

July 13, 2023

MP File: CCO-24-0765

Kevin and Jennifer Cooney
Cooney Construction and Landscape Ltd.
3193 Old Perth Road,
Almonte, ON
K0A 1A0

Re: 9665 Highway 511 Lanark County – Quarry Access

Dear Mr./Mrs. Cooney,

This letter is written in response to the request for traffic opinion supporting the proposed pit / quarry to be located at 9665 Highway 511 Located in Lanark County. This investigation will outline the traffic related impacts that the proposed pit and quarry operation will have on the abutting roadway system to determine if auxiliary turn lanes are warranted at the access. The site is located approximately 43 km northwest of the Town of Perth on Highway 511. See [Figure 1](#), below, for more information. Site plan can be found in Appendix A.

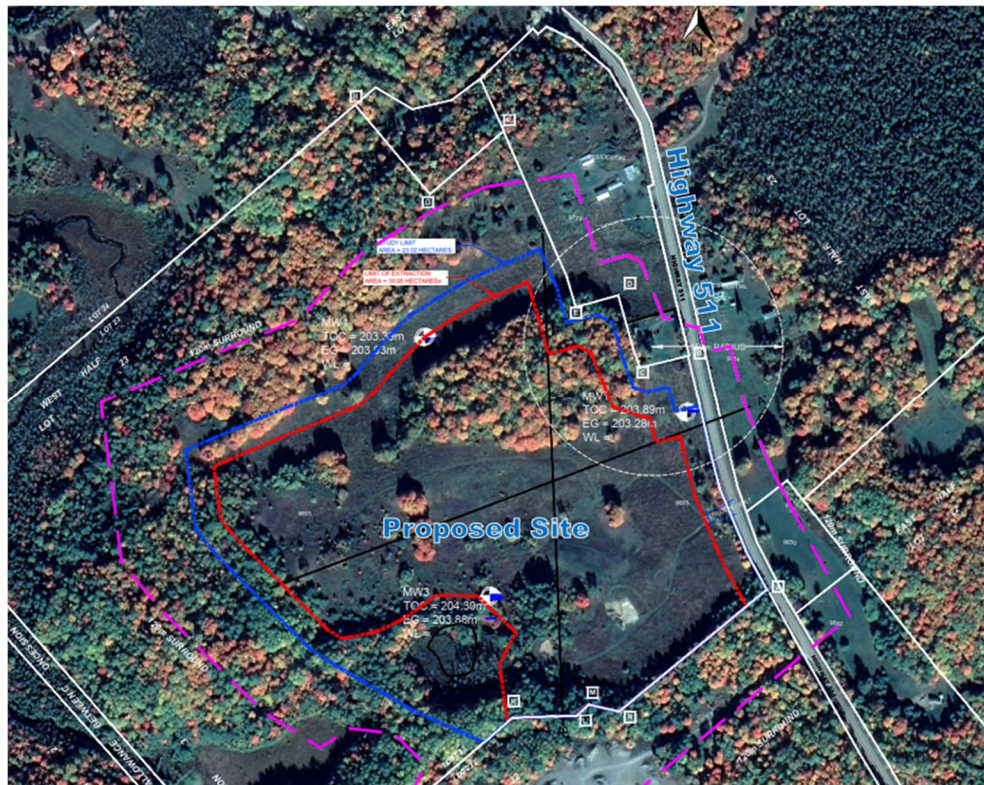


Figure 1 Proposed Site Location

MP obtained existing seasonal ATR volume with directional peak hour split data for September 27, 2022 – October 4, 2022 as well as for July 28 to July 31st, 2015. Provided traffic data can be found in Appendix B. MP applied a Growth Rate of 1% compound annually to the counts based on the Town of Perth TMP, to remain conservative in the site access calculations. As such, the highest volumes noted during a typical weekday were noted on the Friday with an AM peak of 62 vehicles travelling south on Highway 511 and 26 vehicles travelling north. During the pm peak hour, it was noted that there were 79 and 56 vehicles travelling southbound and northbound on Highway 511, respectively.

PROPOSED SITE GENERATED TRAFFIC

Traffic Generation

As described above, the proposed development will consist of a new quarry with an extraction area of 16.95 hectares. Based on information available at the time of preparing this letter, the subject site is seeking approval for a maximum annual production of 250,000 tonnes of material per year. It is acknowledged that the actual extraction tonnage will be lower; however, the maximum extraction of 250,000 tonnes per year was used in the calculation of trip generation to keep the estimate conservative. The nature of quarry / pit operation is generally variable, and is dictated by local market demand. If the operations are found to be satisfactory assuming maximum extraction amounts in the analysis, any extraction below the maximum is expected to be satisfactory as well.

To estimate the number of trips generated by the site during regular operation, it is assumed that 100% of trucks exiting the pit will carry 20 tonnes of material. Based on past experience of other similar jobs, it has been assumed that the site will be in operation for approximately 220 working days per year. This translates to a total of approximately 57 outbound trips (114 total trips) each day. To account for additional employee trips and peaks in production from time to time, an additional 20% has been added to the average daily trips in order to maintain a conservative approach in estimating the site generated traffic. As such, the pit can be expected to generate approximately a maximum of 68 outbound trips (136 total trips) daily.

The majority of the production will occur during the daytime operating hours, resulting in a steady stream of traffic throughout the day with the largest increase in trips occurring during the time of shift change. To remain conservative in the estimate of the trips generated, it has been assumed that this shift change will occur during the adjacent road network weekday a.m. and p.m. peak hours.

It is assumed that all generated trips would be contained within a 12-hour workday, the approximate peak-hour traffic volumes (including employee trips) has been assumed to be 8.3% of the total daily site generated traffic. This 8.3% is based on a steady flow of truck traffic throughout the 12 hours. However, as previously discussed it is to be expected that the quarry can operate more than the allotted 12 hours a day which would result in less hourly traffic than assumed. To remain conservative and to ensure the larger percentage of site generated traffic is captured MP utilized the rate of 8.3 % of total trips generated during both the a.m. and p.m. peak hours as this is the average rate for a 12 hour work day (100%/12). The site is therefore expected to generate approximately 12 total trips (6 inbound, 6 outbound) during both the weekday a.m. and p.m. peak hours. Consideration should be given to the fact that this figure is based on a number of conservative

assumptions, and in reality, the production level of the proposed development is anticipated to generate lower volumes of truck traffic on a daily basis. Trip calculations can be found in Appendix C.

The quarry is anticipated to be either the origin or destination of all trips generated.. Due to the operational nature of a pit / quarry, it was assumed that the majority of generated traffic would be classified as heavy vehicles. Quarry staff are expected to access the site via passenger auto. As such, it was assumed that 80% of all site generated traffic would be heavy vehicles and 20% would be passenger cars.

Traffic Distribution

For the purpose of this investigation, the origin-destination distribution was based on the existing split, northbound and southbound on highway 511, shown in the 2022 fall ATR counts provided by Lanark County (sent through the client). The critical volume was noted to occur during the pm peak hour; 79 and 56 vehicles per hour travelling southbound and northbound on Highway 511, respectively. As such, 41% of the generated trips were assumed to travel northbound and 59% southbound. Figure 2 illustrates the Peak Hour traffic distribution at the proposed access onto Highway 511, and Figure 3 illustrates the total peak hour traffic.

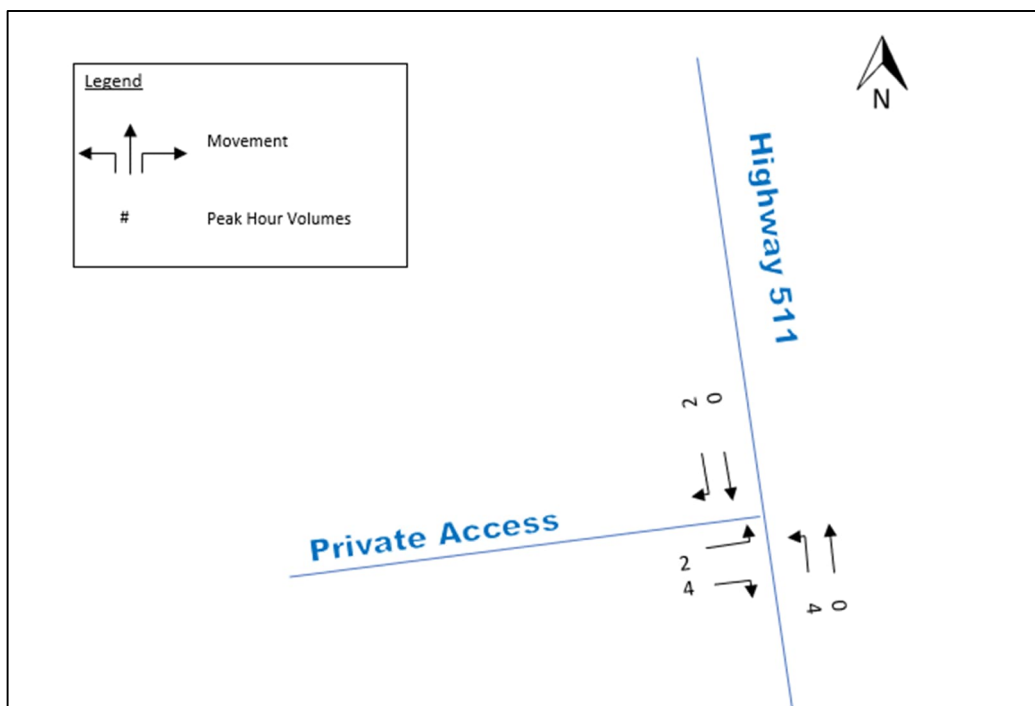


Figure 2 Site Generated Traffic

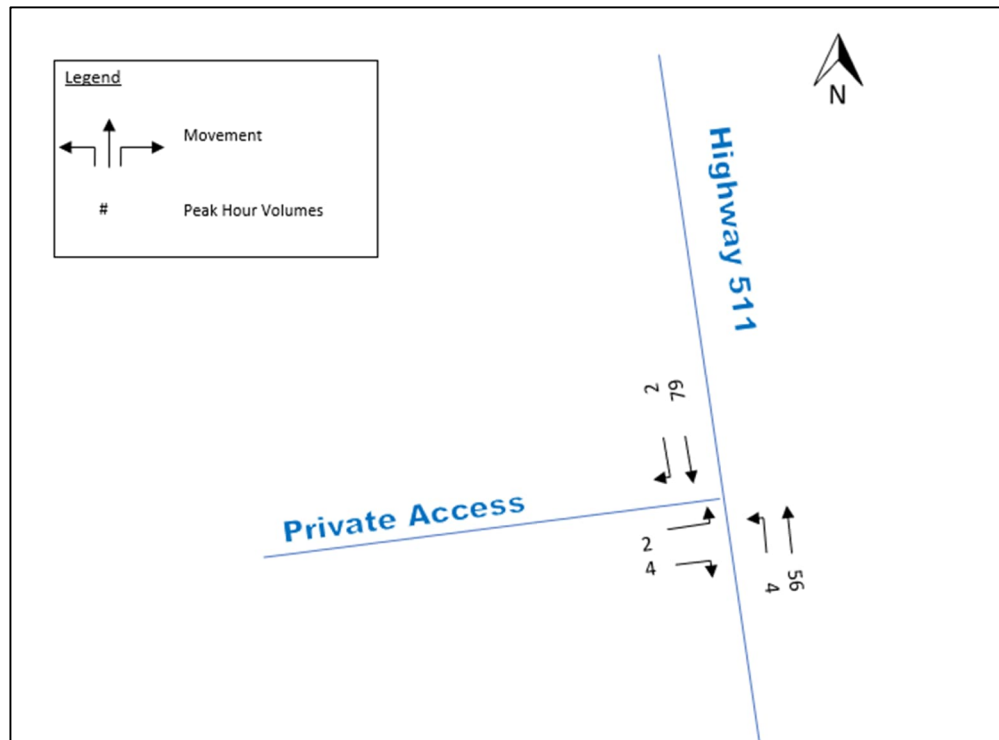


Figure 3 Total Peak Hour Traffic

Turning Lane Warrant Review

MP reviewed the potential need for left turning lanes into the proposed development and found that a left turning lane is not warranted at the location due to the low volumes. The warrant for a left turning lane is attached in Appendix D.

MP reviewed the suitability for a right turn lane into the proposed development from the southbound direction of Highway 511. Based on TAC Chapter 9, section 9.14.2 a right turn taper and auxiliary lane are warranted when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard. Based on the anticipated site generated volumes, it is anticipated that 2 vehicles during the peak hour will turn right from Highway 511 into the site access and 4 vehicles will turn right onto Highway 511 from the site access. As the anticipated volume is low, it is anticipated that the right turning movements into and out of the proposed site will not cause undue hazard to the through traffic on Highway 511. As such, a right turn lane is not warranted.

Sightlines

MP completed a field review on June 8th 2023 and desktop review of the available sightlines for the proposed access of the quarry onto Highway 511. At the time of the field visit performed by MP, heavy smoke was noted in the area due to the wildfires in the area of Calabogie and Quebec. As such sight distances and photos were unable to be taken. TAC Geometric Design Guide for Canadian Roads, June 2017, was used to determine the required sight distance. Section 9.9.2, equation 9.91 in combination with; Departure Sight Triangles (Stop

Controlled) Case B1 – Left turns from the minor road (Table 9.9.3) and Case B2 Right turns from the minor road (Table 9.9.5) was used in order to determine the sightlines required for the heavy vehicles.

Table 5.1 shows the minimum required Length of Sight Triangle Leg. Highway 511 has a posted speed of 60 km/h, as such a design speed of 80 km/h was used in the sightline analysis.

Table 5.1 Length of Sight Triangle Leg – Case B, Stop Control

Design Speed (km/h)	Case B1 (Left Turn)		Case B2 (Right-Turn)	
	Calculated Length of Leg (m)	Measured Sightline Length (m)	Calculated Length of Leg (m)	Measured Sightline Length (m)
110	255	322	234	517

A desktop review of the sight distances were done due to the smoke present during the field review performed by MP hindering the visibility in the area. There is approximately 517 m of clear sightlines are available to the north to the horizontal curve that obstructs the view. To the south of the proposed access there is approximately 322 m of clear sightline to the apex of the vertical curve that obstructs the view. As such, based on the field and desktop review performed by MP it is deemed that the sightlines are sufficient to allow for both a right and left turn maneuver from the site access and into the sight access. Figures 4 and 5 illustrate the sight lines based on the desktop review.



Figure 4 Northbound Sightline



Figure 5 Southbound Sightline

CLOSURE

MP reviewed the anticipated peak hour trip generation of the proposed quarry based on the anticipated yearly tonnage to be removed. As such, the proposed Quarry is anticipated to generate 12 total trips during the Peak hour of the adjacent roadway. Due to the low volume of vehicles on Highway 511 and the low generated site traffic it can be assessed that the proposed quarry will have little to no traffic impacts on the existing road network.

MP reviewed both the sight distances as well as a turning lane warrant for the quarry access onto Highway 511 and found that the sightlines were acceptable based on TAC standards and a turning lane was not warranted.

Prepared by,



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APPENDIX A – SITE PLAN

BOUNDARY	UTM ZONE	UTM NORTHING	UTM EASTING
A	18 T	5007915.00 m N	373903.00 m E
B	18 T	5008186.00 m N	373822.00 m E
C	18 T	5008173.00 m N	373763.00 m E
D	18 T	5008259.00 m N	373745.00 m E
E	18 T	5008247.00 m N	373694.00 m E
F	18 T	5008449.00 m N	373616.00 m E
G	18 T	5008379.00 m N	373521.00 m E
H	18 T	5008480.00 m N	373438.00 m E
I	18 T	5008051.00 m N	372917.00 m E
J	18 T	5007548.00 m N	373338.00 m E
K	18 T	5007772.00 m N	373612.00 m E
L	18 T	5007773.00 m N	373685.00 m E
M	18 T	5007787.00 m N	373700.00 m E
N	18 T	5007778.00 m N	373734.00 m E
ENTRANCE	18 T	5008006.00 m N	373865.00 m E

UTM BOUNDARY INFORMATION BASED ON
GOOGLE EARTH IMAGERY OVERLAY

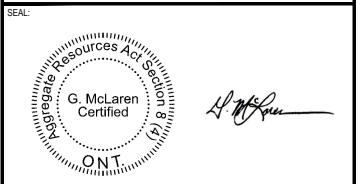


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177-763 NARROWS LOCK ROAD
PORTLAND, ON K0G1V0
613-272-6795
GMCCLAREN@MILESTONEAGGREGATE.COM

LEGEND	
	PROPERTY BOUNDARY
	PARCEL LINE
	EXTRACTION BOUNDARY
	120m SURROUND LINE
	PARCEL NO
	LICENSED BOUNDARY
	MONITORING WELL



APPLICANTS SIGNATURE: _____
PROJECT:

COONEY PIT
9665 HIGHWAY 511

PT. WEST HALF LOTS 22 AND 23, CONCESSION 3, GEOGRAPHIC TWP. OF DARLING,
MUNICIPALITY OF LANARK HIGHLANDS, COUNTY OF LANARK;



ISSUED FOR - REVISION:

IS.	RV.	DATE	DESCRIPTION
0		2023/03/22	ISSUED FOR LICENSING

PROJECT NO:	2161621	DATE:	---
ORIGINAL SCALE:	AS SHOWN	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.	
DESIGNED BY:	BA		
DRAWN BY:	CGN		
CHECKED BY:	RAP		

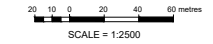
DISCIPLINE: **ENVIRONMENT**

TITLE: **SITE PLAN**

DRAWING NUMBER: **FIGURE 01**

SHEET # **1 OF 5**

ISSUE: **LICENSE**
DATE OF: 2022/12/09
RV.#: **0**



SCALE = 1:2500

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APPENDIX B – TRAFFIC DATA

Traffic Summary

Station # - HG46Z0J5, 511402 Radley Lane to White Lake Road

Date - 0:00 Tuesday, July 28, 2015 to 0:00 Friday, July 31, 2015 (3 days of data)

Volume						
	Total	Weekday	Weekend	ADT	AWDT	AWET
Combined	1978	1978	0	659	659	0
North	973	973	0	324	324	0
South	1005	1005	0	335	335	0
Days	3	3	-	3	3	-

Speed				
	All Days	Weekdays	Weekend	
Mean speed	89.5	89.5	-	km/h
Median speed	89.3	89.3	-	km/h
85% speed	100.1	100.1	-	km/h

PSL = 60 km/h

Class				
Class (Scheme F3)	All Days	%	Weekdays	Weekend
1 - CYCLE	118	6.0%	118	0
2 - PC	1190	60.2%	1190	0
3 - 2A-4T	497	25.1%	497	0
4 - BUS	12	0.6%	12	0
5 - 2A-6T	84	4.2%	84	0
6 - 3A-SU	31	1.6%	31	0
7 - 4A-SU	3	0.2%	3	0
8 - <5A DBL	0	0.0%	0	0
9 - 5A DBL	12	0.6%	12	0
10 - >6A DBL	25	1.3%	25	0
11 - <6A MULTI	0	0.0%	0	0
12 - 6A MULTI	1	0.1%	1	0
13 - >6A MULTI	5	0.3%	5	0

Average Daily Volume							
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
North	0	312	321	340	0	0	0
South	0	318	375	312	0	0	0
Combined	0	630	696	652	0	0	0
AM Pk North	-	22	33	31	-	-	-
PM Pk North	-	38	38	33	-	-	-
AM Pk South	-	23	29	33	-	-	-
PM Pk South	-	36	41	31	-	-	-
Days	-	1	1	1	-	-	-

Traffic Summary

Station # - FP771PAC, Cr 511 511402 Radley Lane to White Lake Road

Date - September 28, 2022 to October 4, 2022 (6 days of data)

Volume						
	Total	Weekday	Weekend	ADT	AWDT	AWET
Combined	4945	2904	2041	824	726	1021
North	2807	1712	1095	468	428	548
South	2138	1192	946	356	298	473
Days	6	4	2	6	4	2

Speed				
	All Days	Weekdays	Weekend	
Mean speed	96.3	96.5	96.0	km/h
Median speed	95.8	96.1	95.8	km/h
85% speed	106.6	106.9	106.6	km/h

PSL = 60 km/h

Class				
Class (Scheme F3)	All Days	%	Weekdays	Weekend
1 - CYCLE	301	6.1%	136	165
2 - PC	2928	59.2%	1662	1266
3 - 2A-4T	1329	26.9%	814	515
4 - BUS	52	1.1%	45	7
5 - 2A-6T	190	3.8%	128	62
6 - 3A-SU	60	1.2%	56	4
7 - 4A-SU	20	0.4%	5	15
8 - <5A DBL	2	0.0%	2	0
9 - 5A DBL	27	0.5%	22	5
10 - >6A DBL	33	0.7%	31	2
11 - <6A MULTI	0	0.0%	0	0
12 - 6A MULTI	0	0.0%	0	0
13 - >6A MULTI	3	0.1%	3	0

Average Daily Volume							
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
North	344	0	299	412	657	630	465
South	277	0	253	275	387	432	514
Combined	621	0	552	687	1044	1062	979
AM Pk North	33	-	28	36	61	74	58
PM Pk North	32	-	35	48	78	102	65
AM Pk South	15	-	18	18	26	26	31
PM Pk South	32	-	28	33	55	55	77
Days	1	-	1	1	1	1	1

APPENDIX C – TRIP GENERATION

TRIP GENERATION CALCULATIONS

"x" = Number of 20 tonnes outbound trips

250,000 tonnes of material per year to be removed, number of Trips per year:

$$20x = 250,000$$

$$x = 12,500 \text{ trips per year}$$

As there are assumed 220 working days per year, number of trips per day:

$$x = 12,500 / 220$$

$$x = 56.8 \text{ outbound trips per day.}$$

Additional 20 % to the number of trips to represent employees:

$$x = 56.8 * 1.20$$

$$x = 68.1 \text{ outbound trips per day.}$$

Assumer a 12 hour work day with 8.3 % of traffic during the am and pm peak hours respectively:

$$x = 68.1 * 0.083$$

$$x = 5.65 \text{ outbound trips per peak hour (am and pm)}$$

Assume same number of inbound trips as outbound trips results in 12 total trips, 6 inbound and 6 outbound.

APPENDIX D – LEFT-TURN LANE WARRANTS

LEFT TURN LANE WARRANTS

GENERAL INFORMATION

Project Title	9665 Highway 511 - Quarry Access
Project #	CCO-24-0765
Agency or Company	McIntosh Perry
Intersection	Proposed Quarry Access and Highway 511
LT Movement Approach	Northbound Highway 511
Design Speed	80 km/hr
Scenario and Year	2023 Existing Traffic Conditions

Peak Hour

$V_L =$	4
$V_A =$	60
$V_O =$	81
LT % =	7%

AM Peak Hour - Exhibit 9A-4

