

Technical Memorandum

To:	Justin MacDonald – City of Barrie	From:	John Northcote, P.Eng.
Date:	February 4 th , 2022	Project #:	1302
Project Name:	Rainsong Development Phase 2		
Subject:	Transportation Design Manual – Conformity Review		
Distribution:	Katy Schofield – Great Gulf Trish Elliot – Great Gulf Ray Duhamel – The Jones Consulting Group Ltd.		

On behalf of our client (Rainsong Land Development Inc.), JD Northcote Engineering Inc. [JD Engineering] has completed a review of the attached Site Plan, as prepared by Jones Consulting Group Ltd. Our review identifies locations within the proposed design that do not conform to the City of Barrie Transportation Design Manual (2017) [City TM]. All non-conforming elements have been assessed to determine if they will result in operational or traffic safety issues. Recommendations for mitigation have been included where necessary.

1. Intersection Angle

1.1. City TM Criteria

The Transportation Association of Canada *Geometric Design Guide for Canadian Roads* (2017) [TAC Guidelines] intersection angles less than 70° and greater than 110° are typically not desirable.

1.2. Non-Conformance Location

None

2. Intersection Spacing

2.1. City TM Criteria

According to the TAC Guidelines, the typical minimum spacing between adjacent intersections along a collector road is 60 metres. On a local road the minimum spacing between four-legged intersections is 60 metres. On a local road, where adjacent intersections are three-legged, a minimum spacing of 40 metres is acceptable.

2.2. Non-Conformance Location

None

3. Driveway Spacing at Minor Intersections

3.1. City TM Criteria

The TAC Guidelines recommend a 2.0 metre tangent spacing between a driveway and an adjacent intersection (Figure 8.9.2). According to the City Zoning By-law, the minimum driveway setback from the property line for a single detached unit is 0.6m. The following minimum driveway widths have been assumed for the purpose of our analysis:

Single driveway – 3.0 metre wide
(townhouse, semi-detached, single detached units with less than 10.4 metre frontage)

Double driveway – 5.5 metre wide
(single detached units with more than 10.4 metre frontage)

3.2. Non-Conformance Location
None

4. Driveway Spacing at Major Intersections

4.1. City TM Criteria

The City requires a 20 metre spacing between the closest edge of a residential driveway and the edge of the adjacent arterial road, on the side of the road approaching the intersection.

The City requires a 25 metre spacing between the closest edge of a residential driveway and the edge of the adjacent arterial road, on the side of the road departing from the intersection.

4.2. Non-Conformance Location

The southern driveways for Block 260 and Block 261 on Street A at Lockhart Road are within the above-noted clear zone; however, no transportation department comments were made on this point during previous conformity reviews and conformity approval for this property was granted prior to the City formalizing this clear zone requirement.

5. Road Centreline Radius

5.1. City TM Criteria

Applying the methodology outlined in the TAC Guidelines, a vehicle can comfortably maintain travelling at the design speed (60km/h) on a road with a centerline radius of 177 metres (with a normal crown in low speed urban environment). Similarly, a vehicle can comfortably maintain travelling at the design speed (70km/h) on a road with a centerline radius of 297 metres (with a normal crown in an urban environment). The City TM identifies a design speed of 60km/h for local roads and 70km/h for collector roads.

Through our discussions with the City, as a general rule, a minimum centerline radius of 177 metres is required on collector roads and 'long' local roads unless there are extenuating circumstances.

5.2. Non-Conformance Location

5.2.1. Street B

Street B (collector road) has been designed with a minimum centerline radius of 177 metres east of the west leg of Street G and west Street F.

5.2.1.1. Analysis

Through our discussions with the City, as a general rule, a minimum centerline radius of 177 metres is required on collector roads and 'long' local roads unless there are extenuating circumstances. In this case, the length of the curve is relatively short (less than 20 metres) and the curve in the road does not result in any sight distance or operational issues. Consequently, no change in configuration is required.

5.2.2. Street C

Street C northwest corner – 14 metre centerline radius around a 90° bend in the road.

5.2.2.1. Analysis

This is a low volume local road – no change in configuration is required.

5.2.3. Street A

Street A (collector road) has been designed with a minimum centerline radius of 177 metres at the south leg of Street E and at Street C.

5.2.3.1. Analysis

Through our discussions with the City, as a general rule, a minimum centerline radius of 177 metres is required on collector roads and 'long' local roads unless there are extenuating circumstances. In this case, the length of the curve is relatively short (less than 45 metres) and the curve in the road does not result in any sight distance or operational issues. Consequently, no change in configuration is required.

5.2.4. Street G

Street G northeast and northwest corners – 14 metre centerline radius around a 90° bend in the road.

5.2.4.1. Analysis

This is a low volume local road – no change in configuration is required.

5.2.5. Street H

Street H southeast and southwest corners – 14 metre centerline radius around a 90° bend in the road.

5.2.5.1. Analysis

This is a low volume local road – no change in configuration is required.

6. Intersection Sight Distance

6.1. City TM Criteria

The minimum sight stopping distance according to the TAC Guidelines is 85 metres for a design speed of 60km/h and 105 metres for a design speed of 70km/h.

6.2. Non-Conformance Location

6.2.1. Intersection of Street D / Street C

Westbound vehicles on Street D have a sight distance of approximately 71 metres to the north.

6.2.1.1. Analysis

Vehicles travelling around the bend on Street C will be travelling significantly slower than the design speed; consequently, no additional measures are required.

6.2.2. Intersection of Street H / Street J (west intersection)

Westbound vehicles on Street J have a sight distance of approximately 74 metres to the south.

6.2.2.1. Analysis

Vehicles travelling around the bend on Street H will be travelling significantly slower than the design speed; consequently, no additional measures are required.

6.2.3. Intersection of Street H / Street J (east intersection)

Eastbound vehicles on Street J have a sight distance of approximately 68 metres to the south.

6.2.3.1. Analysis

Vehicles travelling around the bend on Street H will be travelling significantly slower than the design speed; consequently, no additional measures are required.

7. Tangent Length Through Intersection

7.1. City TM Criteria

The TAC Guidelines recommend that intersections are ideally located on tangent sections. The TAC Guidelines also suggest a 20 metre tangent length or more on a minor road at an intersection.

7.2. Non-Conformance Location

7.2.1. Street B / Street G (west intersection)

Curve in Street B east of the western Street B / Street G intersection

7.2.1.1. Analysis

The length of the curve is relatively short and the minimum sight stopping distance is not limited by curve in the road – no change in configuration required.

7.2.2. Street C / Street D

Curve in Street D east of Street C

7.2.2.1. Analysis

Minimum sight stopping distance is not limited by curve in the road and the curve meets the TAC Guidelines for the design speed (60km/h) – no change in configuration required.

7.2.3. Street A / Street D

Curve in Street D west of Street A

7.2.3.1. Analysis

Sight distance is not limited by curve in the road and the curve meets the TAC Guidelines for the design speed (60km/h) – no change in configuration required.

7.2.4. Street A / Street C

Curve in Street A at Street C

7.2.4.1. Analysis

Minimum sight stopping distance is not limited by curve in the road and the curve meets the TAC Guidelines for the design speed (60km/h) – no change in configuration required.

7.2.5. Street A / Street V (south intersection)

Street V (south leg) intersects Street A on a curve.

7.2.5.1. Analysis

The length of the curve is relatively short and the minimum sight stopping distance is not limited by curve in the road – no change in configuration required.

7.2.6. Street H / Street J (west intersection)

Curve in Street J east of the west Street H / Street J intersection

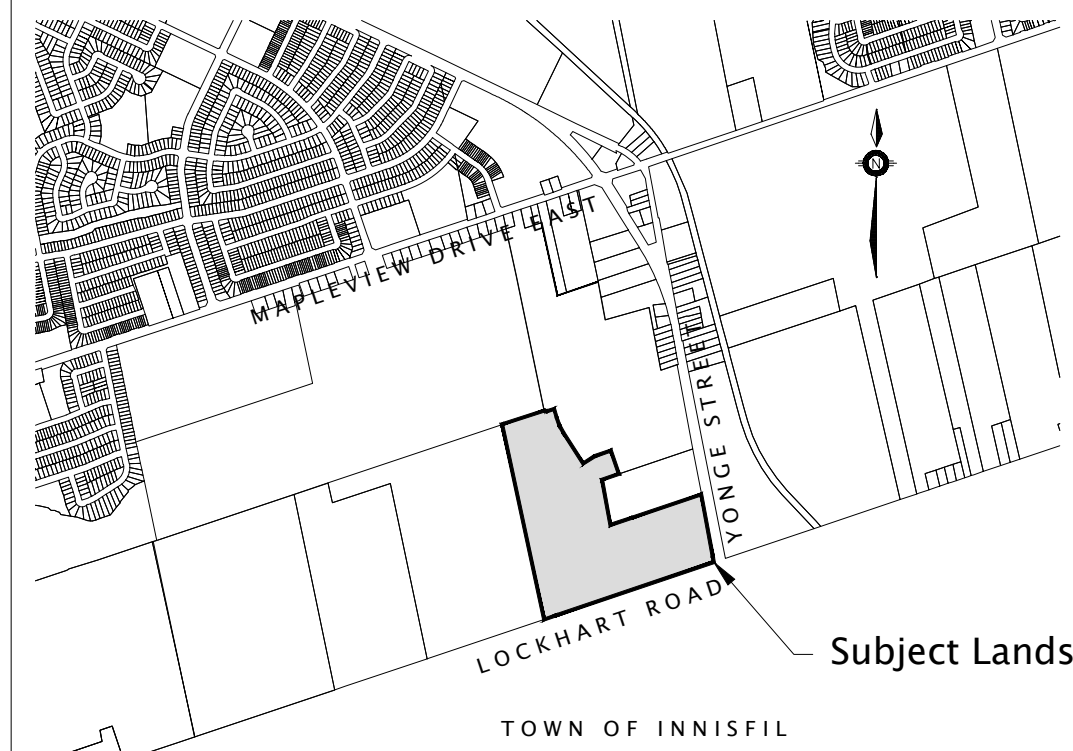
7.2.6.1. Analysis

Minimum sight stopping distance is not limited by curve in the road and the curve meets the TAC Guidelines for the design speed (60km/h) – no change in configuration required.

8. Summary

Based the above-noted analysis, no mitigation measures are recommended:

We trust you will find this submission acceptable. Should you have any questions or concerns or require any additional information in this regard, please contact our office.



SCALE 1:25,000

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

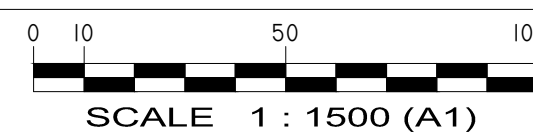
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SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED
AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND
CORRECTLY SHOWN.

DATE	RUDY MAK, O.L.S RUDY MAK SURVEYING LTD.		
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT <table border="0"> <tr> <td style="vertical-align: top;"> g) SHOWN ON DRAFT PLAN c) SHOWN ON DRAFT PLAN d) SHOWN ON KEY PLAN e) RESIDENTIAL, INSTITUTIONAL, & SWM DRAINAGE e) SHOWN ON DRAFT PLAN f) SHOWN ON DRAFT PLAN g) SHOWN ON DRAFT PLAN </td><td style="vertical-align: top;"> h) MUNICIPAL WATER i) TIOGA LOAMY SAND & BONACAD SANDY LOAM SHOWN ON DRAFT PLAN j) ALL MUNICIPAL SERVICES TO BE PROVIDED k) THERE ARE NO RESTRICTIVE COVENANTS AFFECTING THE LAND TO BE SUBDIVIDED. </td></tr> </table>		g) SHOWN ON DRAFT PLAN c) SHOWN ON DRAFT PLAN d) SHOWN ON KEY PLAN e) RESIDENTIAL, INSTITUTIONAL, & SWM DRAINAGE e) SHOWN ON DRAFT PLAN f) SHOWN ON DRAFT PLAN g) SHOWN ON DRAFT PLAN	h) MUNICIPAL WATER i) TIOGA LOAMY SAND & BONACAD SANDY LOAM SHOWN ON DRAFT PLAN j) ALL MUNICIPAL SERVICES TO BE PROVIDED k) THERE ARE NO RESTRICTIVE COVENANTS AFFECTING THE LAND TO BE SUBDIVIDED.
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STATISTICS	Area (ha.)	Units
★ 11.6m Singles (Lots 1, 21 - 25, 30 - 32, 37 & 38, 43 - 45, 49 & 50, 54 - 56, 69 - 71, 75 & 76, 105 - 107, 136, 167 & 188, 171 - 182, 185, 206, 209, 219 & 220, & 228 - 232)	1.75 ha.	52
■ 10.1m Corner Singles (Lots 2 - 20, 26 - 29, 33 - 36, 39 - 42, 46 - 48, 51 - 53, 57 - 60, 64 - 68, 72 - 74, 77 - 104, 108 - 120, 137 - 166, 169 & 170, 183 & 184, 207 & 208, 210 - 218, & 221 - 227)	4.32 ha.	142
○ 15.0m Semi Detached (7.5m/unit) (Blocks 61 - 63, 121 - 135, 186 - 205, & 233 - 253)	2.55 ha.	118
Street Townhomes (6.1m/unit) (Blocks 254 - 274)	2.75 ha.	147
Future Block (Blocks 275)	0.14 ha.	8
Future Development/Road (Blocks 276 & 277)	0.15 ha.	
Institutional (School) (Blocks 278 & 279)	6.39 ha.	
Stormwater Management Drainage (Block 280)	0.01 ha.	
Road Widening / 0.3m Reserves (Blocks 281 - 286)	0.67 ha.	
Roads & Lanes (24.0m Minor Collector (Streets 'A' & 'B') (18.0m Local Streets (Streets 'C' - 'I'))	5.74 ha.	
TOTAL	24.47 ha.	467 units

PHASE 2
DRAFT PLAN OF SUBDIVISION



Date Issued:	JAN. 20, 2022
Checked By:	RD
Project No.:	RAI-15186
Drawn By:	m.c.r.
Drawing Name:	RAI-15186-PH-2-DP-4.dwg



SCHEDULE OF REVISIONS		
DATE	DESCRIPTION	DRAWN