11.0 TRAFFIC & TRANSPORTATION

11.1 Introduction

11.1.1 General

PMCE Ltd were commissioned by Golder Associates Ireland to undertake an assessment of the traffic impacts associated with an existing quarry at Windmillhill Road, Rathcoole, on the N/M7, Naas Road, Co. Dublin.

The lands that are the subject of this EIAR extend to 46.14 ha., which reflects the existing extractable area declared under the S.261 quarry registration in 2005. The EIA project boundary is bounded by the N7 to the north, Windmillhill Road to the south, and agricultural lands to the east and west.

The existing quarry is located within the centre of the EIAR lands and covers an area of approximately 28.8 ha, with an average working base of 173 mAOD. The existing quarry is roughly rectangular in shape with an east – west axis parallel to the N7 and Windmillhill Road. The existing quarry has a centrally located administration and processing plant area over approximately 5 ha.

Further development at the quarry proposes a lateral northward extension of the current quarry void over approximately 4.1 ha, and a deepening of the western and eastern side of the laterally extended void to a final working base of 150 mAOD. The Proposed Development relates to quarrying only and is over an area of approximately 26.87 ha. The material extracted will be processed at the existing central processing area, with the current access being retained.

It is anticipated that extraction of the remaining reserve will occur over 10 to 15 years, depending on market conditions, with a further 5 years for restoration that will remediate the quarry void to agricultural/amenity use.

11.1.2 Information Reviewed

In preparing this Chapter reference has been made to the following documents: -

- “Traffic and Transport Assessment Guidelines” (May 2014) published by Transport Infrastructure Ireland (TII).
- Unit 5.3 (Travel Demand Projections) of the “Project Appraisal Guidelines” (2019) published by Transport Infrastructure Ireland.
- Traffic Count Data, collected by Traffinomics from 13 to 15 October 2020;
- Unit 16.1 (Expansion Factors for Short Period Traffic Counts) of the “Project Appraisal Guidelines” (2016) published by TII; and
- “Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions)” – DN-GEO-03060 (TII Publications), published by TII in June 2017.

11.1.3 Objective

The objective of this Chapter is to assess the traffic impacts associated with the Proposed Development in terms of its integration with existing traffic on the surrounding road network. This assessment determines the impact on operational performance of trips generated by the Proposed Development on the local road network.

11.1.4 Methodology

The methodology adopted for this assessment involved, in brief: -

- A site visit on 12 November 2020; the weather was dry, and the ground surface was wet.

- Trip Generation and Trip Assignment – This is used to derive trip rates for a 12-hour period and to provide information as to which direction vehicles will travel to/from the Proposed Development.
- Link Capacity Assessment - To obtain an AADT value for the main road linking the Proposed Development to the surrounding network.
- Existing Traffic Assessment – The traffic count data was used to assess the suitability of the existing junction layout for the quarry access.
- Future Year Assessments – The estimated future year volumes on the study area network, as a result of the increase in background traffic and any site related traffic, was used to assess the future suitability of the junction for 2021 (assumed year of opening) and at three future assessment years, +5 (2026), +15 (2036) and +30 (2051).

11.1.5 Location plan

Figure 11.1 shows the location of the access to the quarry which is the subject of the application on the N7 National Road, Co. Dublin, while **Figure 11.2** shows an aerial image of the Application Site.

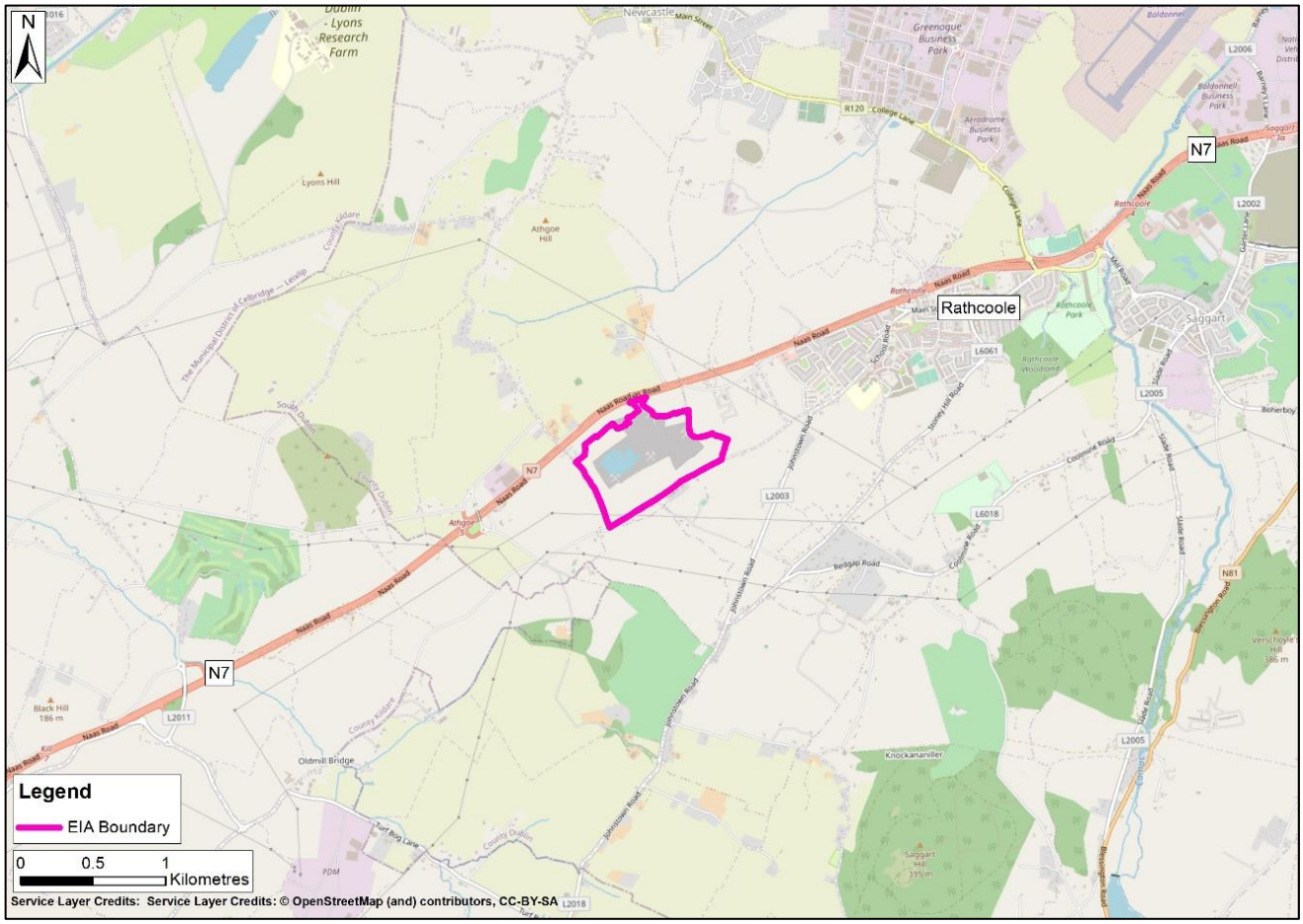


Figure 11.1: Location Plan.

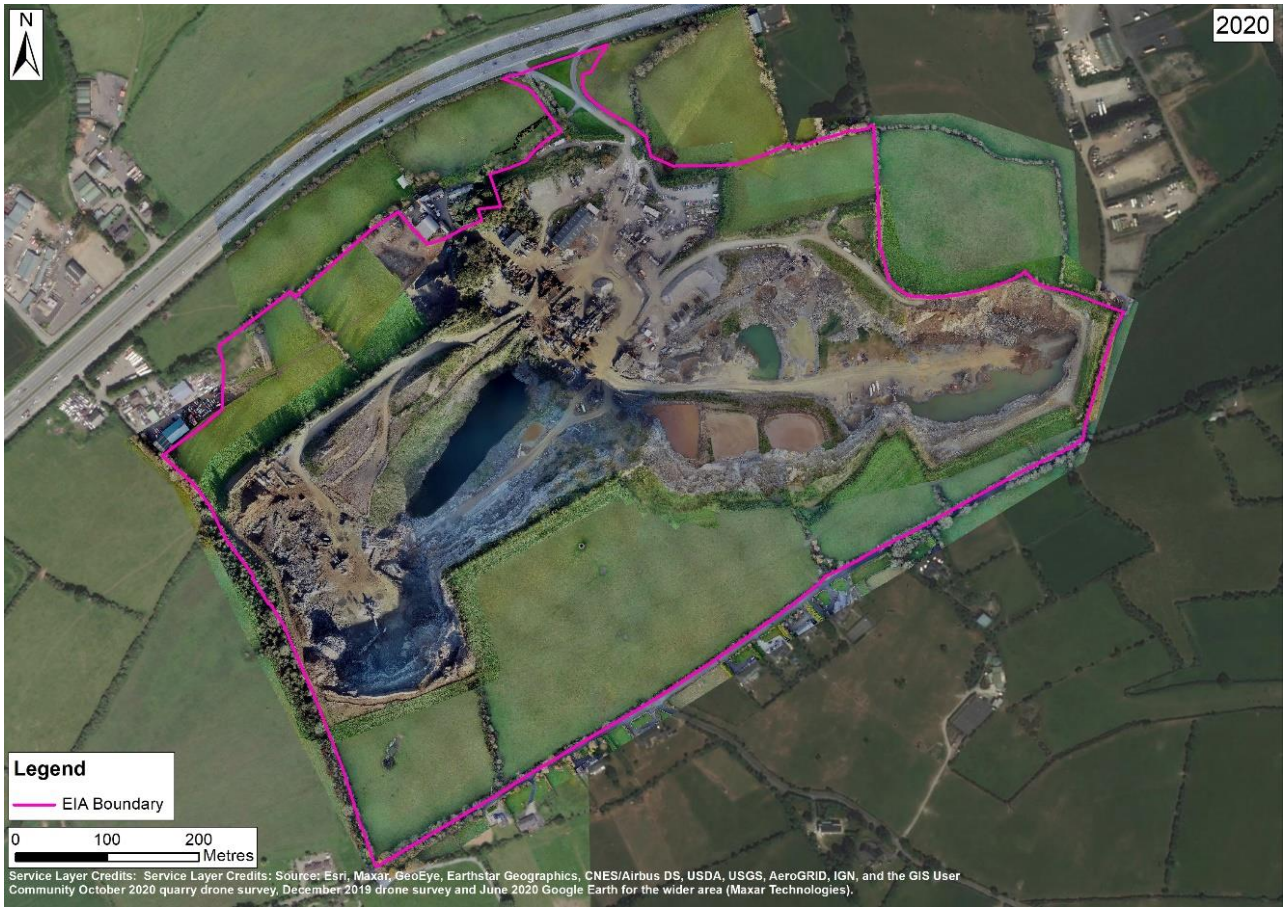


Figure 11.2: Aerial Photograph of Project Boundary.

11.2 Existing Conditions

11.2.1 The Site

The quarry is located on the westbound carriageway of the N7 National Road, Co. Dublin, upstream of Junction 5 (Castlewarden) and is accessed directly from the N7 westbound carriageway via a left-in/left-out junction which, in the vicinity of the Site, runs from east to west. Operations at the quarry include the extraction of gravel, processing of extracted material, delivery of materials and servicing of plant/machinery.

Figure 11.3: Existing Site Access.

The main quarrying activities take place approximately 200 m from the access junction with the N7 National Road and are accessed via an internal road (Figure 11.3).

11.2.2 Existing Road Network

11.2.2.1 N7

The N7 National Road extends in an east to west direction, from the interchange with the M50 motorway, at M50 Junction 9, in the east to the M7/N18/M20 interchange in the west. The N7 National Road transitions to the M7 motorway to the west of Junction 9. In the vicinity of the Site access, the N7 is a dual carriageway with three traffic lanes in each direction (Figure 11.4). Each lane is approximately 3.75 m in width with 2.5 m wide hard shoulders and no footways.

Figure 11.4: Looking West Along N7 from its junction with the Quarry Access.

11.2.2.2 Quarry Access

The quarry is accessed via a left-in/left out junction directly from the N7 westbound carriageway. The Site access, and exit, is gated outside operational hours. A deceleration lane, measuring approximately 16 m, from the N7 carriageway is provided on approach to the access and the exit includes a merge taper, measuring approximately 30 m long, for vehicles entering the N7.

11.2.3 Traffic Volumes

11.2.3.1 Quarry Access

12-Hour classified Junction Turning Counts (JTCs) were carried out on three consecutive days from Tuesday 13 to Thursday 15 October 2020 at the quarry access. The count was carried out between 5:00 am and 5:00 pm, with this time period encompassing the main operating hours of the quarry. The period also includes the peak hours on the adjacent National Road. Surveyed vehicles were broken down into five categories as follows:

1) Cars.

2) LGV's (Light Goods Vehicles).

3) OGV1 (Two and three axle goods vehicles).

4) OGV2 (Four and five axle goods vehicles); and

5) Buses.

The detailed results of the traffic survey are summarised in Appendix 11.1.

The morning and evening peak hours for each day have been established as follows;

- **Tuesday:** 05:45 – 06:45 (AM Peak) and 16:15 – 17:15 (PM Peak), (Table 11.1);
- **Wednesday:** 06:30 – 07:30 (AM Peak) and 16:30 – 17:30 (PM Peak), (Table 11.2); and
- **Thursday:** 05:45 – 06:45 (AM Peak) and 16:15 – 17:15 (PM Peak), (Table 11.3).

This indicates that the AM Peak falls between 05:45 and 7:30 and the PM Peak falls between 16:15 and 17:30.

Table 11.1: Quarry Traffic (Tuesday).

Hour Commencing	LVs In	HGVs In	LVs out	HGVs Out
05:00	22	9	0	6
06:00	31	20	3	44
07:00	16	14	5	27
08:00	8	26	1	30
09:00	6	28	6	23
10:00	7	25	8	33
11:00	5	20	2	22
12:00	6	19	8	15
13:00	4	30	6	27
14:00	5	27	4	24
15:00	7	27	9	26
16:00	6	27	23	13
17:00	1	18	33	2
18:00	1	2	15	0
Period Total	**125**	**292**	**123**	**292**
	417		**415**	

Table 11.2: Quarry Traffic (Wednesday).

Hour Commencing	LVs In	HGVs In	LVs Out	HGVs Out
05:00	25	11	0	1
06:00	27	17	2	29
07:00	19	13	7	35
08:00	5	26	3	34
09:00	7	31	3	27
10:00	7	20	6	26
11:00	3	30	4	22
12:00	5	20	4	20
13:00	1	19	5	25
14:00	4	27	2	22
15:00	5	29	3	30
16:00	4	24	27	14

Hour Commencing	LVs In	HGVs In	LVs Out	HGVs Out
17:00	2	15	35	1
18:00	2	5	14	2
Period Total	**116**	**287**	**115**	**288**
	403		**403**	

Table 11.3: Quarry Traffic (Thursday)

Hour Commencing	LVs In	HGVs In	LVs Out	HGVs Out
05:00	28	11	0	4
06:00	27	13	2	40
07:00	12	24	3	27
08:00	6	19	3	32
09:00	11	29	5	25
10:00	5	24	2	19
11:00	3	25	7	27
12:00	6	26	5	24
13:00	5	21	10	26
14:00	4	25	6	29
15:00	9	26	8	23
16:00	8	30	24	8
17:00	0	14	37	3
18:00	2	5	10	1
Period Total	**126**	**292**	**122**	**288**
	418		**410**	

11.2.3.2 N7 National Road

At the time of preparing this report Government enforced travel restrictions were in place nationally due to the COVID-19 pandemic. As a direct result of these travel restrictions, travel patterns on the N7 are likely to have significantly reduced, and therefore may not be representative of typical travel patterns on the N7. For this reason, it was not considered practical to undertake traffic counts on the N7, as the results would not be representative of the average volume of traffic travelling on the N7.

In lieu of traffic count data on the N7 westbound carriageway, historical (pre-pandemic) AADT and peak hour figures, recorded and reported by the TII traffic counter TMU N07 015.0 W, were used to estimate the average daily traffic patterns (Table 11.4).

Traffic counters provide information on the volume of traffic by hour of day and vehicle class, i.e., motorcycle, car, goods vehicles distinguished by number of axles etc. with up to twelve vehicle classes being identified. Vehicles are detected by passing over loops embedded in the road surface. It is possible from the data collected to establish the vehicle profiles and the various vehicle classes. Given the close proximity of the TII traffic

counter to the Proposed Development Site, and the absence of any major junctions or alternative routes between the traffic counter and the Site, the traffic data is considered suitable for the purpose of this traffic assessment.

Table 11.4: N7 Traffic Flow Data

N7 National Road	
AADT	43,937
Peak hour (Vehicles per hour)	5,019

11.2.4 Trip Generation

The proposed continuation, and expansion, of operations at the quarry will be carried out during the existing opening hours with no alterations to working hours or extraction rates. The development traffic is therefore expected to remain in line with current traffic volumes at the access on the N7, as recorded over a three-day period in October 2020. Based on the results of these traffic counts, which recorded traffic entering and exiting the quarry, the highest daily trips recorded were 417 inbound, and 415 outbound, (occurring on Tuesday 13 October), and these have therefore been used in this traffic assessment.

11.2.5 Trip Assignment

As the quarry access is via a left-in/left-out junction, when accessing the quarry, 100% of the development traffic will approach from the east on the N7 and 100% will depart to the west.

11.2.6 Cumulative Effects

The N7 bounds the quarry lands to the north and is the main arterial road in the area. A search of planned adjacent developments which may have an impact on future traffic flows in the vicinity of the Proposed Development was undertaken and it is noted that there are no extractive or sizable industries in the surrounds of the Site which may contribute to cumulative traffic from adjacent developments having an impact on the operation of the N7 carriageway. The large volume of traffic on the N7, as recorded by the TII traffic counters, relative to traffic generated by adjacent developments results in this dominating the baseline traffic data.

11.3 Road Impacts

11.3.1 Assessment Years

The “Traffic and Transport Assessment Guidelines” published by Transport Infrastructure Ireland recommend the assessment of traffic in the Opening Year, for the Opening Year +5 years, the Opening Year +15 years and the Opening Year +30 years.

The assessment years for this traffic impact assessment are therefore 2021, the Opening Year, 2026, 2036 and 2051 for the Future Assessment Years.

11.3.2 Traffic Growth

The "Project Appraisal Guidelines - Unit 5" published by TII has been used to determine future year traffic flows on the network from the data recorded by the nearby TII traffic counter. Table 11.5 contains a summary of the traffic growth factors published in the "Project Appraisal Guidelines". For this assessment, a central growth scenario has been adopted (a ‘central’ growth scenario was assumed given the Site’s location and scale).

Table 11.5: Future Year Traffic Growth Figures for the Dublin Metropolitan Area (as per Table 6.1 in the Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections).

Year	Low Growth		Central Growth		High Growth	
	LV	HV	LV	HV	LV	HV
2016-2030	1.0146	1.0280	1.0162	1.0295	1.0191	1.0328
2030-2040	1.0034	1.0116	1.0051	1.0136	1.0087	1.0172
2040-2050	1.0028	1.0144	1.0044	1.0162	1.0093	1.0256

11.3.3 N7 National Road Impact Assessment

In the vicinity of the quarry, the N7 has three 3.75 m lanes and a 2.5 m hardshoulder in each direction, with no pedestrian or cycle facilities. The forecast two-way AADTs for each of the assessment years is indicated in Table 11.6 with the AADT for the final future forecast year calculated as 66,715. This is less than the maximum AADT for a road of this type at Level of Service D.

Table 11.6: Current, and Future, AADT on the N7 in the vicinity of the Project Site.

Year	2020 (Base Year)	2021 (Opening Year)	2026 (Opening Year +5)	2036 (Opening Year +15)	2051 (Opening Year +30)
AADT	43,937	50,556	55,288	61,016	66,715

Table 11.7: Combined AADT for each Assessment Year (N7).

AADT Forecast for future years	Assessment Years				
	2020	2021	2026	2036	2051
Background Traffic	43,937	50,556	55,288	61,016	66,715
Quarry Traffic	-	832	832	832	832
Combined Traffic (Background + Quarry)	43,937	51,388	56,120	61,848	67,547
Quarry Traffic as % of Combined Traffic	-	1.62%	1.48%	1.35%	1.23%

The traffic generated by the quarry represents between 1.23% and 1.62% of total traffic on the N7 National Road (Table 11.7). It is consequently concluded that the N7 will have sufficient link capacity for each of the future assessment years with, and without, the Proposed Development.

11.3.4 Assessment of Junction Layout

For the purposes of the traffic flow capacity assessment at the quarry access the existing road layout at the left-in/left-out junction was assessed in accordance with the permitted traffic volumes for this type of junction layout, as detailed in Chapter 7 of TII Publications document DN-GEO-03060, “Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions).” Vehicles entering the Site are required to diverge from the N7 mainline upstream of the junction and then merge with free-flowing high speed traffic when exiting the Site.

At merges, two traffic streams travelling in approximately the same direction join together and combine into a single traffic stream. The capacity of the merge is determined by the capacity of the two upstream carriageways, the capacity of the downstream carriageway, the traffic intensity and the relative speed of each traffic stream.

At diverges, a single traffic stream separates into two traffic streams. Similarly, the capacity of the diverge is governed by the capacity of the upstream and downstream carriageways or lanes.

Peak hour traffic flows for the merge, diverge and the mainline are shown in Table 11.8 and Table 11.9 below. The maximum peak hour for each of these elements during the 3-day traffic count was used in this assessment. These values were used to identify the most appropriate junction design layout required for the quarry access with reference to Figure 11.5 (Figure 7.3 of TII Publication document DN-GEO-030-060).

Figure 7.3 of TII Publication document DN-GEO-030-060 provides a number of junction layouts to cater for different volumes of traffic with the following merge layouts provided:

- Layout A (Figure 7.4.1 in DN-GEO-030-060) provides a basic parallel merge;
- Layout B (Figure 7.4.2 in DN-GEO-030-060);
- Layout C (Figure 7.4.3 in DN-GEO-030-060) and Layout D (Figure 7.4.4 in DN-GEO-030-060) are required where flows justify a lane gain arrangement; and
- Layout E (Figure 7.4.5 in DN-GEO-030-060) may be considered as a Departure from Standard where it is not possible to use Layout C.

Table 11.8: Mainline Eastbound (N7) Peak Hour Traffic.

N7 National Road (Mainline)	Peak Hour Traffic (VPH)				
	2020	2021	2026	2036	2051
LVs	4,341	4,411	4,780	5,198	5,539
HGVs	678	698	807	968	1203
Totals	5,019	5,109	5,588	6,167	6,743

Table 11.9: Connector road (Quarry Access Road) Peak Hour Traffic.

Quarry Access Road	Peak Hour Traffic (VPH)
Merge Stream	51
Diverge Stream	55

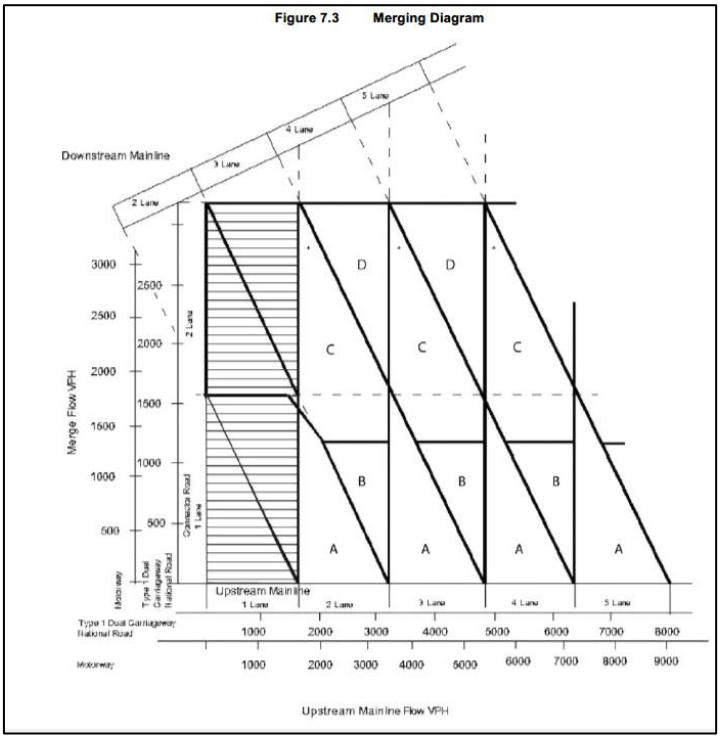


Figure 11.5: Diagram in DN-GEO-030-060 used to determine the required Merge Layout.

Similarly, peak hour flows for the diverge and the mainline downstream of the back of the diverge nosing were used to select a suitable diverge layout, as shown in Figure 11.6 (Figure 7.5 of DN-GEO-03060).

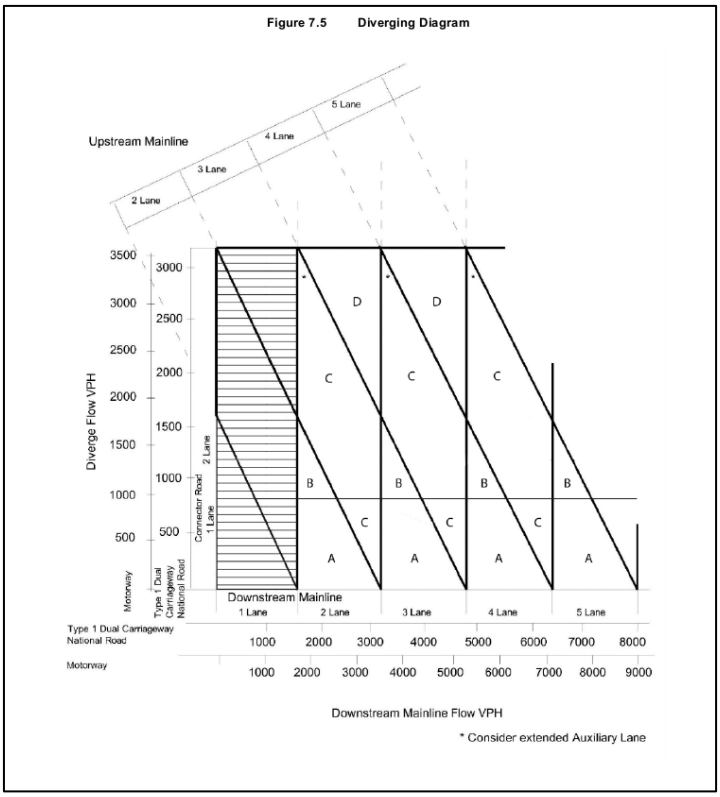


Figure 11.6: Diagram in DN-GEO-030-060 used to determine the required Diverge Layout

The assessment concludes that for both the merge, and diverge, a junction layout of Type A, as indicated in Figure 11.7 and Figure 11.8, for a merge and diverge respectively is the most appropriate, and will operate sufficiently for all assessment years, 2020, 2021, 2026, 2036 and 2051.

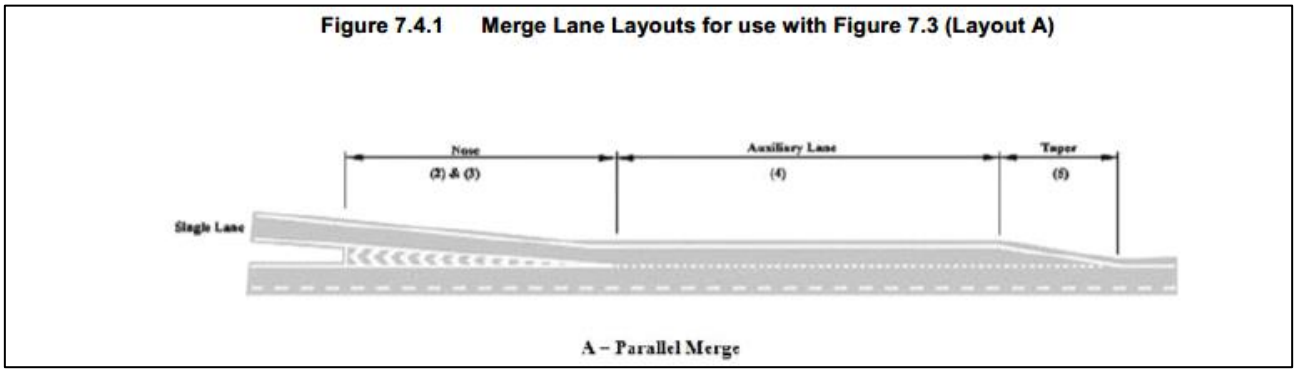


Figure 11.7: Merge Lane Layout Type A.

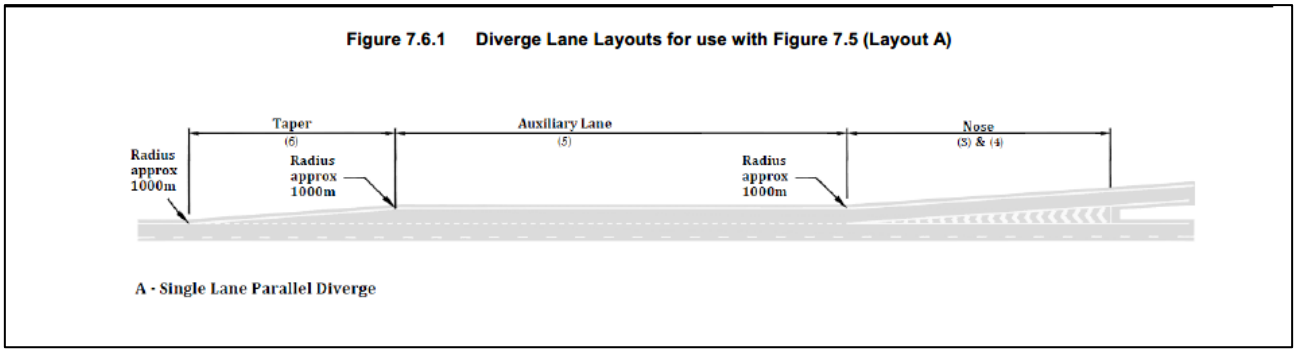


Figure 11.8: Diverge Lane Layout Type A.

11.3.5 Junction Layout Requirements

Following the determination of the required junction layout, the existing junction layout was assessed to determine if it meets the geometric requirements of a Type A junction, in accordance with TII Publications document DN-GEO-03060, “Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions)”.

Table 11.10 below lists the geometric requirements for a Type A junction layout, in relation to the merge and diverge lanes, and compares the existing junction parameters to those required.

Table 11.10: Comparison of the Requirements for a Type A Layout to the Existing Merge and Diverge Layout at the Site Access.

Merge Layout				
Parameters	Nose ratio	Nose length (m)	Auxiliary Lane length (m)	Length of Auxiliary lane taper (m)
Required Layout	1:25	75	160	55
Existing Layout	-	-	110	30
Diverge Layout				
Parameters	Nose ratio	Nose length (m)	Auxiliary Lane length (m)	Length of Auxiliary lane Taper (m)
Required Layout	1:15	70	150	55
Existing Layout	1:3	10	42	16

This assessment concludes that the current junction layout should be amended to bring the access junction in line with current TII standards. This can be achieved by amending the current road markings at the quarry access junction. Specifically, the following amendments are required to ensure the junction layout complies with the current TII Publication documents.

1) Nose length of 75 m with a ratio of 1:25 to be provided for the merge, and nose length of 70 m with a ratio of 1:15 to be provided for the diverge;

2) Auxiliary lane to be extended to 160 m for merge, and 150 m for diverge; and

3) Auxiliary Lane Taper to be extended to 75 m for merge, and 70 m for diverge.

However, due to the presence of an existing access to the east of the existing diverge lane, the full auxiliary lane and auxiliary lane taper is not feasible without conflicting with this access. It is therefore considered sufficient to retain the existing arrangement of the diverge at the quarry access. The merge should, however, be amended in line with the requirements listed above. Further design would be required prior to implementing the necessary roadmarkings at this location.

11.4 Road Safety

11.4.1 Sightlines

Sight distances, in accordance with Section 7.13 of the TII Publications document DN-GEO-03060, “Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions),” have been assessed at the Site access junction. The available sight distances when merging with, and diverging from, the N7 mainline are described below.

11.4.1.1 Merge

The Stopping Sight Distance (SSD) on the merge taper must be in accordance with the speed of that road rather than the mainline speed limit. This SSD will apply until the driver reaches the back of the merge nosing at which point the SSD must be in accordance with that required for the mainline speed limit. There must be no obstruction to sight lines between the merge taper and the mainline, and vice versa, for the length of the merge nosing.

There is a minimum approach angle at which drivers can merge on direct sight. Below this minimum approach angle drivers will be moving nearly parallel to the mainline carriageway and will have to merge using their wing mirrors.

The design speed of the merge taper is 85 kph which requires SSD of 160m while the speed of the N7 mainline is 100 kph and requires SSD of 215 m. During the site visit the sightlines at the merge were assessed and are considered sufficient for drivers merging with the N7 mainline when exiting the Site.

11.4.1.2 Diverge

The SSD required for the mainline design speed shall be maintained until the driver reaches the tip of the diverge nosing. The SSD can then be reduced to the Desirable Minimum for one design speed step below the mainline design speed. When the driver reaches the back of the diverge nosing, the SSD can then be reduced to the Desirable Minimum for the design speed of the diverge lane.

The design speed of the diverge lane is 85 kph which requires SSD of 160 m while the design speed of the N7 mainline is 100 kph and requires SSD of 215 m. During the site visit, the sightlines at the diverge were assessed and are considered sufficient for drivers diverging from the N7 mainline when entering the Site.

11.4.2 Public Transport

There are no public transport provisions in the vicinity of the Site. The lack of public transport facilities is not connected with the operation of the Site.

11.4.3 Parking

Existing parking provision is sufficient for the number of staff working on site and any miscellaneous trips that may occur.

11.4.4 Pedestrians & Cyclists

There are no footpaths or cyclist provisions in the vicinity of the Site. The absence of these facilities at this location however is not connected with the operation of the Site.

11.5 Conclusions

The following conclusions have been identified:

1) Following Link and Junction Capacity analysis, it was determined that the Quarry Access onto the N7 shall not generate capacity issues in 2021, the Opening Year, or future assessment years 2026, 2036 and 2051.

2) Following geometric assessment of the current left-in/left-out junction arrangement on the N7, the following amendments shall be necessary on the westbound on-slip:

   - Nose length of 75 m with a ratio of 1:25 to be provided;
   - Auxiliary lane to be extended to 160 m; and
   - Auxiliary Lane Taper to be extended to 75 m.

Due to the presence of an existing access to the east of the existing diverge lane, it will not be feasible to amend the current westbound off-slip.

3) Sightlines were assessed on the westbound on- and off-slip arrangements and were found to be compliant with TII sightline requirements.

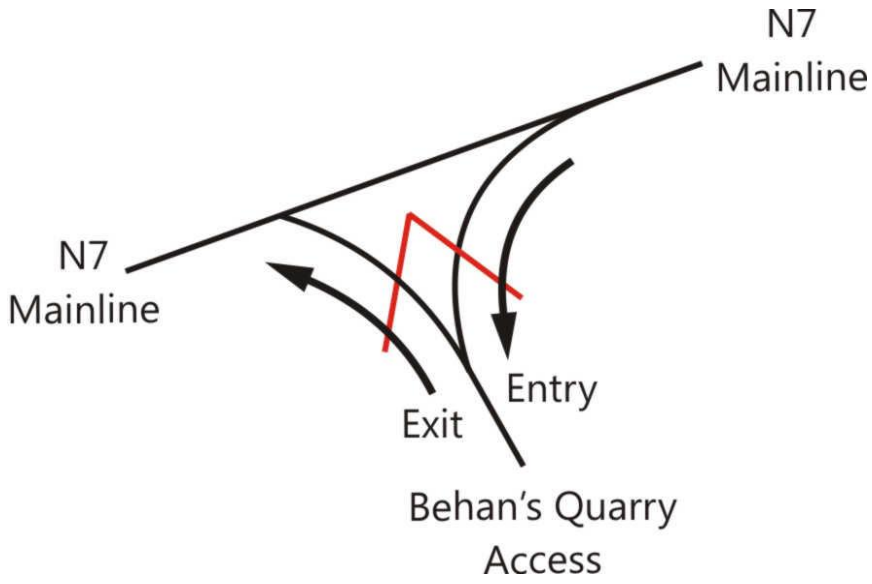
The assessment therefore indicates that the Proposed Development will have a negligible impact on traffic flows on the existing road network due to the low volumes of traffic to be generated from it and, with the above amendments being implemented at the merge at the quarry access junction, the junction will accommodate existing and future traffic volumes for all future forecast years.

APPENDIX 11.1

Traffic Survey Data

Site Location

Movement Numbering



	Job number: TRA/20/112	Job Date: 13th to 15th October 2020	Drawing No: TRA/20/112-01	traffinomics.ie
	Client: PMCE	Job Day: Tuesday to Thursday	Author: SPW	

TRAFFINOMICS LIMITED

BEHAN'S QUARRY TRAFFIC COUNTS **OCTOBER 2020**
MANUAL CLASSIFIED ENTRY/EXIT COUNTS **TRA/20/112**

SITE: 01 DATE: 13th October 2020

LOCATION: Behan's Quarry Access DAY: Tuesday

	ENTRY							EXIT						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
05:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0
05:15	1	0	0	1	0	2	3	0	0	0	0	0	0	0
05:30	5	0	0	4	0	9	14	0	0	0	1	0	1	2
05:45	15	0	0	4	0	19	24	0	0	0	5	0	5	12
H/TOT	22	0	0	9	0	31	43	0	0	0	6	0	6	14
06:00	5	2	0	6	0	13	21	0	0	0	7	0	7	16
06:15	7	1	0	4	0	12	17	1	1	0	18	0	20	43
06:30	5	2	0	4	0	11	16	1	0	0	11	0	12	26
06:45	9	0	0	6	0	15	23	0	0	0	8	0	8	18
H/TOT	26	5	0	20	0	51	77	2	1	0	44	0	47	104
07:00	4	1	0	1	0	6	7	2	1	0	8	0	11	21
07:15	1	2	0	3	0	6	10	0	0	0	7	0	7	16
07:30	2	1	1	8	0	12	23	0	1	0	5	0	6	13
07:45	5	0	0	1	0	6	7	1	0	0	7	0	8	17
H/TOT	12	4	1	13	0	30	47	3	2	0	27	0	32	67
08:00	1	1	0	4	0	6	11	0	0	3	8	0	11	23
08:15	1	0	1	6	0	8	16	1	0	0	6	0	7	15
08:30	2	0	1	8	0	11	22	0	0	1	5	0	6	13
08:45	1	2	0	6	0	9	17	0	0	1	6	0	7	15
H/TOT	5	3	2	24	0	34	66	1	0	5	25	0	31	66
09:00	1	1	1	5	0	8	15	1	2	0	8	0	11	21
09:15	1	2	0	6	0	9	17	0	1	0	4	0	5	10
09:30	0	0	1	6	0	7	15	1	0	1	6	0	8	16
09:45	1	0	0	9	0	10	22	1	0	2	2	0	5	9
H/TOT	3	3	2	26	0	34	69	3	3	3	20	0	29	57
10:00	1	1	0	4	0	6	11	1	0	0	9	0	10	22
10:15	3	0	1	9	0	13	25	1	0	0	6	0	7	15
10:30	2	0	0	5	0	7	14	2	1	1	8	0	12	23
10:45	0	0	0	6	0	6	14	1	2	1	8	0	12	23
H/TOT	6	1	1	24	0	32	64	5	3	2	31	0	41	82
11:00	1	1	0	7	0	9	18	1	0	0	7	0	8	17
11:15	1	0	0	5	0	6	13	0	0	0	5	0	5	12
11:30	1	0	1	4	0	6	12	0	0	0	5	0	5	12
11:45	1	0	0	3	0	4	8	0	1	1	4	0	6	12
H/TOT	4	1	1	19	0	25	50	1	1	1	21	0	24	52

TRAFFINOMICS LIMITED

BEHAN'S QUARRY TRAFFIC COUNTS **OCTOBER 2020**

MANUAL CLASSIFIED ENTRY/EXIT COUNTS **TRA/20/112**

SITE: 01 DATE: 13th October 2020

LOCATION: Behan's Quarry Access DAY: Tuesday

	ENTRY							EXIT						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
12:00	1	2	0	6	0	9	17	3	0	0	4	0	7	12
12:15	0	1	0	4	0	5	10	1	1	0	4	0	6	11
12:30	0	2	0	2	0	4	7	0	1	0	4	0	5	10
12:45	0	0	0	7	0	7	16	0	2	0	3	0	5	9
H/TOT	1	5	0	19	0	25	50	4	4	0	15	0	23	43
13:00	1	0	0	12	0	13	29	0	0	0	4	0	4	9
13:15	2	0	0	5	0	7	14	3	0	0	7	0	10	19
13:30	1	0	1	7	0	9	19	1	0	0	7	0	8	17
13:45	0	0	1	4	0	5	11	2	0	2	7	0	11	21
H/TOT	4	0	2	28	0	34	71	6	0	2	25	0	33	67
14:00	3	0	1	4	0	8	14	1	0	1	6	0	8	16
14:15	0	1	0	5	0	6	13	1	0	0	3	0	4	8
14:30	0	0	1	11	0	12	27	1	0	0	5	0	6	13
14:45	1	0	1	4	0	6	12	0	1	0	9	0	10	22
H/TOT	4	1	3	24	0	32	65	3	1	1	23	0	28	58
15:00	2	0	0	5	0	7	14	2	0	1	8	0	11	22
15:15	0	2	0	7	0	9	18	2	0	0	6	0	8	16
15:30	0	0	0	6	0	6	14	2	0	0	7	0	9	18
15:45	1	2	1	8	0	12	23	1	2	0	4	0	7	12
H/TOT	3	4	1	26	0	34	68	7	2	1	25	0	35	68
16:00	2	0	0	5	0	7	14	5	1	1	6	0	13	21
16:15	1	0	0	6	0	7	15	2	0	0	4	0	6	11
16:30	1	0	0	9	0	10	22	2	1	0	1	0	4	5
16:45	2	0	1	6	0	9	17	11	1	0	1	0	13	14
H/TOT	6	0	1	26	0	33	67	20	3	1	12	0	36	52
17:00	0	1	0	6	0	7	15	16	1	1	1	0	19	21
17:15	0	0	1	4	0	5	11	5	1	0	0	0	6	6
17:30	0	0	1	5	0	6	13	4	1	0	0	0	5	5
17:45	0	0	0	1	0	1	2	4	1	0	0	0	5	5
H/TOT	0	1	2	16	0	19	41	29	4	1	1	0	35	37
18:00	0	0	0	0	0	0	0	5	1	0	0	0	6	6
18:15	0	0	0	1	0	1	2	4	0	0	0	0	4	4
18:30	0	1	1	0	0	2	3	1	3	0	0	0	4	4
18:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	0	1	1	1	0	3	5	11	4	0	0	0	15	15
P/TOT	96	29	17	275	0	417	783	95	28	17	275	0	415	781

TRAFFINOMICS LIMITED

BEHAN'S QUARRY TRAFFIC COUNTS **OCTOBER 2020**
MANUAL CLASSIFIED ENTRY/EXIT COUNTS **TRA/20/112**

SITE: 01 DATE: 14th October 2020

LOCATION: Behan's Quarry Access DAY: Wednesday

	ENTRY							EXIT						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15	3	0	0	0	0	3	3	0	0	0	0	0	0	0
05:30	1	1	0	3	0	5	9	0	0	0	1	0	1	2
05:45	20	0	0	8	0	28	38	0	0	0	0	0	0	0
H/TOT	24	1	0	11	0	36	50	0	0	0	1	0	1	2
06:00	4	1	0	3	0	8	12	0	0	0	3	0	3	7
06:15	3	0	0	2	0	5	8	0	0	0	12	0	12	28
06:30	7	0	1	3	0	11	15	0	0	1	9	0	10	22
06:45	11	1	0	8	0	20	30	1	1	0	4	0	6	11
H/TOT	25	2	1	16	0	44	65	1	1	1	28	0	31	68
07:00	3	0	0	2	0	5	8	1	0	0	9	0	10	22
07:15	6	1	0	6	0	13	21	2	2	0	7	0	11	20
07:30	3	0	1	2	0	6	9	1	0	2	8	0	11	22
07:45	5	1	0	2	0	8	11	1	0	1	8	0	10	21
H/TOT	17	2	1	12	0	32	48	5	2	3	32	0	42	85
08:00	1	1	0	6	0	8	16	2	0	0	9	0	11	23
08:15	0	1	0	7	0	8	17	0	0	0	8	0	8	18
08:30	1	0	1	7	0	9	19	1	0	1	4	0	6	12
08:45	1	0	0	5	0	6	13	0	0	1	11	0	12	27
H/TOT	3	2	1	25	0	31	64	3	0	2	32	0	37	80
09:00	2	0	0	6	0	8	16	1	0	0	7	0	8	17
09:15	0	1	1	8	0	10	21	1	1	2	5	0	9	17
09:30	2	1	0	9	0	12	24	0	0	1	4	0	5	11
09:45	0	1	1	6	0	8	16	0	0	1	7	0	8	18
H/TOT	4	3	2	29	0	38	77	2	1	4	23	0	30	62
10:00	0	0	0	6	0	6	14	2	1	0	11	0	14	28
10:15	0	0	1	3	0	4	8	1	0	0	6	0	7	15
10:30	5	0	0	3	0	8	12	1	0	1	5	0	7	14
10:45	2	0	0	7	0	9	18	1	0	0	3	0	4	8
H/TOT	7	0	1	19	0	27	52	5	1	1	25	0	32	65
11:00	0	0	0	6	0	6	14	0	0	0	6	0	6	14
11:15	0	0	1	5	0	6	13	1	1	1	6	0	9	17
11:30	0	0	1	8	0	9	20	0	0	1	3	0	4	8
11:45	3	0	2	7	0	12	22	2	0	0	5	0	7	14
H/TOT	3	0	4	26	0	33	69	3	1	2	20	0	26	53

TRAFFINOMICS LIMITED

BEHAN'S QUARRY TRAFFIC COUNTS **OCTOBER 2020**

MANUAL CLASSIFIED ENTRY/EXIT COUNTS **TRA/20/112**

SITE: 01 DATE: 14th October 2020

LOCATION: Behan's Quarry Access DAY: Wednesday

	ENTRY							EXIT						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
12:00	0	0	1	2	0	3	6	1	0	1	7	0	9	19
12:15	0	0	1	3	0	4	8	2	0	0	7	0	9	18
12:30	1	0	0	2	0	3	6	0	0	1	0	0	1	2
12:45	1	3	0	11	0	15	29	0	1	0	4	0	5	10
H/TOT	2	3	2	18	0	25	49	3	1	2	18	0	24	48
13:00	0	0	0	4	0	4	9	2	0	0	4	0	6	11
13:15	0	0	1	3	0	4	8	1	0	0	6	0	7	15
13:30	0	0	1	4	0	5	11	1	0	0	8	0	9	19
13:45	1	0	0	6	0	7	15	1	0	1	6	0	8	16
H/TOT	1	0	2	17	0	20	43	5	0	1	24	0	30	62
14:00	1	0	0	4	0	5	10	0	1	1	4	0	6	12
14:15	2	0	1	3	0	6	10	1	0	1	6	0	8	16
14:30	0	1	2	10	0	13	27	0	0	1	5	0	6	13
14:45	0	0	0	7	0	7	16	0	0	1	3	0	4	8
H/TOT	3	1	3	24	0	31	64	1	1	4	18	0	24	49
15:00	2	0	0	9	0	11	23	1	0	0	9	0	10	22
15:15	1	0	0	4	0	5	10	1	0	1	4	0	6	12
15:30	0	1	1	7	0	9	19	0	0	0	9	0	9	21
15:45	0	1	0	8	0	9	19	1	0	1	6	0	8	16
H/TOT	3	2	1	28	0	34	71	3	0	2	28	0	33	70
16:00	0	1	1	4	0	6	12	3	1	1	7	0	12	22
16:15	0	0	1	3	0	4	8	2	0	0	2	0	4	7
16:30	0	1	0	6	0	7	15	4	1	0	2	0	7	10
16:45	1	1	0	9	0	11	23	12	4	0	2	0	18	21
H/TOT	1	3	2	22	0	28	58	21	6	1	13	0	41	58
17:00	0	1	0	6	0	7	15	8	1	0	1	0	10	11
17:15	0	1	1	3	0	5	9	7	2	0	0	0	9	9
17:30	0	0	1	2	0	3	6	8	0	0	0	0	8	8
17:45	0	0	0	2	0	2	5	8	1	0	0	0	9	9
H/TOT	0	2	2	13	0	17	35	31	4	0	1	0	36	37
18:00	1	0	0	3	0	4	8	4	1	0	1	0	6	7
18:15	1	0	0	1	0	2	3	3	0	1	0	0	4	5
18:30	0	0	0	0	0	0	0	3	1	0	0	0	4	4
18:45	0	0	0	1	0	1	2	1	1	0	0	0	2	2
H/TOT	2	0	0	5	0	7	14	11	3	1	1	0	16	18
P/TOT	95	21	22	265	0	403	759	94	21	24	264	0	403	758

TRAFFINOMICS LIMITED

BEHAN'S QUARRY TRAFFIC COUNTS **OCTOBER 2020**
MANUAL CLASSIFIED ENTRY/EXIT COUNTS **TRA/20/112**

SITE: 01 DATE: 15th October 2020

LOCATION: Behan's Quarry Access DAY: Thursday

	ENTRY							EXIT						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
05:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0
05:15	3	0	0	0	0	3	3	0	0	0	0	0	0	0
05:30	5	1	1	3	0	10	14	0	0	0	2	0	2	5
05:45	16	2	1	6	0	25	33	0	0	0	2	0	2	5
H/TOT	25	3	2	9	0	39	52	0	0	0	4	0	4	9
06:00	7	1	0	4	0	12	17	0	0	0	8	0	8	18
06:15	2	1	0	2	0	5	8	0	0	0	14	0	14	32
06:30	4	1	0	1	0	6	7	1	1	3	10	0	15	30
06:45	5	6	1	5	0	17	24	0	0	0	5	0	5	12
H/TOT	18	9	1	12	0	40	56	1	1	3	37	0	42	92
07:00	3	2	0	6	0	11	19	1	0	0	13	0	14	31
07:15	1	2	0	6	0	9	17	0	1	0	4	0	5	10
07:30	1	1	0	6	0	8	16	0	1	0	4	0	5	10
07:45	2	0	1	5	0	8	15	0	0	1	5	0	6	13
H/TOT	7	5	1	23	0	36	66	1	2	1	26	0	30	64
08:00	1	2	1	9	0	13	25	0	1	1	11	0	13	28
08:15	0	0	0	2	0	2	5	1	0	1	6	0	8	16
08:30	1	1	0	6	0	8	16	0	1	0	6	0	7	15
08:45	1	0	0	1	0	2	3	0	0	0	7	0	7	16
H/TOT	3	3	1	18	0	25	49	1	2	2	30	0	35	75
09:00	2	0	0	13	0	15	32	0	1	0	7	0	8	17
09:15	1	3	1	4	0	9	15	0	0	0	7	0	7	16
09:30	1	2	0	5	0	8	15	2	0	0	4	0	6	11
09:45	2	0	1	5	0	8	15	0	2	1	6	0	9	17
H/TOT	6	5	2	27	0	40	76	2	3	1	24	0	30	62
10:00	0	2	0	5	0	7	14	0	0	1	5	0	6	13
10:15	1	2	0	5	0	8	15	1	0	0	9	0	10	22
10:30	0	0	0	5	0	5	12	0	0	0	0	0	0	0
10:45	0	0	1	8	0	9	20	0	1	0	4	0	5	10
H/TOT	1	4	1	23	0	29	59	1	1	1	18	0	21	45
11:00	0	0	0	3	0	3	7	0	2	1	8	0	11	22
11:15	1	0	0	9	0	10	22	1	1	0	7	0	9	18
11:30	0	1	1	7	0	9	19	1	2	0	7	0	10	19
11:45	1	0	0	5	0	6	13	0	0	1	3	0	4	8
H/TOT	2	1	1	24	0	28	60	2	5	2	25	0	34	68

TRAFFINOMICS LIMITED

BEHAN'S QUARRY TRAFFIC COUNTS **OCTOBER 2020**
MANUAL CLASSIFIED ENTRY/EXIT COUNTS **TRA/20/112**

SITE: 01 DATE: 15th October 2020

LOCATION: Behan's Quarry Access DAY: Thursday

	ENTRY							EXIT						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
12:00	0	0	0	4	0	4	9	0	1	0	8	0	9	19
12:15	1	1	1	10	0	13	27	1	0	0	5	0	6	13
12:30	1	1	0	5	0	7	14	2	1	1	5	0	9	16
12:45	1	1	1	5	0	8	15	0	0	0	5	0	5	12
H/TOT	3	3	2	24	0	32	64	3	2	1	23	0	29	59
13:00	1	0	0	4	0	5	10	3	1	1	5	0	10	17
13:15	2	0	1	6	0	9	17	1	1	0	10	0	12	25
13:30	0	1	0	3	0	4	8	4	0	1	4	0	9	15
13:45	1	0	1	6	0	8	16	0	0	1	4	0	5	11
H/TOT	4	1	2	19	0	26	52	8	2	3	23	0	36	67
14:00	1	0	0	7	0	8	17	2	0	1	3	0	6	10
14:15	2	0	1	9	0	12	24	1	0	0	5	0	6	13
14:30	0	1	0	5	0	6	13	2	0	1	11	0	14	29
14:45	0	0	0	3	0	3	7	1	0	1	7	0	9	19
H/TOT	3	1	1	24	0	29	61	6	0	3	26	0	35	70
15:00	1	0	0	4	0	5	10	1	1	0	5	0	7	14
15:15	4	0	0	8	0	12	22	0	0	0	4	0	4	9
15:30	2	1	3	8	0	14	26	2	0	0	6	0	8	16
15:45	1	0	0	3	0	4	8	3	1	1	7	0	12	22
H/TOT	8	1	3	23	0	35	66	6	2	1	22	0	31	60
16:00	3	0	0	8	0	11	21	2	0	0	4	0	6	11
16:15	1	1	0	8	0	10	20	5	1	0	1	0	7	8
16:30	1	1	0	8	0	10	20	1	3	1	2	0	7	10
16:45	1	0	1	5	0	7	14	11	1	0	0	0	12	12
H/TOT	6	2	1	29	0	38	76	19	5	1	7	0	32	42
17:00	0	0	0	5	0	5	12	11	3	1	0	0	15	16
17:15	0	0	2	2	0	4	8	3	3	0	2	0	8	11
17:30	0	0	0	5	0	5	12	7	3	0	0	0	10	10
17:45	0	0	0	0	0	0	0	6	1	0	0	0	7	7
H/TOT	0	0	2	12	0	14	31	27	10	1	2	0	40	43
18:00	0	0	0	0	0	0	0	1	1	1	0	0	3	4
18:15	0	0	1	2	0	3	6	1	1	0	0	0	2	2
18:30	0	2	0	0	0	2	2	2	1	0	0	0	3	3
18:45	0	0	0	1	0	1	2	2	1	0	0	0	3	3
H/TOT	0	2	1	3	0	6	10	6	4	1	0	0	11	12
P/TOT	86	40	21	270	0	417	779	83	39	21	267	0	410	768