October 21st, 2022

13203891 Canada Limited
34 David Street
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Attn: Marius Ardelean

RE: **Breeze Living Development (PID 40023905) – Hubbards, NS**
DesignPoint Project #: 22-008

Introduction

DesignPoint Engineering & Surveying has been hired to complete a traffic impact statement for a proposed residential development on Conrads Road, Hubbards. The concept plan includes 13 multi-family buildings with a total of 52 residential units (four units per building).

Figure 1: Location of PID 40023905 on Conrads Road

Figure 2: Concept Plan

Existing Conditions

Conrads Road is a two-way rural road with a speed limit of 50 km/h. The road is not built to current standards and is primarily used for access to residential properties. There is no traffic volume data within the provincial traffic count database, but volumes are expected to be low. Speed data has not been collected, but traffic speeds are also expected to be relatively low and estimated between 30-40 km/h due to the horizontal and vertical curvature of the road at multiple locations.

Site Access

A new private road will service all residential units. The access is located on the outside of a reverse curve and a slope. A site visit was conducted to measure site distances for the approximate location of the proposed road. The access location may be adjusted to improve sightlines, if possible, during detailed design.

Figure 3: View from the proposed access to the east

Figure 4: View from the proposed access to the west

Figure 5: Approaching the proposed access from the east

Figure 6: Approaching the proposed access from the west

A ball bank indicator test was completed and reviewed with the Nova Scotia Department of Public Works (NSDPW). It was determined that 40 km/h is an appropriate design speed for this section of road. Table 1 includes TAC minimum stopping sight distances (SSD) for a design speed between 30-50 km/h and the measured stopping sight distance from each direction of travel.

Table 1: TAC minimum stopping sight distances at the proposed access location

Design Speed (km/h)	Direction of Travel	Estimated Grade (%)	TAC Minimum SSD (m)	Measured SSD (m)	Result
50	From the East	+9	58	70	Pass
	From the West	-9	74	60	Fail
40	From the East	+9	43	70	Pass
	From the West	-9	53	60	Pass
30	From the East	+9	29	70	Pass
	From the West	-9	35	60	Pass

The TAC minimum stopping sight distances for a 40 km/h design speed are met in both directions, but not a 50 km/h design speed. Sight distances will be confirmed during the detailed design.

Site Generated Traffic

Site-generated traffic volume estimates have been completed using the trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition.* Through discussions with NSDPW, it was determined that the trip generation rate for single-family homes (compared to townhouses or multi-family buildings) would be the most appropriate for trip generation calculations. The developed 52 units are estimated to add 36 two-way trips to Conrads Road during the AM peak hour and 49 two-way trips during the PM peak hour.

Table 2: Trip Generation Estimates

Land Use	Code	Units	Trip Generation Rates[1]						Trips Generated			
			AM Peak			PM Peak			AM Peak		PM Peak	
			Rate	In	Out	Rate	In	Out	In	Out	In	Out
Single-Family Detached Housing	210	52	0.7	0.26	0.74	0.94	0.63	0.37	9	27	31	18
Total Estimated Site Generated Trips									**9**	**27**	**31**	**18**
Notes:	1. Trip generation estimates from ITE Trip Generation Manual, 11th Edition											

Recommendation

Advanced warning signage should be considered for the eastbound approach to the beginning of the curve, warning drivers that they are approaching a series of curves. A Winding Road Sign (WA-6L) could be added to the utility pole approximately 50 m before the beginning of the curve indicating that there is a series of three (or more) curves ahead.

Figure 7: Proposed Winding Road (WA-6L) warning sign on the eastbound approach to the curve

Conclusion

The proposed concept plan proposes the development of 52 multi-family units (13 buildings each with 4 units) on Conrads Road (PID 40023905). The number of vehicle trips added by this development to Conrads Rd is minimal and is not expected to have any operational or safety impacts on the surrounding road network.

The TAC minimum stopping sight distance is met in both directions for a 40 km/h design speed. Warning signage from the west should be added in advance of the series of curves to advise drivers of the approaching geometry.

If you have any questions or comments, please contact me by email at Harrison.mcgrath@designpoint.ca.

Thank you,
DesignPoint Engineering & Surveying Ltd.

[redacted]

Harrison McGrath, P.Eng.
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