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**Re: The Hideout, 41 Willow Lane, Cherry Valley**

**Subject: Municipal Intersection Brief – County Road 18 / Willow Lane**

**Project Number: 22-3-6561/25-1115A**

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The Greer Galloway Group has been retained to complete a Traffic Impact Study Brief (TISB) for the development located at 41 Willow Lane, roughly 3km west of Cherry Valley in Prince Edward County.

The Ministry of Transportation General Guidelines for the Preparation of Traffic Impact Studies acknowledges that where little to no impact on the surrounding road network is anticipated and the need for mitigation is not expected, a TIS Brief or Letter may be appropriate.

As the subject property has an existing commercial development that will continue to serve a similar land use, it is likely that the proposed development changes will not have a significant impact on the surrounding road network and mitigation is not expected. Therefore, a Traffic Impact Study Brief is provided.

Proposed developments (or redevelopment in this case) will typically increase traffic on the connected public road system. Associated impacts can be evaluated by quantitative means through a traffic impact assessment such as this and are based on road / intersection capacities, vehicle delay, lines of sight, and other measurable means.

Other qualitative impacts are not as easily assessed, are highly subject to opinion and beyond the scope of this report.

The existing municipal road network does not have pedestrian infrastructure in the vicinity of the development lands. Accordingly, pedestrian traffic infrastructure to or from the municipal road system will not be provided or commented on.

The existing municipal road network does not have cycling infrastructure in the vicinity of the development lands. It is recognised that cycling in the County is common and will continue through existing shared use vehicle lanes only. Accordingly, cycling infrastructure to or from the municipal road system will not be provided, or commented on.

Having reviewed the available documents, the following is provided in as part of the development application process and is intended to provide comment on the impact of the proposed site redevelopment on the connected municipal road system, in particular, the intersection of Willow Lane and County Road 18.

## **EXISTING CONDITIONS**

### County Road 18

County Road 18 is a rural two-lane road travelling east to west between County Road 10 and County Road 12, following the south shore of East Lake.

Traffic activity is a mixture of local, tourist and agricultural traffic, typical to the Prince Edward County region. The legal speed limit is 80 km/h.

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### Willow Lane

Willow Lane is a municipal road.

It is a dead-end, roughly 80m long, narrow gravel laneway providing access to 2 residential properties, and the subject cottage property.

The development property has a municipal address of 41 Willow Lane. Formerly known as 'Four Winds Cottages' and 'Cribs on East Lake,' the property has operated as a short-term rental cottage property for several years.

The 90 meter portion of Willow Lane from County Road 18 to the development property entrance is a municipal road. Prince Edward County Operations Department notes in their review comments that this section of road is maintained as a Class 5 Road under the Minimum Maintenance Standards (O. Reg. 239/02) and under this classification winter maintenance may be limited, potentially affecting access during periods of snowfall or adverse weather



Figure 1: 41 Willow Lane, Cherry Valley, Prince Edward County

Having visited the site, the following observations are provided:

- The 'neck' of the Willow Lane approach to the County Road 18 intersection is paved, is in fair condition and varies in width from 8.0m at the asphalt joint (roughly 10m back from the edge of the County Road) to 13.5m at the back of gravel shoulder.
- There is no culvert under the Willow Lane approach as the lands adjacent to the road appear to drain away from the road via sheet flow to the west and no ditch is provided.
- There is no stop sign or stop bar present on Willow Lane.
- As it moves away from County Road 18, Willow Lane narrows with a width that varies from 4-5m with a surface treated surface that has deteriorated to a point where significant gravel sections are exposed.
- Passing under Willow Lane, immediately east of the Lot #18 entrance, is a 450mm CSP culvert draining towards the lake.

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The following StreetView images show Willow Lane from County Road 18, and the development property from Willow Lane. Figure 2: Looking from County Road 18 towards Willow Lane. (Google 2023)



Figure 3: Looking west (Google 2023) from Willow Lane towards:  
Residential Entrance, in front of the barn.  
Commercial Property Entrance, behind the barn.  
Residential Entrance, straight.

### PROPOSED DEVELOPMENT

The proposed development includes the following traffic generating land uses:

<u>Existing</u>	<u>Proposed</u>
10 Cabins (23 Bedrooms)	11 Cabins (16 Bedrooms)
Single Family Home (4 bedrooms)	Motel (12 Bedrooms)

Note: The house will be converted into a clubhouse with no accommodations or traffic generating uses; no food truck open to the public is proposed; no day passes are being issued.

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& Bouliane Architects (January 2023)

## TRIP GENERATION

It is difficult to estimate the peak hour traffic activity for a boutique style development such as this as traffic can vary significantly depending on the characteristics of the development. Traditionally, the Institute of Transportation Engineers (ITE) Trip Generation Manual can be used to assist with vehicle trip estimations. Where ITE is referenced below, the 11<sup>th</sup> edition has been used.

Proposed accommodations include both motel style and cabin style accommodations. The following land use trip generation options have been considered.

1. Motel Accommodations are described by Land Use #320 and described as *“a place of lodging that provides sleeping accommodations and provides little or no meeting space and few supporting facilities. Exterior corridors accessing rooms (immediately adjacent to a parking lot) is common for a motel.”*

Average Trip Generation:

- Weekday AM Peak Hour, 0.40 trips per room.
- Weekday PM Peak Hour, 0.41 trips per room.

2. Cabin Accommodations do not have a directly applicable land use in the ITE Trip Generation Manual. As a point of comparison, we will consider Land Use #416 – Campground / Recreational Vehicle Park described as *“a recreational site that accommodates campers, trailers, tents, and recreational vehicles on a transient basis. They are found in a variety of locations and provide a variety of facilities, often including restrooms with showers and recreational facilities, such as a swimming pool, convenience store, and laundromat.”*

Average Trip Generation:

- Weekday AM Peak Hour, 0.25 trips per site.
- Weekday PM Peak Hour, 0.41 trips per site.

Unlike the motel land use, this land use calculates generated trips on a per site or per cabin basis. Each site or cabin can have multiple bedrooms. It is felt more conservative to calculate the generated trips on a per room basis which will be higher than that provided by this land use.

3. Land Use #260 – Recreational Homes is described as: *“located within a resort that contains local services and complete recreational facilities. These dwellings are often second homes used by the owner periodically or rented on a seasonal basis.”*

Average Trip Generation:

- Weekday AM Peak Hour, 0.30 trips per home.
- Weekday PM Peak Hour, 0.32 trips per home.
- Friday Peak Hour, 1.18 trips per home.
- Saturday Peak Hour, 0.39 trips per home.
- Sunday Peak Hour, 0.54 trips per home.

Unlike the motel land use, this land use calculates generated trips on a per home basis.

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While the recreational home land use does not have the most applicable description to the proposed cabins, it does provide trip generations for non-weekday periods which is a valuable point of comparison for this site.

We will complete the trip generation 2 ways.

#### Trip Generation #1:

- Motel units are treated as motels.
- 12 motel rooms @ 0.41 trips per room = 5 trips
- Cabins are treated as Campground / Recreational Vehicle Parks. The number of trips generated are dependent on the number of "sites" or cabins within the development.
- 11 cabins @ 0.41 trips per cabin / site = 5 trips
- The ITE Trip Generation Manual does not provide weekend trip generation values for Motels or Campground / Recreational Vehicles Parks. To allow for the weekend increase in trips, we will double the number of trips generated for each style of development. These adjustments results in a total of 20 peak hour trips.

#### Trip Generation #2:

- Motel units are treated as motels.
- 12 motel rooms @ 0.41 trips per room = 5 trips
- Cabins are treated as recreational homes. Therefore, the number of trips generated are dependent on the number of cabins within the development.
- 11 cabins @ 1.18 trips per cabin = 13 trips
- The ITE Trip Generation Manual does not provide weekend trip generation values for Motels. To allow for the weekend increase in trips, we will double the number of trips generated by the Motel. This adjustment results in a total of 23 peak hour trips.

The trip distribution between entering and existing will vary through the day and by the land use assumed, however all cases are roughly split evenly in and out, therefore:

Total = 23 trips  
50% Entering = 12 trips  
50% Exiting = 12 trips

## BACKGROUND TRAFFIC VOLUMES

Background traffic on County Road 18 was assessed using traffic counts from Prince Edward County, and from a manual count conducted by Greer Galloway.

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Prince Edward County Traffic Counts

COUNTY ROADS	DESCRIPTION	TRAFFIC VOLUME (24h)	POSTED SPEED	Date of Counts
COUNTY ROAD 18	200 metres East of County Rd 12 (Before 11)	2043	60	August 1, 2012
		2966	60	July 31, 2017
COUNTY ROAD 18	100 metres East of Outlet Rd	1370	60	August 1, 2012
		1752	60	July 31, 2017
COUNTY ROAD 18	50 metres North of Kings Rd	1546	80	August 2, 2012
		1870	80	July 17, 2018
KINGS ROAD	850 metres North of Brummel Rd	199	70	July 15, 2014

County Road 18, 50 metres north of Kings Road, is the closest count location, stationed 200m southwest of Willow Lane.

Based on the County traffic records traffic growth is estimated to be 3.2%.

Projecting the growth pattern to the current year (2023) results in 2,191 vehicles over a 24-hour period. Following the Ontario Good Roads Association procedure of relating shorter duration counts to AADT (appended), approximately 30% (657 vehicles) of that daily volume can be assumed to occur between 2pm and 6pm, a common high traffic period of time. Further dividing this by 4 provides an afternoon peak hour estimate of 164 vehicles.

Greer Galloway Traffic Count – Friday, September 2, 2022

Greer Galloway conducted a brief 15-minute traffic count on County Road 18 at the beginning of the Labour Day long weekend on Friday, September 2, 2022, from 10:40am to 10:55am. The count resulted in 26 westbound vehicles and 30 eastbound vehicles. Multiplying by four results in **104** vehicles per hour travelling westbound, and **120** vehicles per hour travelling eastbound, totalling **224** vehicles. Since this result is specific to a particularly high traffic day and greater than the traffic projection based on County traffic records, the manual count will be used to model County Road 18 background traffic at Willow Lane.

Background Through Traffic	Total	Eastbound	Westbound
County Road 18	224	120	104

Note: No traffic was observed entering or leaving Willow Lane.

**INTERSECTION LEVEL OF SERVICE**

Un-signalized intersection capacity analysis techniques based on the Highway Capacity Manual (using HCS7 Un-signalized Intersections software) are utilized to determine the level of service (LOS) at the subject intersection.

The LOS of an intersection is determined by the average total delay for specific turning movements - in particular, the left turn movements to and from the minor road.

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Level of Service	Average Total Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	> 50

(\* Highway Capacity Manual / Special Report No. 209, 1985)

**Two Way Stop Controlled Intersection LOS, Average Total Delay**

Levels of service of A to C are acceptable:

LOS A – Little or no traffic delay occurs. Approaches appear open, turning movements are easily made and drivers have freedom of operation.

LOS B – Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation.

LOS C – Average traffic delays occur. Operations are generally stable, but drivers emerging from the minor street may experience difficulty in completing their movement.

Levels of service of D/E are typically acceptable where opportunities to improve are limited:

LOS D – Long traffic delays occur. Motorists emerging from the minor street experience significant restriction and frustration. Drivers on the major street will experience congestion and delay as drivers emerging from the minor street interfere with the major through movements.

LOS E – Very long traffic delays occur. Operations approach capacity.

Level of service of F is not acceptable:

LOS F – Saturation occurs, with vehicle demand exceeding the available capacity. Very long traffic delays occur.

Entrance Modelling: Willow Lane at County Road 18

No appreciable impacts to traffic resulting from the development are expected. However, a model was created using HCS7 traffic modelling software to illustrate how the intersection of Willow Lane and County Road 18 operates.

Background Through Traffic	Total	Eastbound	Westbound
County Road 18	224	120	104
New Trip Generation	Total	Entering	Exiting
Overnight Accommodations	23	12	12

A 50/50 turning distribution was applied to entering and exiting new-trip traffic.

The adjacent property entrances that share Willow Lane are not known to have significant traffic activity, so they are not likely to affect the results noted.



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The results indicate an intersection level of service of "A" or Good can be expected for the County Road 18 / Willow Lane intersection.

No volume / capacity based concerns should be anticipated at this intersection.

As the number of accommodations is not changing in a substantial way and the land use was and remains a low traffic generator, the existing operation of the intersection is not likely to significantly change.

## LINE OF SIGHT

We are not aware of any existing concerns or history of accidents associated with this subject intersection. With increased traffic accessing the development, sightlines should be confirmed. As the Willow Lane intersection already exists, the following is provided for reference.

### Ministry of Transportation Highway Access Management Guideline

The MTO Highway Access Management Guideline has been used as a line-of-sight standard in other instances in the County and is assumed to be the applicable standard in this case.

Stopping sight distance is from the point of view of a motorist travelling on the road. It is the distance that a motorist should be able to see to stop safely. This is the minimum standard that should be met.

#### *Stopping Sight Distance (Table 9)*

- Posted speed of 80 km/h.
- Design speed allowance of an additional 20 km/h.
- Roughly flat approach grade.
- Distance Required = 185m

The entering sight distance is from the point of view of a motorist waiting to enter or cross the highway. It is the distance a motorist should be able to see to safely enter the road and accelerate to the posted speed without being overtaken by an approaching vehicle.

#### *Entering Sight Distance for 2 Lane Highways (Table 7)*

- Posted speed of 80 km/h.
- Commercial access.
- Design speed allowance of an additional 20 km/h.
- Roughly flat approach grade.
- Distance Required = 320m

### Transportation Association of Canada Geometric Design Guide (TAC)

It is noted that similar line of sight requirements are stated in the TAC and are provided below for additional reference.

#### *Stopping Sight Distance (Table 2.5.2)*

- Posted speed of 80 km/h (design speed of 100 km/h).
- Level roadway.
- Design speed allowance of an additional 20 km/h.
- Distance Required = 185m (same as MTO)



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*Intersection Sight Distance: Right Turn (Table 9.9.6)*  
- Distance Required = 185m

*Intersection Sight Distance: Left Turn (Table 9.9.4)*  
- Distance Required = 210m

### Existing Sightline Verification

County Road 18 near Willow Lane has a slight “s” shape, with the Willow Lane intersection between the two curves. The road is flat in both directions.

MTO/ TAC 80 km/h stopping sight distances are met in both directions. Entering sight distances are only met by the TAC guidelines (the “s” curves prevent the MTO entering sight distance of 320m from being fully achieved in both directions).

StreetView images from the Willow Lane intersection and 185m stopping sight distances were used to check sightlines (see attached).

As the minimum stopping sight distance is satisfied, it is an existing intersection with no history of safety concerns, the available sight distance meets the minimum standard.

### **ENTRANCE GEOMETRY**

The Prince Edward County Rural Commercial and Industrial Entrance is appended and notes the following:

- Commercial Two Way Entrance
- Entrance Width = 7.2-12m
- Entrance Radius = 4.5-12m
- Minimum Culvert Cover = 300mm
- Maximum 6% Grade (10% Farm Entrance)
- Minimum Side Slope 2H:1V
- Pave to Property Line (\* It is assumed this applies only if the County Road is paved.)
- Minimum 150mm Granular A; 50mm HL4

The existing entrance, while varying somewhat from this design standard, generally exceeds the requirements and is adequate for the anticipated site traffic.

### **SITE EMERGENCY VEHICLE ACCESS**

Based on Ontario Building Code (OBC) requirements, an access must be provided for fire department (and emergency vehicle access) that shall:

- Have a clear width not less than 6m.
- Have a centreline radius not less than 12m.
- Have an overhead clearance not less than 5m.
- Have a change of gradient not more than 1 in 12.5 (8%).
- Be designed to support the expected loads imposed by firefighting equipment and be surfaced with concrete, asphalt or other material designed to permit accessibility under all climatic conditions.
- Have turnaround facilities for any dead-end portion of the access route more than 90m long.

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- Be connected to a public thoroughfare.

Also noted is Prince Edward County By-Law 3121-2012 Municipal Emergency Services to Private Roadways which is generally consistent with the OBC but does provide additional direction on the turnaround with a 27m diameter turn around.

These requirements will be considered as part of the site plan design drawings and are noted here for reference.

## CONCLUSIONS

Based on the above observations; applicable standards; a lack of previous safety concerns; and our understanding of the proposed development, we believe that the existing Willow Lane intersection will be acceptable for the proposed development.

It is recommended that the County sign Willow Lane as a stop-controlled approach to County Road 18 with corresponding stop bar pavement marking similar to other rural municipal intersections in the area.

Emergency vehicle access should be provided as part of the site development plan.

(Note: It is reasonable to anticipate some minor changes in the site plan as the approval process runs its course. Only changes that are felt to be significant and directly relevant to entrance traffic may warrant a revision to this document.)

If there are any questions or comments, please contact the undersigned.

Sincerely,

### THE GREER GALLOWAY GROUP INC. CONSULTING ENGINEERS



**Matthew McIntosh**, P. Eng.  
Senior Engineer / Project Manager

#### Attachments:

1. StreetView Photos (x4)
2. OGRA
3. Modelling Output
4. Prince Edward County Rural Commercial and Industrial Entrances Drawing PEC-ENT-100

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Photo 1: Looking west on County Road 18 from Willow Lane.



Photo 2: Looking east on County Road 18 from Willow Lane.



January 25<sup>th</sup>, 2024 (Revised July 8<sup>th</sup>, 2025)



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Photo 3: Looking west on County Road 18, ~185m east of Willow Lane.



Photo 4: Looking east on County Road 18, ~185m west of Willow Lane.



Minimum Maintenance Standards Regulation 239/02  
Highway Classification  
Average Annual Daily Traffic (AADT) Calculation

This document provides municipalities with a procedure using "*accepted traffic engineering methods*" for establishing AADT for their municipal highway system.

Using manual traffic counts this procedure provides accurate results that have been validated in other jurisdictions using automated traffic counting systems.

Manual traffic counts must be undertaken once per year. Optional times for performing manual traffic counts are in the spring or fall, in the months of May, June, October or November, thus avoiding summer vacation traffic and winter operations.

The manual traffic count must be performed mid week on Tuesday, Wednesday or Thursday to avoid weekend peaks.

The time of day for the traffic count is the afternoon, 2:00 p.m. to 6:00 p.m.

The result provides a traffic count that equals 30% of the AADT for the highway.

Simple mathematics will then give you the AADT that has been established using "*accepted traffic engineering methods*."

For "dead end" roads or cul-de-sacs, in lieu of a 4 hour traffic count, you can simply count the number of houses on the road and multiply by 6/rural, or 10/urban, for the trips each house generates.

#### Tips

- 1) In a residential neighborhood, it is possible to estimate the AADT for lower volume roads after the AADT is known for the collector roads.
- 2) The Consultants advise that their approach is to take traffic counts at intersections; therefore establishing counts on all four roads. They use inexperienced labour, usually seniors or students. These people are hired for the task, given training on the day of and before the traffic counting begins, transported to the site(s), picked-up and returned to the marshalling point.

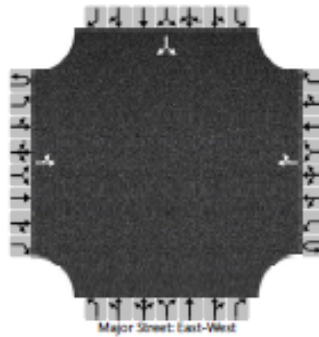
[www.ogra.org](http://www.ogra.org)

OGRA – Advocacy & Policy – Minimum Maintenance Standards for Municipal Highway  
AADT for Highway Classification  
AADT Calculation using accepted Traffic Engineering Methods  
October 24, 2002

# HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Matthew McIntosh	Intersection	Willow Ln/ County Rd 18
Agency/Co.	The Greer Galloway Group	Jurisdiction	Prince Edward County
Date Performed	2023/01/25	East/West Street	County Road 18
Analysis Year	2023	North/South Street	Willow Lane
Time Analyzed	Peak Hour	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	The Hideout		

## Lanes



## Vehicle Volumes and Adjustments

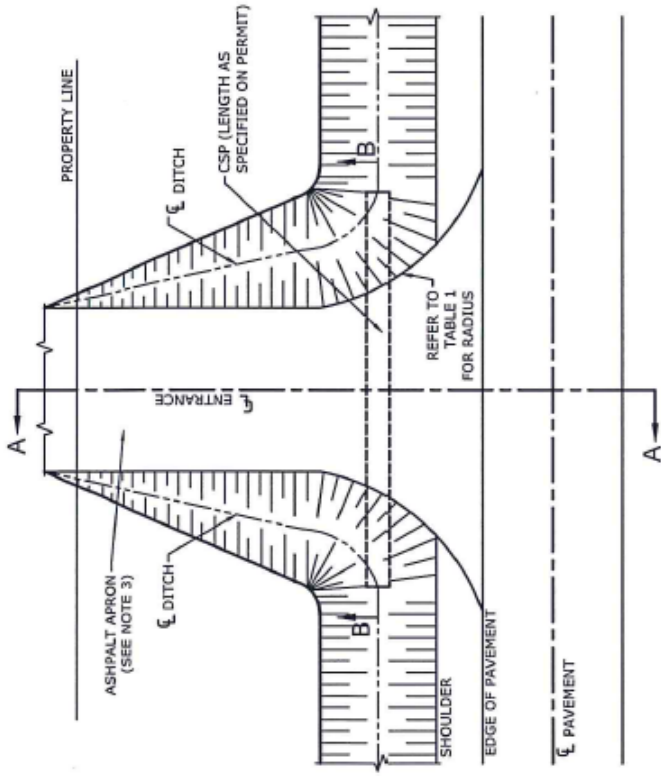
Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Number of Lanes	0	0	1	0	0	0	1	0	0	0	0		0	1	0	
Configuration		LT					TR								LR	
Volume (veh/h)		6	120				104	6						6		6
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

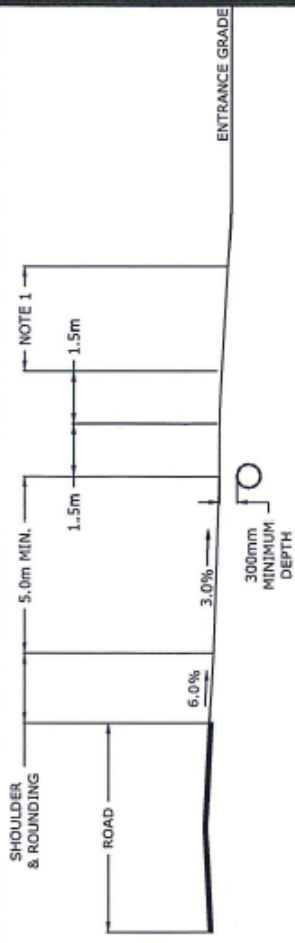
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

## Delay, Queue Length, and Level of Service

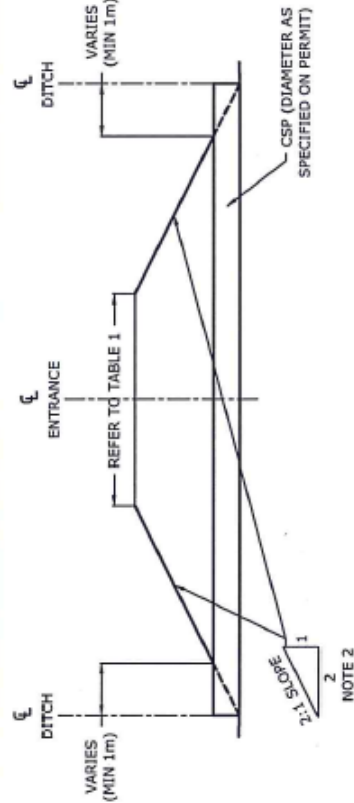
Flow Rate, v (veh/h)		7													13	
Capacity, c (veh/h)		1481													822	
v/c Ratio		0.00													0.02	
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.0	
Control Delay (s/veh)		7.4													9.4	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.4								9.4							
Approach LOS	A								A							



**PLAN VIEW**  
1:300



**SECTION A-A**  
1:200



**SECTION B-B**  
1:200

**NOTES:**

- 1) MAXIMUM GRADIENT: 6% FOR RESIDENTIAL ENTRANCES AND 10% FOR FARM AND FIELD ENTRANCES.
- 2) SLOPE SHALL BE 2H:1V OR FLATTER WHEN SPECIFIED.
- 3) ENTRANCE APRON FROM EDGE OF ROAD TO PROPERTY LINE SHALL BE PAVED. A MINIMUM BASE THICKNESS OF 150MM OF GRANULAR 'A' OR 5/8" GRANULAR MATERIAL, AND 50MM H/L4 ASPHALT TOP.
- 4) ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

**TABLE 1: ENTRANCE DIMENSIONS**

LAND USE	WIDTH				RADIUS	
	ONE-WAY MIN	ONE-WAY MAX	TWO-WAY MIN	TWO-WAY MAX	MIN	MAX
LIGHT INDUSTRIAL, AND COMMERCIAL	4.5	7.5	7.2	12.0	4.5	12.0
HEAVY INDUSTRIAL	5.0	9.0	9.0	15.0	9.0	15.0



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RURAL COMMERCIAL AND  
INDUSTRIAL ENTRANCES  
  
PRINCE EDWARD COUNTY  
STANDARD DRAWING

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