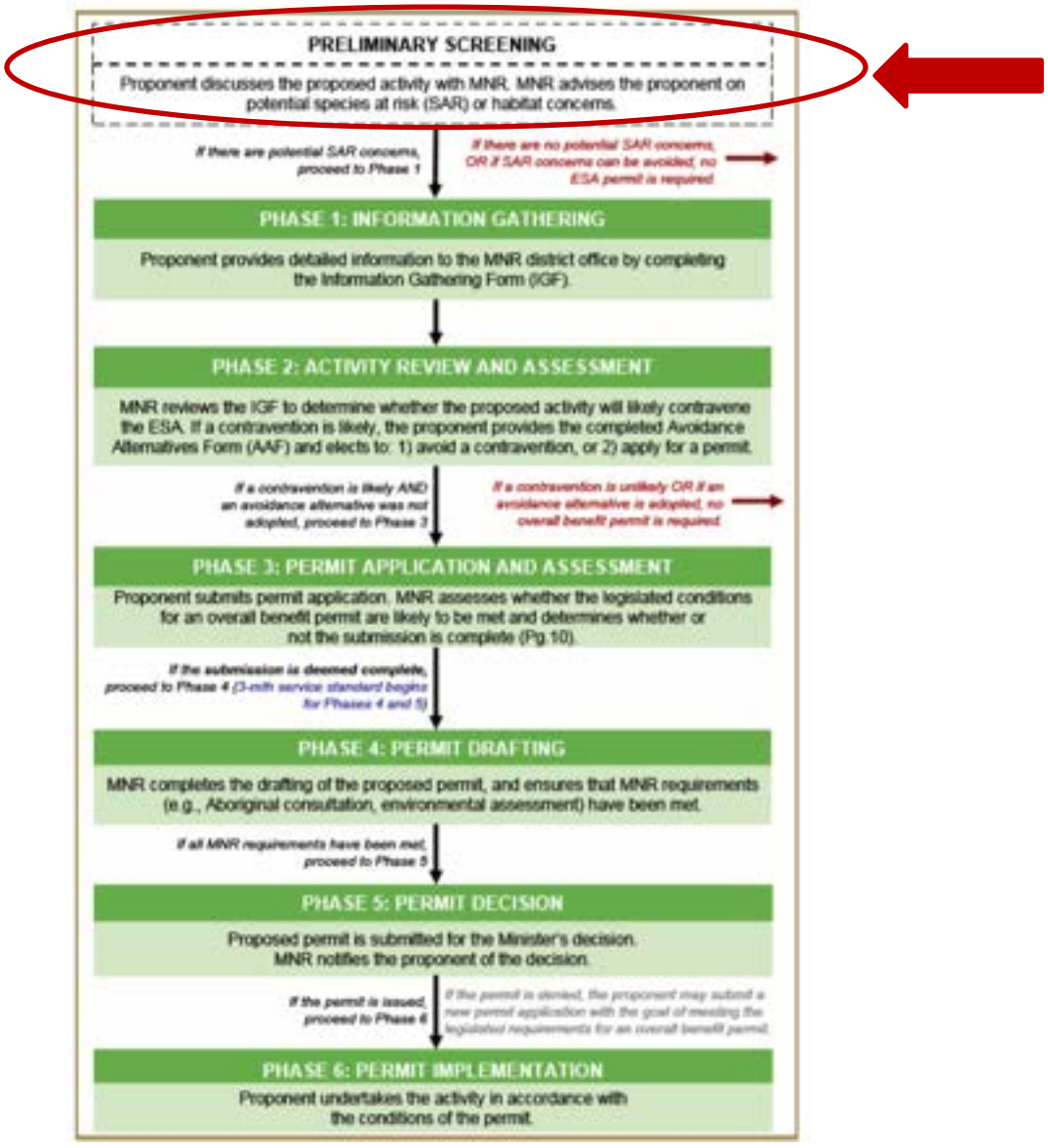
To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide, at a minimum, prior to contacting Government of Ontario ministry offices for further information or advice.

1.2 Scope

This guide is a resource for clients seeking to understand if their activity is likely to impact species at risk or if they are likely to trigger the need for an authorization under the ESA. It is not intended to circumvent any detailed site surveys that may be necessary to document species at risk or their habitat nor to circumvent the need to assess the impacts of a proposed activity on species at risk or their habitat. This guide is not an exhaustive list of available information sources for any given area as the availability of information on species at risk and their habitat varies across the province. This guide is intended to support projects and activities carried out on Crown and private land, by private landowners, businesses, other provincial ministries and agencies, or municipal government.

1.3 Background and Context

To receive advice on their proposed activity, clients must first determine whether any species at risk or their habitat exist or are likely to exist at or near their proposed activity, and whether their proposed activity is likely to contravene the ESA. Once this step is complete, client may contact the ministry at SAROntario@ontario.ca to discuss the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. At this stage, the ministry can provide advice and guidance to the client about potential species at risk or habitat concerns, measures that the client is considering to avoid adverse effects on species at risk or their habitat and whether additional field surveys are advisable. This is referred to as the "Preliminary Screening" stage. For more information on additional phases in the diagram below, please refer to the *Endangered Species Act Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits* policy available online at https://www.ontario.ca/page/species-risk-overall-benefit-permits



2.0 Roles and Responsibilities

To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide prior to contacting Government of Ontario ministry offices for further information or advice.

Step 1: Client seeks information regarding species at risk or their habitat that exist, or are likely to exist, at or near their proposed activity by referring to all applicable information sources identified in this guide.

Step 2: Client reviews and consider guidance on whether their proposed activity is likely to contravene the ESA (see section 3.4 of this guide for guidance on what to consider).

Step 3: Client gathers information identified in the checklist in section 4 of this guide.

Step 4: Client contacts the ministry at SAROntario@ontario.ca to discuss their preliminary screening. Ministry staff will ask the client questions about the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. Ministry staff will also ask the client for their interpretation of the impacts of their activity on species at risk or their habitat as well as measures the client has considered to avoid any adverse impacts.

Step 5: Ministry staff will provide advice on next steps.

Option A: Ministry staff may advise the client they can proceed with their activity without an authorization under the ESA where the ministry is confident that:

- no protected species at risk or habitats are likely to be present at or near the proposed location of the activity; or
- protected species at risk or habitats are known to be present but the activity is not likely to contravene the ESA; or
- through the adoption of avoidance measures, the modified activity is not likely to contravene the ESA.

Option B: Ministry staff may advise the client to proceed to Phase 1 of the overall benefit permitting process (i.e. Information Gathering in the previous diagram), where:

- there is uncertainty as to whether any protected species at risk or habitats are present at or near the proposed location of the activity; or
- the potential impacts of the proposed activity are uncertain; or
- ministry staff anticipate the proposed activity is likely to contravene the ESA.

3.0 Information Sources

Land Information Ontario (LIO) and the Natural Heritage Information Centre (NHIC) maintain and provide information about species at risk, as well as related information about fisheries, wildlife, crown lands, protected lands and more. This information is made available to organizations, private individuals, consultants, and developers through online sources and is often considered under various pieces of legislation or as part of regulatory approvals and planning processes.

The information available from LIO or NHIC and the sources listed in this guide should not be considered as a substitute for site visits and appropriate field surveys. Generally, this information can be regarded as a starting point from which to conduct further field surveys, if needed. While this data represents best available current information, it is important to note that a lack of information for a site does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. The absence of species at risk location data at or near your site does not necessarily mean no species at risk are present at that location. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats.

Information on the location (i.e. observations and occurrences) of species at risk is considered sensitive and therefore publicly available only on a 1km square grid as opposed to as a detailed point on a map. This generalized information can help you understand which species at risk are in the general vicinity of your proposed activity and can help inform field level studies you may want to undertake to confirm the presence, or absence of species at risk at or near your site.

Should you require specific and detailed information pertaining to species at risk observations and occurrences at or near your site on a finer geographic scale; you will be required to demonstrate your need to access this information, to complete data sensitivity training and to obtain a Sensitive Data Use License from the NHIC. Information on how to obtain a license can be found online at https://www.ontario.ca/page/get-natural-heritage-information.

Many organizations (e.g. other Ontario ministries, municipalities, conservation authorities) have ongoing licensing to access this data so be sure to check if your organization has this access and consult this data as part of your preliminary screening if your organization already has a license.

3.1 Make a Map: Natural Heritage Areas

The Make a Natural Heritage Area Map (available online at http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US provides public access to natural heritage information, including species at risk, without the user needing to have Geographic Information System (GIS) capability. It allows users to view and identify generalized species at risk information, mark areas of interest, and create and print a custom map directly from the web application. The tool also shows topographic information such as roads, rivers, contours and municipal boundaries.

Users are advised that sensitive information has been removed from the natural areas dataset and the occurrences of species at risk has been generalized to a 1-kilometre grid to mitigate the risks to the species (e.g. illegal harvest, habitat disturbance, poaching).

The web-based mapping tool displays natural heritage data, including:

- Generalized Species at risk occurrence data (based on a 1-km square grid),
- Natural Heritage Information Centre data.

Data cannot be downloaded directly from this web map; however, information included in this application is available digitally through Land Information Ontario (LIO) at https://www.ontario.ca/page/land-information-ontario.

3.2 Land Information Ontario (LIO)

Most natural heritage data is publicly available. This data is managed in a large provincial corporate database called the LIO Warehouse and can be accessed online through the LIO Metadata Management Tool at https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home. This tool provides descriptive information about the characteristics, quality and context of the data. Publicly available geospatial data can be downloaded directly from this site.

While most data are publicly available, some data may be considered highly sensitive (i.e. nursery areas for fish, species at risk observations) and as such, access to some data maybe restricted.

3.3 Additional Species at Risk Information Sources

- The Breeding Bird Atlas can be accessed online at http://www.birdsontario.org/atlas/index.jsp?lang=en
- eBird can be accessed online at https://ebird.org/home
- iNaturalist can be accessed online at https://www.inaturalist.org/
- The Ontario Reptile and Amphibian Atlas can be accessed online at https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas
- Your local Conservation Authority. Information to help you find your local Conservation Authority can be accessed online at https://conservationontario.ca/conservation-authorities/find-a-conservation-authority/

  Local naturalist groups or other similar community-based organizations
- Local Indigenous communities
- Local land trusts or other similar Environmental Non-Government Organizations
- Field level studies to identify if species at risk, or their habitat, are likely present or absent at or near the site.
- When an activity is proposed within one of the continuous caribou ranges, please be sure to consider the caribou Range Management Policy. This policy includes figures and maps of the continuous caribou range, can be found online at https://www.ontario.ca/page/range-management-policy-support-woodland-caribou-conservation-and-recovery

3.4 Information Sources to Support Impact Assessments

- Guidance to help you understand if your activity is likely to adversely impact species at risk or their habitat can be found online at https://www.ontario.ca/page/policy-guidance-harm-and-harass-under-endangered-species-act and https://www.ontario.ca/page/categorizing-and-protecting-habitat-under-endangered-species-act
- A list of species at risk in Ontario is available online at https://www.ontario.ca/page/species-risk-ontario. On this webpage, you can find out more about each species, including where is lives, what threatens it and any specific habitat protections that apply to it by clicking on the photo of the species.

4.0 Check-List

Please feel free to use the check list below to help you confirm you have explored all applicable information sources and to support your discussion with Ministry staff at the preliminary screening stage.

- ✓ Land Information Ontario (LIO)
- ✓ Natural Heritage Information Centre (NHIC)
- ✓ The Breeding Bird Atlas
- ✓ eBird
- ✓ iNaturalist
- ✓ Ontario Reptile and Amphibian Atlas
- ✓ List Conservation Authorities you contacted:_____

  _____
- ✓ List local naturalist groups you contacted:_____

  _____
- ✓ List local Indigenous communities you contacted:_____

  _____
- ✓ List any other local land trusts or Environmental Non-Government Organizations you contacted:_____

  _____
- ✓ List and field studies that were conducted to identify species at risk, or their habitat, likely to be present or absent at or near the site: _____

  _____
- ✓ List what you think the likely impacts of your activity are on species at risk and their habitat (e.g. damage or destruction of habitat, killing, harming or harassing species at risk):_____

  _____

Sylvia Waters

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Monday, April 01, 2019 2:33 PM
To: Deanna De Forest
Cc: Sylvia Waters
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #4 meeting

Deanna my apologies for the delayed response, however you may have been aware of the transition of the responsibility for matters concerning the *Endangered Species Act, 2007* (ESA) from the Ministry of Natural Resources and Forestry to the Ministry of the Environment, Conservation and Parks (MECP). Effective today this office will no longer be directing reviews of files related to matters involving species at risk and the ESA. With action items leading up to the ESA transition to MECP I only managed to give the POH#2 materials a brief look and did not see anything that raised immediate concern.

However as noted above the MNRF will no longer be the agency responsible for reviews concerning SAR. As part of the transition we were to identify committees we were involved with that may require continued involvement of MECP with respect to SAR. I flagged in a share-point tracker for MECP the 7th Line Innisfil municipal EA Technical Advisory Committee. Although MNRF will remain involved regarding potential impacts to natural heritage values not related to the ESA, you may wish to follow-up with MECP regarding their participation on the TAC concerning SAR. We appreciate the immediate concerns that this note may raise. Questions concerning your file can be directed to SAROntario@ontario.ca.

Deanna do call with any further questions.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Sent: March 15, 2019 10:37 AM
To: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #4 meeting

Hi Graham,
Just following up to see if you had any comments or questions on the Public Open House #2 materials for the 7th Line EA in Innisfil as we prepare for the open house on April 8th
(changed from April 3rd).
Thanks,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: Deanna De Forest
Sent: Thursday, February 28, 2019 10:25 AM
To: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Cc: Drew Davidge <Drew.Davidge@rjburnside.com>; Magdalena Koehler <mkoehler@innisfil.ca>; Carolina Cautillo <ccautillo@innisfil.ca>; Sylvia Waters <Sylvia.Waters@rjburnside.com>
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #4 meeting

Hi Graham,
Please find a link below to the materials for the 7th Line (west) EA TAC 4 meeting of February 28, 2019. (The link will expire April 29, 2019). The TAC 4 meeting will consist of a review of POH#2 materials and the preliminary preferred design solution.
Included in the link are the draft Public Open House #2 boards and a PDF of a roll plan illustrating approximate alignment and grading of the preliminary preferred design alternative – to Widen the Road on the north and south side in a best fit combination, with paved shoulders and reconstruction of the road surface.
https://rjburnside-my.sharepoint.com/:f:/p/deanna_deforest/EmV-b2gC2kJBk4H9X1OLCJYBsHiAVUGMFpmb-LLNs9bJEA?e=rUDaDM

Please let me know if you have any questions or comments. The Public Open House #2 is currently scheduled for Wednesday, April 3rd from 3:00 PM to 8:00 PM.
Thanks Graham,

Deanna

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Tuesday, February 26, 2019 4:14 PM
To: Sylvia Waters <Sylvia.Waters@rjburnside.com>
Cc: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #4 meeting

Hello Sylvia, I am confirming that I again will not be able to attend the TAC meeting. I can be available to call in if that would be helpful. Please confirm a call line/details, and if I should have received already materials to be discussed – i.e. summary evaluation of design solutions and POH#2 materials?

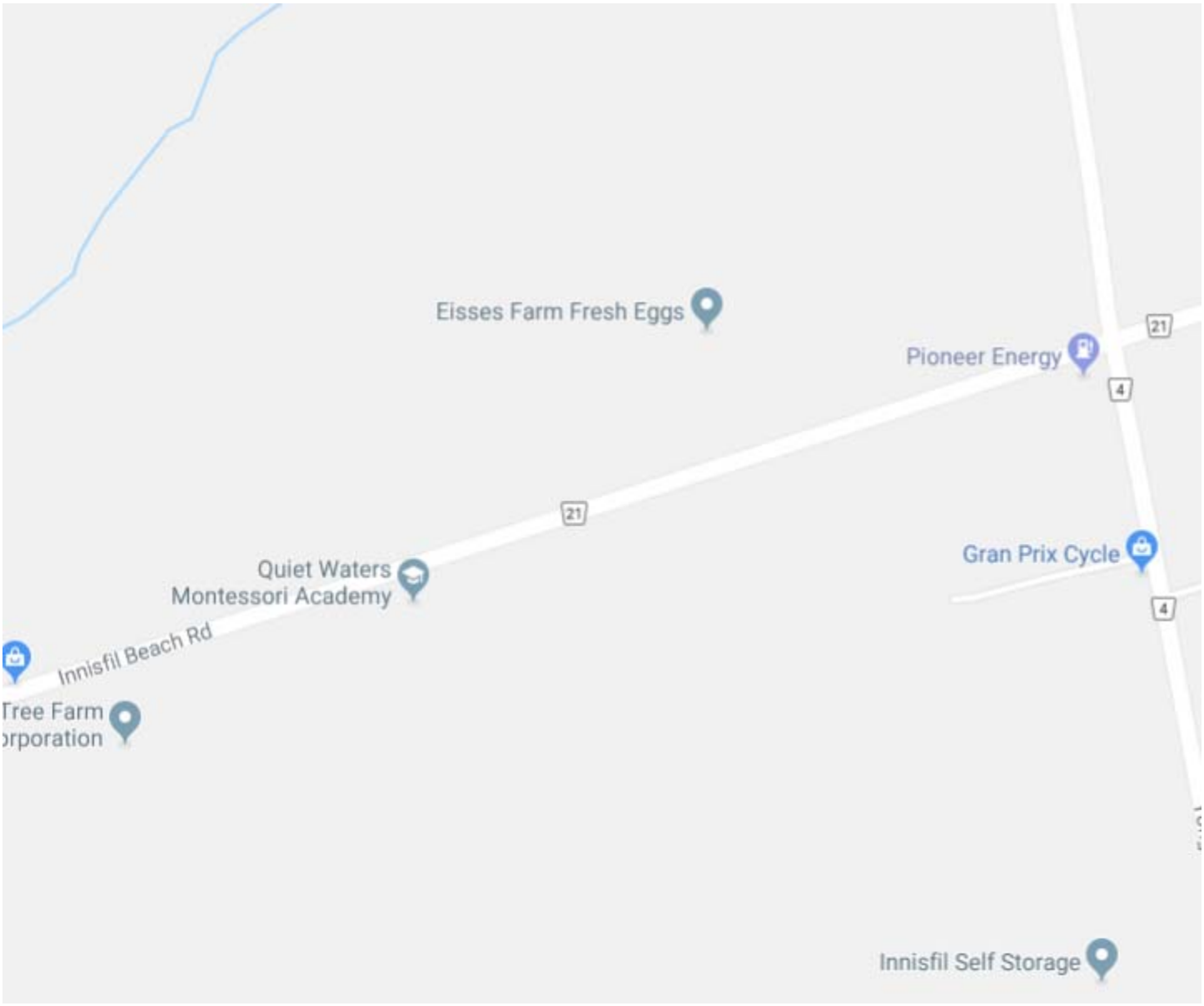
Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

-----Original Appointment-----
From: Sylvia Waters <Sylvia.Waters@rjburnside.com>
Sent: January 23, 2019 1:06 PM
To: mkoehler@innisfil.ca; ccautillo@innisfil.ca; dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; Findlay, Graham (MNRF); Christian.Meile@simcoe.ca; t.stevenson@lsrca.on.ca; tonym@innpower.ca; Drew Davidge; Deanna De

Forest; smontgomery@innisfil.ca
Subject: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #4 meeting
When: February 28, 2019 1:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Town of Innisfil, Operations Office Meeting Room 2, 7253 Yonge Street, Innisfil

Purpose: Summary evaluation of design solutions, review POH #2.



BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: +1 800-265-9662 Direct: +1 705-797-4379
www.rjburnside.com

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Thank you.

Sylvia Waters

From: Deanna De Forest
Sent: Thursday, January 10, 2019 2:42 PM
To: Findlay, Graham (MNRF)
Cc: Carolina Cautillo; Magdalena Koehler; Drew Davidge
Subject: FW: Responses to Review Comments -Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Graham,
Thanks for your comments on the draft studies completed for 7th Line (west) EA in Innisfil. In an effort to address your questions and comments in the email chain below (2 emails), please find responses in italics below.

With an appreciation of the challenge of summarizing the potential impacts from the reports for each of the supporting studies, the existing conditions and features identified in the reports were compiled and illustrated on an aerial photo of the study corridor and the potential impact/footprint of each of the alternatives was illustrated as an overlay for TAC meeting 2. Potential alternatives have been further refined concurrently with the supporting studies as part of the EA process. Additional description of the alternatives was developed and presented at TAC meeting 2. A copy of the presentation materials are included in the minutes of the TAC meeting.

As part of the Class EA process, a table format is used to evaluate the potential impacts of the alternative solutions against criteria summarized under the natural, social, technical and financial environment of the study area. The evaluation utilizes the supporting studies to inform the existing conditions, criteria to be considered and potential impacts leading to a preliminary preferred alternative. The evaluation of the alternatives was presented as part of TAC meeting #3 (previously emailed for you reference).

Please contact me if you would like to discuss any of the comments and responses,
Thanks,
Deanna

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Wednesday, October 17, 2018 2:40 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Cc: Sylvia Waters <Sylvia.Waters@rjburnside.com>; dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; Christian.Meile@simcoe.ca; t.stevenson@lsrca.on.ca; tonym@innpower.ca; smontgomery@innisfil.ca; mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Deanna with a brief search through digital EA files I couldn't find a decent example of a table I recommended. However, I clearly could have expanded on the context of those comments under the 4th bullet. Essentially the comment is rooted in the challenge of reading multiple reports that summarized individually the potential impacts associated with each road alternative. Keeping track of the various potential impacts and trying to appreciate the significance of each was proving difficult. I was recommending all of the potential environmental impacts might be better presented in a table against the road alternatives, whereby it could visually be more efficient to evaluate the road alternatives. It was just a thought.

Further, and perhaps my expectations were higher than what is required at this point, however I felt there could have been more detail in the description of the potential road alternatives that could have informed the assessment for potential impacts. The descriptions of the potential alterations of the road and the potential impacts are provided at a

broad high level. I understand the design will get evaluated in detail once an alternative is picked, but I feel some of the detail would strengthen the evaluation now.
For instance a few examples …

- What length of road would be associated with each alternative (e.g. the cul-de-sac option would impact less road length!?)

  The impacted road length is the same for all alternatives(3km) except for the cul-de-sac/dead end road and Do nothing options. However, impacted road length is not known at this time as the location of the turn-arounds have not yet been determined pending evaluation of design alternative should this option be selected as the preferred solution. The length of road impacted would still be similar (+/-5%) as the roads will still need to provide access to all properties.

- How much would each alternative change the width of the road footprint, which could potentially influence the fish/wildlife habitat values? I have it in my head the footprint of the existing road should be known, and any widening (one-way, widen road/cul-de-sac options) would mean X-metres of widening of the road. Mitigations at detail design might reduce this, but the worst-case would inform the potential scale of impact with each alternative. Reading the reports I could not get an appreciation of what degree of widening was being discussed, thus what did that mean to for example the reach of creek with brook trout.

  Some widening of the road is anticipated for the cul-de-sac/dead end road and widen the road alternatives with improvement to the horizontal and vertical alignment. Based on existing conditions, the widening of the road footprint is anticipated to occur mostly in the east end of the study corridor with the alternatives. At this stage of the EA process, evaluation of the impact of the degree of widening is relative, pending design options and development of the amount (x-metres) of widening required, should this option be selected as the preferred solution.

- If widened how much tree clearing might be required, I would think it would be possible to provide an approximate area calculation by road alternative. This would lend to evaluating the potential impacts to forest functions like bat, deer, breeding bird habitats.

  At this stage of the EA process, evaluation of the amount of tree removal is relative, pending design options and development of the amount (x-metres) of widening and/or grading required, depending on the option be selected as the preferred solution. An approximate calculation of tree removal has been made based on the preliminary footprint of the alternatives, with the do nothing, close the road/local traffic only and one-way road having the least amount of tree clearing required, followed by widen the road with more tree clearing required and the cul-de-sac/dead end road having the greatest amount of tree clearing required.

- Potential culvert works are noted – how many culverts exist along the road, and how many might be impacted by each alternative. Is it already known at this point if culverts would needed to be replaced, which ones; do they provide fish/wildlife passage now, if not is that desired?

  There are 3 culverts that cross the road and approximately 8 driveway culverts along the study corridor. It is anticipated that culverts will be replaced where needed to ensure the long term viability of the road for the one-way road, widen the road, and cul-de-sac/dead-end road options. It is anticipated that if replacement culverts are required, they will accommodate existing flow conditions or be improved, maintaining existing fish and wildlife passage. Design for additional wildlife passage would be considered in the later stages of the EA process and during detailed design in consultation with the MNRF and LSRCA.

- Butternut trees – is it known now which alternative would require removal of the butternut tree(s), or would have potential impact within the 50m protection zone?

  Based on the approximate amount of tree removal associated with each of the alternatives, impact to Butternut is anticipated with the one-way road, widen the road and cul-de-sac/dead-end road options as a result of grading and

tree removal. Regardless of the options the Butternut Tress are closer than 50m to the existing road and any construction would be in the protection zone.

- Potential impacts to drainage features and/or watercourse (fish habitats) are noted, I thought it would be helpful to know the approximate extent of impacts by alternative – X-metres of drain or stream would need to be realigned, area of potential fish habitats impacted.

  Potential impacts to watercourses are anticipated to occur mostly in the east end of the study corridor (Tributary 3) with the one-way, widen the road and cul-de-sac/dead end road alternatives. The extent of drain or stream realignment is not know at this time pending selection of the preferred alternative and evaluation of design alternatives.

- Re the confirmed brook trout I feel that spawning habitat should be confirmed, as I noted in my comments confirmed spawning habitat and associated ground water significantly raises the concern for impacting those habitats and could influence the review of the alternatives.

  A site visit is scheduled for the week of November 5th to investigate for brook trout spawning activity and habitat.

Do call with any questions or if you wish to discuss.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Deanna De Forest [mailto:Deanna.DeForest@rjburnside.com]
Sent: October 16, 2018 1:25 PM
To: Findlay, Graham (MNRF)
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Graham,
Thank you for your comments on the draft studies for 7th Line EA. We are in the process of reviewing and addressing your comments.
In an effort to address your comment in the 4th bullet, would you be able to provide me with a suitable example of an Environmental Risk Matrix table for short and long term impacts as referenced?
Thanks,
Deanna

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Tuesday, October 09, 2018 1:26 PM
To: Sylvia Waters <Sylvia.Waters@rjburnside.com>; dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; Christian.Meile@simcoe.ca; t.stevenson@lsrca.on.ca; tonym@innpower.ca; Deanna De Forest <Deanna.DeForest@rjburnside.com>; smontgomery@innisfil.ca
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Reports reviewed by the Ministry of Natural Resources and Forestry included the Draft Assessment Reports for Trees, Aquatic Habitats, and Terrestrial Habitats.
The following comments are provided for your consideration.

- Clarification is required on whether the proposed road alternatives would be contained within the existing right-of-way (ROW), as inferred in the tree assessment report to be generally fence to fence on either side of the road? The Widen the Road and Cul-de-sac Road options reference potential property acquisitions suggesting the those alternative may extend beyond the assumed ROW.

  The proposed alternatives are anticipated to be contained with the existing ROW, however, following background review of available information, it has been identified that a portion of the existing road way at the east end of the study corridor is currently located on lands outside of the road right of way. Property acquisition is likely required to obtain ownership of the property where the existing road footprint is located outside of the ROW. The amount of property acquisition required in this area may vary depending on the preferred alternative footprint and the property needed to accommodate associated road improvements.

- The aquatic habitat assessment confirmed brook trout in Tributary 3 (aquatic sample stations 7 and 8). In addition, water temperatures recorded at sampling station 4 were reported as ~ 17^{o}C, and watercress was observed at stations 2 and 4 suggests potential groundwater inputs to area waters. Further, potential brook trout spawning substrates were noted at station 8. Brook trout are fall spawners, re-assessment of these areas in late October through November to investigate for brook trout spawning activity and habitat use would further inform the fish habitat characterization and impact assessment. Confirmation of spawning activity in areas potentially impacted by proposed road improvements would increase the sensitivity of concerns as brook trout spawning habitat is associated with ground water discharge areas. Evaluation of impacts from road improvements would need to include appropriate study of the surface and ground water flow regimes.

  Comment acknowledged. A site visit is scheduled for the week of November 5th to investigate for brook trout spawning activity and habitat.

- We agree with the noted in-water work timing window recommended on page 21 of the aquatic habitat assessment – in-water work restricted to the period July 15 to September 30. *Comment noted.*

  - As presented the potential works associated with each road alternatives and potential impacts are very generalized which weakens the comparative analysis of the alternatives. As much detail in known and potential environmental impacts and potential road improvements should be incorporated into an environmental risk matrix table of short and long-term impacts. This would more clearly support the analyses of road alternatives. The details of the alternative solutions being considered have been advanced concurrently with the supporting studies completed to characterize the existing environment. The supporting studies provide observations of the existing conditions within the study area and a high level assessment of potential impacts of the alternatives being considered based on as much details as is known .

    As part of the Class EA process, a table format will be used to evaluate the potential impacts of the alternative solutions against criteria summarized under the natural, social, technical and financial environment of the study area. The evaluation will utilize the supporting studies to inform the existing conditions, criteria to be considered and potential impacts leading to a preliminary preferred alternative. The evaluation of the alternative solutions are presented at TAC meeting #3.

- The *Endangered Species Act, 2007 (ESA)* provides protection to members of threatened and endangered species (Section 9 of the ESA) and their habitats (Section 10 of the ESA).
- Three butternut trees, an endangered species, were identified within the study area. A few points concerning butternut trees …*Comments noted*

- In accordance with regulations under the ESA Butternut Health Assessments (BHA) were completed for the three trees. The BHAs and a hybridity test confirmed two of the three trees are retainable (Category 2) which may require some authority under the ESA should they potentially be impacted by the preferred alternative.
- The tree assessment report notes minimum tree protection zones were calculated for each tree inventoried. Attached for your reference is MNRF's current policy direction concerning protection of butternut trees. Each butternut in Ontario should be protected with a 50m radius centred on the trunk or stem of the butternut tree/sapling/seedling.
- For butternut being retained should any activities associated with the rehabilitation of the 7th Line be within the 50m protection zone around a butternut an impact assessment would be required to evaluate for potential impacts on the tree or its general habitat (i.e. to determine if the activity would contravene Sections 9 or 10 of the ESA).
- For butternut proposed to be removed, up to 10 Category 2 trees may be removed in accordance with the provisions of the ESA, and Ontario Regulation 242/08 - Exemptions Requiring Notice To Be Given On Registry – Exemption 23.7 – Butternut (https://www.ontario.ca/laws/regulation/080242).

- Barn swallow is an Threatened species designated under the ESA. The terrestrial assessment reports a barn swallow nest on a structure at Centennial Park. We note barn swallow are known to inhabit culvert structures as well, it is not clear if the culverts along the 7th Line were checked for barn swallow when making the noted incidental wildlife observations (it does not appear breeding bird surveys were completed to inform the study). Checking culverts for barn swallow nests should be completed for any proposed culvert repair or replacement.

  Comment noted. Barn Swallow nest were not observed in the culverts crossing 7th Line. The culverts were observed to be corrugated steel pipe (CSP) and not anticipated to provide preferred habitat for nesting barn swallow based on the type of culvert structure.

  - Timing restriction recommendations are provided as they relate to nesting migratory birds (April 1 – August 31), and species at risk (SAR) bat (April 1 to October 31) and SAR turtle (May 15 to July) active seasons. To reduce potential confusion we recommend all of the wildlife related timing recommendations harmonize under a vegetation clearly timing restriction of April1 to October 31. *Comment noted. A recommended wildlife timing window will be harmonized and carried forward to the Environmental Study Report (ESR) which summarizes the MCEA process*

- In light of the above noted fish habitat in-water work timing window vegetation clearing and in-water construction activities may need to be coordinated in order to maintain compliance to both sets of work timing recommendations. That is, in anticipation of proposed in-water work, site preparation (vegetation clearing) may need to be completed earlier in accordance to the vegetation clearing timing restriction. *Comment noted.*

Do not hesitate to call with any
questions.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: September 20, 2018 3:35 PM
To: mkoehler@innisfil.ca; dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; Findlay, Graham (MNRF); Christian.Meile@simcoe.ca; t.stevenson@lsrca.on.ca; tonym@innpower.ca; Drew Davidge; Deanna De Forest; smontgomery@innisfil.ca; ccautillo@innisfil.ca
Subject: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #2 meeting

Technical Advisory Committee
Reminder of the 2nd meeting of the TAC regarding the Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements.

DATE: October 4,
TIME: 1:30-3:30
LOCATION: Town of Innisfil, Operations Office Meeting Room 2, 7253 Yonge Street, Innisfil

Attached are the Agenda for TAC #2 and the Minutes of TAC#1.

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4379
www.rjburnside.com

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****

Sylvia Waters

From: Deanna De Forest
Sent: Friday, September 21, 2018 9:19 AM
To: Findlay, Graham (MNRF)
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Graham,
Please see the attached links to the draft reports, as requested:
Aquatic Habitat Assessment
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EXSeYiWn9K1FgGHmuDUgwlQB_s1fdwderwvHl-HjdTnZkw?e=Vjgp9m

Terrestrial Habitat Assessment
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EZ55Rpw8OL5FjJibRcdjPKkBI6WV9co9KQfr9ARviB_ctQ?e=fV8Imz

Tree Assessment
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EQ7u_KnrnvFBnEaMoMJgDVABMYTjXWYJT2HAM2c3rkYCaA?e=dqGFVM

Please note the links will expire on October 8th, 2018.

Regards,
Deanna

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Thursday, September 20, 2018 3:48 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Deanna the reports we should have a look at include the Aquatic Habitat Assessment; Terrestrial Habitat Assessment and Tree Assessment reports. We'll leave the stormwater and geotechnical reviews to the Town and LSRCA.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Deanna De Forest [mailto:Deanna.DeForest@rjburnside.com]
Sent: September 18, 2018 2:59 PM
To: dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; smontgomery@innisfil.ca; Findlay, Graham (MNRF); Christian.Meile@simcoe.ca; t.stevenson@lsrca.on.ca; tonym@innpower.ca

Technical Advisory Committee
Reminder of the 2nd meeting of the TAC regarding the Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements.

DATE: October 4,
TIME: 1:30-3:30
LOCATION: Town of Innisfil, Operations Office Meeting Room 2, 7253 Yonge Street, Innisfil

Attached are the Agenda for TAC #2 and the Minutes of TAC#1.

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
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www.rjburnside.com

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****

Sylvia Waters

From: Deanna De Forest
Sent: Friday, September 21, 2018 9:19 AM
To: Findlay, Graham (MNRF)
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Graham,
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Aquatic Habitat Assessment
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EXSeYiWn9K1FgGHmuDUgwlQB_s1fdwderwvHl-HjdTnZkw?e=Vjgp9m

Terrestrial Habitat Assessment
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EZ55Rpw8OL5FjJibRcdjPKkBI6WV9co9KQfr9ARviB_ctQ?e=fV8Imz

Tree Assessment
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EQ7u_KnrnvFBnEaMoMJgDVABMYTjXWYJT2HAM2c3rkYCaA?e=dqGFVM

Please note the links will expire on October 8th, 2018.

Regards,
Deanna

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Thursday, September 20, 2018 3:48 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Deanna the reports we should have a look at include the Aquatic Habitat Assessment; Terrestrial Habitat Assessment and Tree Assessment reports. We'll leave the stormwater and geotechnical reviews to the Town and LSRCA.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

Sylvia Waters

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Monday, May 28, 2018 3:19 PM
To: Sylvia Waters
Subject: RE: Invitation to technical advisory committee, Town of Innisfil Municipal Class Environmental Assessment , 7th line between 10th Side Road and Yonge Street improvements

Hello Sylvia I can be our initial contact and attend the June meeting. Available dates presently include June 20-22 & 25-27.

Regards,

Graham Findlay
Management Biologist
Huronia Resources Management Team,
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: May 25, 2018 4:29 PM
To: dcole@innisfil.ca; T. Cane (tcane@innisfil.ca); smackenzie@innisfil.ca; kjacobs@innisfil.ca; tonym@innpower.ca; Christian Meile (Christian.Meile@simcoe.ca); a.brown@lsrca.on.ca; Findlay, Graham (MNRF)
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge; Deanna De Forest
Subject: Invitation to technical advisory committee, Town of Innisfil Municipal Class Environmental Assessment , 7th line between 10th Side Road and Yonge Street improvements

Hello,

The Town of Innisfil (Town) is initiating a Municipal Class Environmental Assessment (EA) to evaluate alternatives for improvements to the 7th Line between 10th Side Road and Yonge Street.

The Town would like to request your participation as a member of a Technical Advisory Committee (TAC). The TAC will provide input on the planning process for the 7th Line West EA (Yonge Street to 10th Side Road) study.

There are a total of five (5) TAC meetings planned for this project over the course of a year, with the first meeting planned for mid-June. As a member of the TAC, your contribution to the planning process for the EA is anticipated to include input into alternative solutions for improvements, review and discussion of results of field investigations and studies assessing the existing conditions in the study area, review of public open house materials, and review of the evaluation of alternative solutions including discussion of possible impacts and mitigation measures.

Please confirm via return email:

1. whether you are the applicable contact for your organization or department, and

2. your availability to participate.

Your reply by email no later than June 1, 2018 would be appreciated.

We will collect your responses, determine meeting dates for the first meeting, and send an invitation and Agenda by email to TAC participants. The meetings will be held at the Town of Innisfil offices at 2101 Innisfil Beach Road.

BURNSIDE

Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4379
www.rjburnside.com

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****

Sylvia Waters

From: Tom Hogenbirk <T.Hogenbirk@lsrca.on.ca>
Sent: Thursday, June 13, 2019 8:36 AM
To: Sylvia Waters; Deanna De Forest
Cc: Kate Lillie; Taylor Stevenson
Subject: RE: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #5 meeting
Attachments: 7th Line West of Yonge.pdf

Deanna / Sylvia:

LSRCA Engineering has one comment:

The ESR needs to include a section on potential impacts to the flood plain and recommended mitigation measures. See attached drawing for FP mapping in this area.

Tom Hogenbirk, P.Eng.
Director, Engineering
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 240 | 1-800-465-0437
t.hogenbirk@LSRCA.on.ca | www.LSRCA.on.ca

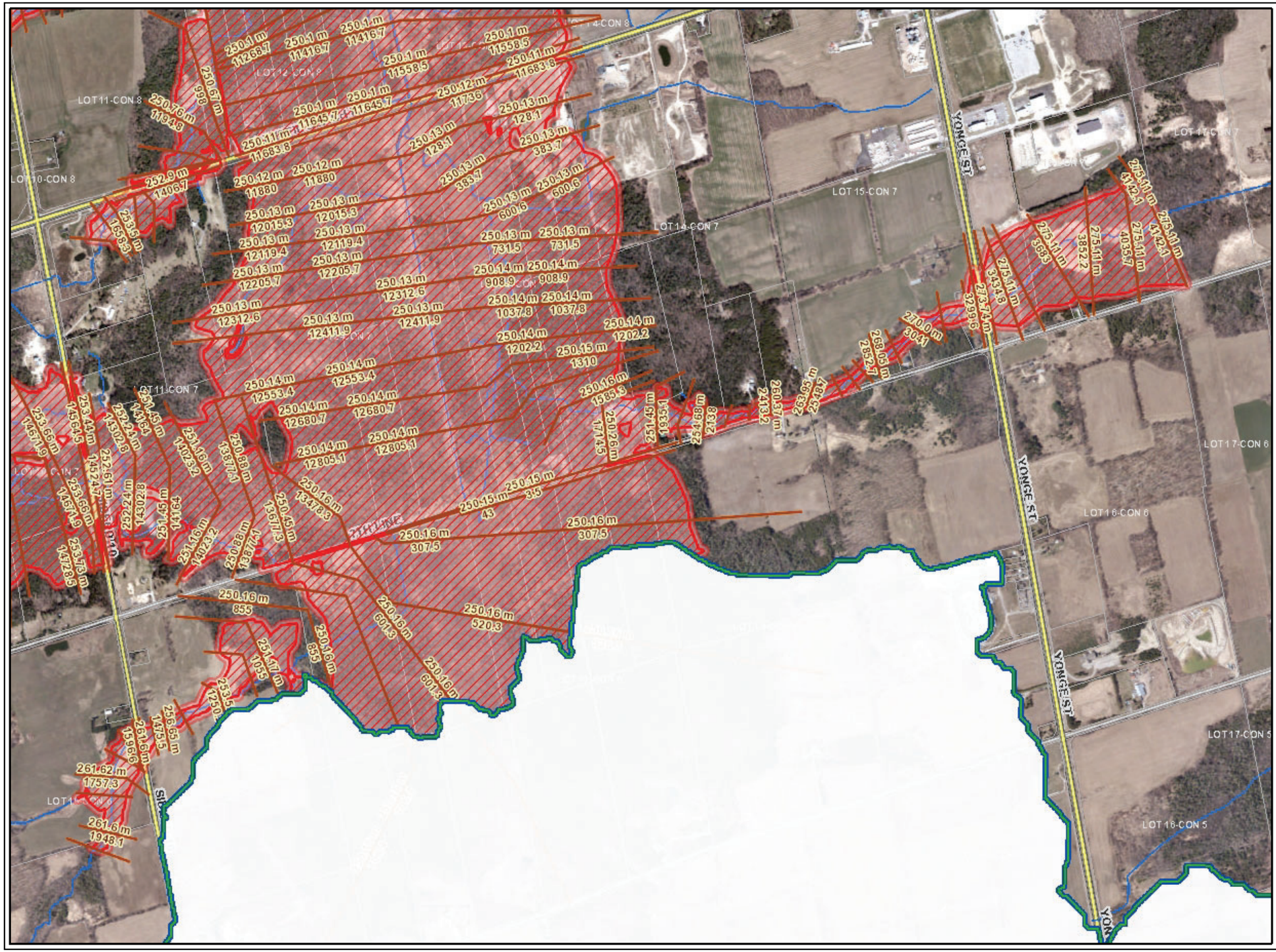
Twitter: @LSRCA
Facebook: LakeSimcoeConservation

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From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: June 11, 2019 2:52 PM
To: mkoehler@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; graham.findlay@ontario.ca; Christian.Meile@simcoe.ca; Taylor Stevenson; tonym@innpower.ca; Drew Davidge; Deanna De Forest; smontgomery@innisfil.ca; ccautillo@innisfil.ca
Cc: Tom Hogenbirk; Ashlea Brown
Subject: Town of Innisfil Municipal Class EA 7th line between 10th Side Road and Yonge Street improvements TAC #5 meeting

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Hello,
A friendly reminder of the upcoming Technical Advisory Committee Meeting #5, on Wednesday June 19, 2019, Room 4 at the Town Hall from 1:30 to 3:00pm, to review and discuss the 7th Line (west) EA from Young Street to 10th Sideroad in Innisfil DRAFT Environmental Study Report (ESR). In advance of our Technical Advisory Committee Meeting #5, please provide any comments on the ESR using the attached form and return it via email to Deanna.Deforest@rjburnside.com **by June 14, 2019**, for review and discussion at the June 19th meeting. The ESR is available at the link below for your review as a member of our Technical Advisory Committee for the project. https://rjburnside-my.sharepoint.com/:f:/p/deanna_deforest/EvfPnQbL5JFCt9FCpljkVEgBvGc5zVzk9N9mxSdbOTqkVg?e=1pjWlf
(link expires June 21, 2019)



Features

- LSRCA Watershed Boundary
- LSPP Watershed Boundary
- Cross Sections - Planning
- Cross Sections - Engineering
- Floodplain
  - Floodplain
  - Spill
- Floodplain Setback
- Assessment Parcel
- Lot and Concession
- Watercourse
- Lake Simcoe
- Roads
  - Hwy 400 Series
  - Highway, Arterials
  - Local Road
- Railway
- Lower Tier Municipality

Mapped By:

Printed On: 6/13/2019

Scale: 1: 12,982

WGS_1984_Web_Mercator_Auxiliary_Sphere

Lake Simcoe Region conservation authority

This product was produced by the Lake Simcoe Region Conservation Authority and some information depicted on this map may have been compiled from various sources. While every effort has been made to accurately depict the information, data/mapping errors may exist. This map has been produced for illustrative purposes from an interactive web mapping site. LSRCA GIS Services DRAFT printed 2019. © LAKE SIMCOE REGION CONSERVATION AUTHORITY, 2019. All Rights Reserved. The following data sets of Assessment Parcel, Roads, Uppe & Lower Tier Municipalities, Wetlands are © Queens Printer for Ontario Reproduced with Permission, 2019. The Current Regulation Limit and Boundary data sets are derived products from several datasets. Orthophotography 2002, 2005, 2007-2009, 2011-2018, © First Base Solutions, Inc.

659 0 330 659 Meters

Sylvia Waters

From: Deanna De Forest
Sent: Monday, January 14, 2019 9:56 AM
To: Taylor Stevenson
Cc: Carolina Cautillo; Magdalena Koehler; Drew Davidge
Subject: FW: Responses to LSRCA -Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Taylor
Thanks for your comments on the draft Aquatic and Terrestrial Habitat Assessments for the 7th Line (west) EA in Innisfil. In an effort to address some of your questions and comments on the draft reports, please find responses in italics.

To summarize the potential impacts of the alternatives identified in the draft reports for each of the supporting studies, the existing conditions and features identified in the reports were compiled and illustrated on an aerial photo of the study corridor and the potential impact/footprint of each of the alternatives was illustrated as an overlay for the purpose of TAC meeting #2. Potential alternatives have been further refined concurrently with the supporting studies as part of the EA process. Additional description of the alternatives was developed and presented at TAC meeting 2. A copy of the presentation materials are included in the minutes of the TAC meeting.

As part of the Class EA process, a table format is used to evaluate the potential impacts of the alternative solutions against criteria summarized under the natural, social, technical and financial environment of the study area. The evaluation utilizes the supporting studies to inform the existing conditions, criteria to be considered and potential impacts leading to a preliminary preferred alternative. The evaluation of the alternatives was presented as part of TAC meeting #3.

Please contact me if you would like to discuss,
Thanks,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: Taylor Stevenson <T.Stevenson@lsrca.on.ca>
Sent: Friday, October 05, 2018 11:01 AM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>; dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; smontgomery@innisfil.ca; graham.findlay@ontario.ca; Christian.Meile@simcoe.ca; tonym@innpower.ca
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge <Drew.Davidge@rjburnside.com>; Tom Hogenbirk <T.Hogenbirk@lsrca.on.ca>; Shauna Fernandes <S.Fernandes@lsrca.on.ca>
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Good morning Deanna:

The LSRCA has reviewed both the Aquatic and Terrestrial Habitat Assessments and provides the following comments:

- Based upon the impacts to the ecosystems, the LSRCA prefers the alternative of permanent road closure or the use of the roundabout in order to accommodate existing homes. These alternatives would maintain the connected system of Lovers Creek and the watercourses without long-term permanent impacts. *Comment noted.*

- The aquatic and terrestrial assessments should include an environmental risk matrix table based upon the long-term and short-term impacts in order to demonstrate the preferred alignment. *The assessments completed in support of the MCEA provide observations of the existing conditions within the study area and a high level assessment of potential impacts of the alternatives being considered in support of the evaluation of alternatives and selection of the preferred alternative. The potential impacts of the alternatives on the existing terrestrial and aquatic environments identified in the assessments are considered in the evaluation of alternatives along with the potential impacts of the alternatives on the existing conditions of the technical, socio-economic and financial environment, as part of the MCEA process. Thus, potential impacts and mitigation measures will be further considered once the preferred alternative is selected and potential design alternatives are evaluated. You can expect to see this information at a future TAC meeting.*

- The studies are focused on the immediate impacts within the road right-of-way and should extend to fragmentation impacts at a regional scale (connectivity, increased disturbance during breeding windows, increased salt concentrations to the watercourses etc….). *Comment noted. Based on the potential footprint of the alternatives being considered, habitat fragmentation is not anticipated to occur beyond existing conditions. The One-way option has an overall road width of approximately 4.5m which does not increase paved road surface beyond existing and may result in decrease of paved surface in some areas. For the Widen the Road option, the paved surface is anticipated to be widened by approximately 1.2m on either side in select areas in the east end. This small widening is not expected to intensify habitat fragmentation effects. Alterations to water chemistry and associated residual effects of salt application are not anticipated to increase beyond existing conditions. None of the alternatives are anticipated to result in a significant change from the current application of road salt or sand or increased traffic disturbance*.

- The reports seem to suggest that the culverts will likely just be extended however a full road ecology matrix of species and openness ratios should be demonstrated. Replacement appropriate structures should be incorporated that support both terrestrial and aquatic species including deer movement. Further support design principles should be recommended such as exclusion fencing, culvert benches, wildlife ramps among others when appropriate. *Comment noted. Should culvert replacement be required, potential impacts and mitigation measures will be further considered when potential design alternatives are evaluated. If required, this information will be presented at a future TAC meeting.*

- Grading or servicing impacts should be identified and assessed through the EIS. *At this stage of the MCEA process, details of the grading or servicing impacts are conceptual. Potential impacts of grading or servicing will be better understood when design alternatives are developed and evaluated.*

- Where applicable, the permanent loss of the Natural heritage features are subject to the LSRCA's Ecological Offsetting Plan (available on our website) with the replacement of 3:1 of wetlands and 2:1 for woodland. It is preferred this work is completed on available public Town Lands. *Comment noted.*

- Based upon the Swamp Thicket canopies, subcanopy and airphoto review, it would appear that all eco-site classifications are Swamp Woodlands not thickets that would need to be revised in the EA. *Lover's Creek PSW*

evaluation vegetation mapping provided by the MNRF was reviewed prior to field investigations. The PSW evaluation report and mapping was not included in appendices as it is considered sensitive information available by MNRF request only. In this mapping, several ts (Tall Shrub) form dominated wetlands were delineated by the MNRF. These communities and all others in the study area were verified by field studies conducted by Burnside experienced botanists trained in Ecological Land Classification and Wetland Evaluation during the growing season. ELC communities were determined based on Ecological Land Classification for Southern Ontario (Lee et al. 1998) with 2008 updates.
By definition, Thicket Swamp has tree cover of less than 25% and hydrophtic shrub species with cover of >25%. Only swamp communities with less than 25% tree cover, as observed in the field, were delineated as Thicket Swamp. Tree species were observed, as listed, in Thicket Swamp communities but were observed to be present in low numbers. Of interest, many of the trees found in these communities are standing dead snags, and might give the appearance of forested area on aerial photography. All communities were verified via field investigations. ELC Community Table will be updated for the final version as an appendix to the ESR to provide greater clarity on dominant layers and species for each ELC community.

- There are additional Significant Wildlife Habitat within the study area such as Area Sensitive Bird Species in both woodland and thicket that require assessment. *The report will be updated for the final version as an appendix to the ESR to include discussion of the potential for and possible impacts to Area Sensitive Bird Species. The need for further studies will be determined based on the potential for impact of the preferred alternative and in consultation with MNRF.*

- Please note that all watercourses in this area are considered coldwater habitat due to the reach distance for Brook Trout species. *Comment Noted*
- The Swamp Thicket Communities should be considered Swamp Deciduous habitat based upon the species and airphoto review. *Please see response to bullet 7.*
- More Significant Wildlife Habitat exists than what is presented and should be identified and assessed such as Area Sensitive Birds in both woodland and thicket. *Please see response to bullet 8*

Regards,

Taylor Stevenson
Senior Environmental Regulations Analyst/Capital Projects Analyst
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 483| 1-800-465-0437
t.stevenson@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA
Facebook: LakeSimcoeConservation

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Sylvia Waters

From: Deanna De Forest
Sent: Wednesday, September 19, 2018 12:14 PM
To: Taylor Stevenson
Cc: ccautillo@innisfil.ca; mkoehler@innisfil.ca; Drew Davidge; Sylvia Waters
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Taylor,
Please see the link to each of the requested draft reports below.
Aquatic Habitat Assessment Report
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EXSeYiWn9K1FgGHmuDUgwlQB_s1fdwderwvHl-HjdTnZkw?e=z2Mqgj

Stormwater Report
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EVbObusSRkFNhdWOZhncZWsBek7CMCHy_JuKwBTeM4KGDg?e=d0fwy6

Terrestrial Habitat Assessment Report
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EZ55Rpw8OL5FjJibRcdjPKkBI6WV9co9KQfr9ARviB_ctQ?e=TbHcwy

Tree Assessment Report
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EQ7u_KnrnvFBnEaMoMJgDVABMYTjXWYJT2HAM2c3rkYCaA?e=Vh2yKY

Please note the links will expire on October 8th.

Regards,
Deanna

From: Taylor Stevenson <T.Stevenson@lsrca.on.ca>
Sent: Wednesday, September 19, 2018 11:00 AM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Deanna:

Can we see a copy of the Aquatic Habitat Assessment Report, Stormwater Report, Terrestrial Habitat Assessment Report , Tree Assessment Report

Taylor Stevenson
Senior Environmental Regulations Analyst/Capital Projects Analyst
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 483| 1-800-465-0437
t.stevenson@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

From: Deanna De Forest [mailto:Deanna.DeForest@rjburnside.com]
Sent: September 18, 2018 2:59 PM
To: dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; smontgomery@innisfil.ca; graham.findlay@ontario.ca; Christian.Meile@simcoe.ca; Taylor Stevenson; tonym@innpower.ca
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge
Subject: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hello,
In support of the Municipal Class EA planning process for the 7th Line West EA (Yonge Street to 10th Side Road) study for the Town of Innisfil, the existing conditions of the 7th Line Study Area have been characterized in the following draft studies, available to review as a member of the project Technical Advisory Committee.

- Aquatic Habitat Assessment Report
- Noise Impact Assessment Report
- Socio-economic Assessment Report
- Stormwater Report
- Terrestrial Habitat Assessment Report
- Traffic Assessment Report
- Tree Assessment Report
- Cultural Heritage Resources Assessment Report
- Geotechnical Report
- Stage 1 Archaeological Assessment Report

Please reply with which study(ies) you would like to review. A PDF of the selected study(ies) will be forwarded via email.
Comments on the draft studies will be the topic of our next TAC meeting, scheduled for Oct 4, 2018. Details, agenda and TAC #1 meeting minutes to follow.

Regards,
Deanna De Forest
EA Coordinator,
RJ Burnside and Associates Ltd.

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Thank you.

****

Sylvia Waters

From: Taylor Stevenson <T.Stevenson@lsrca.on.ca>
Sent: Friday, July 06, 2018 9:49 AM
To: Sylvia Waters
Subject: RE: 300042232 Town of Innisfil - 7th Line EA Yonge St to 10th Sideroad TAC #1 Minutes

Hi Sylvia:

For future meetings, can you please send me any prelim designs/reports well in advance of the meeting dates so that I can have technical staff review.

Thanks

Taylor Stevenson
Senior Environmental Regulations Analyst/Capital Projects Analyst
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 483| 1-800-465-0437
t.stevenson@LSRCA.on.ca | www.LSRCA.on.ca

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Facebook: LakeSimcoeConservation

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From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: July 4, 2018 3:23 PM
To: mkoehler@innisfil.ca; ccautillo@innisfil.ca; dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; graham.findlay@ontario.ca; Christian.Meile@simcoe.ca; Taylor Stevenson; tonym@innpower.ca; Drew Davidge; Deanna De Forest; smontgomery@innisfil.ca
Subject: 300042232 Town of Innisfil - 7th Line EA Yonge St to 10th Sideroad TAC #1 Minutes

Please find attached the Minutes of the Town of Innisfil - 7th Line EA Yonge St to 10th Sideroad TAC #1.

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4379
www.rjburnside.com

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****

Sylvia Waters

From: Sylvia Waters
Sent: Monday, May 28, 2018 5:34 PM
To: 'l.mcginnis@lsrca.on.ca'
Subject: Invitation to technical advisory committee, Town of Innisfil Municipal Class Environmental Assessment , 7th line between 10th Side Road and Yonge Street improvements

Hello Laura,
As per this email message from Ashlea Brown (Please note I am currently on maternity leave returning November 9th 2018. For general enquiries please contact Laura McGinnis at l.mcginnis@lsrca.on.ca, Sincerely, Ashlea Brown) which I received, please see the email sent to Ashlea on May 25th below.

From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: May 25, 2018 4:29 PM
To: dcole@innisfil.ca; T. Cane (tcane@innisfil.ca); smackenzie@innisfil.ca; kjacobs@innisfil.ca; tonym@innpower.ca; Christian Meile (Christian.Meile@simcoe.ca); a.brown@lsrca.on.ca; Findlay, Graham (MNRF)
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge; Deanna De Forest
Subject: Invitation to technical advisory committee, Town of Innisfil Municipal Class Environmental Assessment , 7th line between 10th Side Road and Yonge Street improvements

Hello,

The Town of Innisfil (Town) is initiating a Municipal Class Environmental Assessment (EA) to evaluate alternatives for improvements to the 7th Line between 10th Side Road and Yonge Street.

The Town would like to request your participation as a member of a Technical Advisory Committee (TAC). The TAC will provide input on the planning process for the 7th Line West EA (Yonge Street to 10th Side Road) study.

There are a total of five (5) TAC meetings planned for this project over the course of a year, with the first meeting planned for mid-June. As a member of the TAC, your contribution to the planning process for the EA is anticipated to include input into alternative solutions for improvements, review and discussion of results of field investigations and studies assessing the existing conditions in the study area, review of public open house materials, and review of the evaluation of alternative solutions including discussion of possible impacts and mitigation measures.

Please confirm via return email:

1. whether you are the applicable contact for your organization or department, and

2. your availability to participate.

Your reply by email no later than June 1, 2018 would be appreciated.

We will collect your responses, determine meeting dates for the first meeting, and send an invitation and Agenda by email to TAC participants. The meetings will be held at the Town of Innisfil offices at 2101 Innisfil Beach Road.

Sylvia Waters

From: Ashlea Brown <A.Brown@lsrca.on.ca>
Sent: Friday, May 25, 2018 4:29 PM
To: Sylvia Waters
Subject: Automatic reply: Invitation to technical advisory committee, Town of Innisfil Municipal Class Environmental Assessment , 7th line between 10th Side Road and Yonge Street improvements

Please note I am currently on maternity leave returning November 9th 2018. For general enquiries please contact Laura McGinnis at l.mcginnis@lsrca.on.ca.

Sincerely,

Ashlea Brown

Sylvia Waters

From: Deanna De Forest
Sent: Thursday, January 10, 2019 1:23 PM
To: Sylvia Waters
Subject: FW: Innisfil 7th Line - TAC #2 - Comments on Draft Background Studies - 300042232
Attachments: Draft Traffic assessment comments.docx

From: Meile, Christian <Christian.Meile@simcoe.ca>
Sent: Thursday, November 08, 2018 9:49 AM
To: Drew Davidge <Drew.Davidge@rjburnside.com>
Cc: 300042232 7th Line EA Yonge St to 10th Sideroad <3000422327thLineEAYongeStto10thSideroad@rjburnside.com>
Subject: RE: Innisfil 7th Line - TAC #2 - Comments on Draft Background Studies - 300042232

Good Morning Drew,

Please find attached comments. Nothing major.

Unless something changes, most likely unable to attend meeting next week due to schedule conflict.

Regards,

Christian

From: Drew Davidge [mailto:Drew.Davidge@rjburnside.com]
Sent: Thursday, November 08, 2018 8:48 AM
To: Meile, Christian <Christian.Meile@simcoe.ca>
Cc: 300042232 7th Line EA Yonge St to 10th Sideroad <3000422327thLineEAYongeStto10thSideroad@rjburnside.com>
Subject: Innisfil 7th Line - TAC #2 - Comments on Draft Background Studies - 300042232

Christian,

Just following up on our meeting on October 4th. You had indicated the county had some minor comments on the Traffic report that could be sent by email. Can you please forward them to me. We would like to address them if possible before our meeting next week.

Thanks

Drew

BURNSIDE
Drew Davidge, P.Eng.
Project Engineer

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: +1 800-265-9662 Direct: +1 705-797-4358
www.rjburnside.com

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Thank you.

Draft Traffic Assessment Report comments Nov. 2018

R.J. Burnside & Assoc. report dated September 10, 2018

- Pg. 4 Sec. 3.1.2 – Last sentence. Will want to ensure whatever option is chosen, the issue of the posted speed not being consistent with the road design is addressed.
- Top of Pg. 12 Sec. 4.0 – the second bullet. Assuming the reference to the bypass in Bradford is the proposed MTO Bradford Link from Hwy 400 to Hwy. 404. Please confirm.
- We talked about the options to either permanently close the road, or restrict to one-way traffic, and what the enforcement implications are. Recognise this is noted in the middle of Pg. 13 but should be identified as a challenge if these options are to be considered.
- Would want to see the preferred option include some consideration to improve the traffic concern identified for East and Westbound traffic at the PM peak for the intersection of 7th Line and CR4. Recognise the westbound traffic is on the other side of the intersection and outside the study area but should be considered.

Sylvia Waters

From: Deanna De Forest
Sent: Wednesday, September 19, 2018 2:12 PM
To: Meile, Christian
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge; Sylvia Waters
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hi Christian,
Please see the link to each of the requested draft reports below.
Stormwater Report
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EVbObusSRkFNhdWOZhncZWsBek7CMCHy_JuKwBTeM4KGDg?e=d0fwy6

Traffic Assessment Report
https://rjburnside-my.sharepoint.com/:b:/p/deanna_deforest/EY6wxq3wnWxJkKS0ptNgZJMBe-8QYQ29TIwuxSRTBqJK3w?e=c0RWlg

Please note the links will expire on October 8th.

Regards,
Deanna

From: Meile, Christian <Christian.Meile@simcoe.ca>
Sent: Wednesday, September 19, 2018 1:32 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Good Afternoon Deanna,

We are most interested in the Stormwater and Traffic Assessment report. I assume we will be able to review a hard copy of the entire final product when the time comes.

Regards,

Christian

From: Deanna De Forest [mailto:Deanna.DeForest@rjburnside.com]
Sent: Tuesday, September 18, 2018 2:59 PM
To: dcole@innisfil.ca; smackenzie@innisfil.ca; kjacob@innisfil.ca; smontgomery@innisfil.ca; graham.findlay@ontario.ca; Meile, Christian <Christian.Meile@simcoe.ca>; t.stevenson@lsrca.on.ca; tonym@innpower.ca
Cc: mkoehler@innisfil.ca; ccautillo@innisfil.ca; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: Draft Studies 7th Line EA from Yonge Street to 10th Sideroad, Innisfil

Hello,
In support of the Municipal Class EA planning process for the 7th Line West EA (Yonge Street to 10th Side Road) study for the Town of Innisfil, the existing conditions of the 7th Line Study Area have been characterized in the following draft studies, available to review as a member of the project Technical Advisory Committee.

- Aquatic Habitat Assessment Report
- Noise Impact Assessment Report
- Socio-economic Assessment Report
- Stormwater Report
- Terrestrial Habitat Assessment Report
- Traffic Assessment Report
- Tree Assessment Report
- Cultural Heritage Resources Assessment Report
- Geotechnical Report
- Stage 1 Archaeological Assessment Report

Please reply with which study(ies) you would like to review. A PDF of the selected study(ies) will be forwarded via email.
Comments on the draft studies will be the topic of our next TAC meeting, scheduled for Oct 4, 2018. Details, agenda and TAC #1 meeting minutes to follow.

Regards,
Deanna De Forest
EA Coordinator,
RJ Burnside and Associates Ltd.

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****

Sylvia Waters

From: Sylvia Waters
Sent: Friday, August 03, 2018 1:48 PM
To: 'eanotification.cregion@ontario.ca'; 'shawn.parry@ontario.ca'; 'ken.mott@ontario.ca'; 'kim.benner@ontario.ca'; 'laura.e.hatcher@ontario.ca'; 'john.daly@simcoe.ca'; 'jeff.carswell@barrie.ca'; 'scott.moon@bell.ca'; 'ann.newman@enbridge.com'; 'est.reg.crossing@enbridge.com'; 'michaeld@innpower.ca'; 'tonym@innpower.ca'; 'dpresley@mhbcplan.com'; 'skorpal@tnpi.ca'; 'Utility.Circulations@zayo.com'; 'info@lsrca.on.ca'; 'kjacob@innisfil.ca'; 'john.daly@simcoe.ca'; 'leesa.schoenmaker@simcoe.ca'; 'innisfilfire@innisfil.ca'; 'bonsecour@rogers.com'; 'info@barriecycling.com'; 'andrew.spencer@hydroone.com'; 'trevor.bell@ontario.ca'
Subject: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

Sylvia Waters

From: Darlene Presley <dpresley@mhbcplan.com>
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters
Subject: Automatic reply: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Please be advised I am on vacation starting July 27th, returning Tuesday August 7th. I will be periodically checking emails and will respond to your request as soon as possible.

If urgent and you require immediate assistance please contact Deborah Shore at dshore@mhbcplan.com.

Thank you,

Darlene Presley

Sylvia Waters

From: Ann Newman <ann.newman@enbridge.com>
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters
Subject: Automatic reply: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

thank you for your email ... .I will be away from the office with no access to email August 2-10.

If you are inquiring about right-of-way or crossing information or are looking for lands related information please contact the Eastern Region right-of-way group at:

est.reg.crossing@enbridge.com or phone 1-800-668-2951

thank you
Ann Newman
Supervisor, ROW Services
Enbridge Pipelines Inc.

Sylvia Waters

From: Eastern Region Crossing <est.reg.crossing@enbridge.com>
Sent: Thursday, August 16, 2018 8:50 AM
To: Sylvia Waters
Subject: RE: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Hello,
Please be advised the Enbridge Pipelines Inc. has no facilities within your proposed scope of work and therefore has no concerns.

Thank You,
Arlene

Arlene Howard BA, SR/WA
Land Analyst II, Eastern Region
ENBRIDGE PIPELINES INC.
TEL: 519-339-0080 | FAX: 519-339-0510
Western Research Park, 1086 Modeland Rd Bldg. 1050 1st Floor, Sarnia, Ontario, N7S 6L2

enbridge.com
Integrity. Safety. Respect

From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: Friday, August 03, 2018 1:48 PM
To: eanotification.cregion@ontario.ca; shawn.parry@ontario.ca; ken.mott@ontario.ca; kim.benner@ontario.ca; laura.e.hatcher@ontario.ca; john.daly@simcoe.ca; jeff.carswell@barrie.ca; scott.moon@bell.ca; Ann Newman; Eastern Region Crossing; michaeld@innpower.ca; tonym@innpower.ca; dpresley@mhbcplan.com; skorpal@tnpi.ca; Utility.Circulations@zayo.com; info@lsrca.on.ca; kjacob@innisfil.ca; john.daly@simcoe.ca; leesa.schoenmaker@simcoe.ca; innisfilfire@innisfil.ca; bonsecour@rogers.com; info@barriecycling.com; andrew.spencer@hydroone.com; trevor.bell@ontario.ca
Subject: [External] AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4379
www.rjburnside.com

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Deanna De Forest

From: Sylvia Waters
Sent: Wednesday, August 15, 2018 3:59 PM
To: Deanna De Forest
Subject: FW: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

From: ian.fleming@zayo.com <ian.fleming@zayo.com> **On Behalf Of** Utility Circulations
Sent: Wednesday, August 15, 2018 3:57 PM
To: Sylvia Waters <Sylvia.Waters@rjburnside.com>
Subject: Re: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Good Afternoon Sylvia,

Zayo has no existing plant in the area indicated in your submission. No markup and no objection. Thank you.

Ian Fleming
Utility Circulations

On 3 August 2018 at 13:48, Sylvia Waters <Sylvia.Waters@rjburnside.com> wrote:

> NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4379
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Sylvia Waters

From: Sylvia Waters
Sent: Thursday, August 09, 2018 12:14 PM
To: Zone3aScheduling@hydroone.com
Cc: Deanna De Forest
Subject: FW: 7th Line (West) Improvements from Yonge Street to 10th Side Road - Hydro One Not Impact
Attachments: 7th Line Notice for mail out.pdf

Hello, please see attached notice being forwarded as per the email, below.

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

From: Jenny.SEO@HydroOne.com <Jenny.SEO@HydroOne.com>
Sent: Thursday, August 09, 2018 8:43 AM
To: mkoehler@innisfil.ca; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Cc: SecondaryLandUse@HydroOne.com; zone3ascheduling@HydroOne.com
Subject: 7th Line (West) Improvements from Yonge Street to 10th Side Road - Hydro One Not Impact

Dear Magdalena Koehler and Deanna De Forest,
In our initial review, we can confirm that there are no Hydro One Transmission (above 115 kV) Facilities in the subject area. Please note there may also be Hydro One Distribution facilities in your study area (ie. Distribution wires operating below 115 kV). In order to cover off the impact to all Hydro One assets, please also forward your EA to the following email address:

Zone3aScheduling@hydroone.com

Please be advised that this is only a preliminary assessment based on current information. No further consultation with Hydro One Networks Inc. is required if no changes are made to the current information.
If you have any further questions or concerns, please feel free to contact me.

Regards,

Jenny SEO
Network Management Officer, Secondary Land Use

Hydro One Networks Inc.
483 Bay St. | North Tower | 13th Floor
Toronto, ON | M5G 2P5
Tel: 416.345.5676
Email: Jenny.Seo@Hydroone.com

www.HydroOne.com

On behalf of

Secondary Land Use

Strategy & Integrated Planning
Hydro One Networks

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Regards,

Jenny SEO
Network Management Officer, Secondary Land Use

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483 Bay St. | North Tower | 13th Floor
Toronto, ON | M5G 2P5

Tel: 416.345.5676
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On behalf of

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Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division

Central Region,
Technical Support Section
5775 Yonge Street, 9th Floor
North York, ON M2M 4J1
Tel. (416) 326-6700
Fax (416) 325-6347

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Division de la conformité en matière d'eau potable et d'environnement

Région du Centre
Section d'appui technique
5775, rue Yonge, 8ième étage
North York, Ontario M2M 4J1
Tél. : (416) 326-6700
Téléc. : (416) 325-6347

August 15, 2018 File No.: EA 01-06-05

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1

Re: **7th Line (West) Improvements from Yonge Street to 10th Side Road**
Town of Innisfil
Municipal Class Environmental Assessment
Notice of Study Commencement

Dear Mr. Koehler,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Town of Innisfil has indicated that the study is following the approved environmental planning process for a Schedule C project under the Municipal Engineers Association's Municipal Class Environmental Assessment (Class EA).

The attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please identify the areas of interest which are applicable to the project and ensure they are addressed. Proponents who address all of the applicable areas of interest can minimize potential delays to the project schedule.

Considering that this project is a Schedule C Municipal Class EA for a roadway that might be close sensitive receptors, an Air Quality Impact Assessment (AQIA) is required as part of the decision making process for the preferred alternative to address all potential air quality impacts to sensitive receptors. This AQIA should include at a minimum the predicted traffic flows and the current and future emissions estimates, as well as any required mitigation measures. General guidance regarding the scope of AQIA requirements for Schedule C road improvement Municipal Class EA is attached to this letter for your reference.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to the proposed project**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown`s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Beausoleil First Nation
- Chippewas of Rama First Nation
- Chippewas of Georgina Island First Nation

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process" which can be found at the following link: https://www.ontario.ca/document/consultation-ontarios-environmental-assessment-process
Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information.

The proponent must contact the Director of Environmental Assessment and Permissions Branch under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to the proponent by the communities
- The proponent has reason to believe that the proposed project may adversely affect an Aboriginal or treaty right
- Consultation has reached an impasse
- A Part II Order request or elevation request is expected

The Director of the Environmental Assessment and Permissions Branch can be notified either by email with the subject line "Potential Duty to Consult" to MOECCpermissions@ontario.ca or by mail or fax at the address provided below:

Email:	MOECCpermissions@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Assessment and Permissions Branch Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto, ON, M4V 1P5

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role the proponent will be asked to play in them.

A draft copy of the ESR should be sent to this office prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments.

Should you or your project team members have any questions regarding the material above, please contact me at Chunmei.liu@ontario.ca or 416-326-4886.

Yours truly,



Chunmei Liu
Regional Environmental Assessment Coordinator
Air, Pesticides and Environmental Planning

cc: C. Hood, Manager, Barrie District Office, MECP
D. De Forest, R.J. Burnside & Associates Limited
Central Region EA File
A & P File

Attachments: Areas of Interest
Air Quality Impact Assessment Guidance for Schedule C Municipal Road Class EAs
A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities

AREAS OF INTEREST

It is suggested that you check off each applicable area after you have considered / addressed it.

☐ **Ecosystem Protection and Restoration**

- Any impacts to ecosystem form and function must be avoided where possible. The Project File/ESR should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:

    - Areas of Natural and Scientific Interest (ANSIs)
    - Rare Species of flora or fauna
    - Watercourses
    - Wetlands
    - Woodlots

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, you may consider the provisions of the Rouge Park Management Plan if applicable.

☐ **Planning and Policy**

- Parts of the study area may be subject to the Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Greenbelt Plan, Lake Simcoe Protection Plan, or Growth Plan for the Greater Golden Horseshoe. Applicable policies should be referenced in the Project File/ESR, and the proponent should describe how the proposed study adheres to the relevant policies in these plans. **The new 2017 provincial plans are now in effect.**

- The Provincial Policy Statement (2014) contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the Project File/ESR, and the proponent should describe how this proposed project is consistent with these policies.

☐ **Source Water Protection (all projects)**

The Clean Water Act, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- As you may be aware, in October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the Project File/ESR on source water protection.**
    - The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area. If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the project file or ESR how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use this mapping tool: http://www.applications.ene.gov.on.ca/swp/en/index.php.The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.
- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the Report and include all communication documents/correspondence.**

More Information
For more information on the Clean Water Act, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the Clean Water Act. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

Climate Change

Ontario is leading the fight against climate change through the Climate Change Action Plan. Recently released, the plan lays out the specific actions Ontario will take in the next five years to meet its 2020 greenhouse gas reduction targets and establishes the framework necessary to meet its long-term targets. As a commitment of the action plan, **the province has now finalized a guide, "Considering Climate Change in the Environmental Assessment Process" (Guide), which is found online at: https://www.ontario.ca/page/considering-climate-change-environmental-assessment-process**

The Guide is now a part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. **Proponents should review this Guide in detail.**

- The MECP expects proponents to:

    1. Take into account during the assessment of alternative solutions and alternative designs, the following:

a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).

2. Include a discrete section in the Project File/ESR detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature, and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered. Please ensure climate change is considered in the report.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, an air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**

- **If a full Air Quality Impact Assessment is not required for the project, the Project File/ESR should still contain:**
  - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
  - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
  - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
  - A discussion of potential mitigation measures.

- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities.* Report prepared for Environment Canada. March 2005.http://www.bv.transports.gouv.qc.ca/mono/1173259.pdf

- The Project File/ESR should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Surface Water

- The Project File/ESR must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area.

Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the Project File/ESR and utilized when designing stormwater control methods. **A Stormwater Management Plan should be prepared as part of the Class EA process** that includes:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the Ontario Water Resources Act (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the Project File/ESR should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the Project File/ESR. In particular, a Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the Project File/ESR.

- If the potential construction or decommissioning of water wells is identified as an issue, the Project File/ESR should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the Project File/ESR. In particular, a Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

Contaminated Soils

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the ministry's District Offices for further consultation if contaminated sites are present.

- Any current or historical waste disposal sites should be identified in the Project File/ESR. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites.

- The location of any underground storage tanks should be investigated in the Project File/ESR. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- The Project File/ESR should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

Excess Materials Management

- Activities involving the management of excess soil should be completed in accordance with the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014) available online (http://www.ontario.ca/document/management-excess-soil-guide-best-management-practices).

- All waste generated during construction must be disposed of in accordance with ministry requirements.

Servicing and Facilities

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with the Environmental Approvals Access and Service Integration Branch (EAASIB) to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's "D-Series" guidelines – Land Use Compatibility to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the Project File/ESR and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- The proponent's construction and post-construction monitoring plans must be documented in the Project File/ESR, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Class EA Process

- The Project File/ESR should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. The Master Plan should clearly indicate the selected approach for conducting the plan, in particular by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the *Environmental Assessment Act* (EAA), although the plan itself would not be.

- The Project File/ESR must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the Project File/ESR that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The Project File/ESR should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the Project File/ESR.

- Please include in the Project File/ESR a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, and approvals under the *Canadian Environmental Assessment Act* (CEAA).

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the Project File/ESR.

AIR QUALITY IMPACT ASSESSMENT GUIDANCE FOR SCHEDULE C MUNICIPAL ROAD CLASS EAs

1. Study Area

The scope of the Air Quality Impact Assessment (AQIA) should be determined by the proponent and clearly outlined in the AQIA document based on the number and nature of scenarios/alternatives being considered, for example, the routes under consideration.

The focus should be on defining the "worst case scenario", whether it is the length of roadway with the highest traffic volumes in close proximity to sensitive receptors or sections of roadways with on and off ramps and overpasses. The end result should be a defined study area.

2. List of Parameters

The list of parameters should focus mainly on the key pollutants released from mobile sources such as, but not limited to, the following:

- CO
- NO_x (with a focus on NO and NO_2)
- TSP
- PM_{10}
- $PM_{2.5}$
- Selected VOCs (benzene, 1-3 Butadiene, formaldehyde, acetaldehyde and acrolein)
- Benzo(a)pyrene – as a surrogate for PAHs

All averaging periods for which there is a corresponding standard or guideline should be assessed.

3. Background Data

Background data representative of the study area is generally summarized for the most recent 5 years from the nearest or most representative MECP AQHI and/or NAPS stations. The 90^{th} percentile should be used when assessing combined air quality concentrations for comparison against applicable standards and guidelines.

4. Emission Estimates

Emission estimates are based on current and proposed future traffic counts where MOVES is used to generate emission factors.

5. Traffic Data

Traffic data including fleet distribution and characteristics, road type, traffic signals, idling conditions, or roundabouts/stop signs may be considered or incorporated into the assessment.

6. Dispersion Modelling and Meteorological Data

Dispersion modelling, typically using CAL3QHCR or AERMOD, is conducted to determine maximum pollutant concentrations resulting from implementation of the project and the resulting air quality impacts at the most impacted sensitive receptors for the different scenarios. At a minimum, two modelling scenarios are to be conducted to determine the incremental difference between the current conditions (base case) and future scenario. The timing of the future scenario should be defined and take into consideration projected population growth and traffic/emissions impacts.

According to the Ministry of Transportations' *Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (June, 2012)*, "…local air quality impacts are assumed to be limited to a distance of approximately 500 m from the transportation facility, in each direction." Therefore, the Cartesian grid system used to easily model concentrations at each receptor typically has a grid limit of approximately 500 m from the edge of the subject road.

The five most recent years of meteorological data should be used for dispersion modelling. However, under certain conditions, one year of continuous data may be sufficient. Surface data can be obtained from facilities such as Pearson International Airport, Toronto Island, Buttonville or site-specific and upper air data obtained from Buffalo, New York.

All supporting documentation and assumptions that are inputted into the models should be summarized as appendices. A sample of the electronic dispersion model input and output files must be submitted for the ministry's review.

7. Sensitive Receptors

All key and potentially sensitive receptors located in the surrounding area must be identified and included in the model. Sensitive receptors include but are not limited to residences, schools, health care facilities and daycare centers. Future sensitive receptors should also be included in the assessment.

8. Combined Effects

In order to assess the combined effects at nearby sensitive receptors, the AQIA should sum the maximum modelled concentrations with the 90^{th} percentile background concentrations for comparison against applicable standards and guidelines.

If exceedances or non-conformances are predicted, a discussion of possible mitigation measures should be included.

9. Applicable Guidelines

Applicable standards and guidelines may include:

- MECP Ambient Air Quality Criteria (AAQCs)
- Canadian Ambient Air Quality Standards (CAAQs)

10. Results

The predicted results obtained from the dispersion modelling exercise are to be presented in detail in the AQIA and summarized in the ESR. This should include an analysis and discussion of the results and potential air quality impacts of the project.

Results for each contaminant should be discussed separately and should depict predicted maximum concentrations at the most impacted sensitive receptor(s), the overall maximum predicted concentrations and the combined concentrations, for each averaging period assessed. It may also be relevant to discuss receptor specific results.

11. Climate Change and Regional Impacts

The AQIA should consider climate change and regional air quality impacts when assessing the project's potential impacts and possible mitigation measures. This may include comparing impacts from the proposed undertaking with the provincial greenhouse gas totals reported by Environment Canada.

12. Summary and Mitigation Measures

The AQIA and ESR should summarize the key conclusions of the study based on the results as provided. In addition, general mitigation measures should be discussed, including those mitigation measures that will be implemented during construction to minimize off-site impacts.

For example, best management practices should be applied to mitigate any air quality impacts caused by construction dust. Please note that the ministry recommends that non-chloride dust suppressants be applied.

For a comprehensive list of fugitive dust prevention and control measures, please refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities.*

Report prepared for Environment Canada. March 2005.
http://www.bv.transports.gouv.qc.ca/mono/1173259.pdf

13. Cumulative Impacts

The ministry is currently preparing draft guidance documents to address cumulative effects in EAs. In the interim, please use the following federal EA resources as references for addressing cumulative effects:

- Cumulative Effects Assessment Practitioners' Guide
  https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=43952694-%201&offset=&toc=hide

- Reference Guide: Addressing Cumulative Environmental Effects
  https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=9742C481-%201&offset=&toc=hide

14. Further Guidance

For further guidance, including additional references and information such as prediction of emissions from re-entrained road dust and silt loading factors, please refer to the Ministry of Transportations' *Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (June, 2012) or any subsequent version.*
http://www.raqsb.mto.gov.on.ca/techpubs/eps.nsf/0/24FE4BB174A2AF7085257AA9006558F4?opendocument

Definitions

The following definitions are specific to this document and may not apply in other contexts:

Aboriginal communities – the First Nation or Métis communities identified by the Crown for the purpose of consultation.

Consultation – the Crown's legal obligation to consult when the Crown has knowledge of an established or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. This is the type of consultation required pursuant to s. 35 of the *Constitution Act, 1982*. Note that this definition does not include consultation with Aboriginal communities for other reasons, such as regulatory requirements.

Crown – the Ontario Crown, acting through a particular ministry or ministries.

Procedural aspects of consultation – those portions of consultation related to the process of consultation, such as notifying an Aboriginal community about a project, providing information about the potential impacts of a project, responding to concerns raised by an Aboriginal community and proposing changes to the project to avoid negative impacts.

Proponent – the person or entity that wants to undertake a project and requires an Ontario Crown decision or approval for the project.

I. Purpose

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that may adversely impact that right. In outlining a framework for the duty to consult, the Supreme Court of Canada has stated that the Crown may delegate procedural aspects of consultation to third parties. This document provides general information about the Ontario Crown's approach to delegation of the procedural aspects of consultation to proponents.

This document is not intended to instruct a proponent about an individual project, and it does not constitute legal advice.

II. Why is it Necessary to Consult with Aboriginal Communities?

The objective of the modern law of Aboriginal and treaty rights is the *reconciliation* of Aboriginal peoples and non-Aboriginal peoples and their respective rights, claims and interests. Consultation is an important component of the reconciliation process.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. For example, the Crown's duty to consult is triggered when it considers issuing a permit, authorization or approval for a project which has the potential to adversely impact an Aboriginal right, such as the right to hunt, fish, or trap in a particular area.

The scope of consultation required in particular circumstances ranges across a spectrum depending on both the nature of the asserted or established right and the seriousness of the potential adverse impacts on that right.

Depending on the particular circumstances, the Crown may also need to take steps to accommodate the potentially impacted Aboriginal or treaty right. For example, the Crown may be required to avoid or minimize the potential adverse impacts of the project.

III. The Crown's Role and Responsibilities in the Delegated Consultation Process

The Crown has the responsibility for ensuring that the duty to consult, and accommodate where appropriate, is met. However, the Crown may delegate the procedural aspects of consultation to a proponent.

There are different ways in which the Crown may delegate the procedural aspects of consultation to a proponent, including through a letter, a memorandum of understanding, legislation, regulation, policy and codes of practice.

If the Crown decides to delegate procedural aspects of consultation, the Crown will generally:

- Ensure that the delegation of procedural aspects of consultation and the responsibilities of the proponent are clearly communicated to the proponent;
- Identify which Aboriginal communities must be consulted;
- Provide contact information for the Aboriginal communities;
- Revise, as necessary, the list of Aboriginal communities to be consulted as new information becomes available and is assessed by the Crown;
- Assess the scope of consultation owed to the Aboriginal communities;
- Maintain appropriate oversight of the actions taken by the proponent in fulfilling the procedural aspects of consultation;
- Assess the adequacy of consultation that is undertaken and any accommodation that may be required;
- Provide a contact within any responsible ministry in case issues arise that require direction from the Crown; and
- Participate in the consultation process as necessary and as determined by the Crown.

IV. The Proponent's Role and Responsibilities in the Delegated Consultation Process

Where aspects of the consultation process have been delegated to a proponent, the Crown, in meeting its duty to consult, will rely on the proponent's consultation activities and documentation of those activities. The consultation process informs the Crown's decision of whether or not to approve a proposed project or activity.

A proponent's role and responsibilities will vary depending on a variety of factors including the extent of consultation required in the circumstance and the procedural aspects of consultation the Crown has delegated to it. Proponents are often in a better position than the Crown to discuss a project and its potential impacts with Aboriginal communities and to determine ways to avoid or minimize the adverse impacts of a project.

A proponent can raise issues or questions with the Crown at any time during the consultation process. If issues or concerns arise during the consultation that cannot be addressed by the proponent, the proponent should contact the Crown.

a) What might a proponent be required to do in carrying out the procedural aspects of consultation?

Where the Crown delegates procedural aspects of consultation, it is often the proponent's responsibility to provide notice of the proposed project to the identified Aboriginal communities. The notice should indicate that the Crown has delegated the procedural aspects of consultation to the proponent and should include the following information:

- a description of the proposed project or activity;
- mapping;
- proposed timelines;

- details regarding anticipated environmental and other impacts;
- details regarding opportunities to comment; and
- any changes to the proposed project that have been made for seasonal conditions or other factors, where relevant.

Proponents should provide enough information and time to allow Aboriginal communities to provide meaningful feedback regarding the potential impacts of the project. Depending on the nature of consultation required for a project, a proponent also may be required to:

- provide the Crown with copies of any consultation plans prepared and an opportunity to review and comment;
- ensure that any necessary follow-up discussions with Aboriginal communities take place in a timely manner, including to confirm receipt of information, share and update information and to address questions or concerns that may arise;
- as appropriate, discuss with Aboriginal communities potential mitigation measures and/or changes to the project in response to concerns raised by Aboriginal communities;
- use language that is accessible and not overly technical, and translate material into Aboriginal languages where requested or appropriate;
- bear the reasonable costs associated with the consultation process such as, but not limited to, meeting hall rental, meal costs, document translation(s), or to address technical & capacity issues;
- provide the Crown with all the details about potential impacts on established or asserted Aboriginal or treaty rights, how these concerns have been considered and addressed by the proponent and the Aboriginal communities and any steps taken to mitigate the potential impacts;
- provide the Crown with complete and accurate documentation from these meetings and communications; and
- notify the Crown immediately if an Aboriginal community not identified by the Crown approaches the proponent seeking consultation opportunities.

b) What documentation and reporting does the Crown need from the proponent?

Proponents should keep records of all communications with the Aboriginal communities involved in the consultation process and any information provided to these Aboriginal communities.

As the Crown is required to assess the adequacy of consultation, it needs documentation to satisfy itself that the proponent has fulfilled the procedural aspects of consultation delegated to it. The documentation required would typically include:

- the date of meetings, the agendas, any materials distributed, those in attendance and copies of any minutes prepared;
- the description of the proposed project that was shared at the meeting;
- any and all concerns or other feedback provided by the communities;
- any information that was shared by a community in relation to its asserted or established Aboriginal or treaty rights and any potential adverse impacts of the proposed activity, approval or disposition on such rights;
- any proposed project changes or mitigation measures that were discussed, and feedback from Aboriginal communities about the proposed changes and measures;
- any commitments made by the proponent in response to any concerns raised, and feedback from Aboriginal communities on those commitments;
- copies of correspondence to or from Aboriginal communities, and any materials distributed electronically or by mail;
- information regarding any financial assistance provided by the proponent to enable participation by Aboriginal communities in the consultation;
- periodic consultation progress reports or copies of meeting notes if requested by the Crown;
- a summary of how the delegated aspects of consultation were carried out and the results; and
- a summary of issues raised by the Aboriginal communities, how the issues were addressed and any

outstanding issues.

In certain circumstances, the Crown may share and discuss the proponent's consultation record with an Aboriginal community to ensure that it is an accurate reflection of the consultation process.

c) Will the Crown require a proponent to provide information about its commercial arrangements with Aboriginal communities?

The Crown may require a proponent to share information about aspects of commercial arrangements between the proponent and Aboriginal communities where the arrangements:

- include elements that are directed at mitigating or otherwise addressing impacts of the project;
- include securing an Aboriginal community's support for the project; or
- may potentially affect the obligations of the Crown to the Aboriginal communities.

The proponent should make every reasonable effort to exempt the Crown from confidentiality provisions in commercial arrangements with Aboriginal communities to the extent necessary to allow this information to be shared with the Crown.

The Crown cannot guarantee that information shared with the Crown will remain confidential. Confidential commercial information should not be provided to the Crown as part of the consultation record if it is not relevant to the duty to consult or otherwise required to be submitted to the Crown as part of the regulatory process.

V. What are the Roles and Responsibilities of Aboriginal Communities' in the Consultation Process?

Like the Crown, Aboriginal communities are expected to engage in consultation in good faith. This includes:

- responding to the consultation notice;
- engaging in the proposed consultation process;
- providing relevant documentation;
- clearly articulating the potential impacts of the proposed project on Aboriginal or treaty rights; and
- discussing ways to mitigates any adverse impacts.

Some Aboriginal communities have developed tools, such as consultation protocols, policies or processes that provide guidance on how they would prefer to be consulted. Although not legally binding, proponents are encouraged to respect these community processes where it is reasonable to do so. Please note that there is no obligation for a proponent to pay a fee to an Aboriginal community in order to enter into a consultation process.

To ensure that the Crown is aware of existing community consultation protocols, proponents should contact the relevant Crown ministry when presented with a consultation protocol by an Aboriginal community or anyone purporting to be a representative of an Aboriginal community.

VI. What if More Than One Provincial Crown Ministry is Involved in Approving a Proponent's Project?

Depending on the project and the required permits or approvals, one or more ministries may delegate procedural aspects of the Crown's duty to consult to the proponent. The proponent may contact individual ministries for guidance related to the delegation of procedural aspects of consultation for ministry-specific permits/approvals required for the project in question. Proponents are encouraged to seek input from all involved Crown ministries sooner rather than later.

Sylvia Waters

From: Bell, Trevor (MECP) <Trevor.Bell@ontario.ca>
Sent: Wednesday, August 08, 2018 10:17 AM
To: Deanna De Forest
Cc: Sylvia Waters; Liu, Chunmei (MECP)
Subject: RE: Town of Innisfil, MCEA Schedule C, 7th Line (West) Improvements from Yonge Street to 10th Side Road

Hi Deanna,
Thanks for your email. Projects in Innisfil are within the area of responsibility of my colleague, Chunmei Liu (copied on this email). Chunmei is returning from vacation this week. I have brought your email to her attention and she should respond to you as soon as possible.
For your information, responsibilities of EA Coordinators in Central Region are broken down as follows:
Halton, Peel, and Muskoka: Trevor Bell
York and Durham: Emilee O'leary
Simcoe and Toronto: Chunmei Liu
Generally the anticipated turnaround time for a response to a notice of commencement is 30 days.

Best regards,
Trevor

From: Deanna De Forest [mailto:Deanna.DeForest@rjburnside.com]
Sent: July-31-18 1:51 PM
To: Bell, Trevor (MECP)
Cc: Sylvia Waters
Subject: FW: Town of Innisfil, MCEA Schedule C, 7th Line (West) Improvements from Yonge Street to 10th Side Road

Hi Trevor,
Just to follow up on my voicemails and the Notice of Commencement and Project Information Form for a MCEA for 7th Line that was previously emailed to the central region dedicated email address.
We are looking for feedback MECP regarding the recommended list of Indigenous communities to contact with the notice as part of the MCEA.
This information request is time sensitive as it relates to the publication of the Notice of Commencement and coordination of the distribution of the notice to potentially interested local residents, agencies and Indigenous communities.
I understand that you may not be the EA coordinator assigned to respond to this particular Notice of Commencement, however, I would appreciate it if you could provide me with the contact information for the EA coordinator assigned, as well as let me know the anticipated turn-around time for responses to notifications through the dedicated email addresses for future reference and project planning purposes.
I appreciate your help,
Regards,
Deanna

From: Sylvia Waters
Sent: Wednesday, July 04, 2018 1:04 PM
To: eanotification.cregion@ontario.ca
Cc: Deanna De Forest <Deanna.DeForest@rjburnside.com>; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: Town of Innisfil, MCEA Schedule C, 7th Line (West) Improvements from Yonge Street to 10th Side Road

Please find attached the EA Project Information Form and Notice of Commencement for the Town of Innisfil, MCEA Schedule C, 7th Line (West) Improvements from Yonge Street to 10th Side Road.

Sylvia Waters

From: Magdalena Koehler <mkoehler@innisfil.ca>
Sent: Wednesday, August 08, 2018 4:11 PM
To: Council <council@innisfil.ca>; Management Team <managementteam@innisfil.ca>; Operational Services <operationalservices@innisfil.ca>; Operational Leadership Team <operationalleadershipteam@innisfil.ca>; Customer Service <customerservice@innisfil.ca>; Engineering Group <engineeringgroup@innisfil.ca>; Planning Services <planningservices@innisfil.ca>
Cc: Wally Malcolm <wallym@innpower.ca>; Tom Panak <tpanak@innservices.co>
Subject: 7th Line Improvements from Yonge St. to 10 Sideroad Municipal Class EA - Notice of Study Commencement

Hello Mayor, Deputy Mayor, Council, Management & Colleagues,

Please find attached the Notice of Study Commencement for the 7th Line EA for your information. Please note that this notice is being mailed out to the project stakeholder mailing list, will be published in the next 2 additions of the Innisfil Journal and the information is also available on the website at the following link:

https://www.getinvolvedinnisfil.ca/7thline

If you have any questions or require additional information please feel free to contact me.

Thank you,
Magdalena

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager

705-436-3740 Ext. 3226
1-888-436-3710 (toll free)
705-436-7120 (fax)

mkoehler@innisfil.ca

Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1

www.innisfil.ca

This information is intended only for the person, persons, entity, or entities to which it is addressed; does not necessarily represent the views of the Town of Innisfil; may contain information that is privileged, confidential or exempt from disclosure under the Municipal Freedom of Information and Protection of Privacy Act. If the reader is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you received this communication in error, please notify us immediately by return e-mail and delete the correspondence from your computer.

Sylvia Waters

From: FPP.CA / PPP.CA (DFO/MPO) <fisheriesprotection@dfo-mpo.gc.ca>
Sent: Tuesday, August 07, 2018 4:49 PM
To: Sylvia Waters
Subject: RE: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

This e-mail is a confirmation of receipt for your submission. Thank you for contacting Fisheries and Oceans Canada, Fisheries Protection Program.

Le présent courriel est un accusé de réception de votre soumission. Merci d'avoir communiqué avec le Programme de protection des pêches de Pêches et Océans Canada.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:49 PM
To: FisheriesProtection@dfo-mpo.gc.ca
Subject: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, August 08, 2018 2:27 PM
To: 'alysya.wang@simcoe.ca'; 'jennifer.decaire@simcoe.ca'
Subject: FW: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello,

As per email below, please see attached NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

From: Schoenmaker, Leesa <Leesa.Schoenmaker@simcoe.ca>
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters <Sylvia.Waters@rjburnside.com>
Subject: Automatic reply: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Hello,

I am currently out of the office for an extended period of time.

Please contact Alysya Wang at alysya.wang@simcoe.ca or Jennifer DeCaire at jennifer.decaire@simcoe.ca.

Thank you and have a great day!

Leesa Schoenmaker

Sylvia Waters

From: Barboza, Karla (MTCS) <Karla.Barboza@ontario.ca>
Sent: Tuesday, August 07, 2018 8:57 AM
To: Sylvia Waters
Cc: mkoehler@innisfil.ca; Deanna De Forest; Minkin, Dan (MTCS)
Subject: FW: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hi all,

Thanks for sending the notice of commencement for the above mentioned project to the Ministry of Tourism, Culture and Sport (MTCS). This file (MTCS File# 0009433) has been assigned to Dan Minkin, MTCS Heritage Planner. Could you please include Dan and I to this project's contact list and remove Laura Hatcher?
Notices for other new projects can be sent directly to me.

Thanks in advance,
Karla

Karla Barboza MCIP, RPP, CAHP | (A) Team Lead, Heritage
Ministry of Tourism, Culture and Sport
Culture Division | Programs and Services Branch | Heritage Program Unit
T. 416.314.7120 | fax: 416.212.1802 | Email: karla.barboza@ontario.ca

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From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: August 3, 2018 1:48 PM
To: EA Notices to CRegion (MECP) <eanotification.cregion@ontario.ca>; Parry, Shawn (MMA) <Shawn.Parry@ontario.ca>; Mott, Ken (MNRF) <ken.mott@ontario.ca>; Benner, Kim (MNRF) <kim.benner@ontario.ca>; Hatcher, Laura (MTCS) <Laura.E.Hatcher@ontario.ca>; john.daly@simcoe.ca; jeff.carswell@barrie.ca; scott.moon@bell.ca; ann.newman@enbridge.com; est.reg.crossing@enbridge.com; michaeld@innpower.ca; tonym@innpower.ca; dpresley@mhbcplan.com; skorpal@tnpi.ca; Utility.Circulations@zayo.com; info@lsrca.on.ca; kjacob@innisfil.ca; john.daly@simcoe.ca; leesa.schoenmaker@simcoe.ca; innisfilfire@innisfil.ca; bonsecour@rogers.com; info@barriecycling.com; andrew.spencer@hydroone.com; Bell, Trevor (MECP) <Trevor.Bell@ontario.ca>
Subject: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4379
www.rjburnside.com

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Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, August 08, 2018 12:27 PM
To: 'dannyp@innpower.ca'
Subject: FW: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Danny, please see attached notice being forwarded to you, as per the email, below.

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

From: Michael Davison <michaeld@innpower.ca>
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters <Sylvia.Waters@rjburnside.com>
Subject: Automatic reply: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Hello,

Please be advised that Michael Davison is no longer with the corporation.
Please redirect all correspondence to Danny Persaud at dannyp@innpower.ca.

Thank you.

Sylvia Waters

From: Utility Circulations <utility.circulations+canned.response@zayo.com>
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters
Subject: Re: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Thank you for your submission, it has been placed in the queue and will be replied to within 15 business days.

Utility Circulations

Sylvia Waters

From: Renee.Pettigrew@HydroOne.com
Sent: Friday, August 03, 2018 2:42 PM
To: SecondaryLandUse@HydroOne.com; Sylvia Waters
Cc: Joanne.Castelli@Hydroone.com
Subject: FW: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: mime-attachment.png; ATT00001.htm; 7th Line Notice for mail out.pdf; ATT00002.htm

Hi Syliva Can you please update agency list to remove Andrew Spencer and replace with SecondaryLandUse@HydroOne.com. This will ensure the Notice is send the correct person. Thank you

Renée Pettigrew, RPP
Senior Manager, Environmental Programs and Approvals
Hydro One Networks Inc.
483 Bay Street | North Tower 12th Floor
Toronto, ON | M5G 2P5
Office: 416 345-6597 | Cell: 416 523-4688
renee.pettigrew@HydroOne.com
www.HydroOne.com

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Begin forwarded message:**From:** Sylvia Waters <Sylvia.Waters@rjburnside.com>
Date: August 3, 2018 at 1:48:19 PM EDT
To: "eanotification.cregion@ontario.ca" <eanotification.cregion@ontario.ca>, "shawn.parry@ontario.ca" <shawn.parry@ontario.ca>, "ken.mott@ontario.ca" <ken.mott@ontario.ca>, "kim.benner@ontario.ca" <kim.benner@ontario.ca>, "laura.e.hatcher@ontario.ca" <laura.e.hatcher@ontario.ca>, "john.daly@simcoe.ca" <john.daly@simcoe.ca>, "jeff.carswell@barrie.ca" <jeff.carswell@barrie.ca>, "scott.moon@bell.ca" <scott.moon@bell.ca>, "ann.newman@enbridge.com" <ann.newman@enbridge.com>, "est.reg.crossing@enbridge.com" <est.reg.crossing@enbridge.com>, "michaeld@innpower.ca" <michaeld@innpower.ca>, "tonym@innpower.ca" <tonym@innpower.ca>, "dpresley@mhbcplan.com" <dpresley@mhbcplan.com>, "skorpal@tnpi.ca" <skorpal@tnpi.ca>, "Utility.Circulations@zayo.com" <Utility.Circulations@zayo.com>, "info@lsrca.on.ca" <info@lsrca.on.ca>, "kjacob@innisfil.ca" <kjacob@innisfil.ca>, "john.daly@simcoe.ca" <john.daly@simcoe.ca>, "leesa.schoenmaker@simcoe.ca" <leesa.schoenmaker@simcoe.ca>, "innisfilfire@innisfil.ca" <innisfilfire@innisfil.ca>, "bonsecour@rogers.com" <bonsecour@rogers.com>, "info@barriecycling.com" <info@barriecycling.com>, "andrew.spencer@hydroone.com" <andrew.spencer@hydroone.com>, "trevor.bell@ontario.ca" <trevor.bell@ontario.ca>
Subject: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

Sylvia Waters

From: andrew.spencer@HydroOne.com
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters
Subject: Automatic reply: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

I will be away from the office starting Friday August 3rd, through to end of day Friday August 10th. Kathleen McCorriston will be covering in my absence and has delegated authority as required.

My mailbox will be monitored in my absence, and redirected as required. For anything that requires short-notice action within a day, please contact Kathleen directly at 416-567-9232.

Thank you,

Andrew Spencer.

This email and any attached files are privileged and may contain confidential information intended only for the person or persons named above. Any other distribution, reproduction, copying, disclosure, or other dissemination is strictly prohibited. If you have received this email in error, please notify the sender immediately by reply email and delete the transmission received by you. This statement applies to the initial email as well as any and all copies (replies and/or forwards) of the initial email

Sylvia Waters

From: Benner, Kim (MNRF) <kim.benner@ontario.ca>
Sent: Friday, August 03, 2018 1:49 PM
To: Sylvia Waters
Subject: Automatic reply: AGENCY - NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Hi, I will be out of the office on Tuesday, August 7. I will respond to your e-mail as soon as possible when I return. Thanks! Kim

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:14 PM
To: FisheriesProtection@dfo-mpo.gc.ca; Chunmei.liu@ontario.ca; shawn.parry@ontario.ca; ken.mott@ontario.ca; kim.benner@ontario.ca; dan.minkin@ontario.ca; Karla.Barboza@ontario.ca; graham.findlay@ontario.ca; Christian.Meile@simcoe.ca; john.daly@simcoe.ca; jeff.carswell@barrie.ca; alysya.wang@simcoe.ca; jennifer.decaire@simcoe.ca; john.daly@simcoe.ca; tstevenson@lsrca.on.ca; info@lsrca.on.ca; kjacob@innisfil.ca; smontgomery@innisfil.ca; smackenzie@innisfil.ca; dcole@innisfil.ca; innisfilfire@innisfil.ca
Subject: AGENCY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.pdf

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:25 PM
To: scott.moon@bell.ca; ann.newman@enbridge.com; est.reg.crossing@enbridge.com; dannyp@innpower.ca; tonym@innpower.ca; dpresley@mhbcplan.com; skorpal@tnpi.ca; Utility.Circulations@zayo.com; bonsecour@rogers.com
Subject: UTILITY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Deanna De Forest
Sent: Wednesday, November 21, 2018 11:07 AM
To: Sylvia Waters
Cc: Drew Davidge; 300042232 7th Line EA Yonge St to 10th Sideroad
Subject: FW: 7th Line (West) Improvements from Yonge Street to 10th Side Road
Attachments: 7th Line Notice for mail out.pdf; 7th Line Notice for mail out.pdf; Line 7 Innisfil.pdf

From: Linda.McGee@HydroOne.com <Linda.McGee@HydroOne.com>
Sent: Wednesday, November 21, 2018 11:01 AM
To: mkoehler@innisfil.ca; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: 7th Line (West) Improvements from Yonge Street to 10th Side Road

Hi there

Attached is a mark-up of the Barrie M3 that runs through the described area. The towers are approximately 120 meters north and south of the 7th Line.

Any questions, let me know.

Thanks

Linda McGee
Planning Tech
Barrie FBC
Distribution Lines Work Management
Tel: 705-728-5017 Ext. 6412
Fax:705-727-4803
hydro one

This email and any attached files are privileged and may contain confidential information intended only for the person or persons named above. Any other distribution, reproduction, copying, disclosure, or other dissemination is strictly prohibited. If you have received this email in error, please notify the sender immediately by reply email and delete the transmission received by you. This statement applies to the initial email as well as any and all copies (replies and/or forwards) of the initial email


Tower with 556
Cable for Barrie
M3 44 kV
Circuit
Barrie M3 44 kV Circuit
Tower with 556
Cable for Barrie
M3 44 kV
Circuit

Sylvia Waters

From: Cliff Lee <clee@tnpi.ca>
Sent: Friday, November 16, 2018 9:56 AM
To: Sylvia Waters; dannyp@innpower.ca; tonym@innpower.ca; dpresley@mhbcplan.com
Subject: RE: UTILITY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Hi

Please remove us your circulation list, as TNPI currently has no, nor likely will ever have in foreseeable future facilities north of Hwy 407 across the entire GTHA.

Kindest Regards,

Cliff Lee, C.E.T.
Co-ordinator of Crossing & Facilities
Trans-Northern Pipeline Inc.
45 Vogell Rd
Richmond Hill, ON
L4B 3P6
Ph:905-770-3353 ext 292
Fx: 905-770-8675
Em:clee@tnpi.ca

Trans-Northern // Trans-Nord

Operational Excellence Management System

Click Before You Dig

From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: Thursday, November 15, 2018 7:25 PM
To: scott.moon@bell.ca; ann.newman@enbridge.com; est.reg.crossing@enbridge.com; dannyp@innpower.ca; tonym@innpower.ca; dpresley@mhbcplan.com; Satish Korpal; Utility.Circulations@zayo.com; bonsecour@rogers.com
Subject: UTILITY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Eastern Region Crossing <est.reg.crossing@enbridge.com>
Sent: Monday, November 19, 2018 9:18 AM
To: Sylvia Waters
Subject: RE: UTILITY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Enbridge Pipelines Inc. does not have any assets in the area

Thank you

Amy Robinson
519-339-0517
—
enbridge.com
Integrity. Safety. Respect.

From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: Thursday, November 15, 2018 7:25 PM
To: scott.moon@bell.ca; Ann Newman; Eastern Region Crossing; dannyp@innpower.ca; tonym@innpower.ca; dpresley@mhbcplan.com; skorpal@tnpi.ca; Utility.Circulations@zayo.com; bonsecour@rogers.com
Subject: [External] UTILITY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: +1 800-265-9662 Direct: +1 705-797-4379
www.rjburnside.com

**** CONFIDENTIALITY NOTICE ****

This electronic transmission and any accompanying attachments may contain privileged or confidential information intended only for the use of the individual or organization named above. Any distribution, copying or action taken in reliance on the contents of this communication by anyone other than the intended recipient(s) is STRICTLY PROHIBITED. If you have received this communication in error please notify the sender at the above email address and delete this email immediately. Thank you.

****

Sylvia Waters

From: Lashbrook, Ross (MMAH) <Ross.Lashbrook@ontario.ca>
Sent: Monday, November 19, 2018 2:56 PM
To: Sylvia Waters
Subject: RE: AGENCY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Hi there, can you please remove Shawn Parry from this list as he has taken a new position. You can add my name and email address in lieu.

Thank you,
Ross.

Ross Lashbrook | Manager, Community Planning and Development | Municipal Services Office – Central Ontario | Ministry of Municipal Affairs and Housing | 777 Bay Street, 13th Floor, Toronto, ON M5G 2E5 | T: 416.585.6063 F: 416.585.6882 E: ross.lashbrook@ontario.ca

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From: Parry, Shawn (MMA)
Sent: November 16, 2018 9:19 AM
To: Lashbrook, Ross (MMAH) <Ross.Lashbrook@ontario.ca>
Subject: FW: AGENCY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

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From: Sylvia Waters [mailto:Sylvia.Waters@rjburnside.com]
Sent: November 15, 2018 7:14 PM
To: FisheriesProtection@dfo-mpo.gc.ca; Liu, Chunmei (MECP) <Chunmei.Liu@ontario.ca>; Parry, Shawn (MMA) <Shawn.Parry@ontario.ca>; Mott, Ken (MNRF) <ken.mott@ontario.ca>; Benner, Kim (MNRF) <kim.benner@ontario.ca>; Minkin, Dan (MTCS) <Dan.Minkin@ontario.ca>; Barboza, Karla (MTCS) <Karla.Barboza@ontario.ca>; Findlay, Graham (MNRF) <graham.findlay@ontario.ca>; Christian.Meile@simcoe.ca; john.daly@simcoe.ca; jeff.carswell@barrie.ca; alysya.wang@simcoe.ca; jennifer.decaire@simcoe.ca; john.daly@simcoe.ca; tstevenson@lsrca.on.ca; info@lsrca.on.ca; kjacob@innisfil.ca; smontgomery@innisfil.ca; smackenzie@innisfil.ca; dcole@innisfil.ca; innisfilfire@innisfil.ca
Subject: AGENCY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

BURNSIDE
Sylvia Waters
EPA Technical Administrator

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: +1 800-265-9662 Direct: +1 705-797-4379
www.rjburnside.com

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Sylvia Waters

From: Microsoft Outlook
To: tstevenson@lsrca.on.ca
Sent: Thursday, November 15, 2018 7:14 PM
Subject: Undeliverable: AGENCY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Office 365

Your message to tstevenson@lsrca.on.ca couldn't be delivered.

When Office 365 tried to send your message, the receiving email server outside Office 365 reported an error.

Sylvia.Waters	**Office 365**	**tstevenson**
Sender		**Action Required**
		Policy violation or system error

How to Fix It

Check the "Reported Error" from the "Error Details" section shown below for more information about the problem. The error might tell you what went wrong and how to fix it. For example, if the error states that the message was blocked due to a potential virus or because the message was too large, try sending the message again without attachments.

If you're not able to fix the problem, it's likely that only the recipient's email admin can fix it. Contact the recipient by some other means (by phone, for example) and ask them to tell their email admin about the problem. Give them the "Reported Error" from the "Error Details" section below.

Was this helpful? Send feedback to Microsoft.

More Info for Email Admins

Status code: 550 5.0.350

Sylvia Waters

From: Microsoft Outlook
To: tstevenson@lsrca.on.ca
Sent: Tuesday, November 20, 2018 4:32 PM
Subject: Undeliverable: FW: AGENCY-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad

Office 365

Your message to tstevenson@lsrca.on.ca couldn't be delivered.

When Office 365 tried to send your message, the receiving email server outside Office 365 reported an error.

Sylvia.Waters	**Office 365**	**tstevenson**
Sender		**Action Required**
		Policy violation or system error

How to Fix It

Check the "Reported Error" from the "Error Details" section shown below for more information about the problem. The error might tell you what went wrong and how to fix it. For example, if the error states that the message was blocked due to a potential virus or because the message was too large, try sending the message again without attachments.

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Was this helpful? Send feedback to Microsoft.

More Info for Email Admins

Status code: 550 5.0.350

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:07 PM
To: 'FisheriesProtection@dfo-mpo.gc.ca'; 'Linda.McGee@HydroOne.com'; 'Chunmei.liu@ontario.ca'; 'eanotification.cregion@ontario.ca'; 'ken.mott@ontario.ca'; 'kim.benner@ontario.ca'; 'ross.lashbrook@ontario.ca'; 'dan.minkin@ontario.ca'; 'Karla.Barboza@ontario.ca'; 'john.daly@simcoe.ca'; 'jeff.carswell@barrie.ca'; 'scott.moon@bell.ca'; 'ann.newman@enbridge.com'; 'est.reg.crossing@enbridge.com'; 'dannyp@innpower.ca'; 'tonym@innpower.ca'; 'dpresley@mhbcplan.com'; 'Utility.Circulations@zayo.com'; 'tstevenson@lsrca.on.ca'; 'info@lsrca.on.ca'; 'kjacob@innisfil.ca'; 'smontgomery@innisfil.ca'; 'kjacob@innisfil.ca'; 'smackenzie@innisfil.ca'; 'dcole@innisfil.ca'; 'john.daly@simcoe.ca'; 'alysya.wang@simcoe.ca'; 'jennifer.decaire@simcoe.ca'; 'innisfilfire@innisfil.ca'; 'lynn.iwanow@gmail.com'; 'info@innisfilaction.com'; 'bonsecour@rogers.com'; 'info@barriecycling.com'; 'dorsatti@innisfil.ca'
Subject: AGENCY -Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, March 28, 2019 9:49 AM
To: 'mkoehler@innisfil.ca'; 'ccautillo@innisfil.ca'; 'graham.findlay@ontario.ca'; 'Christian.Meile@simcoe.ca'
Subject: Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:09 PM
To: 'jsmoke@alderville.ca'
Subject: Alderville FN-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Joanne Smoke, Lands and Resources Liaison Chief Admin Officer for Alderville First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

The study will evaluate improvement options with consideration of the natural, cultural, technical and economic environment. The environment will be assessed through a review of existing databases and information sources as well as field surveys, including ecological assessment and archaeological and cultural assessment. The alternatives being considered and the approximate extent of the Study Area for this project are provided in the attached Notice of Commencement.

The EA will be conducted as a Schedule C in accordance with the "Municipal Class Environmental Assessment" (Municipal Engineers Association, October 2000, as amended in 2007, 2011, and 2015) which is an approved process under the *Ontario Environmental Assessment Act*. A key component of the study will be engagement with Indigenous communities, the public and agencies.

At this stage of the process, Burnside is requesting on behalf of the Town of Innisfil, that your community leaders provide any comments and / or concerns with the proposed project. Specifically, we are seeking input on:

Any preliminary comments or concerns that your community has on the proposed project.
The level of interest in the project from the community for further engagement.
The best methods to communicate with your community.

Input and comments received will be incorporated into the planning and design of this project. Information about this project can be found at getinvolvedinnisfil.ca/7thline.The web site will be updated with project information as it becomes available throughout the study. To provide comment or to request additional information concerning this Study or if you would like to be added to the Project Contact List to receive future project notices, please email 7thLineEAWestofYonge@rjburnside.com or contact either of the following Project Team members:

Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Joanne Smoke <jsmoke@alderville.ca>
Sent: Friday, November 16, 2018 9:20 AM
To: Sylvia Waters
Cc: 'Jesse Johnson'
Subject: FW: Alderville FN-NOTICE of Public Open House, 7th Line (West) Improvements from Yonge Street to 10th
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Sylvia,
Thanks for the notice, and please correspond with our new Consultation Coordinator, Jesse Johnson who has taken over for Skye Anderson. As I mentioned to you previously, Alderville First Nation, although part of the Williams Treaty area, is quite a distance geographically from your site, so Alderville is confident that the local First Nations (Rama, Georgina or Beausoleil) with provide their input. By all means, continue to keep Alderville in the loop.
All the best,
Joanne Smoke

Alderville First Nation
Joanne Smoke
First Nation Administrator

Office: 905-352-2011
Fax: 905-352-3242
11696 Second Line
Roseneath, ON
K0K 2X0
jsmoke@alderville.ca

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:07 PM
To: 'corbierep@aokfn.com'
Subject: Aundeck-Omni-Kaning NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Chief, Patsy Corbiere of Aundeck-Omni-Kaning

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:08 PM
To: info@chimnissing.ca
Subject: Beausoleil FN NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Dan Monague, First Nation Administrator of the Beausoleil First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, September 13, 2018 1:38 PM
To: valerie.george@kettlepoint.org
Subject: Chippewas of Kettle and Stony Point FN NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Valerie George, Consultation Coordinator of the Chippewas of Kettle and Stony Point First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:08 PM
To: 'chiefsdesk@nawash.ca'
Subject: Chippewas of Nawash FN NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Chief, Greg Nadjiwon of the Chippewas of Nawash First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Hollie Nolan <hollien@ramafirstnation.ca>
Sent: Monday, November 19, 2018 11:14 AM
To: 7thLineEAWestofYonge <7thLineEAWestofYonge@rjburnside.com>
Cc: mkoehler@innisfil.ca; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: Contact Information

Hi Magdalena & Deanna,

Please be advised that the contact information has changed from Chief Rodney Noganosh to Sharday James. All future correspondence is to be sent to Sharday's attention.

Thank you,

Hollie Nolan
Executive Assistant to the Chief, Administration
Chippewas of Rama First Nation
(ph) 705-325-3611,1216
(cell)
(fax) 705-325-0879
(url) www.ramafirstnation.ca

This email is intended only for the named recipient(s) and may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. No waiver of privilege, confidence or otherwise is intended by virtue of communication via the internet. Any unauthorized or copying is strictly prohibited. If you have received this e-mail in error, or are not named as a recipient, please immediately notify the sender and destroy all copies of this e-mail.

By submitting your or another individual's personal information to Chippewas of Rama First Nation, its service providers and agents, you agree and confirm your authority from such other individual, to our collection, use and disclosure of such personal information in accordance with our privacy policy.

Please consider the environment before printing this e-mail.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:10 PM
To: 'rsmith@cottfn.com'
Subject: Chippewas of the Thames First Nation NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Rochelle Smith Interim Consultation Coordinator of the Chippewas of the Thames First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

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The level of interest in the project from the community for further engagement.
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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:10 PM
To: 'KaitlinH@curvelake.ca'
Subject: Curve Lake FN-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Kaitlin Hill, Acting, Engagement and Consultation Coordinator of the Curve Lake First Nation

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Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:11 PM
To: tcowie@hiawathafn.ca
Cc: choward@hiawathafn.ca; info@hiawathafn.ca
Subject: Hiawatha FN-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Chief, Tom Cowie of the Hiawatha First Nation

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Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 3:51 PM
To: 'consultations@metisnation.org'
Subject: NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

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Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:11 PM
To: 'fawn.sault@mncfn.ca'
Subject: Mississaugas of the New Credit FN NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Fawn Sault, Consultation Manager of the Mississaugas of the New Credit First Nation

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Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:12 PM
To: dmowat@scugogfirstnation.com
Subject: Mississaugas of Scugog Island FN-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Dave Mowat, Community Consultation Specialist of the Mississaugas of Scugog Island First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

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Your participation in this EA study is much appreciated.

Sylvia Waters

From: Dave Mowat <dmowat@scugogfirstnation.com>
Sent: Monday, September 24, 2018 12:24 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Cc: mkoehler@innisfil.ca
Subject: RE: Project No. 300042232.000-Innisfil

Hi Deanna:

We will not require further notification for this particular project.

Thank you,

Dave Mowat
Consultaton, Lands and Membership Supervisor
Mississaugas of Scugog Island First Nation

From: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Sent: Monday, September 24, 2018 12:15 PM
To: Dave Mowat <dmowat@scugogfirstnation.com>
Cc: mkoehler@innisfil.ca
Subject: RE: Project No. 300042232.000-Innisfil

Good Afternoon Dave,
Thank you for your response to the Notice of Commencement for the 7th Line Improvements from Yonge Street to 10th Side Road Municipal Class EA.
Your comments will become part of the public record for the project.
Based on your comments below, could you kindly confirm if you would like to continue to receive notices about the project. If not, we will remove your contact information from our Project Contact List for the 7th Line EA.

Regards,
Deanna De Forest
EA Coordinator
R.J. Burnside and Associates Ltd.

From: Dave Mowat <dmowat@scugogfirstnation.com>
Sent: Wednesday, September 19, 2018 3:16 PM
To: mkoehler@innisfil.ca; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: Project No. 300042232.000-Innisfil

Good Afternoon:

Regarding the **7th Line Improvements from Yonge Street to 10th Side Road** this area lies within Treaty #18 (Chippewas) and we have no comment or concern at this time.

Thank you,

Dave Mowat
Consultation, Lands and Membership Supervisor
Mississaugas of Scugog Island First Nation
22521 Island Rd.
Port Perry, ON, L9L 1B6
Phone: (905) 985-3337 ext. 263
Fax: (905) 985-8828
Email: dmowat@scugogfirstnation.com

Mississaugas of Scugog Island First Nation Notice & Disclaimer

This e-mail, and any attachments thereto, is intended only for use by the addressee(s) named herein and may contain legally privileged and/or confidential information. If you are not the intended recipient of this e-mail, you are hereby notified that any dissemination, distribution or copying or this e-mail, and any attachments thereto is strictly prohibited. If you have received this e-mail in error, you are required to immediately notify me by telephone (above) and permanently delete the original and any copy of this e-mail and any printout thereof

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Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:12 PM
To: 'rdonm@mbq-tmt.org'
Cc: 'charlesm@mbq-tmt.org'
Subject: Mohawks of the Bay of Quinte NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Chief Assistant, Charles Maracle of the Mohawks of the Bay of Quinte

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

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Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:13 PM
To: nicoles@mbq-tmt.org
Subject: Mohawks of the Bay of Quinte NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Nicole Storms, Environmental Services Officer of the Mohawks of the Bay of Quinte

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Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:13 PM
To: 'lester.anoquot@saugeen.org'
Cc: 'band.admin@saugeen.org'
Subject: Saugeen FN NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Chief, Lester Anoquot of the Saugeen First Nation

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Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:13 PM
To: 'd.ritchie@saugeenojibwaynation.ca'
Cc: 'jkeeshig@saugeenojibwaynation.ca'
Subject: Saugeen Ojibway Nation-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Doran Ritchie,

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

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Your participation in this EA study is much appreciated.

Sylvia Waters

From: Microsoft Outlook
To: jkeeshig@saugeenojibwaynation.ca
Sent: Tuesday, August 07, 2018 4:13 PM
Subject: Undeliverable: Saugeen Ojibway Nation-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Office 365

Your message to jkeeshig@saugeenojibwaynation.ca couldn't be delivered.

jkeeshig wasn't found at saugeenojibwaynation.ca.

Sylvia.Waters	Office 365	jkeeshig
Action Required		Recipient

Unknown To address

How to Fix It

The address may be misspelled or may not exist. Try one or more of the following:

- Send the message again following these steps: In Outlook, open this non-delivery report (NDR) and choose **Send Again** from the Report ribbon. In Outlook on the web, select this NDR, then select the link "**To send this message again, click here.**" Then delete and retype the entire recipient address. If prompted with an Auto-Complete List suggestion don't select it. After typing the complete address, click **Send**.
- Contact the recipient (by phone, for example) to check that the address exists and is correct.
- The recipient may have set up email forwarding to an incorrect address. Ask them to check that any forwarding they've set up is working correctly.
- Clear the recipient Auto-Complete List in Outlook or Outlook on the web by following the steps in this article: Fix email delivery issues for error code 5.1.1 in Office 365, and then send the message again. Retype the entire recipient address before selecting **Send**.

If the problem continues, forward this message to your email admin. If you're an email admin, refer to the **More Info for Email Admins** section below.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:07 PM
To: dlaforme@sixnations.ca; jthomas@sixnations.ca
Subject: Six Nations of the Grand River-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Joanne Thomas, Consultation Supervisor of Six Nations of the Grand River

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

The study will evaluate improvement options with consideration of the natural, cultural, technical and economic environment. The environment will be assessed through a review of existing databases and information sources as well as field surveys, including ecological assessment and archaeological and cultural assessment. The alternatives being considered and the approximate extent of the Study Area for this project are provided in the attached Notice of Commencement.

The EA will be conducted as a Schedule C in accordance with the "Municipal Class Environmental Assessment" (Municipal Engineers Association, October 2000, as amended in 2007, 2011, and 2015) which is an approved process under the *Ontario Environmental Assessment Act*. A key component of the study will be engagement with Indigenous communities, the public and agencies.

At this stage of the process, Burnside is requesting on behalf of the Town of Innisfil, that your community leaders provide any comments and / or concerns with the proposed project. Specifically, we are seeking input on:

Any preliminary comments or concerns that your community has on the proposed project.
The level of interest in the project from the community for further engagement.
The best methods to communicate with your community.

Input and comments received will be incorporated into the planning and design of this project. Information about this project can be found at getinvolvedinnisfil.ca/7thline.The web site will be updated with project information as it becomes available throughout the study. To provide comment or to request additional information concerning this Study or if you would like to be added to the Project Contact List to receive future project notices, please email 7thLineEAWestofYonge@rjburnside.com or contact either of the following Project Team members:

Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:14 PM
To: dean.jacobs@wifn.org
Subject: Walpole Island First Nation (Bkejwanong Territory) NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Dean Jacobs, Consultation Manager of Walpole Island First Nation (Bkejwanong Territory)

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

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The level of interest in the project from the community for further engagement.
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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:14 PM
To: mjacko@wiky.net
Subject: Wikwemikong NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello Marilyn Jacko, Executive Assistant to Chief and Council of the Wikwemikong

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

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The level of interest in the project from the community for further engagement.
The best methods to communicate with your community.

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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 4:14 PM
To: inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Williams Treaties FN-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Hello, Karry Sandy-Mackenzie, Claims Coordinator, for the Williams Treaties First Nation

NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

The Town of Innisfil has initiated a Municipal Class Environmental Assessment (EA) to consider improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town of Innisfil has identified a need to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil to complete the Municipal Class EA.

The study will evaluate improvement options with consideration of the natural, cultural, technical and economic environment. The environment will be assessed through a review of existing databases and information sources as well as field surveys, including ecological assessment and archaeological and cultural assessment. The alternatives being considered and the approximate extent of the Study Area for this project are provided in the attached Notice of Commencement.

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At this stage of the process, Burnside is requesting on behalf of the Town of Innisfil, that your community leaders provide any comments and / or concerns with the proposed project. Specifically, we are seeking input on:

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The level of interest in the project from the community for further engagement.
The best methods to communicate with your community.

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Magdalena Koehler, C.E.T., CAPM (mkoehler@innisfil.ca) Deanna De Forest, B.Sc. E.P. (deanna.deforest@rjburnside.com)

Your participation in this EA study is much appreciated.

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:21 PM
To: 'jsmoke@alderville.ca'
Subject: Alderville FN-NOTICE of Public Open House, 7th Line (West) Improvements from Yonge Street to 10th
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Joanne Smoke, Lands and Resources Liaison Chief Admin Officer for Alderville First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:17 PM
To: 'corbierep@aokfn.com'
Subject: Aundeck-Omni-Kaning-NOTICE of Public Open House, 7th Line (West) Improvements from Yonge Street to 10th
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Chief, Patsy Corbiere of Aundeck-Omni-Kaning

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:29 PM
To: 'info@chimnissing.ca'
Subject: Beausoleil FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Dan Monague, First Nation Administrator of the Beausoleil First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:27 PM
To: 'valerie.george@kettlepoint.org'
Subject: Chippewas of Kettle and Stony Point FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Valerie George, Consultation Coordinator of the Chippewas of Kettle and Stony Point First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:15 PM
To: 'chiefsdesk@nawash.ca'
Subject: Chippewas of Nawash FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Chief, Greg Nadjiwon of the Chippewas of Nawash First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:25 PM
To: 'rsmith@cottfn.com'
Subject: Chippewas of the Thames FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Rochelle Smith Interim Consultation Coordinator of the Chippewas of the Thames First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:21 PM
To: 'KaitlinH@curvelake.ca'
Subject: Curve Lake FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Kaitlin Hill, Acting, Engagement and Consultation Coordinator of the Curve Lake First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:25 PM
To: tcowie@hiawathafn.ca
Cc: choward@hiawathafn.ca; info@hiawathafn.ca
Subject: Hiawatha FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Chief, Tom Cowie of the Hiawatha First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:16 PM
To: consultations@metisnation.org
Subject: MNO-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Deanna De Forest

To: lisam@mbq-tmt.org
Subject: FW: Stage 2 Archaeological Assessment, Municipal Class Environmental Assessment ,7th Line (West) Improvements from Yonge Street to 10th Side Road, Innisfil
Attachments: P1066-0114-2019_Stage 2 report26August2019_RE.pdf

Hello Ms Maracle,
In response to the email Vacancy Alert, please find attached and below information that was originally sent to Amy Brant at research.

Regards,
Deanna De Forest

From: Deanna De Forest
Sent: Tuesday, October 01, 2019 10:35 AM
To: research@mbq-tmt.org
Cc: nicoles@mbq-tmt.org; Carolina Cautillo <ccautillo@innisfil.ca>; Meredith Goodwin <mgoodwin@innisfil.ca>
Subject: RE: Stage 2 Archaeological Assessment, Municipal Class Environmental Assessment ,7th Line (West) Improvements from Yonge Street to 10th Side Road, Innisfil

Hello Ms Brant,
As requested, please find attached a copy of the Stage 2 Archaeological Assessment completed in support of the 7th Line Municipal Class Environmental Assessment for the Town of Innisfil. The conclusions of the report note that archaeological resources were not identified during the Stage 2 assessment.

Regards,
Deanna De Forest

From: Deanna De Forest
Sent: Tuesday, December 04, 2018 12:29 PM
To: 'research@mbq-tmt.org' <research@mbq-tmt.org>
Cc: 'nicoles@mbq-tmt.org' <nicoles@mbq-tmt.org>; 'Carolina Cautillo' <ccautillo@innisfil.ca>; 'Magdalena Koehler' <mkoehler@innisfil.ca>
Subject: FW: Stage 1 Archaeological Assessment, Municipal Class Environmental Assessment ,7th Line (West) Improvements from Yonge Street to 10th Side Road,Innisfil
Importance: High

Hello Ms Brant,
As requested, please find attached a copy of the Stage 1 Archaeological Assessment completed in support of the 7th Line Municipal Class Environmental Assessment for the Town of Innisfil. Per the recommendations in the Stage 1, a Stage 2 Archaeological Assessment is planned for later stages of the project following the selection of a preferred alternative and the consideration of potential impact of design alternatives.

Regards,
Deanna De Forest

From: Deanna De Forest
Sent: Friday, November 16, 2018 5:39 PM

To: 'nicoles@mbq-tmt.org' <nicoles@mbq-tmt.org>
Subject: FW: Notice of Public Open House, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Importance: High

Hello Nicole Storms,

Thank you for your email comments of August 8, 2018 following the Notice of Commencement for the 7th Line (West) Improvements from Yonge Street to 10th Sideroad. Your comments are appreciated and will become part of the public record for the project.

A preliminary Stage 1 Archaeological Assessment has been completed for the study area. The Stage 1 concluded that parts of the study area exhibit archaeological potential and recommended a Stage 2 Archaeological Assessment of those lands be completed, if impacted. A Stage 2 Archaeological Assessment is planned for later stages of the project, following the selection of a preferred alternative and the evaluation of potential impact of design alternatives.

A copy of the Stage 1 report will be forwarded to Amy Brant via email, as requested, once the reporting is complete.

At this stage of the project, the Town of Innisfil has arranged a Public Open House (POH) to describe the proposed alternative solutions, encourage, gather and respond to public comments, as well as identify next steps in the process. Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH. Following completion of the POH, and in consideration of comments received, the preferred solution will be identified and design alternatives will be evaluated.

On behalf of the Town of Innisfil, please find attached the Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Regards,

Deanna De Forest, B.Sc. EP
Environmental Assessment Lead
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: 800-265-9662 Direct: 705-797-4357
www.rjburnside.com

From: Nicole Storms <nicoles@mbq-tmt.org>
Sent: Wednesday, August 08, 2018 11:43 AM
To: 7thLineEAWestofYonge <7thLineEAWestofYonge@rjburnside.com>
Cc: Lisa Maracle <lisam@mbq-tmt.org>; Amy Brant <research@mbq-tmt.org>
Subject: FW: Mohawks of the Bay of Quinte NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA

Good Morning,

We acknowledge your invitation to participate in the environmental assessment process as it relates to the 7th Line (West) Improvements from Yonge Street to 10th Side Road.

As a First Nation with limited resources and capacity it is difficult to actively participate in all environmental assessments within our traditional territories; however, the Mohawks of the Bay of Quinte (MBQ) would be concerned if the preliminary archaeological investigations found artifacts or burial remains. There is a traditional process that must be followed for the repatriation or re-interment of remains. Please forward Archaeological Assessments to Amy Brant at research@mbq-tmt.org

The Mohawks of the Bay of Quinte expect the project to be carried out in an environmentally sensible manner that is consistent with the laws and regulations governing the said project. We appreciate your efforts in our endeavors to determine proper use of lands of interest to the community, the prevention or mitigation of anticipated and non-anticipated effects of the proposed project, and efforts to ensure maximum benefit to our community and generations to come.

The above shall not be construed so as to derogate from or abrogate any inherent, Aboriginal, treaty, constitutional, or legal rights of the Mohawks of the Bay of Quinte.

Regards,

Karennenha:wi ~ Nicole Storms

Environmental Services Coordinator
Mohawks of the Bay of Quinte
24 Meadow Drive
Tyendinaga Mohawk Territory, K0K 1X0
Ph: (613) 396-3424 ext. 125
Fax: (613) 396-3627
Email: nicoles@mbq-tmt.org

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:21 PM
To: 'lester.anoquot@saugeen.org'
Cc: 'band.admin@saugeen.org'
Subject: Saugeen FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Chief, Lester Anoquot of the Saugeen First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:17 PM
To: 'd.ritchie@saugeenojibwaynation.ca'
Subject: Saugeen Ojibway Nation-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Doran Ritchie,

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

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DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:21 PM
To: 'jthomas@sixnations.ca'
Subject: Six Nations of the Grand River-Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Joanne Thomas, Consultation Supervisor of Six Nations of the Grand River

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:18 PM
To: 'dean.jacobs@wifn.org'
Subject: Walpole Island FN Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Dean Jacobs, Consultation Manager of Walpole Island First Nation (Bkejwanong Territory)

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:20 PM
To: inquiries@wikwemikong.ca
Subject: Wikwemikong-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello Marilyn Jacko, Executive Assistant to Chief and Council of the Wikwemikong

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:20 PM
To: 'inquiries@williamstreatiesfirstnations.ca'; 'k.a.sandy-mckenzie@rogers.com'
Subject: Williams Treaties FN-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Hello, Karry Sandy-Mackenzie, Claims Coordinator, for the Williams Treaties First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:09 PM
To: 'jjohnson@alderville.ca'
Cc: 'jsmoke@alderville.ca'
Subject: Alderville FN-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Jesse Johnson, Consultation Coordinator, Alderville First Nation

Hello
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:10 PM
To: 'corbierep@aokfn.com'
Subject: Aundeck-Omni-Kaning-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Chief, Patsy Corbiere of Aundeck-Omni-Kaning

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:11 PM
To: 'info@chimnissing.ca'
Subject: Beausoleil Fn-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

A. Dan Monague, FN Administrator

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:12 PM
To: 'valerie.george@kettlepoint.org'
Subject: Chippewas of Kettle and Stony Point FN-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Valerie George, Consultation Coordinator, Chippewas of Kettle and Stony Point First Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:12 PM
To: chiefsdesk@nawash.ca
Subject: Chippewas of Nawash FN--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Chief, Greg Nadjiwon, Chippewas of Nawash First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:13 PM
To: 'myeengun@cottfn.com'
Subject: Chippewas of the Thames FN--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Chief Henry Myeengun, Chippewas of the Thames First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:13 PM
To: 'rsmith@cottfn.com'
Subject: Chippewas of the Thames FN--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Rochelle Smith, Consultation Coordinator, Chippewas of the Thames First Nation

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Deanna De Forest
Sent: Tuesday, April 16, 2019 12:11 PM
To: Fallon Burch
Cc: Magdalena Koehler
Subject: RE: 7th Line West Improvements from Yonge Street to 10th Sideroad
Attachments: LTR_Consultation_7th Line W. Improv.pdf

Hello Fallon,
Thank you for your correspondence of April 11, 2019. We will remove your contact information from the 7th Line (west) EA mailing list for future notices, as requested.

Regards,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: Fallon Burch <fburch@cottfn.com>
Sent: Thursday, April 11, 2019 2:46 PM
To: mkoehler@innisfil.ca
Cc: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: 7th Line West Improvements from Yonge Street to 10th Sideroad

Good afternoon Magdalena,

I have attached a letter of response on behalf of Chippewas of the Thames First Nation in regards to aforementioned project. If you have any questions, please feel free to contact me at any time.

Thank you,

Fallon Burch
Consultation Coordinator, Chippewas of the Thames First Nation
320 Chippewa Rd Muncey, ON N0L 1Y0 | 519-289-5555 | www.cottfn.com/consultation

This email or documents accompanying this email contain information belonging to the Chippewas of the Thames First Nation. Which may be confidential and/or legally privileged. The information is intended only for the addressed recipients(s). If you are not an intended recipient, you are hereby notified that any disclosure, copying, distribution, or the taking of any action in reliance on the contents of this email. Is strictly prohibited. If you have received this email in error, please advise my office and delete it from your system.

CHIPPEWAS OF THE THAMES FIRST NATION

April 11, 2019

VIA EMAIL

Magdalena Koehler
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1

Subject: 7th Line (West) Improvements from Yonge Street to 10th Sideroad

Dear Magdalena,

We are in receipt of correspondence of the aforementioned project, dated March 28th, 2019.

In our screening of your correspondence, we have identified no concerns with your project or the information that you have presented to us at this time. We would prefer to be removed from the mailing list for this project, we do not feel it's necessary to receive future notifications.

However, we ask that there are any changes to your project that are of a substantive nature that you keep us informed.

Thank you for notifying Chippewas of the Thames First Nation.

Sincerely,

Fallon Burch
Chippewa of the Thames
Consultation Coordinator
(519) 289-5555 Ext. 251

c: Deanna De Forest, Environmental Assessment Coordinator, R. J. Burnside & Associates Ltd.

320 Chippewa Road, Muncey, ON, N0L 1Y0
Ph. 519-289-5555 Fax. 519-289-2230
info@cottfn.com www.cottfn.com

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:13 PM
To: 'KaitlinH@curvelake.ca'
Subject: Curve Lake -Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Kaitlin Hill, Engagement and Consultation Coordinator

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:14 PM
To: tcowie@hiawathafn.ca
Cc: choward@hiawathafn.ca; info@hiawathafn.ca
Subject: Hiawatha FN-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Tom Cowie, Land/Resources Community Consultation, Hiawatha First Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:14 PM
To: 'consultations@metisnation.org'
Subject: Métis Nation of Ontario--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:15 PM
To: rdonm@mbq-tmt.org
Cc: charlesm@mbq-tmt.org
Subject: Mohawks of Bay of Quinte--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Chief, Charles Marcle, Mohawks of Bay of Quinte

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:15 PM
To: 'nicoles@mbq-tmt.org'
Subject: Mohawks of Bay of Quinte-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Nicole Storms, Environmental Services Officer, Mohawks of Bay of Quinte

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

From: Magdalena Koehler <mkoehler@innisfil.ca>
Sent: Monday, May 06, 2019 12:31 PM
To: Charlotte Gurnsey <consultation@mbq-tmt.org>
Cc: Lisa Maracle <lisam@mbq-tmt.org>; Amy Brant <research@mbq-tmt.org>; Nicole Storms <nicoles@mbq-tmt.org>; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: 7th Line (Yonge Street-10th Sideroad Improvements)

Thank you Charlotte!

Magdalena

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
705-436-3740 Ext. 3226
1-888-436-3710 (toll free)

This information is intended only for the person, persons, entity, or entities to which it is addressed; does not necessarily represent the views of the Town of Innisfil; may contain information that is privileged, confidential or exempt from disclosure under the Municipal Freedom of Information and Protection of Privacy Act. If the reader is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you received this communication in error, please notify us immediately by return e-mail and delete the correspondence from your computer.

From: Charlotte Gurnsey <consultation@mbq-tmt.org>
Sent: May 6, 2019 12:13 PM
To: Magdalena Koehler <mkoehler@innisfil.ca>
Cc: Lisa Maracle <lisam@mbq-tmt.org>; Amy Brant <research@mbq-tmt.org>; Nicole Storms <nicoles@mbq-tmt.org>
Subject: 7th Line (Yonge Street-10th Sideroad Improvements)

Good morning Ms. Koehler,

Please find attached The Mohawks of the Bay of Quinte's official response to the 7th Line (Yonge Street-10th Sideroad Improvements) Project.

We will also be sending a copy via letter mail for your records.

Should you have any questions or comments, please feel free to contact me directly. My details are listed below.

Kind regards,

Charlotte E. Gurnsey, B.Soc.Sc.
Consultation Coordinator
Mohawks of the Bay of Quinte - Kenhteke Kanyen'kehá:ka
24 Meadow Dr., Tyendinaga Mohawk Territory, ON K0K 1XO
T: 613-396-3424 Ext. 155 **| E:** consultation@mbq-tmt.org
F: 613-396-3627 **| W:** http://www.mbq-tmt.org/

MOHAWKS OF THE BAY OF QUINTE

KENHTEKE KANYEN'KEHÀ:KA

COMMUNITY INFRASTRUCTURE / TECHNICAL SERVICES / ENVIRONMENT
24 Meadow Drive., Tyendinaga Mohawk Territory, ON K0K 1X0
Phone 613-396-3424 Fax 613-396-3627

May 6th, 2019

Magdalena Koehler
Capital Project Manager: Town of Innisfil
2101 Innisfil Beach Road,
Innisfil, ON L9S 1A1

RE: 7th Line (West) Improvements from Yonge Street to 10th Sideroad

Dear Ms. Koehler,

We acknowledge your invitation to participate in the environmental assessment process as it relates to the 7th Line (West) Improvements from Yonge Street to 10th Sideroad Project in the Town of Innisfil.

As a First Nation with limited resources and capacity, it is difficult to actively participate in all environmental assessments in the surrounding area; however, the Mohawks of the Bay of Quinte (MBQ) would be concerned if the preliminary archaeological investigations found burial remains. There is a traditional process that must be followed for the repatriation or re-interment of remains.

The Mohawks of the Bay of Quinte expect the project to be carried out in an environmentally sensible manner that is consistent with the laws and regulations governing the said project. We appreciate your efforts in our endeavors to determine proper use of lands of interest to the community, the prevention or mitigation of anticipated and non-anticipated effects of the proposed project, and efforts to ensure maximum benefit to our community and generations to come.

The above shall not be construed so as to derogate from or abrogate any inherent, Aboriginal, treaty, constitutional, or legal rights of the Mohawks of the Bay of Quinte.

Sincerely,

R. Donald Maracle, Chief
Mohawks of the Bay of Quinte

Cc: File

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:15 PM
To: 'lester.anoquot@saugeen.org'
Cc: 'band.admin@saugeen.org'
Subject: Saugeen FN--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Chief, Lester Anoquot, Saugeen First Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:16 PM
To: 'd.ritchie@saugeenojibwaynation.ca'
Subject: Saugeen Ojibway Nation--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Doran Ritchie, Land Use Planning, Saugeen Ojibway Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:16 PM
To: 'jthomas@sixnations.ca'; 'dlaforme@sixnations.ca'
Subject: Six Nations of the Grand River--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Joanne Thomas/Dawn Laforme, Six Nations of the Grand River

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:16 PM
To: dean.jacobs@wifn.org
Subject: Wapole Island FN--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Dean Jacobs, Wapole Island First Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:17 PM
To: 'inquiries@williamstreatiesfirstnations.ca'; 'k.a.sandy-mckenzie@rogers.com'
Subject: Williams Treaties FN-Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Karry Sandy-Mackenzie, Claims Coordinator, Williams Treaties First Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:18 PM
To: 'zhiiband@manitoulin.net'
Subject: Zhiibaahaasing FN--Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Chief, Irene Sagon Kells, Zhiibaahaasing First Nation

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Deanna De Forest
Sent: Monday, April 01, 2019 11:16 AM
To: Sharday James; mkoehler@innisfil.ca
Subject: RE: 7th Line Improvements Class EA, Innisfil

Hi Sharday,
Thank you for your interest in the environmental assessment for the improvements to the 7th Line in Innisfil.
Your contact information will remain on our project contact list to receive future notices about this project, and a digital copy of the EA report upon completion, as requested.

Regards,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: Sharday James <shardayj@ramafirstnation.ca>
Sent: Monday, April 01, 2019 10:59 AM
To: mkoehler@innisfil.ca; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: 7th Line Improvements Class EA, Innisfil

Hello,
My name is Sharday James and I am a representative from the Chippewas of Rama First Nation. Thank you for contacting us about the initiation of an environmental assessment for the improvements of the 7th Line in Innisfil. At this time we have no comments but we wish to be updated as the project continues. We would appreciate a digital copy of the EA upon its completion at which time we will make comments if we see anything of concern to us. Please continue to contact us in the future of any projects that may impact our traditional territories.

Thank you,
Sharday James

Sharday James
Community Consultation Worker, Communications
Chippewas of Rama First Nation
(ph) 705-325-3611, 1633
(cell)
(fax)
(url) www.ramafirstnation.ca

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By submitting your or another individual's personal information to Chippewas of Rama First Nation, its service providers and agents, you agree and confirm your authority from such other individual, to our collection, use and disclosure of such personal information in accordance with our privacy policy.

Please consider the environment before printing this e-mail.

Sylvia Waters

From: Sylvia Waters
Sent: Tuesday, August 07, 2018 3:41 PM
Subject: Stakeholder-NOTICE of Commencement, 7th Line (West) Improvements from Yonge Street to 10th Side Road, MCEA
Attachments: 7th Line Notice for mail out.pdf

Bcc:

NOTICE of Commencement, **7th Line (West) Improvements from Yonge Street to 10th Side Road,** Municipal Class Environmental Assessment. On behalf of the Town of Innisfil, please see attached Notice.

Sylvia Waters

From: Deanna De Forest
Sent: Tuesday, August 21, 2018 9:59 AM
To:
Cc: Magdalena Koehler; Carolina Cautillo
Subject: RE: 7th Line innisfil

Hello
Thank you for your comments following the Notice of Commencement for the 7th Line (West) road improvements Municipal Class Environmental Assessment.

The Municipal Class EA process includes consideration of a range of reasonable alternative solutions to a problem or opportunity. As it is currently implemented as a temporary solution, the one way solution is considered, among others, as a reasonable alternative for evaluation as part of the EA process. During the EA planning process, the evaluation of alternatives looks at the advantages and disadvantages of the alternatives and their potential impacts on the environment, including the social/cultural, natural environment, financial and technical environments. Your comments regarding the one way alternative solution will become part of the public record for the project and will be considered in the evaluation and identification of a preferred alternative solution for the Municipal Class EA.

The Town is aware that current efforts, including signs, by-law and notification to the public, have, unfortunately, not stopped drivers from driving the wrong way on 7th line. Additional barriers and signs are on order to be installed as soon as possible, as well, a request has been made for increased police presence and enforcement of the one-way designation.

Your contact information will remain on our Project Contact List to receive future notices about the project.

Regards,
Deanna De Forest

From:
Sent: Thursday, August 09, 2018 10:31 AM
To: Magdalena Koehler <mkoehler@innisfil.ca>; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: 7th Line innisfil

I have just received the report from Burnside - I understand that this is a complex project, but I have to object to the one way solution, as per the meeting at the town offices, this one way was to be temporary, not a permanent solution as it appears to be proposed in the Burnside letter.

For the residents here on the 7th line, so far the one way has not reduced traffic, the speed of the traffic, nor the direction, people are still driving the wrong way on a regular basis as a result of inattention and poor signage. At the meeting last month when the temporary one way was discussed, additional barriers and lane marking was to occur when the road was turned to one way. That appears not to have happened.

The one way solution also adds travel time and distance to the few people that live here, for ourselves members of our family live on Windgrove Ave and Wesley St. which we visit on a daily basis and requires additional time and mileage to

have to drive up to Innisfil beach road and around every trip. Approximately an additional ten kilometres. Temporarily we were willing to accommodate this project but certainly not on a permanent basis.

Starting back again in September when school starts this trip to Wesley St is at least twice a day to get grandkids to and from school.
Please keep us notified of any future meetings.

Regards,

Sylvia Waters

From: Deanna De Forest
Sent: Thursday, August 09, 2018 4:49 PM
To: Sylvia Waters
Cc: 300042232 7th Line EA Yonge St to 10th Sideroad
Subject: FW: 300042232 7th Line Class EA

From: Jim Hartman <jhartman@grnland.com>
Sent: Thursday, August 09, 2018 4:44 PM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>; mkoehler@innisfil.ca
Cc: Nicole.S@cortelgroup.com; Brad Parker <bparker@grnland.com>; Josh Maitland <jmaitland@grnland.com>
Subject: 7th Line Class EA

Please include us in the circulation list for this project. Thanks.

Regards

Jim Hartman, P.Eng., Senior Associate
Ph. : 705-444-8805 ext. 254
Fax : 705-444-5482
Cell : 705-441-4877

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120 Hume Street, Collingwood, Ontario, Canada L9Y 1V5
tel: 705 444 8805 • fax: 705 444 5482
web: www.grnland.com
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Deanna De Forest

From: 7thLineEAWestofYonge
Sent: Wednesday, August 22, 2018 4:08 PM
To:
Subject: RE: Contact List. 7th Line improvements

Thank you for your interest in the 7th Line (West) road improvements Municipal Class Environmental Assessment. Your contact information will remain on our Project Contact List to receive future notices about the project, updated to include your email address.

Regards,
Deanna De Forest B.Sc. E.P
Environmental Assessment Coordinator
R.J. Burnside and Associates Limited

-----Original Message-----
From:
Sent: Thursday, August 09, 2018 2:43 PM
To: 7thLineEAWestofYonge <7thLineEAWestofYonge@rjburnside.com>
Subject: Contact List. 7th Line improvements

Pls. add to your contact list re: project notices. Thanks.

Sent from my iPad

---------- Forwarded message ----------
From:
To: mkoehler@innifil.ca
Cc:
Bcc:
Date: Sun, 19 Aug 2018 11:48:59 -0400
Subject: Road Improvements

My feelings on the 7th line project is the 7th line should be widened for two way traffic.
With the amount of traffic already using the 6th line and Innisfil Beach Rd already we need as many alternatives as we can get.
As well in the near future we will have

1- A new medical centre at Innisfil Beach Rd and Yonge
2-A new Go stop at the 6th and 20th sideroad
3-A new hospital at 6th and Yonge St
4-A new exit ramp off 400 on the 6th Line
5-New subdivisions in Alcona and Lefroy
6-More houses have been approved for Friday Harbour which has already shown higher volumes of traffic

The amount of traffic is already getting out of hand and to remove an alternative route just seems out of the question.

Thanks for allowing our imput

Deanna De Forest

From: Deanna De Forest
Sent: Monday, August 20, 2018 4:11 PM
To:
Subject: RE: 7th Line

Hello
Thank you for your interest in the 7th Line EA. We have updated our Project Contact List to include your new email address and note your preference to receive project information by email.
Regards,
Deanna

From:
Sent: Monday, August 20, 2018 8:33 AM
To: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: 7th Line

Good morning Deanna,
I've received a letter from the Town of Innisfil regarding the 7th Line improvements. Being a resident on 7th Line, I would like to keep informed of the plans and developments if possible through this email. Please add me to the list. Thanks.

--

Sylvia Waters

From: Sylvia Waters
Sent: Thursday, November 15, 2018 7:13 PM
Subject: RESIDENT-Notice of Public Open House-7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2018.11.08 - 7th Line West EA - POH#1 Notice of Open House - FINAL.PDF

Bcc:

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: November 27, 2018, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Room B

Sylvia Waters

From: Sylvia Waters
Sent: Wednesday, March 27, 2019 3:07 PM
Subject: PUBLIC -Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 2019.03#2 Notice of Open House - FINAL (ID 399935).pdf

Hello,
On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

Sylvia Waters

From: Magdalena Koehler <mkoehler@innisfil.ca>
Sent: Thursday, July 04, 2019 4:04 PM
To:
Cc: Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: RE: 7th line 10th to Yonge (hwy 11)

Due to the safety hazards and heavy eroding, deterioration and washouts of certain sections of the 7th Line, this road was closed to the public with the exception of local traffic. This is a temporary measure. We are in the process of completing Municipal Class Environmental Assessment that will deliver preferred design option and will close this summer, detail design is a next step and the road reconstruction is scheduled for 2021.

After the road is reconstructed and meets geometric design standards it will be re-opened to the public use. Thank you, Magdalena

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
705-436-3740 Ext. 3226
1-888-436-3710 (toll free)

From:
Sent: June 20, 2019 6:54 PM
To: Magdalena Koehler <mkoehler@innisfil.ca>
Subject: 7th line 10th to Yonge (hwy 11)

Hi,
I understand that this email will most likely be disreagarged , but in the chance that it might actually see the light of day, just some observations.

Due to traffic caused by intensification via new developments , this has increased the need for access to major highways, that this town has not even considered (unless you look at "official plan " that seems to be drawn up on a napkin) just wondering if this road will become a private road for residence only and service paid for by the rest of the Town population ? . For the last two years except for the last ten months this road was "closed to residence only" but we the " town" still paid for road repairs, snow removal etc"

I will not hold my breath for a response.
Please consider though , my concerns are shared by many , and seem to be seen by few on either council which supposedly represent the tax payer, or bourcrats that supposedly work for the "greater good" or what ever your current catch phrase is from marketing. Please feel free to correct me, again will not hold my breath.

From: Magdalena Koehler <mkoehler@innisfil.ca>
Sent: Friday, July 05, 2019 10:30 AM
To:
Cc: Carolina Cautillo <ccautillo@innisfil.ca>; Deanna De Forest <Deanna.DeForest@rjburnside.com>
Subject: FW: 7 th Line

Thank you Those are some amazing photos! We knew that there are breeding reptiles within the study area.

Thanks,
Magda

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
705-436-3740 Ext. 3226
1-888-436-3710 (toll free)

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-----Original Message-----
From:
Sent: July 4, 2019 3:17 PM
To: Magdalena Koehler <mkoehler@innisfil.ca>
Subject: 7 th Line

[EXTERNAL]

Hi Magdalena, I saw this last week on the 7th line. I just thought you might want to see this. It was about 200 metres east of the dog park.







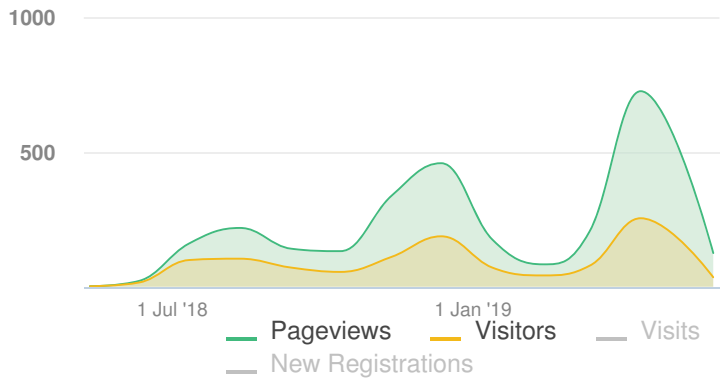
Project Report

28 March 2018 - 15 May 2019

Get Involved Innisfil

7th Line Study

Visitors Summary



Highlights

TOTAL VISITS
1.3 k

MAX VISITORS PER DAY
88

NEW REGISTRATIONS
36

ENGAGED VISITORS
101

INFORMED VISITORS
347

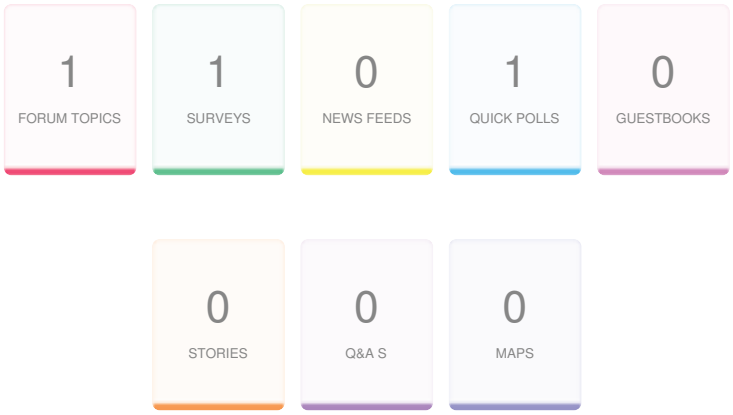
AWARE VISITORS
838

Aware Participants	838
Aware Actions Performed	Participants
Visited a Project or Tool Page	838

Informed Participants	347
Informed Actions Performed	Participants
Viewed a video	0
Viewed a photo	0
Downloaded a document	70
Visited the Key Dates page	2
Visited an FAQ list Page	0
Visited Instagram Page	0
Visited Multiple Project Pages	242
Contributed to a tool (engaged)	101

Engaged Participants	101		
Engaged Actions Performed	Registered	Unverified	Anonymous
Contributed on Forums	42	0	0
Participated in Surveys	19	0	0
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	54	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	0	0	0
Placed Pins on Places	0	0	0
Contributed to Ideas	0	0	0

ENGAGEMENT TOOLS SUMMARY



Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors		
				Registered	Unverified	Anonymous
Forum Topic	7th Line Road Restoration	Published	262	42	0	0
Survey Tool	7th Line Survey	Archived	58	19	0	0
Quick Poll	How would you prefer the 7th line be fixed?	Archived	58	54	0	0

INFORMATION WIDGET SUMMARY

7	0	0	0	0
DOCUMENTS	PHOTOS	VIDEOS	FAQS	KEY DATES

Widget Type	Engagement Tool Name	Visitors	Views/Downloads
Document	7th Line EA - Notice of Study Commencement	26	30
Document	7th Line EA - Public Open House #1 Information Boards	20	29
Document	7th Line EA - Public Open House #2 Information Boards	15	15
Document	7th Line EA - Notice of Public Open House #1	14	15
Document	7th Line EA - Public Open House #1 Results	11	11
Document	7th Line EA - Public Open House #1 Summary Report	11	11
Document	7th Line EA - Notice of Public Open House #2	7	8
Key Dates	Key Date	2	2

FORUM TOPIC

7th Line Road Restoration

VISITORS 262	CONTRIBUTORS 42	CONTRIBUTIONS 162

06 December 18

AGREES	DISAGREES	REPLIES
2	1	0

Make the narrow section in the trees a one way at a time section controlled with a traf fic light system. Raise the lower road section up like a Viaduct that would allow small aquatic creatures and turtles a way to cross under the road.

10 December 18

AGREES	DISAGREES	REPLIES
2	1	0

Remove the section of road between the last home on the east end and the last home on the west end. Return the middle section to nature. No more thoroughfare. Problem solved and at the least costly of options.

08 August 18

AGREES	DISAGREES	REPLIES
2	0	1

All this stuff about IBR is great, but the town hasn't got any power over IBR - it's a Cou nty road.

[illegible]r 18

AGREES	DISAGREES	REPLIES
0	0	0

hello Magda, re: St John's portion of your comment. Widening May be warranted by 2 021, but, I expect the comments were related to the horrendous road conditions of the existing road.

AGREES	DISAGREES	REPLIES
1	0	0

Magda, I'm very happy to see you promise improved sightlines at 7 and St John's!!

FORUM TOPIC

Road Restoration

06 December 18

AGREES	DISAGREES	REPLIES
1	0	1

magda, enforcement of no parking on the pedestrian walkway would be a big plus!! th ere are some blocks of St John's with clear no parking signage and most others witho ut! my 10y old son has to navigate around parked cars into active traffic lanes in orde r to get away from the house into the subdivision. That is even more dangerous becau se a vehicle may not anticipate that or , as a child, he may make a bigger move into t he next lane then expected. Or, a car, parked illegally in the cross walk, that he needs to pass may open their doors into him launching him into the active lanes of traffic. jus t enforce the part where it is a bike/foot lane please!!!

12 January 19

AGREES	DISAGREES	REPLIES
2	1	0

Widen the 7th to allow 2 way traffic, as an alternate route to Innisfil Beach Rd. No park ing signs on the road (near the park at the 10th and 7th). I also like the idea of keeping the trees as much as possible, and installing a light in the narrow part (single lane), alternating traffic directions and slowing people down. Further, I agree that light s need to be installed at Innisfil Beach Rd and the 20th. And- speed limits should be r educed (school zones?) on Innisfil Beach Rd between Town Hall- Kempenfelt Bay Sc hool- The Rec Centre- across Yonge to Quiet Waters Montessori.

24 July 18

AGREES	DISAGREES	REPLIES
5	1	1

It is ridiculous that the town is not dealing with the real problem innisfil beach road and it's volume . No wonder people who have lived here all their lives take the 7th line inst ead of ibr it's too busy and the town should concentrate on that or stop building so much if they can't keep up

25 July 18

AGREES	DISAGREES	REPLIES
10	0	4

I have lived in Innisfil since 2009 and have used 7th line as a shortcut since the traffic on IBR is ridiculous during the afternoon rush and on weekends during the summer. T he real problem is with the town allowing all the new homes to be built without the pro per infrastructure. The roads in and around town cannot handle the amount of new pe ople moving here and to take away a road or make it one way is just causing more an d more frustration for the residents and commuters of the town. What happens when t he widening of IBR starts? I read that they will be working on the Yonge and IBR inters ection soon, which is the busiest intersection in and out of town and we don’t have alternate routes to take. 6th line is out of the way for many people. Please leave 7th li ne as a 2 way road. This will alleviate the traffic along IBR.

FORUM TOPIC

ine Road Restoration

08 August 18

AGREES	DISAGREES	REPLIES
3	0	1

I agree. IBR should be a priority and traffic flow, with focus on light timing and fixing int ersections and accessibility to stores, (left turn lanes, dedicated right turn, etc.). Espec ially IBR and 20. Terrible intersection! 6th line is important to be considering for develo pment because of future plans for go station and links to 400. 7th line is less of priority .

08 August 18

AGREES	DISAGREES	REPLIES
2	0	0

Good point. I didn't think of that.

16 August 18

AGREES	DISAGREES	REPLIES
1	1	0

I agree too, and to top it off the town decides to put the dog park there and have now closed the road. I think this road needs to be widened and reopened, especially since they keep building homes off the 7th Line!!!

August 18

AGREES	DISAGREES	REPLIES
2	0	2

Being a resident on 7th Line, I truly see the need for road improvement having been a victim of the road erosion ourselves. Winter time my husband was going East on 7th L ine to drive our daughter to town when the garbage truck was coming West. To let the big truck go by, he drove onto the shoulder and immediately sunk up to the door of the pick truck which sustained considerable damages. Luckily he was not far from home & with the help of the mail person, he was driven to the house to get his bobcat to rem ove the truck from the hole. Now that the road has become a one way street, although with inconvenient increase to our commute, we understand that there was no other qu ick way to remedy the current situation. After all that said, my biggest concern right no w is that MANY people are not respecting the One Way signs and driving as usual the wrong way putting other people's live at risk. I have experienced myself not a few times, and no matter how many times you try to warn the drivers, I believe they consci ously drive the wrong way because it is convenient for them. I would suggest more p olicing during rush hours. That is when I see most of the culprits, although last Saturd ay morning, a crazy driver drove by with ridiculous speeds going the wrong way, and not only one but two, one after the other. If a vehicle was coming the other way at similar speeds, they would not have the time to stop and a tragedy would have occurr ed. Will somebody have to die so people will respect the rules? I fear for that...

FORUM TOPIC

Line Road Restoration

20 August 18

AGREES	DISAGREES	REPLIES
3	0	0

Without improvement to the road, it is not a good idea to keep it two ways. Some area s are too narrow to contain two cars side by side and the erosion on the shoulders in some areas make it very hazardous. I speak from experience. We have had big damage to one of our pickup trucks when it sunk into the shoulder to let another vehicl e go by.

26 September 18

AGREES	DISAGREES	REPLIES
1	0	0

yes, although it is somewhat improved. We need better signage.

21 November 18

AGREES	DISAGREES	REPLIES
0	0	0

Thanks a lot for your reply Magda. Surely, we will attend the meeting next week. Just a note: although signage has considerably improved on 7th Line, it still pains me to se e people going consciously the wrong way and at high speeds putting us, people who are trying to follow the law, at peril, and without pointing fingers to anyone, I haven't s een any police cars in the area for a few weeks now. Maybe they should do it once in a while, because only this past week, I encountered 3 drivers going the wrong way on my way back from work, at about 5pm. And with winter already here, this behaviour m akes things even more dangerous for all.

January 19

AGREES	DISAGREES	REPLIES
1	0	0

I am a resident of 7th Line west of Yonge and as much as I love the trees & wildlife for our family the best solution would be - two way street with minimum as possible impa ct to nature & max speed limit of 60km/hr- For us, this 'one way' temporary solution h as been a tremendous inconvenience adding considerably to our fuel bill plus, there a re still people driving the wrong way even though the road is clearly signed ONE WAY putting our lives at risk on a daily basis. Only this morning (Jan 15th/2019) I encountered a pickup truck hauling a trailer going on the wrong direction as I was driv ing to work. I tried to warn the driver by honking the horn and high beam but to no avail, this person was consciously going the wrong way and kept going his/her way. A s I looked on my rear view mirror another driver was driving down and must have met the culprit right near the danger zone where the shoulders are unstable & hazardous.

FORUM TOPIC

Line Road Restoration

27 August 18

AGREES	DISAGREES	REPLIES
1	2	1

With Everyone using 7th Line they are also speeding like maniacs on St.Johns Rd. I h ave a daughter in a Power wheelchair using the pedestrian walkway. cars so fast are swerving into that lane non stop way to much traffic and no where to go. this is becomi ng a major safety issue. whether at 7th line and Yonge or to 7th line and St.Johns Rd t he whole way needs fixed. :-(

25 October 18

AGREES	DISAGREES	REPLIES
1	1	1

Yes. But would you not be the ones to decide on stop signs or stop lights? Or even to put crosswalks in place. Which may help slow the traffic as police cant just hang out t here 24/7. And radar signs they do what exactly???? I see no difference just cause a big board tells them the same as their dash.

13 September 18

AGREES	DISAGREES	REPLIES
2	1	1

The first thing is PULL UP THE PAVEMENT and return it to a country road because t hat is what it is. Why every road has to covered with asphalt I have no idea. Make it a one way road The only part that I am interested in is through the ceders

16 November 18

AGREES	DISAGREES	REPLIES
4	2	0

Not happy with the one way at all. We live in the section of the 7th line in question an d need to go out to Yonge st at least twice a day to get my grandkids to and from scho ol. The waste of time, extra gas and driving IBR to get down there is very frustrating to say the least. We liked it when it was a dirt road but realize things change but this one way was never on our minds as a future resolution. Please change it back to a two w ay. A suggestion, as it is only one small section that is a problem....put guard rails up j ust in that area.

AGREES	DISAGREES	REPLIES
1	0	0

We are on the one way section of the 7th and we see at least 2 or 3 per day....and tha t is only what we happen to see....scary

FORUM TOPIC

[illegible]oad Restoration

27 March 19

AGREES	DISAGREES	REPLIES
1	0	0

This one way has gone on long enough. I think we have been extremely patient waiting .....added time when having to go east of Yonge at least twice a day (daycare f or grandkids) ...added fuel costs...risking coming home to face traffic going the wrong way....excessive speed as police do not seem to radar this section anymore like they did when it was 2-way....snowblower has no choice but to dump all snow on north sid e which is where most residents are adding to the frustration of getting out of your driv eway in the winter

26 September 18

AGREES	DISAGREES	REPLIES
1	1	1

I think the 7th line should be repaired/widened/lit and reopened for two way traffic asa p until ibr is improved upon with at least passing shoulders at the 20th and/or some ki nd of traffic light/roundabout . The 7th line is the only real alternative to ease the cong estion on ibr

26 September 18

AGREES	DISAGREES	REPLIES
0	0	1

I haven't been that way since forever when they posted the sign that said no entry - as far as I know it doesn't say it's a one way street only looks like it's temporarily blocked other than to local traffic. Correct me if I'm wrong....

23 October 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	0

Hello The Innisfil Beach Road is under the County of Simcoe jurisdiction, thus the scope and timing of the improvements are controlled by the County. The following is the projected timeline of the IBR reconstruction as provided to the Town: - CR 21 & 53 and CR 21 & 4 intersection improvements - 2019; - Phase 1 (CR 4 to CR 39) - 202 0; and - Phase 2 (CR 4 to CR 54) - 2021; Hope that helps! Thanks.

24 October 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	0

Hello As I mentioned in the response to the IBR is under the County's j urisdiction, you are correct though, in the 2019 two intersections IBR & Yonge St. and IBR & 5 SR are scheduled for improvements, although we will all have to live with some inconvenience for some time, the end result will be great: improved traffic flow! Thank you for your input, it is the intent of the EA planning process, to evaluate a ran ge of alternatives for the 7th Line, look at the advantages and disadvantages, and thei r potential impacts. We will be hosting a first public open house in November - date/lo cation details will be posted shortly! Take care! Magda.

FORUM TOPIC

7th Line Road Restoration

25 October 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	1

Hello, Did you try calling South Simcoe Police re speeding on St. Johns Road? We've installed radar speed signs last year; however, the speed enforcement is a police mat ter. Thank you!

30 October 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	1

Residents are welcomed to submit their traffic related requests to the Customer Service who forwards them to the Traffic Advisory Committee. Otherwise, signals, sto p signs etc. are implemented by engineering when warranted.

31 October 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	0

Hello You are correct, not every road needs an asphalt surface! That section o f 7th Line was not a through road until 1960s. Thank you for your input, it is the intent of the EA planning process, to evaluate a range of alternatives for the 7th Line, look at the advantages and disadvantages, and their potential impacts, and also receive feed back from various stakeholders. One of the alternatives is a One-Way Road. We will b e hosting first public open house in November - date/location details will be posted so on. Take care! Magda.

16 November 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
2	0	0

Hi , Thank you for your comment. Widening of the 7th Line (between Yonge St. & 10 SR) is one of the preferred alternatives. We are hosting first public open house, to present various alternatives on TUESDAY, November 27nd, 4pm - 7pm, at the Town Hall and you are welcomed to attend. Take care! Magda.

20 November 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	1

Hello Glad that your Husband and Daughter were okay. More signs have been i nstalled in August. We have been in touch with the South Simcoe Police who frequen tly monitors the area and is doing whatever they can to prevent traffic offences includi ng drivers going against the traffic flow. We are hosting first public open house, to pre sent various alternatives on TUESDAY, November 27nd, 4pm - 7pm, at the Town Hall and you are welcomed to attend. The preliminary preferred solutions are: one-way ro adway or widen the road. Thank you! Magda

FORUM TOPIC

7th Line Road Restoration

20 November 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
1	0	1

Hi , I believe, you are describing the other section of 7th Line, between 20 SR to Lake Simcoe. That project is proceeding to detail design and land acquisition in the 2019. Then utility relocations will start in 2020 and construction is projected for 2021 - providing Council approval. The intersection of 7th Line & Webster Blvd. will be improved (with additional turning lanes) as well the intersection with S. Johns - sightlines will be improved. Cheers - Magda.

21 November 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
0	0	1

Hello, We are hosting first public open house, to present various improvement alternatives on TUESDAY, November 27nd, 4pm - 7pm, at the Town Hall and you are welcomed to attend and have your say. The preliminary preferred solutions are: one-way roadway including rehabilitation or widen the road to accommodate two-way traffic flow. There are votes 'for' and 'against' either of the preliminary preferred alternatives and we want to hear from the residents at this upcoming open house. As to the 7th Line, 20 SR to St. John's, the widening is scheduled for 2021.

18 December 18

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
0	0	0

Hi! We have forwarded your inquiry to By-law to continue enforcement and they have responded that this area is frequently patrolled. Thank you!

FORUM TOPIC

7th Line Road Restoration

06 April 19

Magdalena Koehler, Capi...

AGREES	DISAGREES	REPLIES
0	1	0

Hi thank you for your comment. We annually resurface and/or reconstruct cert ain roads, the number of projects is dictated by the approved budget - you can check Innisfil website for the 2019 construction projects. The Town does collect development charges as part of our development charges by-law; development charg es are collected when a developer is issued a building permit, which are then used to i mprove our infrastructure. Since Innisfil has approximately 900km of roadway, the To wn improves roads based on the Roads Needs Study and Transportation Master Plan which identified the 7th Line as a roadway that requires improvement within the next f ew years. Residents are also welcome to submit any traffic-related quests such as ra dar cameras to Customer Service, who forwards them to the Traffic Safety Advisory C ommittee for consideration. The intent of the EA process is to evaluate a range of alte rnatives as well as examine advantages, disadvantages, and potential impacts. While the public and stakeholders have decided that Widen the Road is the preferred alternative from the first Public Open House, we encourage you to attend our second Public Open House on Monday, April 8th from 4pm to 7pm at the Town Hall – we will be presenting the design alternatives. You can have your say by speaking to Town staff and filling out our comment sheet. Alternatively, if you are unable to attend the P ublic Open House, the information boards and corresponding survey will be available on the GetInvolved Innisfil website on April 8th. Hope to see you at the Public Open H ouse!

26 November 18

AGREES	DISAGREES	REPLIES
1	1	1

So interesting to read these comments and the responses. I have lived in Innisfil for al most 30 years. I lived just off the 7th line for the first 18 years. I loved that I could com mute without having to take IBR. So here we are after all these years and all the new r esidents, of course no new jobs, increased cost of living and we have less options to get commuters to the highway. So easy to blame the county on the timing when I have seen the council approve development by the hundreds. If you don't have a good plan, don't do it. Why aren't the developers paying for the improvement and widening of the roads? The town has let the condition of the roads deteriorate so bad that they need major fixing and major dollars to invest. I have had bent rims from the pot holes and yet the rich developers drive trucks and semis on these roads with heavy loads a nd they should be charged for the maintenance, and the town is collecting a lot more i n taxes, so put the money back in to making the commute better since you have not d one anything to bring industry into the area. The point I want to make is take care of t he residents, they pay taxes, they support the community, make it the best place to liv e. If there aren't any jobs then make sure the infrastructure supports their needs to get to and from work safely, quickly, and conveniently. Fix the roads, keep them safe 24/7 , provide alternatives, give the pedestrians side walks, and put up radar cameras. Lets make Innisfil the best place to live.

FORUM TOPIC

7th Line Road Restoration

16 October 18

AGREES	DISAGREES	REPLIES
1	0	1

The 7th line needs some re-widening and there should be stop signs at St. Johns and the 7th line. There are speeders as well. There needs to be some police enforcement for drivers at the intersection of Webster and the 7th. Majority of drivers turning right o nto the 7th from Webster never stop at this intersection, they just slow down a bit and turn the corner.

21 October 18

AGREES	DISAGREES	REPLIES
3	3	2

I would like to see the 7th line reopened in both directions. I think the town should con centrated its efforts on maintaining and repairing the 7th line between the 20th and St. John's. The road is in horrendous condition Andy the volume of traffic is ridiculous. Al so I dot the appreciate that I have to detour to an alternate line in order to get home b ecause the road west of Yonge is now a one way.

09 April 19

AGREES	DISAGREES	REPLIES
4	2	1

Yesterday April 8th, I attended the open house and learned about the project. I am re ally disappointed that the "tree tunnel" will go away; this is probably the most beautiful part of the city and we should do all efforts to preserve it. Sometimes looks like the long term vision for our town is to change it to be a big city, rather than quiet and, plen ty of nature, beautiful town as it is. The decision to widen the street was taken with on ly 25 people attending the open house and 28 comments (11 during the open house a nd 17 through the online survey). I think that is not representative of 32 thousand Innisfil inhabitants. I understand that standards mandate a minimum width for the stre et and today we are not compliant with it. However, why not widening most of the stre et but leave the "tree tunnel", and for this area reduce speed limit to the minimum, inst all speed bumpers, speed camera and finance them with huge fines to speeders. This most probably will add 2 or 3 minutes the trip but will be worth to preserve this be autiful natural view of our town

09 December 18

AGREES	DISAGREES	REPLIES
4	1	0

I have always taken my kids down the 7th line through the "tree tunnel" if there is a w ay to keep it that would be perfect. Keeping it to one direction maybe as it is now. All t he roads in Innisfil have become much busier. Lot of people speeding. I think the most important road to address is the jog at the 20th and Innisfil Beach Road. People constantly stop on the train tracks there. Needs to be widened and traffic lights and tur ning lanes before all those new houses behind No Frills are finished.

FORUM TOPIC

7th Line Road Restoration

07 December 18

AGREES	DISAGREES	REPLIES
4	0	0

I have lived here since 1981. I always go down the 7th line to the 10th side road. I love that road but I know all things change. I find it fine being one way but I think the people it affects the most are the ones with houses between Yonge Street and the 10th Side Road so I think ultimately it is their street their decision and I can live with that.

07 December 18

AGREES	DISAGREES	REPLIES
1	0	0

I been up here for over 40 years leave that road alone !!! There only been one bad accident there other then that it's a small section that you just need to do the speed or less this rd isn't for the speeders

04 February 19

AGREES	DISAGREES	REPLIES
0	0	1

I am a resident of the 7th Line as well. Can you tell us how many people have been charged with going the wrong way on the 7th Line ? I see at least 2-3 a week when I leave for work or come home. Is it going to take an accident to get some changes ?

26 March 19

AGREES	DISAGREES	REPLIES
2	1	0

we need to stop taking away our country feel here. I have been here for 42 yrs and have already seen the 7th widened there quite a few times. Every couple yrs they trim back a few trees and we lose more of the "tree tunnel". Its one of the best things for people to see around here now. We don't need Tim Hortons, Starbucks, Cdn Tire etc. Would rather keep what fields we have left. Less is more. Those who need smooth paved roads can go back to the city. It use to be beautiful here before all this development.

FORUM TOPIC

7th Line Road Restoration

31 March 19

.

AGREES	DISAGREES	REPLIES
1	1	0

I do not live on this section of 7th Line Road, but once in awhile I will take it because o f nature's beauty when entering from Yonge St. I understand and respect the resident' s points of view and opinions, but by widening that section of the road, they will see in creased traffic, speeding, accidents at the intersection of Yonge & 7th Line. If you liste n to other residents living on similar east-west bound roads in Innisfil, you hear them complain of the speeders, stunt drivers, truck traffic, accidents and close calls with pe destrians. Residents in Churchill on the 4th Line, from Yonge St. to 10th Side Road, h ave voiced their concerns to Council and the Traffic Safety & Advisory Committee, as well as residents of other roads. They complain of increased speeding, close calls wit h pedestrians and cyclist, increased truck traffic, increased noise. Even though the po sted speed limits are 60km/h, or lower, and with some roads designated "Community Safety Zones" with increased fines, it is impossible for South Simcoe Police to be patr olling every road all the time. There are too many drivers that do not obey the posted speed limits and their chances of getting caught are minimal. Widening this section of the road, will open up pandora's box, and residents then be complaining about the sp eeding cars, stunt drivers, truck traffic. The intersection of Yonge St. and 7th Line Roa d only has stop signs on 7th Line Road. I see way too many close calls, when drivers on 7th Line Road try to cross or turn onto Yonge Street. No matter what traffic calming measures are put in place, you will still have drivers that do not care and think that the y are privileged to disobey the laws of the road. Drivers would use that section of 7th Line Road to bypass the traffic on Innisfil Beach Road, just so they can get to their destinations, 5 minutes faster. Is 5 minutes worth the life of someone? The County of Simcoe has plans to widen Innisfil Beach Road and this will help with traffic. For more information on the widening of Innisfil Beach Road, see the link at https://www.simcoe. ca/TransportationEngineering/Documents/County%20Road%2021%20EA%20%28wid ening%29%20-%20FINAL.pdf To the resident's of that section of 7th Line Road, you h ave a beautiful road that Mother Nature has given you. Please think about it and try to come up with a better solution that saves the beauty and makes your road safe.

10 April 19

AGREES	DISAGREES	REPLIES
3	1	0

I agree. The road certainly needs to be repaired (for the long term), but it does not ne ed to lose the trees. There is no reason that the speeds cannot be kept to 50 on the 7t h, the road a bit wider, and the curves intact so that the majestic feel of this forest rem ains. Other roads can be 80 and used by the commuters - this little gem should remai n as one of Innisfil's treasures.

FORUM TOPIC

7th Line Road Restoration

11 April 19

AGREES	DISAGREES	REPLIES
2	2	0

It would be a loss to our town to change the beautiful oasis of trees that the 7th line off ers to people; actually when i came to visit for the first time that was the most beautiful feature i fell in love with. If we moved here is because we are tired of the big, rush, loud city living, but if you want to turn it into that what difference would that make?, we are not here to run on roads, definitely this street is not for "speed racers wannabe" . This road, i agree, can be improved but not to the price of destroying its b eauty and natural environment ,I suggest to have a minimum speed limit , widening m ost of the street but please leave the tree tunnel, put cameras and give high fines to th ose speeding and reckless drivers, remember also there is a lot of wild life living there too, be respectful to it.

17 April 19

AGREES	DISAGREES	REPLIES
0	0	0

I live on the 7th. Yes the trees are pretty but the sides of the road are caving in. This o ne way has to stop. It now takes me an extra 10 min to work each day as well as increased fuel costs. I agree with others drivers do not obey the one way sign and constantly come against someone going the wrong way. This is a safety issue. Please widen the road.

21 April 19

AGREES	DISAGREES	REPLIES
1	0	0

Have been a resident since 1948 and have seen this town change drastically. Unfortu nately to the worse. Any bit of charm this town has seems to go over time which is unf ortunate. The tree tunnel should stay, they should make other roads main arteries but try and preserve the last bit of natural beauty Innisfil has to offer. The subdivisions have killed the small town charm and unfortunately this is a commuter town and unfort unately is haveing adverse effects on what innisfil once was.

30 April 19

AGREES	DISAGREES	REPLIES
1	0	0

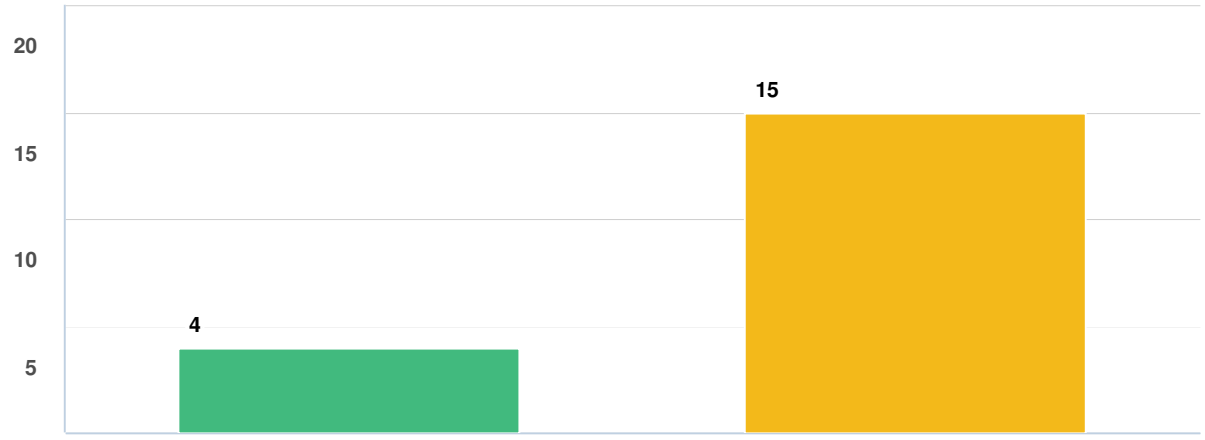
I, among others, also wonder why there are plans to spend $5.8 million dollars to wide n the 7th line. The only issue I see, having used the 7th for 20 years, is the first 2 to 30 0 meters that has a couple of sharp turns, the rest is a straight road to the 10th . Surel y, there are other pressing projects for this town that could use $5.8 million dollars. To my knowledge there has not been vehicle accidents on this stretch of road, correct m e if I'm wrong. Another issue at this time is the amount of signs that are currently post ed at this intersection, my last count was 10, telling drivers what they can and cannot do. It appears to me every day that a lot of folks just continue to ignore all of them . I t hink it's at the point of carelessness to let this sign issue continue. In closing, if the be nds in this small section are truly a safety issue just correct the first 300 meters or so .

ENGAGEMENT TOOL: SURVEY TOOL

7th Line Survey

VISITORS 58	CONTRIBUTORS 19	CONTRIBUTIONS 19

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements ...



Question options

One way road Widen the road

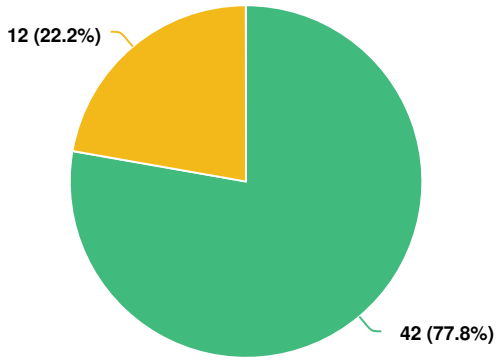
(19 responses, 0 skipped)

ENGAGEMENT TOOL: QUICK POLL

How would you prefer the 7th line be fixed?

VISITORS 58	CONTRIBUTORS 54	CONTRIBUTIONS 54

How would you prefer the 7th line be fixed?



Question options

- Fully reconstruct the road (Longer time for construction but the road will last longer)
- Resurfacing only (Shorter time for construction but the road will need work sooner)

(54 responses, 0 skipped)



Respondent No: 2
Login: [redacted]
Email: [redacted]

Responded At: Nov 29, 2018 12:23:45 pm
Last Seen: Nov 29, 2018 20:08:42 pm
IP Address: 127.0.0.1

Q1.	**1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?**	Widen the road
Q2.	**2. Do you have any other comments, questions, or suggestions?**	Creating a one-way road on 7th line, will cause issues with those trying to get through to their homes and more people braking the laws
Q3.	**3. Do you have any other feedback or suggestions about the information and material provided?**	Widening the road would relieve traffic, but also the road needs to be repaved throughout 7th line



Respondent No: 18
Login: [redacted]
Email: [redacted]

Responded At: Dec 09, 2018 02:58:28 am
Last Seen: Dec 09, 2018 10:49:38 am
IP Address: 127.0.0.1

Q1.	**1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?**	Widen the road
Q2.	**2. Do you have any other comments, questions, or suggestions?**	Minimum widening through the tunnel and winding area. Maybe yield to on coming tragic. Maybe ban large trucks. We are growing and need all the east west access to the 10 th possible
Q3.	**3. Do you have any other feedback or suggestions about the information and material provided?**	The term widening doesn't convey the minimum scope of the work planned and its use may imply destruction of the tree tunnel

Public Open House Summary Report
7th Line (West) Improvements from Yonge Street to 10th Sideroad

The Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie ON L4N 8J6 CANADA

January 25, 2019
300042232.0000

R.J. Burnside & Associates Limited

Report Prepared By:



Deanna De Forest, B.Sc., E.P.
Environmental Assessment Coordinator
DDF/DD:rm

Report Reviewed By:



Drew Davidge, P.Eng.
Project Engineer

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Appendices

Appendix A Newspaper Advertisement
Appendix B Display Boards
Appendix C Comment Sheets

1.0 Introduction and Background

The Town of Innisfil (Town) has initiated a Municipal Class Environmental Assessment (EA) to consider options for improvement to 7th Line from Yonge Street to 10th Sideroad to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. A key component of the study includes consultation with interested stakeholders. This report documents the Public Open House (POH), held on November 27, 2018 and summarizes the notification process, the information presented, and the comments received during and after the POH.

Alternative solutions include:

1. **Do Nothing (Maintain the Status Quo)**

   Mandatory requirement for consideration in a Class EA. Maintain the status quo. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

2. **Local Traffic Only**

   Allow access to local traffic only, closing the road to non-local traffic. May include change to a Private Road. Maintain public access to the park from 10th Sideroad. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

3. **One-Way Road**

   Operate as a one-way road fully open to the public. Maintain public access to the park from the 10th Sideroad and from the 7th Line. Install appropriate signage / marking and public notices of the change. No road widening, repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

4. **Widen the Road**

   Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal / vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

5. Dead-end Road with Turn Around (2)

Operate as a two-way road open to the public with no through traffic. Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h posted speed by widening the road and improving the horizontal / vertical alignment. Repair slopes and replace culverts where required to ensure long term viability of the road. Construct two cul-de-sac or hammer head turnarounds. Leave a trail / access road between the turnarounds for active transportation and emergency/maintenance vehicles. Perform regular maintenance as required.

The planning of the road improvements are being carried out in accordance with the Schedule 'C' requirements (Phases 1 to 4) of the Municipal Engineers Association Municipal Class Environmental Assessment document (October 2000, as amended in 2007, 2011 and 2015), which is approved under the Ontario Environmental Assessment Act.

2.0 Method of Notification

Details of the date, time, location and purpose of the POH were published in the Innisfil Journal on November 15, 2018 and November 22, 2018. A copy of the advertisement is provided in Appendix A. Notification of the POH was also published in the Community Bulletin for the Town of Innisfil, posted on the Town of Innisfil website and mailed to regulatory agencies, municipalities, Indigenous Communities and local residents who live within the study area. A copy of the Notice of POH was also hand-delivered to residents of the 7th Line who live within the study area for the project.

3.0 Public Meeting Format

The POH was arranged as a "drop-in" style session conducted at the Town of Innisfil, Town Hall, Community Rooms B and C on November 27, 2018. Display boards were placed around the room and representatives from the study team were available to answer questions and discuss the project with interested members of the public from 4:00 p.m. to 7:00 p.m. A copy of the display boards is provided in Appendix B. Attendees were greeted upon arrival, were encouraged to sign-in and were offered a comment sheet.

Participants were requested to provide input to the process by completing the available comment sheets. The comment sheet included a short description of each alternative and participants were asked to select their preference between two preliminary preferred alternatives resulting from the evaluation of alternatives during Phase 2 of the Municipal Class EA process and presented at the POH. Participants were also asked for any other comments, questions or suggestions on the project and the materials presented at the POH.

Individuals wishing to provide comment could fill out comment forms during the POH or take comment forms home to fill out later and return either via email or to the mailing addresses provided. Opportunity to comment was also available via an online survey/comment form on the Town website, available at getinvolvedinnisfil.ca/7thline. Return comments were requested by January 11, 2019.

4.0 Participation

A total of 25 people attended the POH, excluding the project team members, as indicated on the sign in sheets. Eleven (11) comment sheets were received from local stakeholders during and following the POH and seventeen (17) comment forms were received via the online survey available through the Town website. A copy of the comments received are provided in Appendix C.

5.0 Summary of Comments Received

The comments received during the POH and subsequent comment period included the following themes:

- Traffic congestion in the area.
- Accommodating growth while minimizing impact to natural features, wildlife and recreational opportunities.
- Preserving natural features.
- Concern that the existing One-way road option is unsafe as users continue to drive in both directions and results in extended driving distances to reach destinations to the east of the study area.
- Access to Centennial Park.

5.1 Overall Preference

The 4) Widening of the Road was selected as preferred in over half of all comment sheets and survey forms received during the POH comment period, summarized as follows:

- Twenty-two (22) of the comment sheets and survey forms selected the Widen the Road alternative as preferred.

- Four (4) of the comments sheets and survey forms selected the One-way alternative as preferred.

- One (1) of the survey forms noted neither the Widen the Road or One-Way option was preferred.

- One (1) comment sheet noted a preference for Dead-end Road with Turn Around instead of Widen the Road or One-Way options.

In addition to selecting from the two preliminary preferred alternatives, 2 of the participants provided another alternate preference; 1 for the Local Traffic Only alternative and 1 for the Dead-end Road with a Turn Around alternative.

In the evaluation of the alternatives against the natural, technical, social and economic environment, the selection of a preferred alternative is considered along with comments from the stakeholders, the Municipality and Agencies that were provided during the EA process. The ranking of the preliminary preferred alternatives is utilized to provide context for the accompanying participant comments, to provide a better understanding of stakeholder opinions, and to provide balance in the evaluation of the preferred alternative. Selection of a preferred alternative is not based solely on the ranking provided by participants during the POH and POH comment period. The alternative ranked most often as preferred was reviewed to provide an indication of the overall preferences among participants.

5.2 Questions/Concerns and Answers

A summary of questions included as part of the comments received from the POH are as follows.

As noted on the comments sheets, project related responses to comments and questions are provided within this PIC Summary Report. Individual response to comment sheets and survey forms was not provided.

Q1: If the road is made a two-way road, will the ditches be cleaned out?

A1: Ditching improvements would be made for the widen the road (2-way), the one-way and the Dead-end with Turn-around options. In each case the improvements would be at the East end of the road (closer to Yonge Street) but not required in the west end along the wetland areas.

Q2: If the road is left as-is (i.e., Do Nothing) could side barriers be constructed at the east end?

A2: Leaving the road at the current width (not clearing trees) and providing barriers (Guide Rail) would cause road to become even narrower do to the size of the guide rail and required clear area to allow the rail to deflect when hit. The remaining lane widths would be substandard and would make winter maintenance operations very difficult.

Q3: Why the problem? Have there been many collisions on this stretch? I've been using it for 16 years without any problem.

A3: Over the last 5 years there have been several reported accidents each year. In addition, there is physical evidence of vehicle impacts on the trees. Several residents have commented during this EA process that they have had issues on the road. In addition to safe use of the road, options for improvements are developed to address ongoing maintenance issues and costs.

Q4: What will happen to the Butternut trees when they are removed?

A4: The Butternut trees in the study area were observed to be saplings. The Butternut trees may be impacted by proposed tree clearing and grading activities associated with the preferred alternative. The contactor retained to complete the tree clearing would be responsible for the removal of the Butternut trees and vegetation, as required.

5.3 Feedback and Advice

Participants shared the following suggestions for the Town's consideration. The general comments presented are not intended to be a verbatim transcript of each comment received but are presented as a summary and highlights of comments.

- Provide traffic calming measures.
- Limit the road to local residents only and allow Innisfil residents to use it as a biking/hiking lane.
- Please strongly consider the feedback from residents on the road.
- Minimize tree removal.
- Hire a reputable company that knows how to fix it. Spend a little more to get it fixed correctly the first time.
- Cut the trees back and make the road straight.
- 7th line is the last intact forest of Innisfil - make it a oneway dirt road and discourage development in this area.
- Set an example for other municipalities to preserve and enhance conditions for constantly threatened wetlands. Close the road to through traffic with the Dead-end Turn-around option to have the least effect on the environment of the Provincially Significant Wetland, impact to birds and animals that inhabit the area, and reduce high speed through traffic.
- Acquire Innisfil Beach Road from the County of Simcoe and expand so the Town can take care of residents' concerns.
- One-way road is not an option for local residents due to extended travel time and distance.

- Current one-way is not working due to lack of ability to enforce. Users are not obeying the one-way signs creating a dangerous situation.
- Moving the driveway for centennial park to the 10th line would be helpful.

6.0 Next Steps

Comments and concerns received during the POH and POH comment period will be reviewed for incorporation into the evaluation of a preferred alternative. Next steps include completing the evaluation of alternatives, followed by the selection of a preferred alternative.

Following the approval of a preferred alternative, the choice of Municipal Class EA Schedule will be reviewed and confirmed or changed as appropriate for the preferred alternative.

The next public contact on the project will be to present the feedback from the POH and potential design alternatives for the preferred alternative.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Newspaper Advertisement

Notice of Public Open House

Municipal Class Environmental Assessment

7th Line (West) Improvements from Yonge Street to 10th Sideroad

The Study

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from Yonge Street to 10th Sideroad. The Town is completing a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. The site location and approximate extent of the Study Area are shown on the map.



Alternative solutions being considered for improvements include:

1) **Do Nothing**
2) **Local Traffic Only**
3) **One-Way Road**
4) **Widen the Road**
5) **Dead-end Road with Turn-around or a combination of alternatives.**

The Process

The Study will follow Schedule C of the *Municipal Class Environmental Assessment* (Municipal Engineers Association, October 2000, as amended in 2007, 2011, & 2015) process, which is an approved process under the *Ontario Environmental Assessment Act*. The study will evaluate alternative solutions with consideration for the natural, cultural, technical, and economic environment, and recommend a preferred solution in consultation with the public, Indigenous communities and agencies. At the conclusion of the study the process will be documented in an Environmental Study Report (ESR), prepared for public review.

Input Invited

The Town would like to ensure that anyone interested in this study has the opportunity to provide input into the planning and design of the project. The Town is inviting public input on local experience with road conditions in the study area and the alternative solutions being considered. A **Public Open House** (POH) has been arranged to describe the proposed alternative solutions, encourage, gather and respond to public comments, as well as identify next steps in the process. Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH. Following completion of the POH, and in consideration of comments received, the preferred solution will be identified.

Public Open House Date: November 27, 2018

Time: 4:00 pm to 7:00 pm

Place: Town Hall, Room B

To provide comment or to request additional information concerning this Study or if you would like to be added to the Project Contact List to receive future project notices, please email 7thLineEAWestofYonge@rjburnside.com or contact either of the following Project Team members:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3226
mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Coordinator
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005.* Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Municipal Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

This Notice Issued on November 15 and 22, 2018.

Have your say by visiting getinvolvedinnisfil.ca/7thline

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

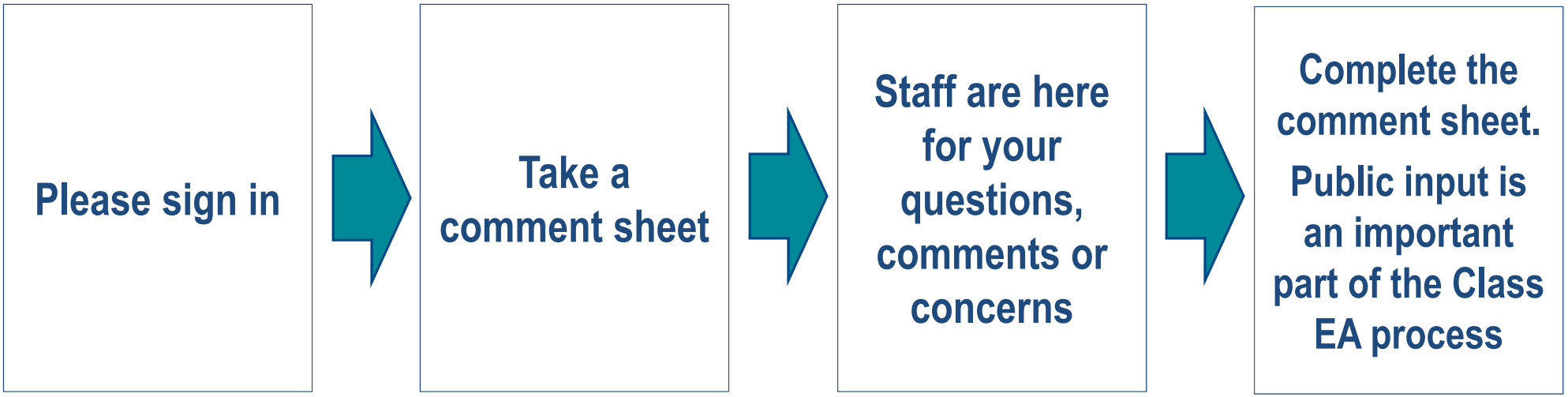
Appendix B

Display Boards Presentation

ROAD IMPROVEMENTS
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD
TOWN OF INNISFIL
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Public Open House (POH #1)

Welcome



Project Purpose:

Problem / Opportunity Statement:

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from 10th Sideroad to Yonge Street. The Town is initiating a Municipal Class Environmental Assessment (EA) to consider options for improvement to address:

- the road surface,
- road base,
- erosion control,
- drainage deficiencies, road side encroachment and
- associated safety risks

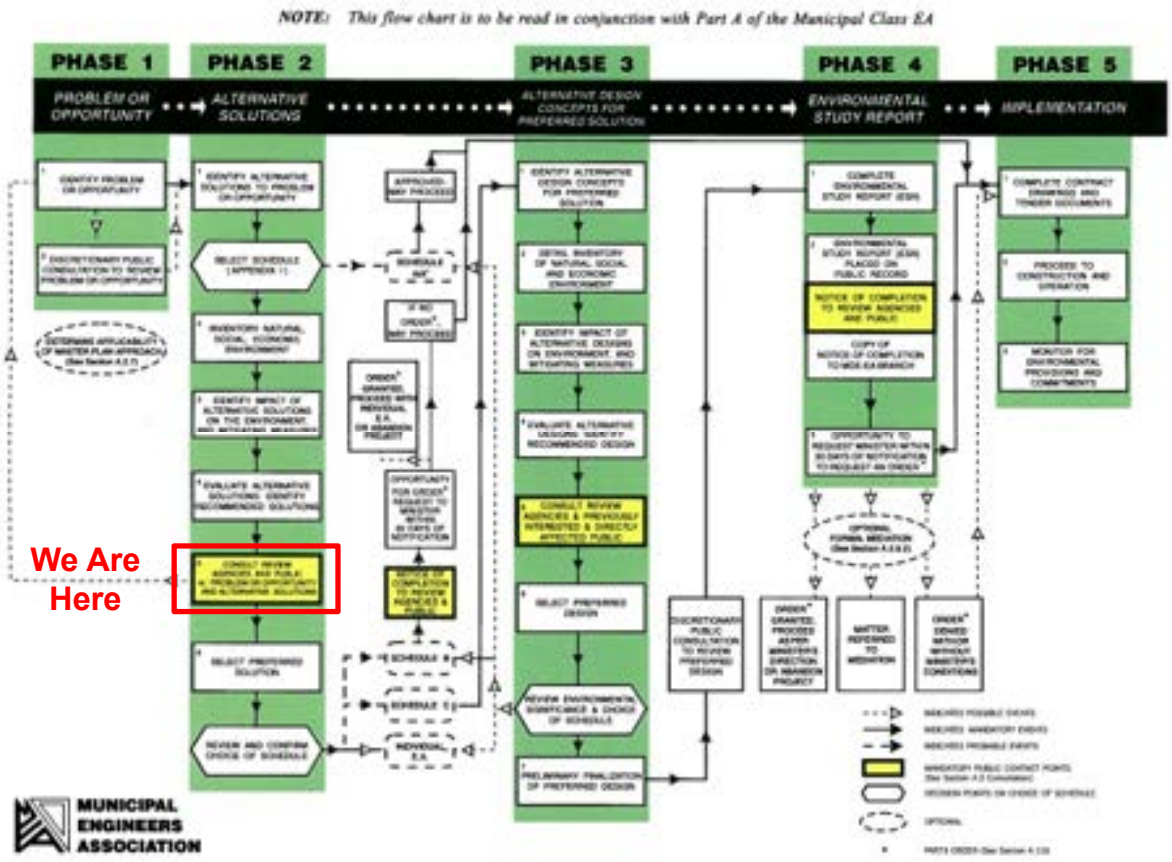
for the continued use and maintenance of the road .

Purpose of this POH is to:

- Provide a summary of the Project.
- Present an evaluation of the various alternative solutions based on physical, natural, social, cultural / heritage and economic environment factors.
- Obtain input on the Alternative Solutions.

Municipal Class EA Process

This project is being considered as a Schedule 'C' Project (Phases 1 to 4), as defined in the Municipal Engineers Association Class EA document



Project Considerations

The Study Area includes the 7th Line from Yonge Street to the 10th Sideroad



In the fall of 2017, the 7th Line was closed (local traffic only) due to deteriorating road conditions and safety issues with respect roadside safety.

The Town of Innisfil Transportation Master Plan Update (TMP Update) (2018) identified the reconstruction of the road within the study area in the medium term horizon (2022 to 2031)

On June 20th, Innisfil Council adopted a by-law to temporarily permit the 7th Line to operate as a one-way road from Yonge Street to 10th Sideroad pending the outcome of the Municipal Class EA process

Key technical considerations include erosion, encroachment of trees, and drainage issues.

Key natural features in the Study Area include the Lovers Creek Provincially Significant Wetland (PSW), Lake Simcoe Region Conservation Authority (LSRCA) regulated area, watercourse crossings, terrestrial and aquatic habitat, and the potential for Species at Risk (SAR).













Technical Environment



Land Use and Access

Study area has approximately 7 active driveway accesses.

Centennial Park is located at the west end of the study area and is open year-round.

The 'dog park' within Centennial Park (October 2014) has increased use of the park.



Intersections

7th Line and 10th Sideroad: Operates well during both AM and PM peak hours.

7th Line and Yonge Street: AM peak hours are good but PM peak hours show the eastbound movement experiences longer delays.



Operating Speeds

The road is currently built for speeds lower than the posted and operating speeds.

On average, vehicles are traveling 13 km/hr above the posted speed.



A significant reduction in traffic volume observed during the interim road closure in 2017, compared to the last record of 2014, supports the general opinion that 7th Line is used as an alternative route to Innisfil Beach Road (County Road 21).

During interim road closure over 55% of the traffic was through traffic.

Technical Environment

Stormwater

Existing stormwater is conveyed through roadside ditches (not well defined in some areas); driveway culverts; and road-crossing culverts.

There is currently no stormwater management provided for quality or quantity control.

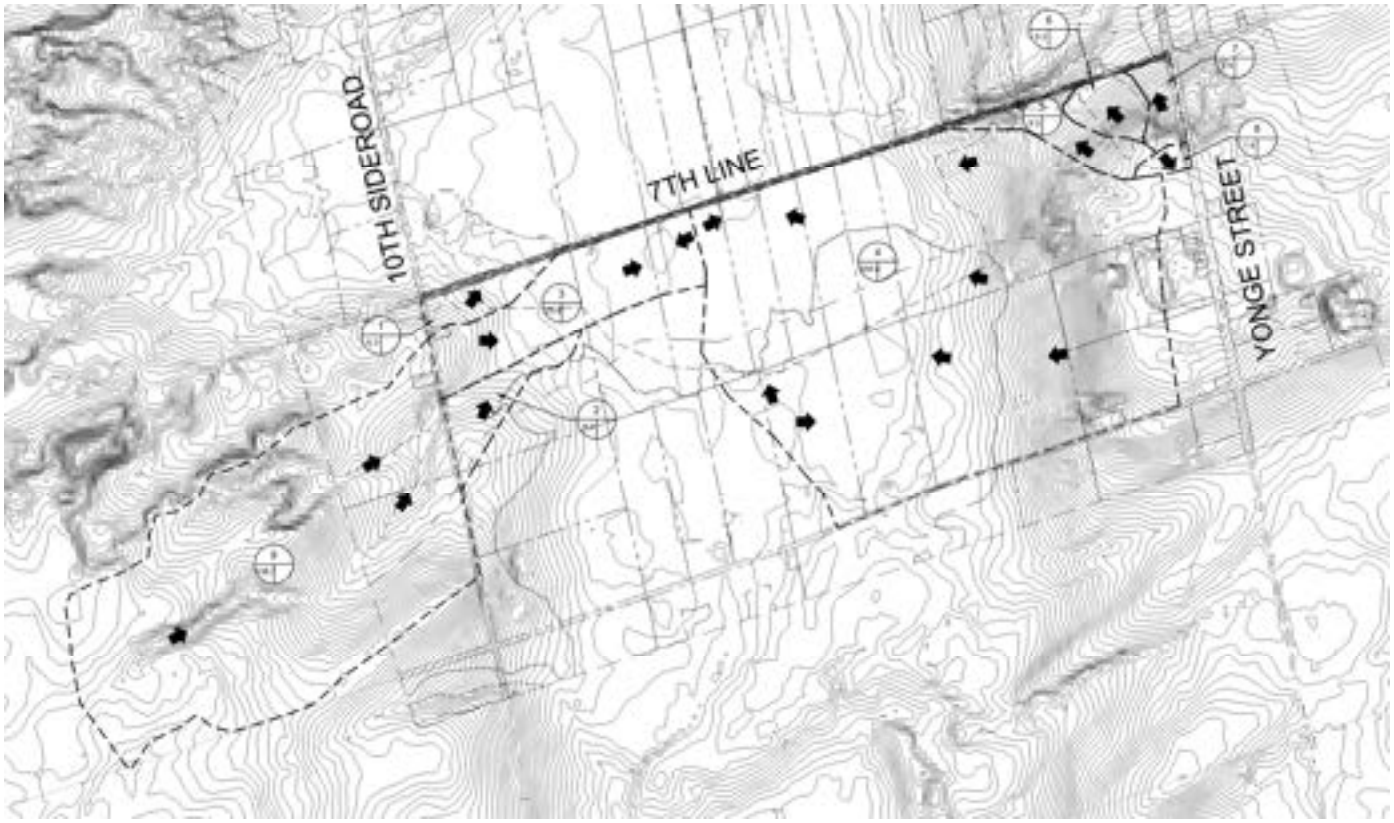
Portions of the road have been eroded by an existing watercourse and a lack of defined ditches in some areas.











Socio-Cultural Environment

Cultural Heritage

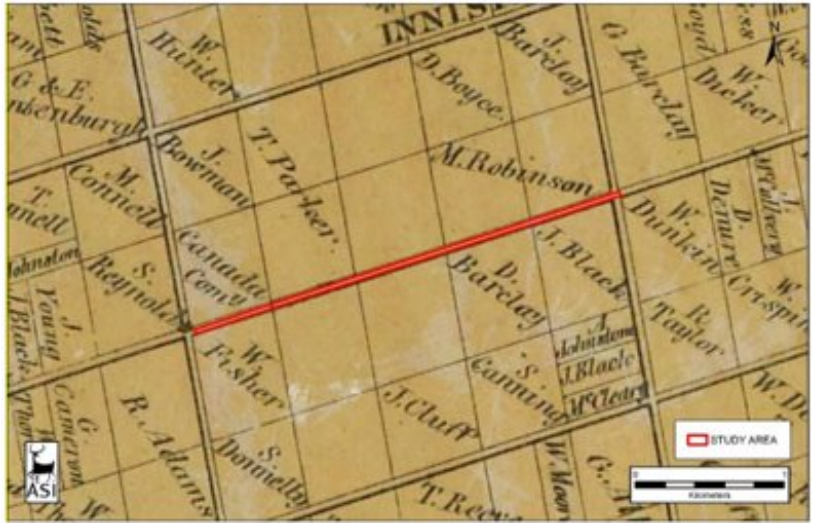
One cultural heritage landscape (CHL) feature was identified in the Study Area – a farmscape at 2399 7th Line

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area.

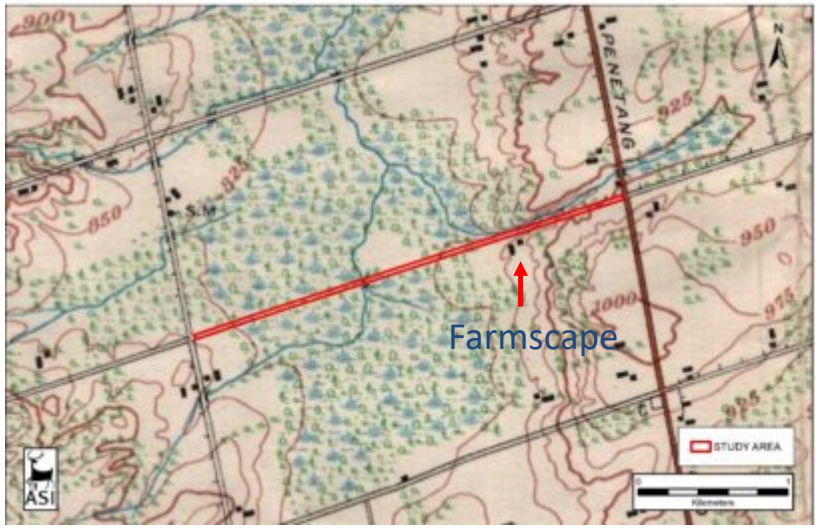
The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 archaeological assessment (test pit survey), if impacted, prior to any construction activities.



Feature ID CHL 1: Agricultural outbuildings associated with the farmscape at 2399 7th Line, looking south.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1871 Hogg's Map of Simcoe County.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1928 Barrie NTS Sheet No. 105 Department of Militia and Defense

Natural Environment

Habitat within the Study Area for:

- Amphibians
- Breeding Reptiles
- Fish Habitat and Passage
- Breeding Birds







Potential for Species at Risk

- Butternut trees
- Roosting Bat habitat within the forested area (several bat species are Endangered).
- Monarch Butterfly (Special Concern) and Swamp Milkweed, a host plant and nectar source
- The Marshes and Swamps are considered sensitive as they are located within the Provincially Significant wetland complex.













Alternative Solutions

The evaluation of alternatives is a step-by-step process that focuses on alternatives that are feasible within the project environment and meet the project objectives outlined in the Problem/Opportunity Statement, specifically, to address the deteriorating road condition and associated safety issues.

The Alternatives include:

1) Do Nothing
2) Local Traffic Only
3) One-Way Road
4) Widen the Road
5) Dead-End Road with Turn Around

Or a combination of alternatives





Alternative 1: Do Nothing



Do Nothing (Maintain the Status Quo)

Mandatory requirement for consideration in a Class EA. Maintain the status quo. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

Pros:

- Operate as a two-way road fully open to the public.
- Maintains existing road network
- Accommodates future traffic growth
- No construction or widening
- No property acquisition is required
- Limited tree removal (some tree removal may be required to accommodate road maintenance)
- No impact to cultural heritage features
- No costs to implement

Cons:

- Potential for continued washouts and associated traffic concerns.
- Continued deterioration due to increased traffic volumes
- Potential siltation of adjacent watercourses, wetland and vegetation communities
- Ongoing maintenance of the road shoulders may pose a risk to wildlife and nesting turtles
- Ongoing cost for road maintenance, which is anticipated to increase over time
- Does not address safety concerns

Alternative 2: Local Traffic Only



Local Traffic Only

Allow access to local traffic only, closing the road to non-local traffic. May include change to a Private Road. Maintain public access to the park from 10th Sideroad. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

Pros:

- May reduce traffic and slow deterioration of the road
- No property acquisition is required
- Limited tree removal (some tree removal may be required to accommodate road maintenance)
- No impact to cultural heritage features over existing conditions
- Low cost for signs and notice to the public

Cons:

- Difficult to enforce
- Does not improve connectivity of the road network
- Potential for continued washouts and associated traffic concerns
- Potential siltation of adjacent watercourses, wetland and vegetation communities due to continued roadside washouts
- Ongoing maintenance of the road shoulders may pose a risk to wildlife and nesting turtles
- Local residents would be responsible for road maintenance if made a private road
- Ongoing cost for road maintenance anticipated to increase over time

Alternative 3: One-Way Road



One-Way Road

Operate as a one-way road fully open to the public. Maintain public access to the park from the 10th Sideroad and from the 7th Line. Install appropriate signage/marking and public notices of the change. No road widening. Repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

Pros:

- Improved road condition
- Improved sight distances and safety of road surface
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities
- Likely reduction in some traffic and slow deterioration of the road
- Moderate costs for improvements. Low cost regular maintenance

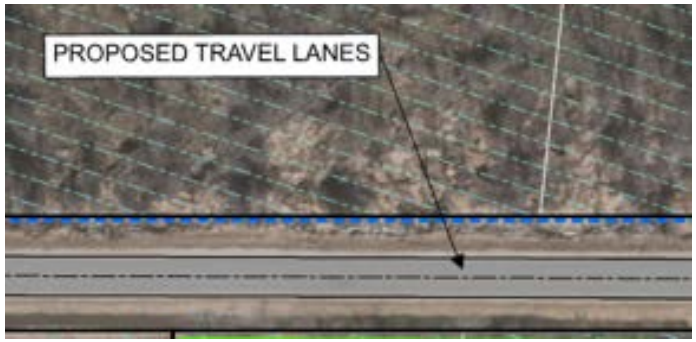
Cons:

- Difficult to enforce
- Tree clearing at the east end due to grading. This will impact Species at Risk Butternut trees

Cons:

- Potential impact wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Rehabilitation of the road shoulders may pose a risk to nesting turtles during construction and over long term if shoulders are paved.
- Potential temporary impact to adjacent watercourses and fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. This impact is subject to design conditions and timing restrictions.
- Limits connectivity of the road network. Increased local travel time and distances. One-way access to properties
- Potential change to current route and schedule for municipal services
- Potential for impact to cultural heritage features including farmscape, private memorial.
- Property acquisition may be required

Alternative 4: Widen the Road



Widen the Road

Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

Pros:

- Improved road condition
- Provides connectivity to transportation network. Offers parallel alternative route
- Maintains direct travel route
- Access to properties from east or west
- Improved sight distances and safety of road surface
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities

Cons:

- Tree clearing at the east end of corridor due to grading. This will impact to Species at Risk Butternut trees

Cons:

- Potential impact to wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Rehabilitation of the road shoulders may pose a risk to nesting turtles during construction and over long term if shoulders are paved.
- Channel realignment and permanent alteration of adjacent watercourse at east end. Potential temporary impact to fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. These impacts are subject to design conditions and timing restrictions.
- Potential for impact to cultural heritage features including farmscape, private memorial
- Possible increase in some traffic
- Temporary impact due to construction activities
- Property acquisition may be required
- High costs for improvements. Moderate cost regular maintenance

Alternative 5: Dead-End Road with Turn Around



Dead-end Road with Turn Around (2)

Operate as a two-way road open to the public with no through traffic. Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment. Repair slopes and replace culverts where required to ensure long term viability of the road. Construct two cul-de-sac or hammer head turnarounds. Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles. Perform regular maintenance as required

Pros:

- Improved road condition
- Likely reduction in traffic
- Potential for reduced impact to wetland and vegetation communities over long term
- Improved wildlife habitat connectivity, movement across 7th Line
- Opportunity to view PSW from unopened right-of-way.
- Low cost for regular maintenance due to reduced traffic use
- Two-way access to properties
- Improved sight distances and safety of road surface
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities

Cons:

- Potential impact wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Rehabilitation of the road shoulders may pose a risk to nesting turtles during construction and over long term if shoulders are paved.
- Channel realignment and permanent alteration of adjacent watercourse at east end, and elsewhere depending on the location of the turn around.
- Potential temporary impact to fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. This impact is subject to design conditions and timing restrictions.
- Potential for some impact to cultural heritage features including farmscape, private memorial
- Does not improve connectivity of transportation network. Longer local travel distance. Access to properties restricted or from one direction
- Temporary impact due to construction activities
- Property acquisition required
- High costs for improvements.

Evaluation of Alternative Solutions

ORDER OF PREFERENCE	
Most Preferred	○
More Preferred	◔
Somewhat Preferred	◑
Less Preferred	◕
Least Preferred	●

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
A	**NATURAL ENVIRONMENT**					
1	Vegetation/Tree	◔	◔	◑	◕	●
2	Terrestrial Habitat (breeding birds, turtles, general wildlife, habitat connectivity)	◔	◔	◑	◑	◔
3	Fisheries / Aquatic Habitat	◔	◔	◕	◕	◕
4	Designated Sites (PSW)	◔	◔	◔	◔	◔
5	Species at Risk (Barn Swallow, bats, Butternut)	○	○	◑	◑	◑
6	Groundwater Resources and Drainage Features	○	○	◔	◑	◔
	SUMMARY NATURAL ENVIRONMENT	○	○	◔	◑	◑

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
B	**SOCIO-CULTURAL ENVIRONMENT**					
1	Conformity to Municipal Policies and Development Planning - road network and connectivity,	○	●	◑	○	●
2	Place-making Opportunities (tunnel of trees)	○	◑	◑	◕	◔
3	Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes, memorial)	○	○	◑	◑	◑
4	Local Residents Nuisance Impacts (noise, traffic, visual impact)	◑	◑	◕	◑	◕
5	Municipal services (snow removal, garbage pick up,)	○	◕	◑	◔	◑
6	Quality of Life (safety of traveled road, travel time)	◕	◑	◑	◔	◔
7	Recreation (access to park, Pedestrian/Cyclist Safety and Connectivity)	◑	◕	◑	○	◔
8	Land Acquisition Requirements	○	○	◑	◑	◕
9	Conformity to Agency Policy (LSRCA, MNRF,County of Simcoe)	◔	◔	◔	◔	◔
	SUMMARY SOCIO-CULTURAL ENVIRONMENT	○	◔	◑	◔	◑

Evaluation of Alternative Solutions

ORDER OF PREFERENCE	
Most Preferred	○
More Preferred	◔
Somewhat Preferred	◑
Less Preferred	◕
Least Preferred	●

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
C	FINANCIAL FACTORS					
1	Estimated Capital Costs	○	◔	◑	◕	◕
2	Estimated Operation and Maintenance Cost	●	●	◑	◕	◔
3	Property Acquisition Cost	◔	◔	◔	◑	◕
	SUMMARY FINANCIAL FACTORS	◔	◑	◔	◑	◑

	CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
D	TECHNICAL FACTORS					
1	Addresses future traffic control and operation requirements (Level of service, delay, queues, intersection LOS and mobility)	●	◕	◕	◔	◑
2	Addresses sight distance, and operational safety	●	●	◑	◔	○
3	Accomodates access to adjacent properties	○	○	◑	○	◑
	SUMMARY TECHNICAL FACTORS	●	◕	◑	◔	◔

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
SUMMARY PROBLEM STATEMENT	No	Partially	Yes	Yes	Yes
SUMMARY PROBLEM STATEMENT	**Not Preferred**	**Not Preferred**	**Preferred**	**Preferred**	**Preferred**

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
OVERALL SUMMARY	**Not Preferred**	**Not Preferred**	**Most Preferred**	**Most Preferred**	**Least Preferred**

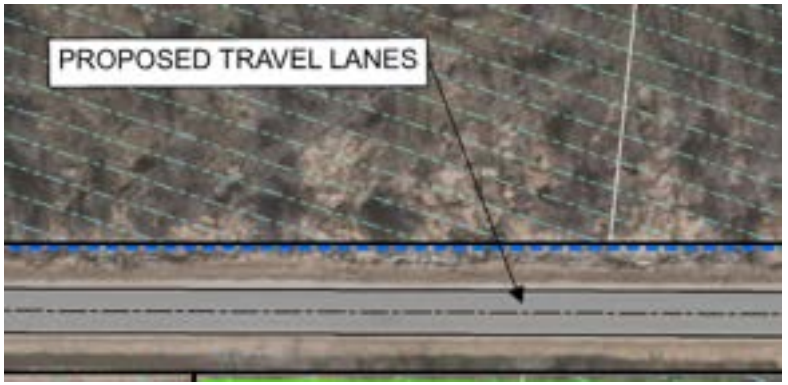
Preliminary Preferred Solution

Alternative 3: One-Way Road



Operate as a one-way road fully open to the public. Maintain public access to the park from 10th Sideroad and 7th Line. Install appropriate signage/marking and public notices of the change. No road widening. Repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

Alternative 4: Widen the Road

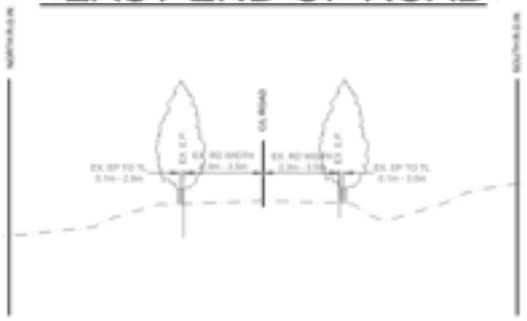


Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

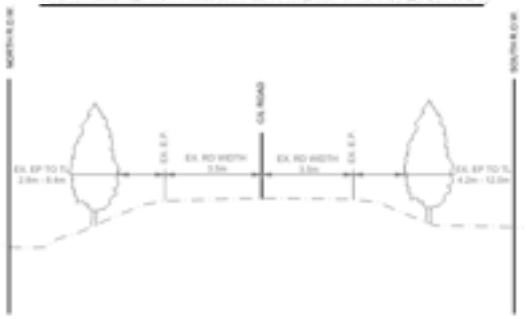
Preliminary Preferred Solution

Existing Road Cross-Section

TYPICAL EXISTING SECTIONS
EAST END OF ROAD

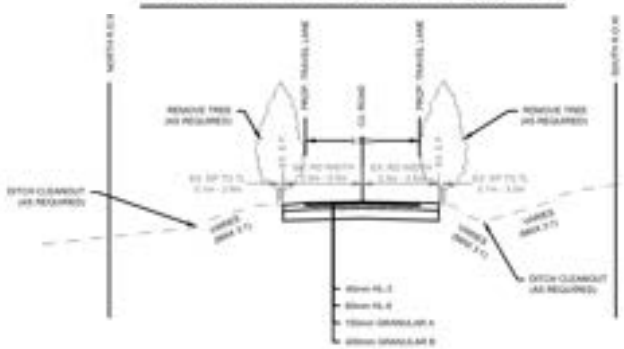


TYPICAL EXISTING SECTION
WEST END OF ROAD

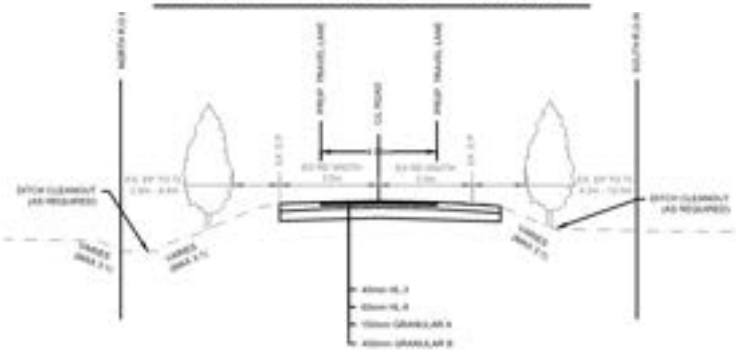


Typical One-Way Cross Section

TYPICAL ONE WAY SECTION
EAST END OF ROAD

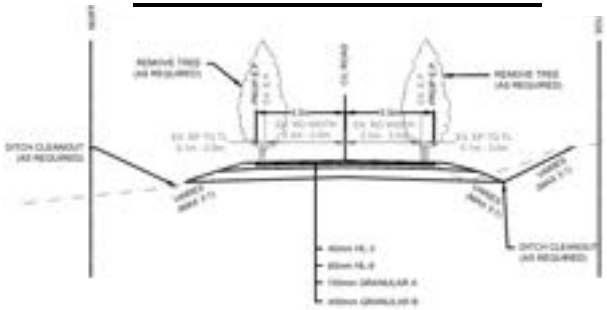


TYPICAL ONE WAY SECTION
WEST END OF ROAD

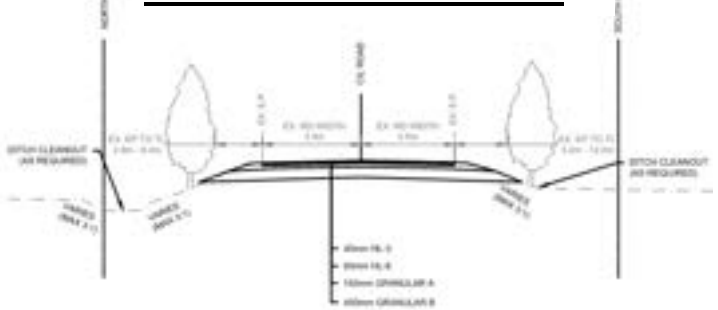


Road Widening Cross Section

TYPICAL RESURFACING SECTION
EAST END OF ROAD



TYPICAL RECONSTRUCTION SECTION
WEST END OF ROAD



Possible Design Alternatives

Alternative 3: One-Way Road

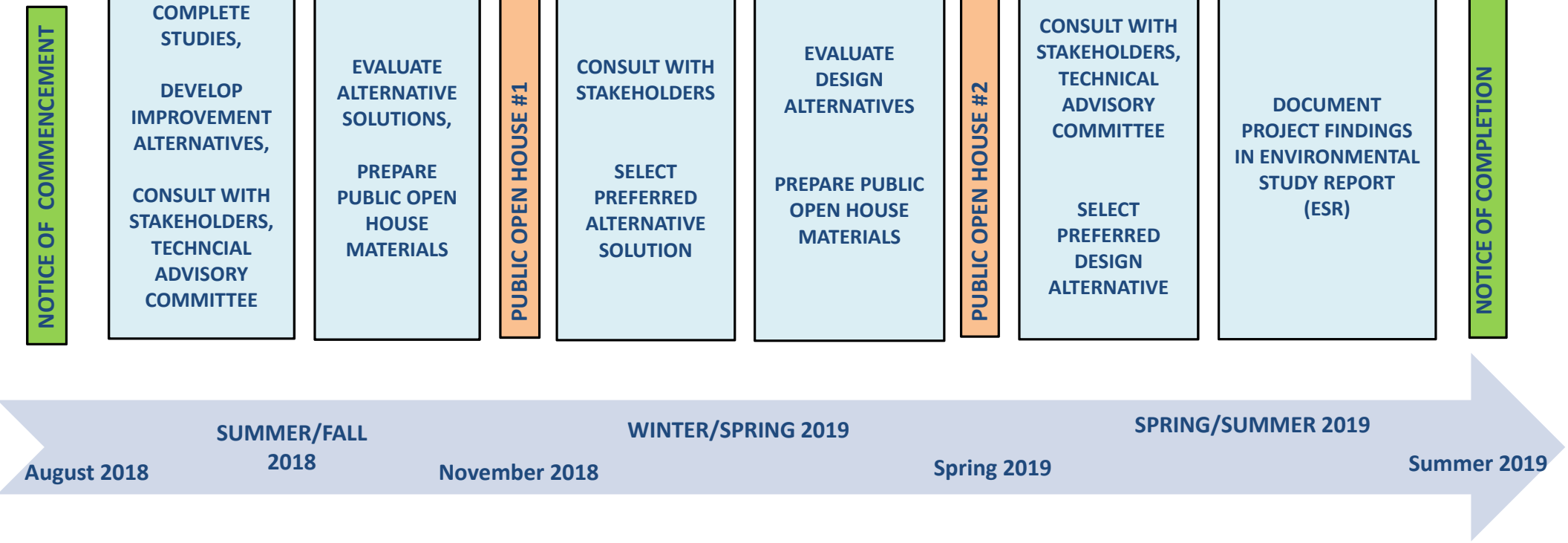
- One-way road from Yonge Street to 10th Sideroad
- One-way road from 10th Sideroad to Yonge Street

Alternative 4: Widen the Road

- Widen the road to the north or south, or a combination
- Paved shoulder or gravel shoulder
- Realignment to the north to avoid heritage feature, or
- Realignment to the south to avoid watercourse

EA Project Timeline

Municipal Class EA 7th Line Improvements from 10th Line to Yonge Street



Next Steps….

- Review public, stakeholder and Agency comments generated from this Public Open House (please submit comments by January 11, 2019);
- Comments received by January 11, 2019 will be incorporated into a Public Open House summary which will include a summary of your written comments along with project related responses ;
- Select Preferred Alternative;
- Public Open House #2 – Design Alternatives
- Select Preferred Design Alternative
- Issue Notice of Study Completion and provide Environmental Study Report (ESR) for final public review and comment for a period of 30 days.

Thank you for attending
Help shape decisions made in this Study

- Please complete the comment sheet and deposit it in the "Comment Sheet" box, or return this completed form to one of the project team members below, or email your comments to 7thLineEAWestofYonge@rjburnside.com
- Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH.
- If you would like more information or if you have any questions or concerns please contact:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil, ON, L9S 1A1
Telephone: (705) 436-3740 ext. 3226
Email: mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P
Project Manager
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON, L4N 8J6
Telephone: (705) 797-4357
Email: deanna.deforest@rjburnside.com

Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Comment Sheets

Innisfil BURNSIDE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD ROAD IMPROVEMENTS
Public Open House, Town of Innisfil, Town Hall, Room B
Tuesday November 27, 2018
4:00 p.m. to 7:00 p.m.

COMMENT SHEET

Problem Statement: The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from Yonge Street to 10th Sideroad. The Town is completing a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road.

R.J. Burnside & Associates Limited has been retained by the Town to evaluate alternative solutions for road improvements. This questionnaire provides you with an opportunity to comment on this study (see reverse) and indicate your concerns and preferences. Your views are important to us.

The Alternative Solutions have been refined to include:

1) **Do Nothing** – Maintain the status quo. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis. Do Nothing is a mandatory consideration in the Municipal Class Environmental Assessment process.

2) **Local Traffic Only** – Allow access to local traffic only, closing the road to non-local traffic. Maintain public access to the park. May include change to Private Road. Perform regular maintenance as required. Repair slopes and washouts on a reactionary basis.

3) **One-Way Road** – Operate as a one-way road fully open to the public. Maintain public access to the park from 10th Sideroad. Install appropriate signage/marking and public notices of the change. No road widening. Repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

4) **Widen the Road** – Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

5) **Dead-end Road with Turn-around** – Operate as a two-way road open to the public with no through traffic. Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment. Repair slopes and replace culverts where required to ensure long term viability of the road. Construct two cul-de-sac or hammer head turnarounds. Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles. Perform regular maintenance as required.

1. **Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?**

[✓] One-Way Road [ ] Widen the Road

(see reverse)

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005*.
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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

My first preference is to create a Dead-End somewhere in the middle of 7th. I believe that it would serve the environment best. However given the choice of 1 vs 2 lanes. One might be best.

I would like to see traffic-calming measures put in place in order to deter unsafe driving practices resulting from the improved roadways.

Further, I am interested to know what will happen with the Butternut trees, to be taken down. I may be interested in some of the wood for hobbie purposes.

3. **Do you have any other feedback, suggestions about the information and material provided at this Public Open House?**

Thankyou for an informative session any the variety of informed parties present. Very Helpful.

Please complete the comment sheet and deposit it in the "Comment Sheet" box or return this completed form to one of the project team members below or email your comments to 7thLineEAWestofYonge@rjburnside.com. Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH.

Your comments are welcomed at any time during the EA process. For this stage of the process, your comments are encouraged by **January 11, 2019**. Feedback received by January 11, 2019 will be incorporated into a Public Open House summary and will include a summary of your written comments along with project related responses.

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3226
mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Coordinator
R. J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

☑ I/we wish to be added to the mailing list to receive notices related to this project
☑ I/we wish to have our personal contact information remain confidential (Please Print)

Name: Date: NOV 27 2018

Address:

Phone No.:

Email:

Prefer to be contacted by: ☑ Email ☐ Mail ☐ Phone

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Innisfil BURNSIDE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD ROAD IMPROVEMENTS
Public Open House, Town of Innisfil, Town Hall, Room B
Tuesday November 27, 2018
4:00 p.m. to 7:00 p.m.

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

Feel it needs to be widened To 2 way traffic with the growth in Alcona and area The traffic on Innisfil Beach Rd & 6th Line are now very heavy with new plazas - subdivisions - Health Centre & GO Station and possibly a Hospital every effort should be made for better roads

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

PLEASE WIDEN!!!

GOOD LUCK.

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GREAT PRESENTATION

GOOD WORK

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2. Do you have any other comments, questions or suggestions?

WIDENING THE ROAD SEEMS TO BE THE MOST VIABLE, LOGICAL CHOICE. THE HOMEOWNERS DON'T SEEM TO BE ENJOYING THE EXISTING ONE LOAN ROAD AT THIS MOMENT.

WILL TRAFFIC INCREASE? CERTAINLY, BUT IT WOULD RELIEVE A BIT OF THE CONGESTION ON 1BR. A BALANCE OF NATURE CONSERVANCY AND ACCOMODATING A GROWING POPULATION WOULD BE THE IDEAL DIRECTION.

3. Do you have any other feedback, suggestions about the information and material provided at this Public Open House?

VERY WELL PRESENTED. STAFF VERY, VERY KNOWLEDGABLE.

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TO MAKE THIS ROAD ONE WAY IS NOT A VIABLE SOLUTION FOR THE LONG TERM. OUR COMMUNITY IS GROWING - TRAFFIC CONJESTION WILL BECOME PROBLEMATIC. CLOSING THIS ROAD IS NOT A GOOD IDEA.

THE LOSS OF A FEW TREES IS A SMALL PRICE TO PAY.

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3) **One-Way Road** – Operate as a one-way road fully open to the public. Maintain public access to the park from 10th Sideroad. Install appropriate signage/marking and public notices of the change. No road widening. Repave or rehabilitate the existing road and repair slopes, upgrade ditching and replace culverts where required to ensure long term viability of the road. Perform regular maintenance as required.

4) **Widen the Road** – Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.

5) **Dead-end Road with Turn-around** – Operate as a two-way road open to the public with no through traffic. Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50km/h posted speed by widening the road and improving the horizontal/vertical alignment. Repair slopes and replace culverts where required to ensure long term viability of the road. Construct two cul-de-sac or hammer head turnarounds. Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles. Perform regular maintenance as required.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

[ ] One-Way Road

[X] Widen the Road
Two way

(see reverse)

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

IF THE ROADS ARE TURNED BACK TO 2 WAY WILL THE DITCHES BE CLEANED OUT.

3. **Do you have any other feedback, suggestions about the information and material provided at this Public Open House?**

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☐ I/we wish to be added to the mailing list to receive notices related to this project
☐ I/we wish to have our personal contact information remain confidential (Please Print)

Name: _____ Date: 27-11-18.

Address _____

Phone N _____

Email: _____

Prefer to be contacted by: ☒ Email ☒ Mail ☐ Phone

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Innisfil BURNSIDE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD ROAD IMPROVEMENTS
Public Open House, Town of Innisfil, Town Hall, Room B
Tuesday November 27, 2018
4:00 p.m. to 7:00 p.m.

COMMENT SHEET

Problem Statement: The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from Yonge Street to 10th Sideroad. The Town is completing a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road.

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1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

[ ] One-Way Road

[ ] Widen the Road

twoway

(see reverse)

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Innisfil BURNSIDE

2. Do you have any other comments, questions or suggestions?

One way is NOT an option for us as I go down to Webster at least twice a day to care for grandkids. One way is also not working due to lack of ability to reinforce! this is an extremely dangerous situation.

If road is left as it was could there possibly be side barriers put up at the east end

3. Do you have any other feedback, suggestions about the information and material provided at this Public Open House?

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☐ I/we wish to have our personal contact information remain confidential (Please Print)

Name: [redacted] Date: Nov 27/18

Addres [redacted]

Phone [redacted]

Email: [redacted]

Prefer to be contacted by: ☒ Email ☐ Mail ☐ Phone

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Innisfil BURNSIDE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD ROAD IMPROVEMENTS
Public Open House, Town of Innisfil, Town Hall, Room B
Tuesday November 27, 2018
4:00 p.m. to 7:00 p.m.

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[ ] One-Way Road [✓] Widen the Road

(see reverse)

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

I AM THE OWNER OF 2399 7TH LINE. THE EXISTING CONDITIONS OF THE ROAD IS BAD. I HOPE THE IMPROVEMENT CAN BE DONE AS SOON AS POSSIBLE

3. **Do you have any other feedback, suggestions about the information and material provided at this Public Open House?**

IT IS VERY GOOD THAT THE OPEN HOUSE PROVIDE VERY INFORMATIVE MATERIALS

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Name: _ Date: NOV 27/2018

Address:

Phone No.: _____

Email: _____

Prefer to be contacted by: ☐ Email ☑ Mail ☐ Phone

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MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD ROAD IMPROVEMENTS
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Tuesday November 27, 2018
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1. **Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?**

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(see reverse)

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

See attached:
(2 apologies in advance for my poor cursive writing (sometimes called horsescribbling) but my typing ability is non existent.

3. **Do you have any other feedback, suggestions about the information and material provided at this Public Open House?**

The presentation was well done.

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(Please Print)

Name: _____ Date: Jan 10, 2019

Address:

Phone N

Email: _____

Prefer to be contacted by: ☑ Email ☐ Mail ☐ Phone

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[ ] One-Way Road [ ] Widen the Road

(see reverse)

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

I think maybe the idea of Town grounds would be the best option. This is an important wet area which is a feeder to Lake Simcoe via Lovers Creek and has alot of pressure on it due to Construction. Close to Lake. The wet lands and bush area of Innisfil have and are rapidly being destroyed. When this road was paved it became "Killing Fields" for any animal - even birds. I do not live on this road, therefore I should not push my ideas but think carefully. Even "One way" is better - people will eventually heed the signs. This area would make a good Nature Preserve with Trails for walking.

3. **Do you have any other feedback, suggestions about the information and material provided at this Public Open House?**

- This is a list of all fauna I've seen while walking or running on 7th: Deer, Coyote, Fox, Mink, Muskrat, Beaver, Porcupine, Raccoon, Opossum, Snapping Turtles, Green Heron, Blue Heron, Wood ducks, Mallard duck, Crow, Raven, Bluejay, Mourning pigeon, Turkey, water thrush, robin, goldfinch. - most were alive. Some not

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Name: _____ Date: Dec. 11/18

Address: _____

Phone No _____

Email: _____

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My wife and I have been residents of Innisfil for 50 years. Although we do not reside on the road in question we have used the 7th Line between Yonge St and the 10th Line frequently during these years primarily for walking, running and cycling. Innisfil Beach Road where we live is not conducive to these activities.

During these years we have seen the road change from a quiet gravel track to the paved road which is there today. As well as the road surface changing the environment through which the road passes has noticeably deteriorated.

This deterioration is truly unfortunate since the wetlands which this road bisects constitute the headwaters for Lover's Creek the main feeder waterway for the south shore of Kempenfelt Bay.

Of the two alternatives tested we choose to widen the road. The only acceptable future use for the road and the surrounding area is the dead end with turn around solution. This option will close the road to through traffic and will have the least ongoing effect on the environment of these Provincially Significant Wetlands.

By restricting the use of the road the need for ongoing repair and seasonal maintenance (road salting and sanding) will be greatly reduced. This step will reduce the amount of pollutants which will flow into these environmentally sensitive areas and pose the least danger to the birds and animals which presently inhabit the area.

At present there are only 3 dwellings

located in the area in question none of which is farther away than 1.1 Kilometer from either Yonge St or the 10th sideroad. None of these residents would be greatly affected by the road direction change and would greatly benefit by not having a through road which would host an ever increasing toll of high speed through traffic.

The closing of the road in question should not be an inconvenience for any other motorist. Presently they can use Innisfil Beach Road which will soon be expanded to four lanes and will be designed for the rapid movement of cross municipality traffic. The other option is the 6th line which will also be improved to accept a greater traffic load

The final decision is not ours to make but we believe that the time has come for the Town of Innisfil to set an example for other municipalities by preserving and enhancing the conditions for our constantly threatened wetlands.

If the Town of Innisfil sees fit to follow this path I am sure that the Lake Simcoe Conservation Authority could suggest many public uses for these protected areas which would benefit all ~~eet~~ citizens and not just a small portion of the motoring public.

Be courageous. Progress is not always measured by altering and optimizing everything for short-term human use but by protecting and preserving what is truly needed for the health and sustainability of our common environment.

Submitted by

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: November 28, 2018 2:13 PM
To: M Lopes <mlopes@innisfilidealab.ca>; ccautillo@innisfiil.ca; Magdalena Koehler <mkoehler@innisfil.ca>
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

One way road

2. Do you have any other comments, questions, or suggestions?

Limit the road to residents only -- that's hard to police though. Ideally, it should be closed to traffic (except for those who live along that section), and allow all Innisfil residents to use it as a biking/hiking lane.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: December 4, 2018 1:56 PM
To: M Lopes <mlopes@innisfilidealab.ca>; ccautillo@innisfiil.ca; Magdalena Koehler <mkoehler@innisfil.ca>
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

The entire 7th line from east of the 10th Sideroad to Lake Simcoe must be widened. The Town of Innisfil permitted the development of hundreds of homes along the corridor and residents MUST have reasonable roadways.

3. Do you have any other feedback or suggestions about the information and material provided?

The current roadway is not suitable for the volume of traffic in this area and quite frankly, the state of the road is an embarrassment.

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: December 4, 2018 1:01 PM
To: M Lopes <mlopes@innisfilidealab.ca>; ccautillo@innisfiil.ca; Magdalena Koehler <mkoehler@innisfil.ca>
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

No Answer

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 3:20 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

No Answer

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 3:13 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

In order not to invest in future others amounts (only for maintenance). Build an underground bridge to avoid stopping on the rail.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 2:17 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: [redacted] completed 7th Line Survey

[redacted] just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

Please strongly consider feedback from residents on road

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 7:51 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

I'd like to see the road widened with minimal tree removal. The canopy is a main attraction on that toad and needs us to take care of it as well. Hire a reputable company that knows how to fix. Spend a little more to get it fixed correctly 1st time.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 2:45 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

I live just off of the 7th and Webster. I feel the road is beautiful but with growth it is necessary to widen to accommodate traffic flow.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 7:12 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: [redacted] completed 7th Line Survey

[redacted] just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

unfortunately residents seem to think the one-way is optional. It is an even bigger hazard now.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 2:04 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

No Answer

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Thursday, December 06, 2018 3:30 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

One way road seems like it is the safest, however my husband and I drive down it on a daily basis and every single day without fail there is an oncoming car that does not obey the one way signage. Make it straight cut the trees way back & make it 2 lan

3. Do you have any other feedback or suggestions about the information and material provided?

That road is super unsafe, i know people who have died on it. The trees need to be cut back and the road made straight. It is beautiful now but not at the cost of peoples safety.

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Friday, December 07, 2018 4:14 AM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: [redacted] completed 7th Line Survey

[redacted] just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

One way road

2. Do you have any other comments, questions, or suggestions?

My answer to #1 is neither choice. By widening the road means to have to cut down tree's and that is not a good resolution, nor is a one way road.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Friday, December 07, 2018 11:05 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

I miss the short cut to the playground and doggy park.

3. Do you have any other feedback or suggestions about the information and material provided?

Why the problem? Have there been many collissions on this stretch? I been using it for 16 years without any poblems.

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: December 6, 2018 1:53 PM
To: M Lopes <mlopes@innisfilidealab.ca>; ccautillo@innisfiil.ca; Magdalena Koehler <mkoehler@innisfil.ca>
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

One way road

2. Do you have any other comments, questions, or suggestions?

One way road

3. Do you have any other feedback or suggestions about the information and material provided?

7th line is last intact forest of Innisfil - make it a one way dirt road, and discourage development in this area. Acquire and expand IBR from county so the town can take care of resident concerns.

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: December 7, 2018 9:11 AM
To: M Lopes <mlopes@innisfilidealab.ca>; ccautillo@innisfiil.ca; Magdalena Koehler <mkoehler@innisfil.ca>
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

Minimize the tree reduction - us residents love our trees! But it is very useless having it as a one-way, especially to homeowners on that stretch.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: Saturday, December 08, 2018 7:21 PM
To: M Lopes; ccautillo@innisfiil.ca; Magdalena Koehler
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

One way road

2. Do you have any other comments, questions, or suggestions?

Moving the driveway for centennial park to the 10th line would be helpful.

3. Do you have any other feedback or suggestions about the information and material provided?

No Answer

From: Get Involved Innisfil <notifications@engagementhq.com>
Sent: January 21, 2019 8:35 AM
To: M Lopes <mlopes@innisfilidealab.ca>; ccautillo@innisfiil.ca; Magdalena Koehler <mkoehler@innisfil.ca>
Subject: completed 7th Line Survey

just submitted the survey '7th Line Survey' with the responses below.

1. Which of the following Preliminary Preferred Alternatives do you feel is the best solution to address road improvements and continued use and maintenance of the road?

Widen the road

2. Do you have any other comments, questions, or suggestions?

We live on 7th Line, west of Yonge and since the road has turned one way, it has been a hassle for us. Although we would hate to see nature destroyed, I believe that to widen the road is the best solution because people still drive the wrong way.

3. Do you have any other feedback or suggestions about the information and material provided?

I just hope the work will be done with as minimum as possible inconvenience to us residents and the least disturbance as possible to nature & trees. Thank you!

Public Open House #2 Summary Report
7th Line (West) Improvements from Yonge Street to 10th Sideroad

The Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1

R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie ON L4N 8J6 CANADA

May 22, 2019
300042232.0000

R.J. Burnside & Associates Limited

Report Prepared By:



Deanna De Forest, B.Sc., E.P.
Environmental Assessment Coordinator
DDF/DD:rm/sc

Report Reviewed By:



Drew Davidge, P.Eng.
Project Engineer

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Appendices

Appendix A Newspaper Advertisement
Appendix B Display Boards Presentation
Appendix C Comment Sheets

1.0 Introduction and Background

The Town of Innisfil (Town) has initiated a Municipal Class Environmental Assessment (EA) to consider options for improvement to 7th Line, from Yonge Street to 10th Sideroad to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. A key component of the study includes consultation with interested stakeholders. This report documents the second Public Open House (POH), held on April 8, 2019 and summarizes the notification process, the information presented, and the comments received during and after the POH.

Following Phase 1 and 2 of the EA process, Widen the Road was selected as the preferred alternative based on the evaluation of the alternatives and feedback received during and following POH #1 in November 2018.

The Alternative Design Solutions presented during POH #2 include:

<u>Road Widening</u>

The approach to road widening is based on road cross-section and design options which include three basic design alternatives:

- Widen on the north side only, with paved shoulders
- Widen on the south side only, with paved shoulders
- Widen on both sides, with paved shoulders

Or a combination

And

<u>Road Cross-Section</u>

The road cross-section design options for widening include two design alternatives:

- Road Rehabilitation – pulverize existing asphalt surface, place new Granular A (gravel) and repave asphalt layers.
- Road Reconstruction – excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers.

Or a combination

The planning of the road improvements is carried out in accordance with the Schedule ‘C’ requirements (Phases 1 to 4) of the Municipal Engineers Association Municipal Class Environmental Assessment document (October 2000, as amended in 2007, 2011 and 2015), which is approved under the Ontario Environmental Assessment Act.

2.0 Method of Notification

Details of the date, time, location and purpose of the POH were published in the Innisfil Journal on March 28, 2019 and April 4, 2019. A copy of the advertisement is provided in Appendix A. Notification of the POH was also published in the Community Bulletin for the Town of Innisfil, posted on the Town of Innisfil website and mailed or emailed to regulatory agencies, municipalities, Indigenous Communities and local residents who live within the study area. A copy of the Notice of POH was also hand-delivered to residents of the 7th Line who live within the study area for the project.

3.0 Public Meeting Format

The POH was arranged as a "drop-in" style session conducted at the Town of Innisfil, Town Hall, Council Chambers on April 8, 2019. Display boards were placed around the room and representatives from the study team were available to answer questions and discuss the project with interested members of the public from 4:00 p.m. to 7:00 p.m. A copy of the display boards is provided in Appendix B. Attendees were greeted upon arrival, were encouraged to sign-in and were offered a comment sheet. Participants were requested to provide input to the process by completing the available comment sheets. Individuals wishing to provide comment could fill out comment sheet during the POH #2 or take comment forms home to fill out later and return either via email or to the mailing addresses provided. Opportunity to comment was also available through the project page on the Town website, available at getinvolvedinnisfil.ca/7thline. Comments were requested by May 7, 2019 for incorporation into the POH #2 Summary Report.

4.0 Participation

A total of 27 people attended the POH #2, excluding the project team members, as indicated on the sign in sheets. Four comment sheets and three emails were received from local stakeholders during and following the POH. A copy of the comments received are provided in Appendix C.

5.0 Summary of Comments Received

The comment sheet included a short description of the Alternative Design Solutions for the Preferred Alternative evaluated in Phase 2 of the Municipal Class EA process. Participants were asked for comments on the preliminary preferred Design Solution, as well as any other comments, questions or suggestions on the project and the materials presented at the POH #2.

The comments received during the POH and subsequent comment period included the following themes:

- Preference for widening of the road with paved shoulder
- Preference for road reconstruction
- Clear ditches and replace culverts
- Concern about height of the road relative to existing driveways

The comments received during the POH #2 and subsequent comment period are summarized below. The general comments presented are not intended to be a verbatim transcript of each comment received but are presented as a summary and highlights of comments

- Consider wider shoulder to accommodate a future bike lane to access Centennial Park as well as accommodate farm equipment; land recently purchased at southwest corner of 7th Line and Huronia Road could be serviced by this bike lane in the future.
- Widen the road on both sides with paved shoulder and excavate the road structure and replace.
- Clear the ditches and replace the culverts for the length of the reconstruction
- One-way road is extremely inconvenient for the local residents, please speed up two-way activation.
- If Butternuts are an issue, they can be replanted or replaced with nursery stock.
- Driveway transition too steep for residents – would like this issue addressed.

5.1 Online Poll

An on-line poll was posted on the Town of Innisfil project web page at getinvolvedinnisfil.ca/7thline following the POH #2 until May 11, 2019. The poll was intended to gather feedback as to whether the public would prefer reconstructing or resurfacing of the 7th Line. The results of the poll indicated 78% of the 54 respondents preferred reconstruction of the 7th Line.

Selection of a preferred alternative is not based solely on the ranking provided by participants during the POH and POH comment period. The alternative selected as preferred among POH participants is reviewed to provide an indication of an overall shared preference for one alternative among participants and to provide context for the accompanying participant comments and opinions, as well as to provide balance in the evaluation of the preferred alternative.

Comments from the public during the POH are considered along with those comments from the public, other stakeholders, the Municipality and Agencies provided during the EA process and are taken into account in support of the evaluation of the alternatives against the natural, technical, social and economic environment.

5.2 Questions/Concerns and Answers

A summary of questions included as part of the comments received from the POH #2 are as follows.

Q1. When the road is rebuilt how much will it add to the height of the road?

A1. The centerline of the road is anticipated to be maintained, with the exception of the locations of 2 hills where the center of the road may be lowered to improve sightlines and a small section of road where the centerline will be raised to eliminate a dip in the road and also improve sightlines.

Q2. Will the driveways become the owner's responsibility to match the roadway?

A2. As part of every capital project, the Town is responsible for driveways tie-ins which includes driveways restoration and ensuring safe approach for vehicles. The driveway profiles will be reviewed during detailed design to determine the limits of work required to adequately restore the driveway. Detailed Design will be commencing later this year, after the Class EA is completed.

Q3. There is a pond that is 10 metres from the road and on the other side the road drops away, will they bring in fill to level it off?

A3. As for the area across from the private pond, the road elevation will remain the same is this area, however the road will be widened. The wider road will result in tree clearing and placement of fill along the slope on the north side of the road.

As noted on the comment sheets, project related responses to comments and questions are provided within this POH Summary Report. Individual response to comment sheets and survey forms was not provided.

5.3 Feedback and Advice

Participants shared the following suggestions for the Town's consideration. The general comments presented are not intended to be a verbatim transcript of each comment received but are presented as a summary and highlights of comments.

- Limit the road to local residents only and allow Innisfil residents to use it as a biking/hiking lane.
- Given future growth, it is necessary to widen to two lanes on north and south side as required – future use should be the vision concerning the construction, therefore paved shoulders and road reconstruction is the wisest choice.
- Consider a wider shoulder to accommodate a future bike lane to get to Centennial Park; 1.5 metres more shoulder would also help farm equipment transport wider equipment.

- The land purchased at 7th Line and Huronia Road would also be serviced by this 'bike' lane in the future.
- One-way road is not an option for local residents due to extended travel time and distance.
- Current one-way is not working due to lack of ability to enforce. Users are not obeying the one-way signs creating a dangerous situation.

6.0 Next Steps

Comments and concerns received during the POH and POH comment period will be reviewed for incorporation into the evaluation of a preferred design alternative against the natural, technical, social and economic environment. The selection of a preferred alternative is considered along with comments received during the EA process from the stakeholders, Indigenous Communities, the Municipality and Agencies.

Next steps include

- Select a preferred design alternative
- Review and confirm choice of Municipal Class EA Schedule
- Complete an Environmental Study Report
- Issue Notice of Completion for the study

An Environmental Study Report (ESR), which documents the planning and decision-making process of the study, will be prepared for public review and comment for a minimum 30-day review period at the completion of the study. A Notice of Completion will be issued following the completion of the ESR.

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Appendix A

Newspaper Advertisement

Notice of Public Open House

Municipal Class Environmental Assessment

7th Line (West) Improvements from Yonge Street to 10th Sideroad

The Study

The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from Yonge Street to 10th Sideroad. The Town is conducting a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road. With the preferred alternative being Widen the Road, alternative designs are currently being evaluated for the road widening and cross-section. The site location and approximate extent of the Study Area are shown on the map.



The Process

The Study follows Schedule C of the *Municipal Class Environmental Assessment* (Municipal Engineers Association, October 2000, as amended in 2007, 2011, & 2015) process, which is an approved process under the *Ontario Environmental Assessment Act*. The study evaluates alternative solutions with consideration for the natural, cultural, technical, and economic environment, and recommend a preferred solution in consultation with the public, Indigenous communities and agencies. At the conclusion of the study, the process will be documented in an Environmental Study Report (ESR), prepared for public review.

Input Invited

The Town would like to ensure that anyone interested in this study has the opportunity to provide input into the planning and design of the project. The Town is inviting public input on the alternative design solutions being considered. **Public Open House (POH) #2** has been arranged to provide a summary of the project, describe the design solutions, encourage, gather and respond to public comments, as well as identify next steps in the process. Information materials and commenting opportunity pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH. Following completion of the POH, and in consideration of comments received, the preferred design solution will be identified.

Public Open House Date: April 8, 2019

Time: 4:00 pm to 7:00 pm

Place: Town Hall, Council Chambers

To provide comment or to request additional information concerning this Study or if you would like to be added to the Project Contact List to receive future project notices, please email 7thLineEAWestofYonge@rjburnside.com or contact either of the following Project Team members:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3226
mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Coordinator
R. J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005* .Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

This Notice Issued on March 28 and April 4, 2019.

Have your say by visiting getinvolvedinnisfil.ca/7thline

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Appendix B

Display Boards Presentation

Socio-Cultural Environment

Cultural Heritage

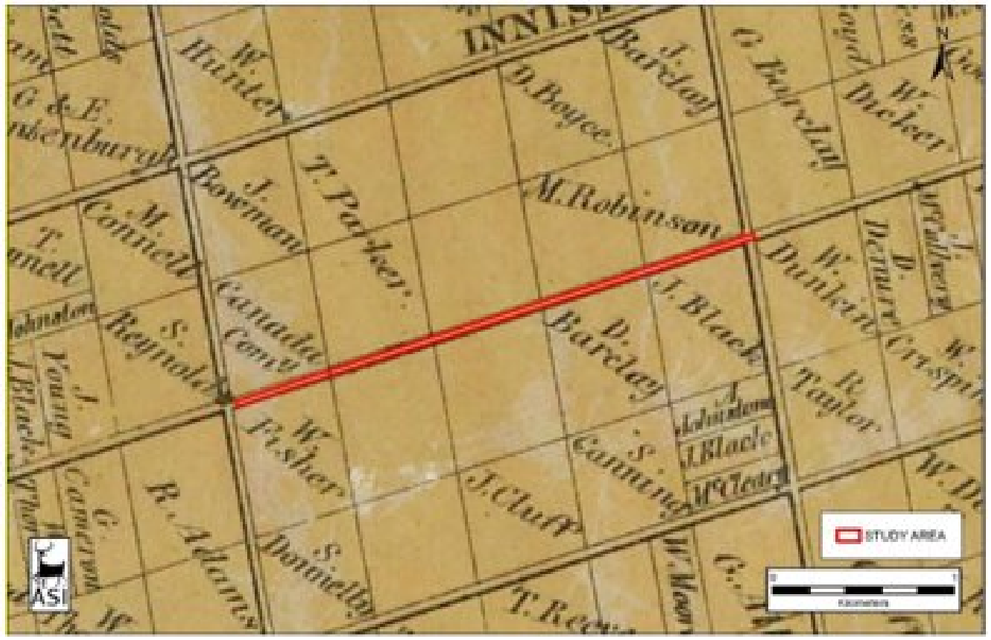
One cultural heritage landscape (CHL) feature was identified in the Study Area – a farmscape at 2399 7th Line.

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area.

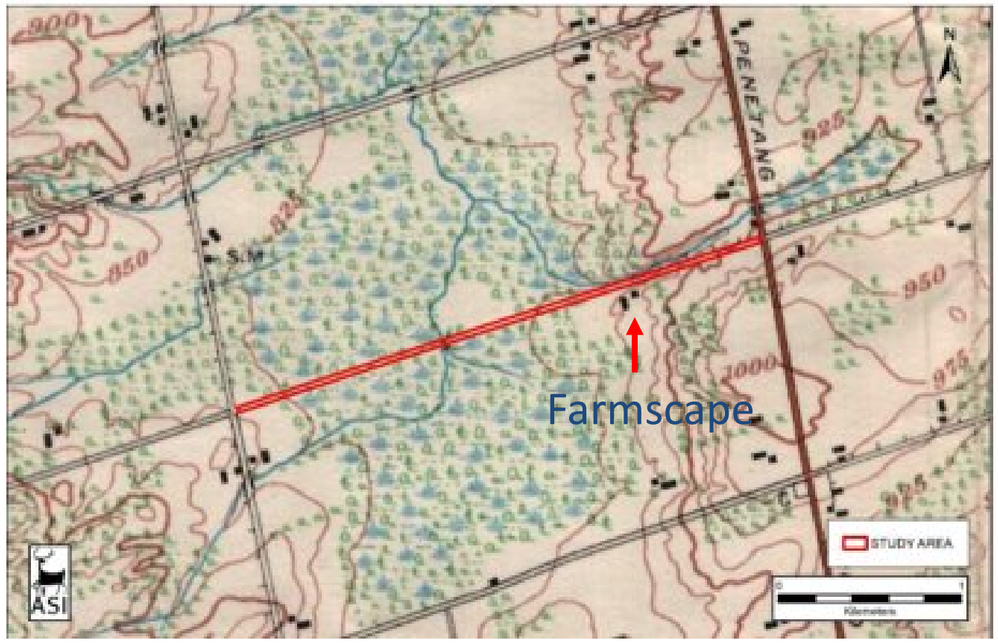
The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 archaeological assessment (test pit survey), if impacted, prior to any construction activities.



Feature ID CHL 1: Agricultural outbuildings associated with the farmscape at 2399 7th Line, looking south.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1871 Hogg's Map of Simcoe County.



Location of 7th Line (west) from 10th Sideroad to Yonge Street overlaid on the 1928 Barrie NTS Sheet No. 105 Department of Militia and Defense

Natural Environment

Habitat within the Study Area for:

- Amphibians
- Breeding Reptiles
- Fish Habitat and Passage
- Breeding Birds

Potential for Species at Risk

- Butternut trees
- Roosting Bat habitat within the forested area (several bat species are Endangered)
- Monarch Butterfly (Special Concern) and Swamp Milkweed, a host plant and nectar source
- The Marshes and Swamps are considered sensitive as they are located within the Provincially Significant wetland complex



















Alternative Solutions

The evaluation of alternatives is a step-by-step process that focuses on alternatives that are feasible within the project environment and meet the project objectives outlined in the Problem/Opportunity Statement, specifically, to address the deteriorating road condition and associated safety issues.

Phases 1 and 2 of the EA process evaluated the following alternatives:

1) Do Nothing
2) Local Traffic Only
3) One-Way Road
4) Widen the Road
5) Dead-End Road with Turn Around

One-Way Road and Widen the Road were selected as preliminary preferred alternatives and brought forward for review and feedback from the public and stakeholders during Public Open House #1 in November 2018.

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
SUMMARY PROBLEM STATEMENT	No	Partially	Yes	Yes	Yes
SUMMARY PROBLEM STATEMENT	**Not Preferred**	**Not Preferred**	**Preferred**	**Preferred**	**Preferred**

CRITERIA FOR EVALUATING ALTERNATIVES	1) Do Nothing	2) Local Traffic Only	3) One-Way Road	4) Widen the Road	5) Dead-end Road with Turn Around
OVERALL SUMMARY	**Not Preferred**	**Not Preferred**	**Most Preferred**	**Most Preferred**	**Least Preferred**

Your Feedback

Public Open House #1 was held as a “drop-in” style session conducted at the Town of Innisfil, Town Hall, Community Rooms B and C on November 27, 2018.

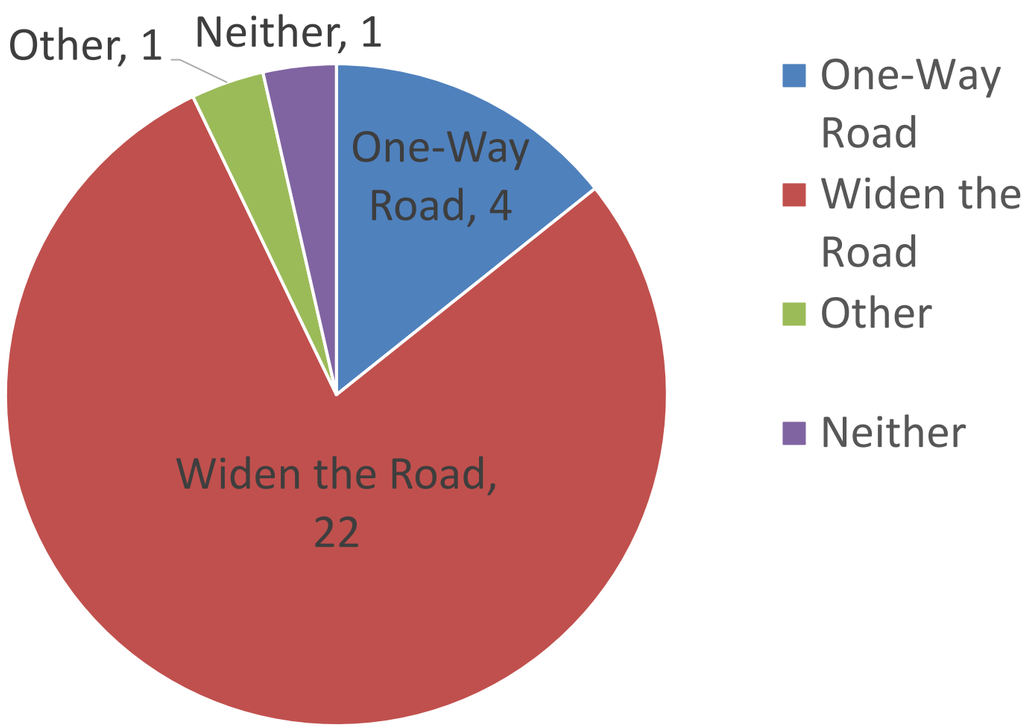
- 25 people attended
- 11 written comment sheets were received from local stakeholders during and following the Public Open House
- The Town of Innisfil conducted an online survey at getinvolvedinnisfil.ca/7thline – 17 comment forms were received

Comments received following the Notice of Commencement and Public Open House #1 are summarized under the following general themes. All feedback received is documented as part of the final Environmental Study Report for the EA.

	Comment
Safety	• Users of 7th Line temporary One-Way Road still driving in both directions • Cut the trees back and make the road straight
Traffic	• 7th Line should be widened for two-way traffic as an alternative to Innisfil Beach Road and 6th Line • Temporary One-Way Road adds travel time and longer driving distances • Accommodate growth and minimize traffic congestion • Provide traffic calming measures
Natural Environment	• Minimize impact to Provincially Significant Wetland and wildlife • Discourage development in this area • Provide access to recreational, hiking/biking opportunities • Minimize tree removal

Preferred Solution

Your Feedback



Widen the Road was selected as the Preferred Solution based on the evaluation of the alternatives and feedback received during and following the Public Open House #1.

- 22 selected the Widen the Road alternative as preferred
- 4 selected the One-Way alternative as preferred
- 1 noted neither the Widen the Road or One-Way option was preferred
- 1 comment sheet noted a preference for Dead-End Road with Turn Around instead of Widen the Road or One-Way options

Alternative 4: Widen the Road

Operate as a two-way road, fully open to the public. Upgrade road to meet Transportation Association of Canada Geometric design guidelines based on current posted speed limits including widening the road, or shoulder in some areas, and improving the horizontal/vertical alignment. Improve ditching and perform regular maintenance as required. Repair slopes and replace culverts where required to ensure long term viability of the road.



Alternative Design Solutions

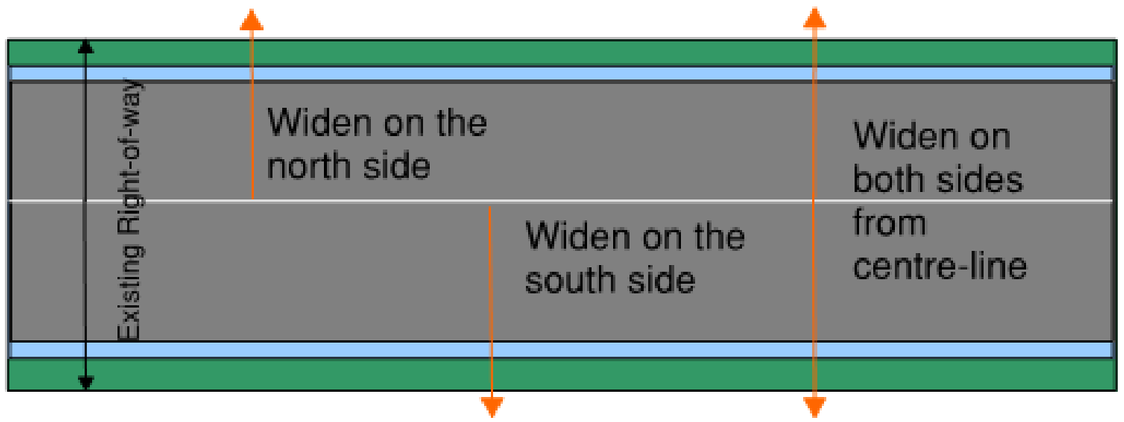
Alternative design solutions are evaluated for each end of the study area based on existing road design features and the preferred alternative to widen the road.

Road Widening

The approach to road widening is based on road cross-section and design options which include three basic design alternatives:

- Widen on the north side only, with paved shoulders
- Widen on the south side only, with paved shoulders
- Widen on both sides, with paved shoulders

Or a combination



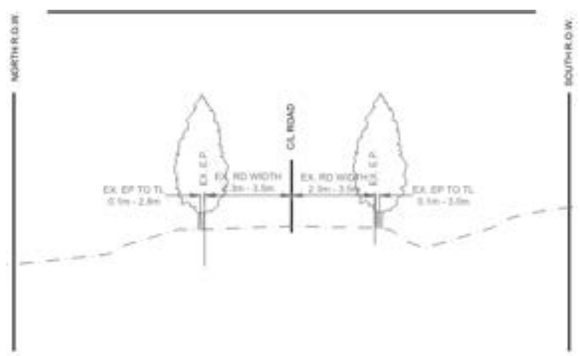
Road Cross-Section

The road cross-section design options for widening include two design alternatives:

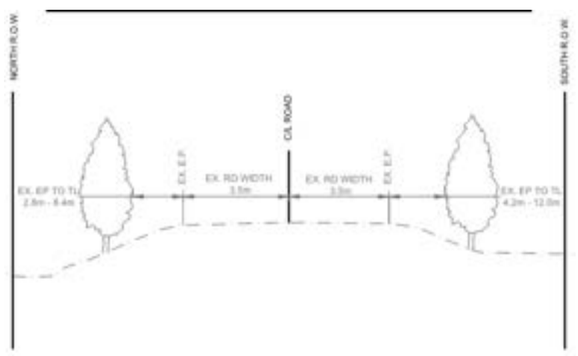
- Road Rehabilitation – pulverize existing asphalt surface, place new Granular A (gravel) and repave asphalt layers
- Road Reconstruction – excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Or a combination

TYPICAL EXISTING SECTIONS
EAST END OF ROAD

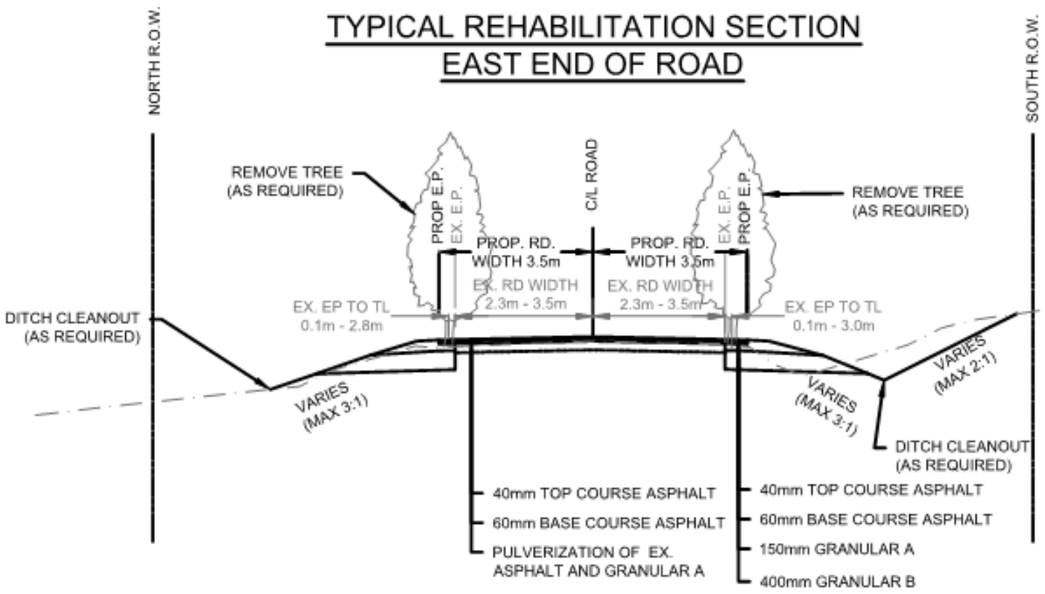


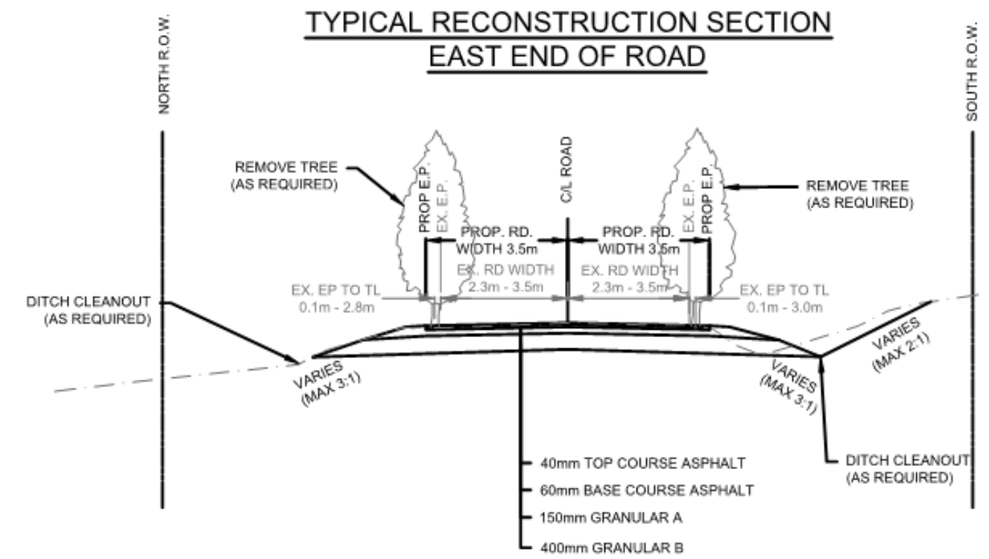
TYPICAL EXISTING SECTION
WEST END OF ROAD



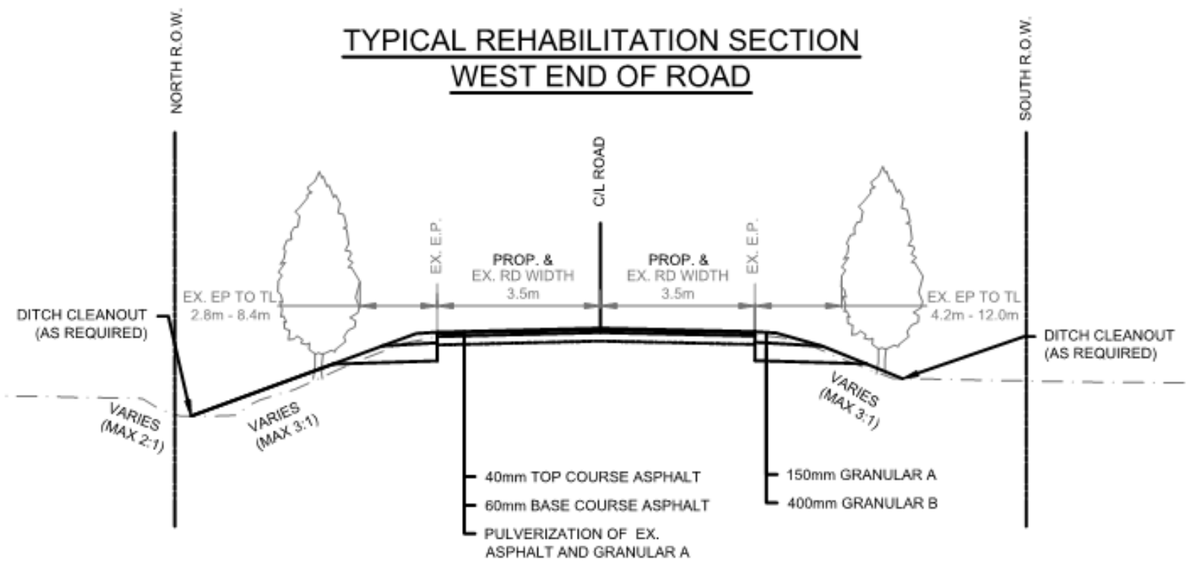
Alternative Design Solutions

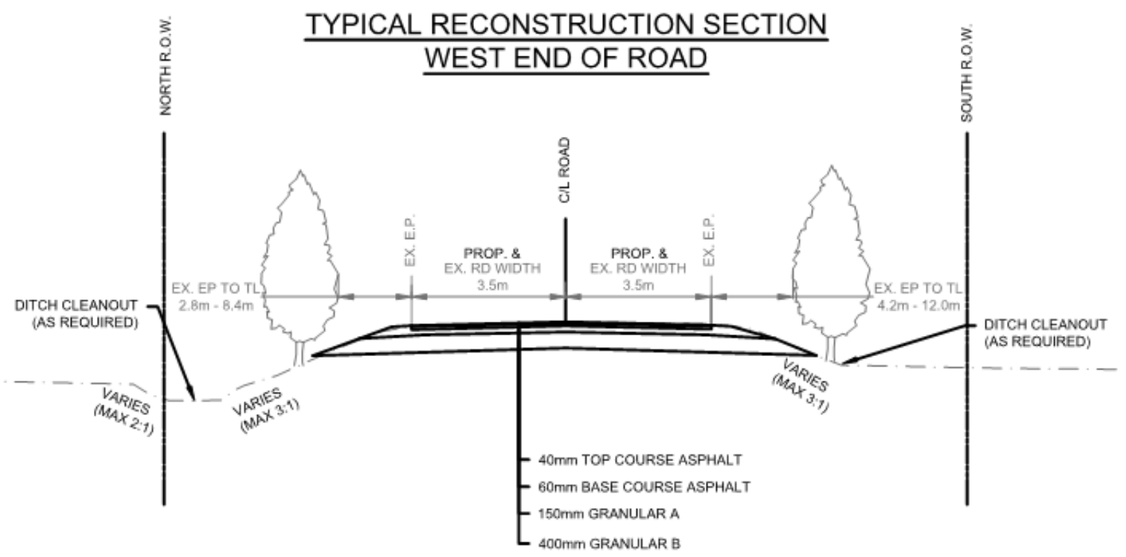
Road Cross-Section East End





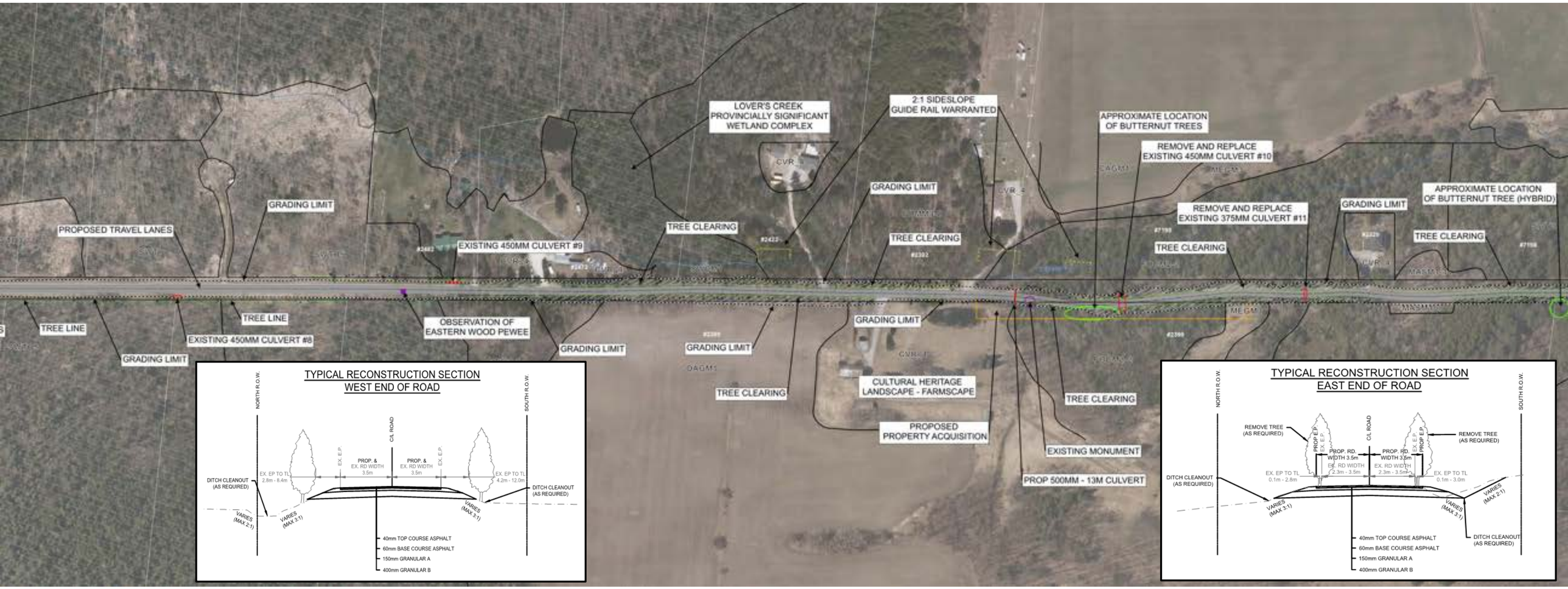
Road Cross-Section West End





Preliminary Preferred Design

Widen the Road – Best Fit Combination of North and South side with paved shoulders and reconstruction of the road surface



ELC Boundary

ELC DESCRIPTIONS
CGL_2 - Parkland
CVR_4 - Rural Residential
FOCM2-2 - Dry Fresh White Cedar Coniferous Forest
FODM5-7 - Dry Fresh Sugar Maple Black Cherry Deciduous Forest
FOMM3-2 - Dry Fresh Sugar Maple Hemlock Mixed Forest
MASM1-1 - Cattail Mineral Shallow Marsh
MASO1-1 - Cattail Organic Shallow Marsh
MEGM3 Dry-Fresh Graminoid Meadow
OAGM1 - Annual Row Crops
SWCM1 - White Cedar Mineral Coniferous Swamp
SWD - Deciduous Swamp
SWD2-2 - Green Ash Mineral Deciduous Swamp
SWDM4-3 White Birch Poplar Mineral Deciduous Swamp
SWT - Thicket Swamp
SWT3 - Organic Thicket Swamp
SWTM3-3 - Slender Willow Mineral Deciduous Thicket Swamp
SWTO3-1 - Speckled Alder Organic Deciduous Thicket Swamp
SWTO5 - Organic Deciduous Thicket Swamp
THDM2-11 - Hawthorn Deciduous Shrub Thicket

EXISTING CONDITIONS
- Tree Line
- Approximate Location of Butternut Tree
- Observed Watercourse Alignment
- Watercourse: Permanent
- Lover's Creek Provincially Significant Wetland Complex
- Existing Property Line
- Observation of Eastern Wood Pewee

PROPOPSED DESIGN
- Property Acquisition
- Culvert Removal
- Grading Limit
- Tree Clearing
- Road Extents and Centreline

See roll plan for the full extent of the study area

Preliminary Preferred Design



Widen the Road – Best Fit Combination

There are existing constraints located on both sides of the 7th Line that would be impacted by widening strictly on one side or the other, or on both sides. A "best fit" combined approach to widening was considered practical to avoid or minimize impact to adjacent features. The "best fit" is based on the local roadway width and existing right-of-way, and considering road profiles that would minimize impact to adjacent property and natural features by limiting side slopes and utilizing guiderail.

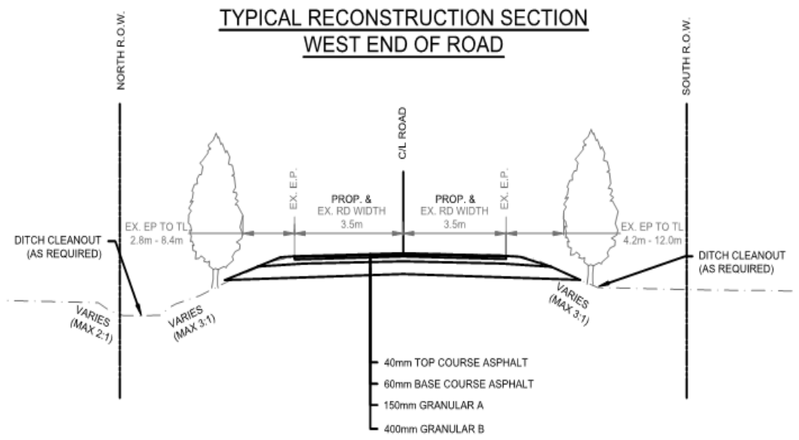
Pros:

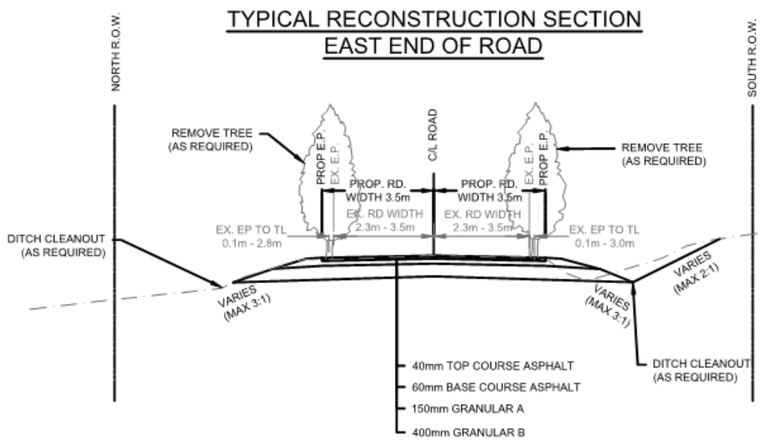
- Operate as a two-way road fully open to the public
- Improved sight distances and safety of road
- Improved access and safety for pedestrians and cyclist with paved shoulder
- Provides connectivity to transportation network. Offers parallel alternative route
- Maintains direct travel route
- Access to properties from east or west
- Minimal impact to watercourse channel at east end. Channel realignment can be avoided with modification to road alignment, embankments and ditches
- Avoid direct impact to Species at Risk Butternut trees as a result of tree removal and grading at east end. Possible indirect impact

Cons:

- Potential impact to wildlife and habitat, potential habitat for Species at Risk due to vegetation clearing. Would be subject to timing restrictions to avoid direct impact
- Paving of the road shoulders may pose a risk to nesting turtles during construction and over long term due to removal of gravel substrate
- Possible impact to fish and fish habitat through sediment mobilization (indirect)
- Potential for impact to cultural heritage features including farmscape, private memorial
- Possible increase in traffic
- Temporary impact due to construction activities
- Property acquisition may be required. Property acquisition needed for road footprint located outside ROW
- Potential impact to archaeological resources, farmscape. Further Archaeological assessment is required for areas of potential earth works in previously undisturbed areas

Preliminary Preferred Design





Design Cross-Section

- Road Reconstruction – Excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Pros:

- Improved safety of road profile to meet TAC (Transportation Association of Canada) standards with improved vertical and horizontal alignment
- Repaired slopes and upgraded ditching anticipated to reduce long term impact of siltation on watercourse, wetland and vegetation communities
- Reduced costs for road maintenance, anticipated to increase over long term
- Accommodates future traffic growth and connectivity
- Limiting side slopes may require the need for guierail in some loctions

Cons:

- Potential temporary impact to fish and fish habitat due to repair of road embankments, ditches, and culvert replacement. These impacts are subject to design conditions and timing restrictions
- Vegetation clearing needed with improved ditching at the east end. Vegetation removal will be subject to timing restriction to avoid direct impact to Species at Risk. May require compensation / replacement of trees
- Potential siltation of adjacent watercourses, wetland and vegetation communities during construction
- Noise, reduced access, longer construction time anticipated during construction
- High capital costs for construction

EA Project Timeline

Municipal Class EA 7th Line Improvements from 10th Line to Yonge Street

NOTICE OF COMMENCEMENT

August 2018

COMPLETE STUDIES,

DEVELOP IMPROVEMENT ALTERNATIVES,

CONSULT WITH STAKEHOLDERS, TECHNCIAL ADVISORY COMMITTEE

SUMMER/FALL 2018

EVALUATE ALTERNATIVE SOLUTIONS,

PREPARE PUBLIC OPEN HOUSE MATERIALS

PUBLIC OPEN HOUSE #1

November 2018

CONSULT WITH STAKEHOLDERS

SELECT PREFERRED ALTERNATIVE SOLUTION

WINTER/SPRING 2019

EVALUATE DESIGN ALTERNATIVES

PREPARE PUBLIC OPEN HOUSE MATERIALS

PUBLIC OPEN HOUSE #2

Spring 2019

CONSULT WITH STAKEHOLDERS, TECHNICAL ADVISORY COMMITTEE

SELECT PREFERRED DESIGN ALTERNATIVE

SPRING/SUMMER 2019

DOCUMENT PROJECT FINDINGS IN ENVIRONMENTAL STUDY REPORT (ESR)

NOTICE OF COMPLETION

Summer 2019

Next Steps….

- Review public, stakeholder and Agency comments generated from this Public Open House (please submit comments by May 7, 2019);
- Comments received by May 7, 2019 will be incorporated into a Public Open House summary which will include a summary of your written comments along with project related responses ;
- Select Preferred Design Alternative
- Issue Notice of Study Completion and provide Environmental Study Report (ESR) for final public review and comment for a period of 30 days.

Thank you for attending
Help shape decisions made in this Study

- Please complete the comment sheet and deposit it in the “Comment Sheet” box, or return this completed form to one of the project team members below, or email your comments to 7thLineEAWestofYonge@rjburnside.com
- Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH.
- If you would like more information or if you have any questions or concerns please contact:

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil, ON, L9S 1A1
Telephone: (705) 436-3740 ext. 3226
Email: mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P
Project Manager
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie, ON, L4N 8J6
Telephone: (705) 797-4357
Email: deanna.deforest@rjburnside.com

Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry’s Freedom of Information and Privacy Coordinator at 416-327-1434.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Comment Sheets

Innisfil BURNSIDE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
7TH LINE FROM YONGE STREET TO 10TH SIDEROAD ROAD IMPROVEMENTS
Public Open House #2, Town of Innisfil, Town Hall, Council Chambers
Monday April 8, 2019
4:00 p.m. to 7:00 p.m.

COMMENT SHEET

Problem Statement: The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from Yonge Street to 10th Sideroad. The Town is completing a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road.

R.J. Burnside & Associates Limited has been retained by the Town to evaluate alternative solutions for road improvements. This questionnaire provides you with an opportunity to comment on this study and indicate your concerns and preferences. Your views are important to us.

Following Phases 1 and 2 of the Municipal Class EA process, Widen the Road was selected as the Preferred Solution based on the evaluation of the alternatives and feedback received during and following the Public Open House #1.

The Alternative Design Solutions include:

Road Widening
The approach to road widening is based on road cross-section and design options which include three basic design alternatives:

- Widen on the north side only, with paved shoulders
- Widen on the south side only, with paved shoulders
- Widen on both sides, with paved shoulders

Or a combination

And

Road Cross-Section
The road cross-section design options for widening include two design alternatives:

- Road Rehabilitation – pulverize existing asphalt surface, place new Granular A (gravel) and repave asphalt layers
- Road Reconstruction – excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Or a combination

Please provide your comments of the following:

1. The Preliminary Preferred Design Solution for 7th Line from Yonge Street to 10th Sideroad

- Please consider a wider shoulder to accommodate a future bike lane to get to Centennial Park. 1.5 metres more shoulder would also help farm equipment transport wider equipment. The land purchased at 7th and Huronia would also be serviced by this "bike" lane in the future.

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

3. **Do you have any other feedback or suggestions about the information and material provided at this Public Open House?**

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☐ I/we wish to be added to the mailing list to receive notices related to this project
☐ I/we wish to have our personal contact information remain confidential (Please Print)

Name: _____ Date: _____

Address: _____

Phone No.: _____

Email: _____

Prefer to be contacted by: ☐ Email ☐ Mail ☐ Phone

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- ✓ Widen on both sides, with paved shoulders

Or a combination

And

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Or a combination

Please provide your comments of the following:

1. The Preliminary Preferred Design Solution for 7th Line from Yonge Street to 10th Sideroad

- ROAD WIDENING - ON BOTH SIDES, WITH PAVED SHOULDERS

- ROAD RECONSTRUCTION - EXCAVATE ROAD STRUCTURE & REPLACE

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Innisfil BURNSIDE

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- VERY WELL PRESENTED & COMPLETE

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☑ I/we wish to be added to the mailing list to receive notices related to this project
☐ I/we wish to have our personal contact information remain confidential (Please Print)

Name: APR. 8/19

Address:

Phone N

Email:

Prefer to be contacted by: ☑ Email ☐ Mail ☐ Phone

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BOTH SHOULDERS NEED TO BE ADDRESED - WIDEN BOTH SIDES AND PROVIDE PAVED SHOULDERS.

ROAD NEEDS TO BE RECONSTRUCTED NOT REHABED.

DITCHES NEED TO BE CLEARED AND CULVERTS REPLACED FOR THE LENGTH OF RECONSTRUCTION

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Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

WHEN THE ROAD WAS RECONSTRUCTED SEVERAL YEARS AGO THE TRANSITIONS TO DRIVE WAYS WERE LEFT TOO STEEP - CAN THAT BE ADDRESSED IN THE NEXT PHASE AS IT WAS LEFT TO HOMEOWNER TO CORRECT - THE ONE WAY IS EXTREMELY INCONVENIENT FOR THE RESIDENTS - PLEASE SPEED UP THE TWO WAY ACTIVATION -

3. **Do you have any other feedback or suggestions about the information and material provided at this Public Open House?**

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Name: 8-4-19.

Address

Phone N

Email: _

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Problem Statement: The Town of Innisfil (Town) has identified a need for improvements to the 7th Line from Yonge Street to 10th Sideroad. The Town is completing a Municipal Class Environmental Assessment (EA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road.

R.J. Burnside & Associates Limited has been retained by the Town to evaluate alternative solutions for road improvements. This questionnaire provides you with an opportunity to comment on this study and indicate your concerns and preferences. Your views are important to us.

Following Phases 1 and 2 of the Municipal Class EA process, Widen the Road was selected as the Preferred Solution based on the evaluation of the alternatives and feedback received during and following the Public Open House #1.

The Alternative Design Solutions include:

Road Widening
The approach to road widening is based on road cross-section and design options which include three basic design alternatives:

- Widen on the north side only, with paved shoulders
- Widen on the south side only, with paved shoulders
- Widen on both sides, with paved shoulders

Or a combination

And

Road Cross-Section
The road cross-section design options for widening include two design alternatives:

- Road Rehabilitation – pulverize existing asphalt surface, place new Granular A (gravel) and repave asphalt layers
- Road Reconstruction – excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Or a combination

Please provide your comments of the following:

1. The Preliminary Preferred Design Solution for 7th Line from Yonge Street to 10th Sideroad

GIVEN FUTURE GROWTH I FEEL IT IS NECESSARY TO WIDEN 7TH TO 2 LANES ON NORTH & SOUTH SIDES AS REQUIRED. FUTURE USE SHOULD BE THE VISION CONCERNING THE CONSTRUCTION THEREFORE PAVED SHOULDERS AND ROAD RECONSTRUCTION IS THE WISEST CHOICE.

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005.*
Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434

Innisfil BURNSIDE

2. **Do you have any other comments, questions or suggestions?**

IF BUTTERNUTS ARE AN ISSUE THEY CAN BE REPLANTED OR REPLACED WITH NURSERY STOCK

3. **Do you have any other feedback or suggestions about the information and material provided at this Public Open House?**

Please complete the comment sheet and deposit it in the "Comment Sheet" box or return this completed form to one of the project team members below or email your comments to 7thLineEAWestofYonge@rjburnside.com. Information materials pertaining to the study will be made available online at getinvolvedinnisfil.ca/7thline following the POH.

Your comments are welcomed at any time during the EA process. For this stage of the process, your comments are encouraged by **May 7, 2019**. Feedback received by May 7, 2019 will be incorporated into a Public Open House summary and will include a summary of your written comments along with project related responses.

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1
705-436-3740 Ext. 3226
mkoehler@innisfil.ca

Deanna De Forest, B.Sc. E.P.
Environmental Assessment Coordinator
R.J. Burnside & Associates Limited
128 Wellington Street West, Suite 301
Barrie ON L4N 8J6
705-797-4357
deanna.deforest@rjburnside.com

☐ I/we wish to be added to the mailing list to receive notices related to this project
☐ I/we wish to have our personal contact information remain confidential (Please Print)

Name: _ APR. 8, 2019

Address: _____

Phone N _____

Email: _ _____

Prefer to be contacted by: ☒ Email ☐ Mail ☐ Phone

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and Communication under the *Accessibility for Ontarians with Disabilities Act, 2005.*
Information will be collected and maintained to meet the requirements of the Environmental Assessment Act and for the purpose of creating a record that will be available to the general public as described in Section 37 of the Freedom of Information and Protection of Privacy Act. All comments and personal information such as name, address, telephone number and property location will become part of the public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry's Freedom of Information and Privacy Coordinator at 416-327-1434

Sylvia Radovic

From: Deanna De Forest
Sent: Thursday, April 11, 2019 2:14 PM
To:
Cc: Magdalena Koehler; Carolina Cautillo; Capital Engineering Co-op 1
Subject: RE: PUBLIC -Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad
Attachments: 7th Line West EA - POH#2 Comment Sheet_042232_FINAL.PDF

Categories: Blue Category

Hello
The project information from the Public Open House #2 is now available on the Town project page at https://www.getinvolvedinnisfil.ca/7thline

For your reference, I have attached a PDF copy of the comment form from the Public Open House #2 . Alternatively, you can provide your comments to me and the project team via return email.

Comments received by May 7, 2019 will be incorporated into a Public Open House #2 summary which will include a summary of written comments along with project related responses
Thanks for your interest and participation in the 7th Line (west) EA.

Regards,
Deanna

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: [redacted]
Sent: Wednesday, April 10, 2019 8:23 AM
To: Sylvia Waters <Sylvia.Waters@rjburnside.com>
Subject: Re: PUBLIC -Notice of Public Open House #2 - 7th Line Improvements Yonge St. to 10th Sideroad

Good morning Sylvia,

I was unable to participate on the Open House last Monday. Was there any input needed from the residents?
Thanks!

On Wed, Mar 27, 2019 at 3:07 PM Sylvia Waters <Sylvia.Waters@rjburnside.com> wrote:

> Hello,

On behalf of the Town of Innisfil, please see the attached Notice of Public Open House #2 for the 7th Line Improvements, Yonge St. to 10th Sideroad, Municipal Class Environmental Assessment Study.

Public Open House:

DATE: April 8, 2019, 4:00pm to 7:00pm

LOCATION: Town of Innisfil, 2101 Innisfil Beach Road, Innisfil, On L9S 1A1, Town Hall, Council Chambers

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Thank you.

****

Sylvia Waters

From: 7thLineEAWestofYonge
Sent: Thursday, April 11, 2019 2:33 PM
To: Jim Hartman
Cc: Magdalena Koehler; Carolina Cautillo; Capital Engineering Co-op 1
Subject: RE: Please include me in future information mailings and notifications. tx. eom.
Attachments: 7th Line West EA - POH#2 Comment Sheet_042232_FINAL.PDF

Hello Mr. Hartman,
Thank you for your interest in the 7th Line (west) EA. Your contact information remains on our list to receive future notices about the project via email.

A Public Open House (#2) was recently held on April 8th.
The project information from the Public Open House #2 is now available on the Town project page at https://www.getinvolvedinnisfil.ca/7thline

Should you wish to provide comments, I have attached a PDF copy of the comment form from the Public Open House #2, for your reference .
Alternatively, you can provide your comments to me and the project team via return email.

Comments received by May 7, 2019 will be incorporated into a Public Open House #2 summary which will include a summary of written comments along with project related responses

Regards,

Deanna De Forest, B.Sc., E.P.
Environmental Assessment Lead
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4357

From: Jim Hartman <jhartman@grnland.com>
Sent: Wednesday, March 27, 2019 3:13 PM
To: 7thLineEAWestofYonge <7thLineEAWestofYonge@rjburnside.com>
Subject: Please include me in future information mailings and notifications. tx. eom.

Regards

Jim Hartman, P.Eng., Senior Associate
Ph. : 705-444-8805 ext. 254
Fax : 705-444-5482
Cell : 705-441-4877
GREENLAND® Consulting Engineers
A member of the Greenland Group of Companies
120 Hume Street, Collingwood, Ontario, Canada L9Y 1V5
tel: 705 444 8805 • fax: 705 444 5482
web: www.grnland.com
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Finally, the recipient should check this email and any attachments for the presence of viruses. GREENLAND accepts no liability for any damage caused by any virus transmitted by this email.

From: Magdalena Koehler <mkoehler@innisfil.ca>
Sent: Tuesday, April 23, 2019 4:20 PM
To:
Cc: Deanna De Forest <Deanna.DeForest@rjburnside.com>; Drew Davidge <Drew.Davidge@rjburnside.com>
Subject: RE: 7th line

Hello

Apologies for the delayed response. Thank you for your and your wife's participation and input at the open house.

We're anticipating to maintain the centerline of the road with the exception of the locations of 2 hills where the center of the road will be lowered to improve sightlines (in red below). There is a small section of road shown in blue where the centerline will be raised about 350mm to eliminate a dip in the road and also improve sightlines.



As part of every capital project, the Town is responsible for driveways tie-ins which includes driveways restoration and ensuring safe approach for vehicles. The driveway profiles will be reviewed

during detailed design to determine the limits of work required to adequately restore the driveway. Detailed Design will be commencing later this year, after the Class EA is completed.

As for the area across from the private pond, the road elevation will remain the same is this area, however the road will be widened. The wider road will result in tree clearing and placement of fill along the slope on the north side of the road.

Regards,

Magdalena

Magdalena Koehler, C.E.T., CAPM
Capital Project Manager
705-436-3740 Ext. 3226
1-888-436-3710 (toll free)

This information is intended only for the person, persons, entity, or entities to which it is addressed; does not necessarily represent the views of the Town of Innisfil; may contain information that is privileged, confidential or exempt from disclosure under the Municipal Freedom of Information and Protection of Privacy Act. If the reader is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you received this communication in error, please notify us immediately by return e-mail and delete the correspondence from your computer.

From:
Sent: April 12, 2019 3:07 PM
To: Magdalena Koehler <mkoehler@innisfil.ca>
Subject: 7th line

Hi Magdalena,
We were at the open house earlier this week. We are still very disappointed in the decision to widen the 7th line.
My wife and I had a question about the height of the road way. When the road is rebuilt how much will it add to the height of the road?
It will also affect a number of driveways. Will the driveways become our responsibility to match the roadway?
Also there is a pond across the street from us that is @ 10 metres from the road and on the other side the it drops away, will they bring in fill to level it off?

Thanks