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# MEMORANDUM

**To:** Tamara White and Tomas Nielsen - 1265024 B.C. LTD.

**From:** Caytlin Kopeck, EIT

**Our File #:** 3195.B01

**Project:** 1915 Cumberland Road

**Date:** December 13, 2021

**RE:** Sight Line Assessment

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## 1.0 INTRODUCTION

Watt Consulting Group was retained by 1265024 B.C. LTD. to conduct a sight line assessment for a development at 1915 Cumberland Road, Courtenay BC. The proposed development includes 20 single family homes. A new road will connect to Cumberland Road in the south-east and Larsen Road in the north-west. This memo will review the sightlines at each end of the new road to ensure adequate sight distances. Further, this memo will identify where removable bollards should be located to eliminate cut-through traffic on the new road. See **Figure 1** for the location of the new road connection.

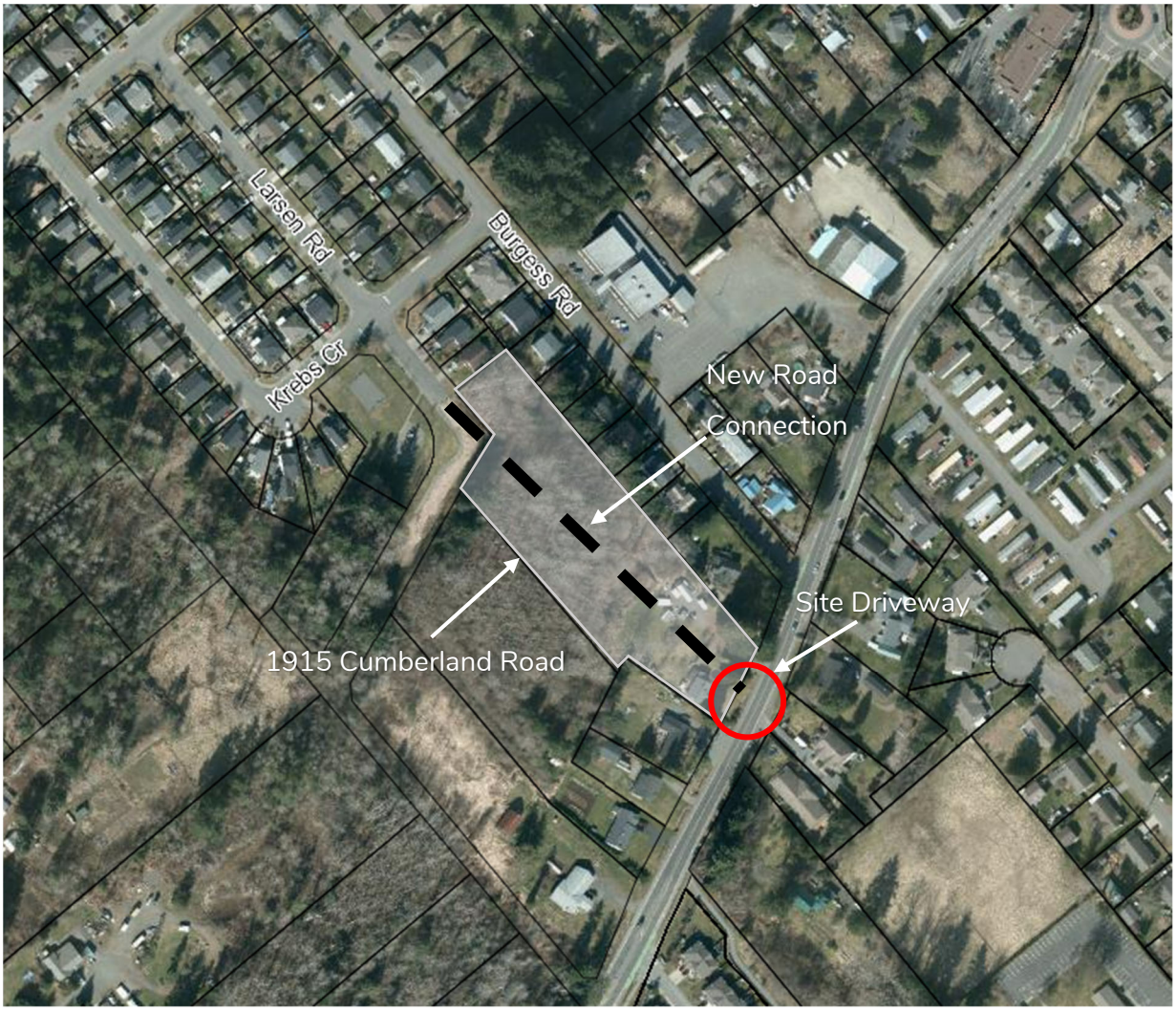


**Figure 1: Proposed Road Connection**

## 2.0 BACKGROUND

Cumberland Road is a two-lane arterial with a posted speed limit of 50km/h. The driveway has been proposed to be constructed in the centre of the 1915 Cumberland Road lot. The other end of the new road will connect to Larsen Road, which currently dead ends at the property. See **Figure 2** for the site plan.

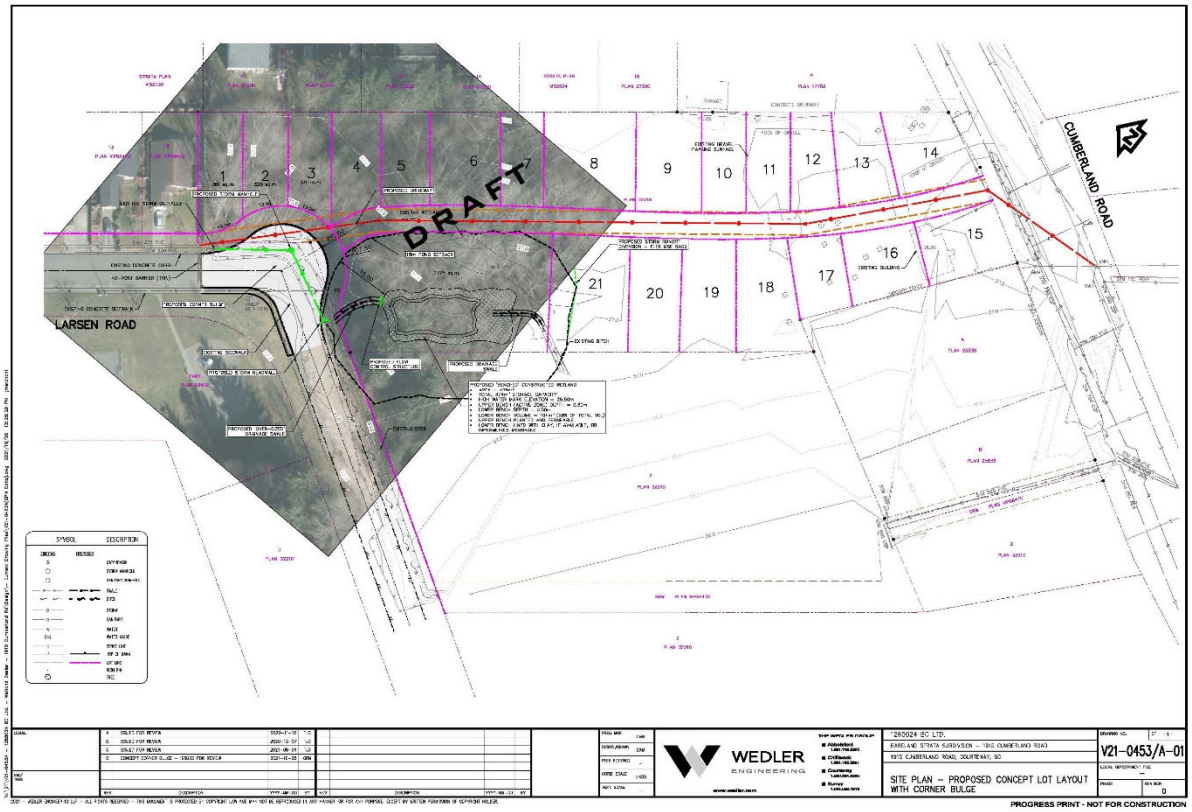


**Figure 2: Site Plan**

Based on the above site plan, there may be City plans to extend a new road south of Larsen Road and west of the new proposed road between Cumberland Road and Larsen Road. However, there is no existing road south of Larsen Road at this time.

## 3.0 SIGHTLINE ANALYSIS

Based on TAC Geometric Design Guidelines, for a 50km/h speed zone the sight distance for a vehicle turning from a stop is 105m, to the left and right, for a vehicle turning left. It is 95m, to the left and right, for a vehicle turning right. This distance is based on approaching vehicles not having to slow by more than 70% of their original speed. The stopping distance is 65m and is based on how long it will take a vehicle to stop when travelling at a 50km/h speed on a level roadway. See **Figure 3 and 4** for photos of the sightlines in both directions.

**Figure 3: Looking North (for left turning vehicle) on Cumberland Road (November 2021)**

**Figure 4: Looking South (for right turning vehicle) on Cumberland Road (November 2021)**

On November 23rd, 2021, the WATT team conducted a field assessment at the proposed intersection on Cumberland Road. The measured sight distances in each direction exceeds 300+m, which is more than the required distance. Therefore, there is no issue with sight distance at this location.

The provided design for the connection of the site road to Larsen Road has the new site road connecting at a slight angle to accommodate the cul-de-sac that would allow vehicles to turn around at the connection. If a turn-around is required only until the new road south of Larsen is constructed, then a hammerhead may be more appropriate. With the current design, vehicles exiting the development road would have a clear view down Larsen Road and therefore, no sightline issue. Further, when Larsen Road is extended, sightlines will continue to be acceptable.

If Larsen Road is extended to the south at approximately 90 degrees to the site road, consideration should be given to the connection alignment and location of stop control.

**Figure 5: Current Conditions at Termination of Larsen Road (Taken November 2021)**

## 4.0 ACCESS MANAGEMENT

The Developer have proposed installing removeable bollards at some point across the new road to assist in access management and distributing traffic between Larsen Road and Cumberland Road. The bollards would be removed if needed for emergency vehicle access or evacuation. The placement for bollards is recommend at the approximate midpoint of the new road between Cumberland Road and Larsen Road (at the east property line of Lots 8 / 21). This will split the traffic approximately 50/50 from the development to Larsen Road and Cumberland Road and reduce the impact of adding all traffic to one road or the other. Further, the removeable bollards will eliminate shortcutting between Cumberland Road and the existing neighborhood area.

The placement of the bollards is expected to add up to 13 vehicle trips (9 entering and 4 exiting) at the Cumberland Road / Site Road intersection. Based on the available sight lines and the low volume of traffic it is not expected that this volume of traffic will create any traffic or safety issues on Cumberland Road.

## 5.0 CONCLUSION AND RECOMMENDATION

All sightlines are adequate for this new road meet or exceed the recommended TAC guidelines. Consideration of a hammerhead turn around is recommended instead of a cul-de-sac design at Larsen Road and the site road. When/if Larsen Road extends to the south, the design alignment should consider which road has stop control.

Removeable bollards (two) should be placed at the east edge of Lots 8 / 21 to prevent vehicles from travelling between Cumberland Road and Larsen Road. The bollards can be removed to allow for emergency vehicles but eliminate short cutting between Cumberland Road and to the neighbourhood. The bollards will also allow for pedestrians and bicycles to utilize the corridor. The traffic added to Cumberland Road, due to the development, is low (one additional vehicle every 4.6 minutes) and not expected to create any traffic or safety issues.

Sincerely,
**Watt Consulting Group**

Caytlin Kopeck, EIT
Transportation Engineer-in-Training

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