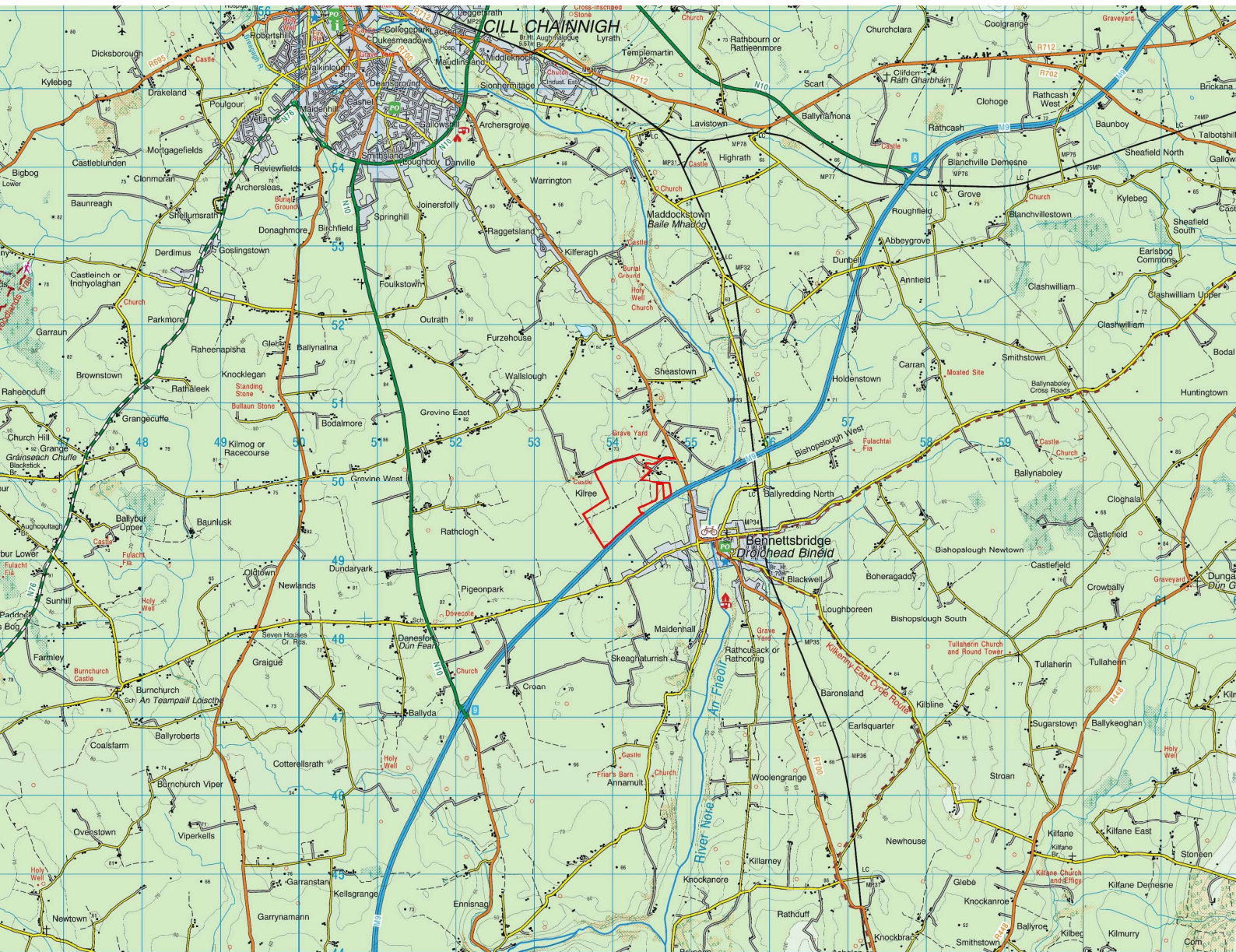


CHAPTER 13

TRAFFIC

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JULY 2025

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Annex I Results of Traffic Survey

Annex II Results of Picady Analysis of R700 / Access Road Junction

Introduction

- 1.1 This chapter considers the impacts of the proposed development on the surrounding road network during its construction and operational stages. Impacts will be considered in terms of the natures and conditions of these roads, the type of traffic on the roads, current volumes of traffic and likely future volumes.
- 1.2 Possible impacts of the development on the road network will be identified and potential mitigation measures recommended. The residual impact (i.e. after implementation of the recommended mitigation measures) will also be identified.

Proposed Development

- 1.3 The Site of the proposed development is an existing, operational quarry. The existing operation is being carried out under planning approval 18/858, a 20-year approval which expires in July 2039.
- 1.4 Once operational, the proposed development will supplant the operation being carried out under the current planning permission.
- 1.5 The proposed development comprises:
- an expansion of the extent of the quarry;
 - an increase in the annual extraction rate from 525,000 tonnes to 675,000 tonnes.
- 1.6 The proposed development will have an operational life of 25 years. For the purposes of this assessment, it is assumed the proposed development will commence in 2025 and finish in 2050.
- 1.7 Table 12.2.1 shows the extraction rates for the current operation at the quarry and for the proposed development. This table also shows the HCV movements that will be generated by this extraction; these are based on 25 tonnes per HCV, 48 working weeks per annum and 5.5 working days per week.
- 1.8 The operating hours for the proposed development will be:
- Monday to Friday 07:00 to 19:00.
 - Saturday 07:00 to 14:00.
- 1.9 Operation of the proposed development will require approximately 20 staff, all of whom will be based at the Site. This is similar to the number of staff employed for the current operation.

Current Operation (PP Ref 18/858)	year	Commencement	2019
		Finish	2039
	tonnes	per annum	525,000
		per day	1,989
		cumulative	10,500,000
	HCV Movements	average daily departures	80
		average daily arrivals	80
		cumulative departures	420,000
		cumulative arrivals	420,000
Proposed Development	year	Commencement	2025
		Finish	2050
	tonnes	per annum	675,000
		per day	2,557
		cumulative	16,875,000
	HCV Movements	average daily departures	102
		average daily arrivals	102
		cumulative departures	675,000
		cumulative arrivals	675,000

Table 12.2.1 – Extraction Rates and Equivalent HCV Movements

Scope

- 1.10 All traffic to and from the proposed development will travel via the R700 Regional Road, which runs in a northwest – southeast direction between the N76 Kilkenny Ring Road and the N30 National Secondary Road at New Ross.
- 1.11 The scope of this assessment will be to consider the impact of the proposed development on the R700 Regional Road, on its junction with the Access Road to the proposed development and on the Access Road itself.
- 1.12 In accordance with TII Guidelines for Traffic and Transport Assessment, the assessment will consider the impact of the proposed development for the opening year 2025, 2030, 2035 and 2040 (i.e. 5 years, 10 years and 15 years after opening).

Methodology

- 1.13 The nature and conditions of the surrounding road network were established by site walkover together with a traffic survey carried out 12th November 2024. Information from the site walkover and traffic survey was supplemented by a consideration of the road network locally in the context of the road network in the greater area.
- 1.14 The findings of the traffic survey, in conjunction with software modelling packages where appropriate, were used to assess the impact of the development on the capacity of the surrounding road network.
- 1.15 The following documents and websites have been used or are referenced in this report:
- 'Advice Notes on Current Practice in the preparation of Environmental Impact Statements' published by the Environmental Protection Agency;
 - 'Project Appraisal Guidelines' published by Transport Infrastructure Ireland (TII);
 - DN-GEO-03060 'Geometric Design of Junctions' published by TII;
 - DN-GEO-03061 'Rural Road Link Design' published by TII;
 - 'Traffic and Transport Assessment Guidelines 2014' published by the TII;
 - Chapter 8 of the 'Traffic Signs Manual' published by the Department of Transport
 - 'Guidance for the Control and Management of Traffic at Road Works Second Edition 2010' prepared by the Department of Transport;
 - Collision Date available from the Road Safety Authority (www.rsa.ie/en/RSA/Road-Safety/Our-Research/Ireland-Road-Collisions);
 - EIS prepared in support of the application for planning permission for the current operation at the quarry.

Existing Environment – Road Network & Site Access

Site Location – Immediate Surroundings

- 1.16 Figure 12.5.1 shows the Site in the context of its immediate surroundings.
- 1.17 The Site is in a rural environment. It is bounded to the north, west and east by agricultural lands and to the south by the M9 Motorway.
- 1.18 An access road connects the Site to the R700 Regional Road. The access road is 230m long and ends at the entrance to the quarry. Its cross-section comprises a 7.0m wide carriageway, with kerbed edges and grass verges on both sides. The pavement on the Access Road is observed to be in good condition, with no evidence of structural failure.
- 1.19 75m from its junction with the R700, a simple priority junction on the access road leads to an ancillary road that runs parallel to the access road and serves 5 no. dwelling houses and a farmyard. The ancillary road will not be used by traffic associated with the proposed development; however, it uses the last 75m of the access road to connect to the R700. Thus, traffic generated by properties on the ancillary road will use the same junction as the proposed development to access the R700.
- 1.20 Traffic flows on the Access Road are low.
- 1.21 The junction between the access road and the R700 is a ghost island junction which provides a reserve lane for traffic turning right off the R700 on to the access road. The junction is situated on a straight section of the R700 with a speed limit of 80km/h. Visibility for Minor Road traffic at the junction and for Major Road traffic approaching the junction exceeds the

minimum required for a junction of this type in the design standard DN-GEO-03060 – Geometric Design of Junctions published by TII.

- 1.22 Details of the access road, ghost island junction and ancillary road are provided in Figure 12.5.2.

Site Location – General Surroundings

- 1.23 Figure 12.5.3 shows the Site in the context of its general surroundings.
- 1.24 The R700 Regional Road runs for 36km approximately in a northwest – southeast direction between the N76 Kilkenny Ring Road and the N30 National Secondary Road at New Ross. The Site is located approximately 5.5km southeast of the Kilkenny Ring Road and approximately 1km northwest of the village of Bennettsbridge.
- 1.25 The geometry of the R700 varies along its length, consistent with the fact that it is typically an unimproved road.

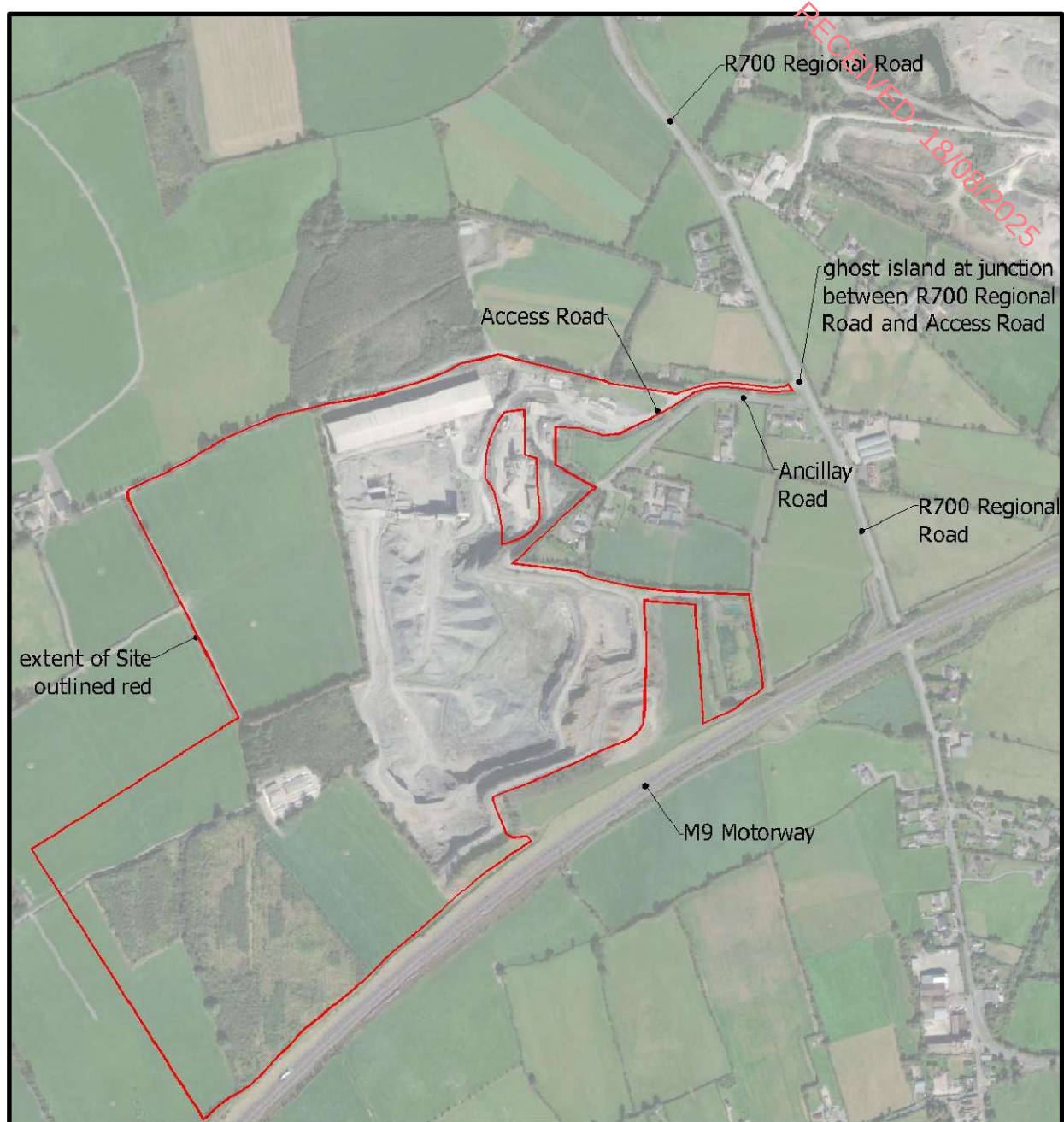


Figure 12.5.1 Site Location – Immediate Surroundings



Figure 12.5.2 Access Road, Ancillary Road* and Ghost Island Junction

* Development traffic will not use the Ancillary Road

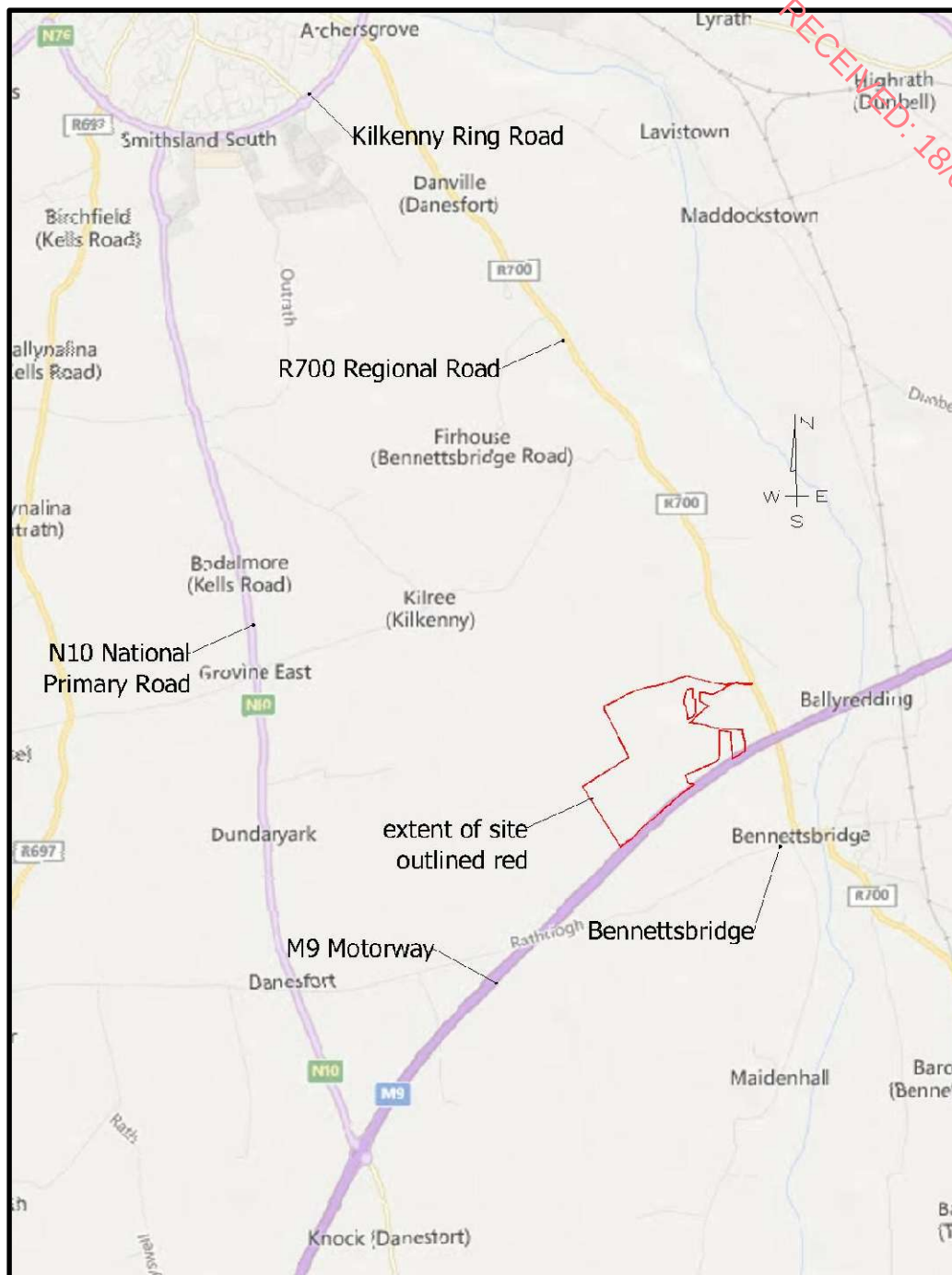


Figure 12.5.3 Site Location - General Surroundings

Surrounding Road Network – Recorded Traffic Flows

- 1.26 A traffic survey was carried out 12th November 2024 to record existing traffic flows on the access road and R700 Regional Road. The results of this survey are summarised in Table 12.5.1, which shows the number of Heavy Commercial Vehicles (HCVs), other vehicles and the equivalent Passenger Car Units (PCU) for the total vehicle flow recorded by the survey.

	To	A			B			C		
		HCV	Other	PCU	HCV	Other	PCU	HCV	Other	PCU
From	A	-	-	-	58	42	172	115	2,831	3,042
	B	66	55	202	-	-	-	40	45	134
	C	114	2,519	2,735	44	45	141	-	-	-

Table 12.5.1 2024 Traffic Survey (07:00 to 19:00)

- A R700 south of junction
 B Development access
 C R700 north of junction.

- 1.27 The combined total of PCU in both directions on the R700 is as follows:

- South of the junction 6,053;
- North of the junction 6,152;
- Average 6,102.

- 1.28 The combined total of HCVs in both directions on the R700 (expressed as PCUs) is as follows:

- South of the junction 612;
- North of the junction 704;
- Average 658.

Vulnerable Road Users

- 1.29 Neither the access road nor the R700 in the vicinity facilities for vulnerable road users. However, this is consistent with the rural environment and use of these roads by vulnerable road users is low.

Cumulative impact of other Permissions

- 1.30 An online search of the database of planning applications does not show any recent planning approvals of significance in the vicinity of the Site. (Planning permission {Ref. No. 24/60611} was granted in 12/03/2025 for construction of a single storey dwelling which will use the access road. Given the scale of the proposed development, this approval is not considered significant).

Predicted Traffic Flows

Passenger Car Units (PCU)

- 1.31 The assessment will consider traffic flows in terms of Passenger Car Units (PCU).
- 1.32 A PCU is a measure used, for modelling purposes, to assess road capacity. Different factors are applied to different vehicle types according to the space they take up, with smaller vehicles having lower factors and larger vehicles having higher factors.

Vehicle Type	Survey Reference	Conversion Factor
motor cycle	M/C	0.4
car	CAR	1.0
light goods vehicle	LGV	1.0
ordinary goods vehicle 1	OGV1	1.5
ordinary goods vehicle 2	OGV2	2.3
public service vehicle	PSV	2.0

Table 12.6.4 PCU Conversion Factors

- 1.33 The HCVs serving the proposed development will be OGV2.

Construction Stage

- 1.34 The development will not require significant construction work and, as it relates to this assessment, the proposed development can be regarded as not having a construction stage.

Operation Stage

- 1.35 The operation of the development will generate traffic flows from:
- Cars and light goods vehicles associated with staff;
 - HCV's involved in hauling extracted material from the quarry.
- 1.36 Apart from HCVs, the proposed development will not otherwise increase trips to and from the site. Operation of the quarry will generate occasional traffic movements from other sources, such as Health and Safety related inspections, but these will not be of significance.
- 1.37 The proposed development is for an extraction rate of 675,000 tonnes per annum.
- 1.38 The planning permission for the current operation (PP Ref 18/858) allows an annual extraction rate of 525,000 tonnes. This planning permission expires in 2039.
- 1.39 Thus:
- up to 2039, the proposed development will increase trips by an amount corresponding to the increase in the proposed extraction rate relative to the current operation;
 - after 2039, the proposed development will increase trips by an amount corresponding to the proposed extraction rate.
- 1.40 This trip generation is summarised in Table 12.6.1 in terms of the daily average.

Years	Trip Generation (CAR)			Trip Generation (HCV)			Total (PCU)
	current operation	proposed development	net increase	current operation	proposed development	net increase	net increase
2025 - 2039	80	80	0	159	205	45	105
2040 - 2050	0	80	80	0	205	205	550

Table 12.6.1
Average Daily Trip Generation (Two-Way)

Natural growth in traffic on public roads over the assessment period

- 1.41 The operational stage of the development will commence in 2025 and finish in 2050.
- 1.42 The public road network will experience natural growth over the operational life of the facility. For the purposes of this assessment, growth rates are taken from the document Unit 5.5 ('Link-Based Traffic Growth Forecasting') of the TII project Appraisal Guidelines.
- 1.43 From Table 5.5.1 of these guidelines and assuming a medium rate of traffic growth, we assume the growth factors shown in Table 12.6.2 and from these arrive at the growth factors for each assessment year shown in Table 12.6.3. These growth rates will apply to existing traffic flows but will not apply to traffic generated by the development.

Growth Factors	LV	HV
2016 - 2030	1.0124	1.0280
2030 -2040	1.0047	1.0125
2040 -2050	1.0036	1.0155

Table 12.6.2 TII Regional Growth Factors

Year	Growth Factor	
	LV	HV
2025	1.012	1.028
2030	1.077	1.180
2035	1.102	1.256
2040	1.128	1.336
2045	1.149	1.443
2050	1.170	1.559

Table 12.6.3 Growth Factors for each assessment year (relative to Survey Year)

Possible Impacts - Construction Stage

- 1.44 The development will not require significant construction work and, as it relates to this assessment, the proposed development can be regarded as not having a construction stage.

Possible Impacts – Operation Stage

Operational Stage - Possible Impact on the Access Road

- 1.45 The proposed development will increase traffic movements on the access road (Table 12.6.1)
- 1.46 In addition to the existing quarry, the Access Road also serves several residential dwellings and a farmyard. During the operational stage, traffic generated by the proposed development will share the road with traffic from the dwellings and farm, giving rise to conflicting traffic movements, exacerbated by the high proportion of HCV traffic that will be generated by the proposed development.
- 1.47 Traffic leaving the proposed development could bring silt on to the access road.
- 1.48 In the absence of mitigation measures, the proposed development would have a moderate impact on other users of the Access Road up to 2039 and a significant impact thereafter.

Operational Stage - Possible Impact on the R700 / Access Road Junction

- 1.49 An assessment of the impact of the operational stage on this junction will be based on a comparison of the With-Development and No-Development Scenarios for the opening year, 2030, 2035 and 2040.
- 1.50 This comparison is made using an analysis of the performance of the junction in these assessment years using the industry standard PICADY software during the AM and PM peaks.

Traffic flows - No-development scenario up to 2035

- 1.51 Traffic flows for the no-development scenario in the Assessment Years up to and including 2035 are arrived at by applying the growth factor for that year (Table 12.6.3) to traffic movements recorded at the junction in the 2024 survey; i.e. existing traffic flows.

Traffic flows - No-development scenario in 2040

- 1.52 Traffic flows for the no-development scenario in 2040 are arrived at in the same way, but traffic flows associated with the existing development are omitted.

Traffic flows - With-Development scenario 2035

- 1.53 Traffic flows for the with-development scenario in the Assessment Years up to and including 2035 are arrived at by adding the trips generated by the proposed development to the No-development traffic flows calculated for that year as described above.
- 1.54 While the daily average for HCV trips will be as stated in Table 12.6.1, the actual number of HCV trips on any given day will fluctuate slightly around this average. To reflect this, trip generation used in this analysis will be increased to 15% above the daily average (equivalent to an annual extraction rate of 776,000 tonnes).

Assignment

- 1.55 Trips generated by the proposed development must assign to the R700 northbound or R700 southbound. It is assumed that trip generation will assign to these directions in the same proportions as was recorded during the 2024 survey.

Peak Hour

- 1.56 The analysis will focus on the impact on the operation of the junction during the AM and PM peaks. The traffic survey recorded the AM peak as 08:00 to 09:00 and the PM peak as 16:30 to 17:30; accordingly, these will be the peak times used for the analysis.
- 1.57 The analysis assumes that 20% of Trips generated by the proposed development will occur during each peak.
- 1.58 The resulting peak hour Trip generation for the Assessment Years up to and including 2035 is shown in Table 12.8.1 for the Assessment Year 2040 in Table 12.8.2.

	HCV	CAR	Total (PCU)
Average daily	45	0	
Factor for analysis	0.15	0	
Analysis daily	52	0	
Equivalent daily PCU	120	0	120
Peak Hour factor	0.2	0.2	
Equivalent PCU in Peak Interval	24	0	24

Table 12.8.1 Peak Hour Trip Generation (sum of arrivals and departures) to 2035

	HCV	CAR	Total (PCU)
Average daily	205	80	
Factor for analysis	0.15	0	
Analysis daily	235	80	
Equivalent daily PCU	541	80	621
Peak Hour factor	0.2	0.2	
Equivalent PCU in Peak Interval	108	16	124

Table 12.8.2 Peak Hour Trip Generation (sum of arrivals and departures) in 2040

Analysis

- 1.59 The results of the PICADY analyses for the Assessment Years 2025, 2030, 2035 and 2040 are summarised in Tables 12.8.3 and 12.8.4 for the AM and PM peaks respectively. The results are reproduced in full in Appendix B. These results include the traffic flow data used in the analysis.
- 1.60 The analysis found:
- (i). the proposed development will have a moderate impact on the operation of the junction up to 2039;
 - (ii). after 2039, the impact will become more significant;
 - (iii). the junction will operate well within capacity during both the AM and PM peaks for all assessment years.

- 1.61 Based on the results of the PICADY analysis, the operational stage of the development will have a slight and continuous impact on the junction of the access road and the R700.

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	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS	Network Residual Capacity
	A1 - 2040 With Dev					
Stream B-C	0.1	8.78	0.07	A	A	68%
Stream B-A	0.2	13.49	0.15	B		
Stream C-AB	0.1	8.18	0.07	A		
	A1 - 2040 No Dev					
Stream B-C	0	7.89	0.01	A	A	114%
Stream B-A	0	11.34	0.03	B		
Stream C-AB	0	7.57	0.02	A		
	A1 - 2035 With Dev					
Stream B-C	0	8.53	0.03	A	A	84%
Stream B-A	0.1	12.35	0.1	B		
Stream C-AB	0.1	7.87	0.05	A		
	A1 - 2035 No Dev					
Stream B-C	0	8.43	0.02	A	A	92%
Stream B-A	0.1	11.98	0.07	B		
Stream C-AB	0	7.76	0.04	A		
	A1 - 2030 With Dev					
Stream B-C	0	8.22	0.03	A	A	108%
Stream B-A	0.1	11.48	0.09	B		
Stream C-AB	0.1	7.79	0.05	A		
	A1 - 2030 No Dev					
Stream B-C	0	8.35	0.02	A	A	97%
Stream B-A	0.1	11.75	0.07	B		
Stream C-AB	0	7.69	0.04	A		
	A1 - 2025 With Dev					
Stream B-C	0	8.25	0.03	A	A	102%
Stream B-A	0.1	11.57	0.08	B		
Stream C-AB	0	7.61	0.04	A		
	A1 - 2025 No Dev					
Stream B-C	0	8.16	0.02	A	A	111%
Stream B-A	0.1	11.25	0.06	B		
Stream C-AB	0	7.51	0.03	A		

Table 12.8.3 Results of PICADY analysis for AM peak

	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS	Network Residual Capacity
	A1 - 2040 With Dev					
Stream B-C	0.1	7.48	0.08	A	A	68%
Stream B-A	0.2	12.03	0.14	B		
Stream C-AB	0.1	7.23	0.11	A		
	A1 - 2040 No Dev					
Stream B-C	0	6.84	0.01	A	A	161%
Stream B-A	0	10.52	0.03	B		
Stream C-AB	0	6.63	0.01	A		
	A1 - 2035 With Dev					
Stream B-C	0.1	7.13	0.05	A	A	129%
Stream B-A	0.1	11.51	0.09	B		
Stream C-AB	0.1	7.03	0.07	A		
	A1 - 2035 No Dev					
Stream B-C	0	7.06	0.04	A	A	141%
Stream B-A	0.1	11.35	0.07	B		
Stream C-AB	0.1	6.93	0.05	A		
	A1 - 2030 With Dev					
Stream B-C	0.1	7.07	0.04	A	A	136%
Stream B-A	0.1	11.35	0.08	B		
Stream C-AB	0.1	6.97	0.06	A		
	A1 - 2030 No Dev					
Stream B-C	0	6.99	0.03	A	A	97%
Stream B-A	0.1	11.18	0.07	B		
Stream C-AB	0.1	6.88	0.05	A		
	A1 - 2025 With Dev					
Stream B-C	0	6.93	0.04	A	A	154%
Stream B-A	0.1	10.97	0.07	B		
Stream C-AB	0.1	6.86	0.06	A		
	A1 - 2025 No Dev					
Stream B-C	0	6.86	0.03	A	A	169%
Stream B-A	0.1	10.81	0.06	B		
Stream C-AB	0.1	6.76	0.04	A		

Table 12.8.4 Results of PICADY analysis for PM peak

Operational Stage - Possible Impact in Opening year on R700

Table 12.8.5 shows the average daily Trip generation (two-way).

Years	Trip Generation (CAR)			Trip Generation (HCV)			Total (PCU)
	current operation	proposed development	net increase	current operation	proposed development	net increase	net increase
2025 - 2039	80	80	0	159	205	45	105
2040 - 2050	0	80	80	0	205	205	550

Table 12.8.5
Average Daily Trip Generation (Two-Way)

- 1.62 Table 12.8.6 shows the two-way traffic flow on the R700 immediately north of the junction between 07:00 and 19:00 for each Assessment Year. These figures are arrived at by applying the Growth Factors Note in Table 12.6.2 to the 2024 survey.
- 1.63 Traffic flows in 2040 are lower than those in the preceding Assessment Year because of the subtraction of traffic flows associated with the existing development.

Assessment Year	LV		HV		Total
	LV Growth Factor	PCU	HV Growth Factor	PCU	
2025	1.012	5449	1.028	583	6032
2030	1.077	5795	1.180	670	6465
2035	1.102	5933	1.256	713	6645
2040	1.128	6033	1.336	496	6529

Table 12.8.6
Traffic flows on R700 immediately north of the junction (Two-Way)

- 1.64 Combining the data from Tables 12.8.5 and 12.8.6, we arrive at the percentage increase in traffic flows on the R700 shown in Table 12.8.7.

R700	Proposed Development	increase
6032	105	1.7%
6465	105	1.6%
6645	105	1.6%
6529	550	8.4%

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Table 12.8.7
Increase in traffic on R700 immediately north of the junction

- 1.65 TII defines thresholds at which the production of transport assessments are considered necessary. These thresholds are reproduced in Table 12.8.7 and shows that the proposed development does not exceed any of the thresholds

Threshold	Status
Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road	The proposed development will increase traffic flows on the R700 by approximately 1.6% up to 2039 and by 8.4% in 2040.
Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists or the location is sensitive	These criteria do not apply at this location.
Residential development in excess of 200 dwellings	None proposed
Retail and leisure development in excess of 1,000m ²	None proposed.
Office, education and hospital development in excess of 2,500m ²	None proposed.
Industrial development in excess of 5,000m ²	None proposed.
Distribution and warehousing in excess of 10,000m ²	None proposed.

Table 12.8.7 Initial Assessment of Proposed Development

- 1.66 The capacity of roads between junctions is assessed by reference to PCU, and so the proposed development will have only a slight impact on the capacity of the R700 during its operational stage up to 2039 and a moderate impact in 2040.
- 1.67 Traffic leaving the proposed development could bring silt on to the access road. In the absence of mitigation measures, this would have a slight to moderate impact on the R700 in the immediate vicinity of the junction.

Operational Stage – Cumulative Impact of HCVs on the R700

- 1.68 Table 12.8.8 shows the increase in HCV movements (expressed as PCU) on the R700 immediately north of the junction.

R700	Proposed Development	increase
583	105	18%
670	105	16%
713	105	15%
496	550	111%

Table 12.8.8**Increase in traffic on R700 immediately north of the junction**

- 1.69 The durability of the pavement structure is affected exclusively by the cumulative number of HCV movements. Table 12.8.8 shows the proposed development will significantly increase HCV movements through to 2039 and after 2039, will increase HCV movements by 111%.

Recommended Mitigation measures at Operational Stage

- 1.70 The operation of the development will have only slight impact on the capacity of the R700 and on its junction with the Access Road. Given the scale of the development, feasible mitigation measures are not possible. Given the level of impact on capacity, they are not considered necessary.
- 1.71 To mitigate the impact of development traffic on other users of the Access Road, it is recommended that a traffic management plan be designed and implemented for the use of the Access Road by development traffic.
- 1.72 To ensure that construction of the development does not lead to soils being brought on to the Access Road or R700, it is recommended that measures are put in place at the egress from the Site to ensure that all vehicles are clean when leaving the Site.
- 1.73 The proposed development is likely to have a significant, permanent impact on the pavement structure of the R700 and Access Road. It is recommended that a visual condition survey of the pavement be carried out at the outset of the proposed development, and that this survey be repeated periodically in consultation with the Roads Authority. The extent and frequency of these surveys should be agreed with the Roads Authority. Should these surveys identify deterioration in the structural integrity of the pavement, further assessment or remedial measures should be agreed with the Roads Authority.

Operational Stage - Residual Impacts after implementation of mitigation measures

- 1.74 Subject to implementation of the mitigation measures described in section 12.9, the following residual impacts are predicted for the operational stage:
- a slight negative impact on the capacity of the R700 and on its junction with the Access Road, due to the increase in traffic volumes;
 - a moderate negative impact on other users of the Access Road, primarily due to the continued use of the road by HGVs associated with quarry operations;

- the potential for significant negative impact on the durability of the pavement structure of the Access Road and R700 pavement is to be managed by periodic condition surveys and consultation with the Roads Authority to determine the need for any further assessment or remedial works.

Monitoring

- 1.75 The performance of the Traffic Management Plan described in Section 12.9 should be strictly monitored and improved where appropriate.
- 1.76 The condition of the Access Road pavement should be monitored at regular intervals during the Operation Stage as described in Section 12.9.

Unplanned Events

- 1.77 Unforeseen incidents, while unlikely, have been considered in this assessment to ensure robust planning and mitigation measures. Potential unplanned events include:
- accidents on public roads used by development traffic;
 - incidents at the site access point; and
 - emergencies within the quarry itself.
- 1.78 Examples of unplanned events might include road traffic collisions, localised flooding, or an oil spillage along haul routes. In such cases, relevant authorities, including An Garda Síochána, emergency services, and the local authority, would take the lead in coordinating responses. Pre-defined emergency diversion routes and on-site protocols would be implemented to minimise disruption and risk.
- 1.79 For incidents on public roads used by development traffic; emergency response teams would activate diversion routes in coordination with An Garda Síochána. Quarry operators would notify HGV drivers and site personnel to adapt operations and follow emergency protocols.
- 1.80 In the event of an incident at the site access, similar measures would apply. The quarry operator would work closely with authorities to manage vehicle movement and ensure safety at the entrance.
- 1.81 For incidents occurring within the quarry, emergency response procedures, already in place and tested, would be followed by trained site personnel. These procedures include rapid response to mitigate potential hazards and minimise operational downtime.
- 1.82 A safety risk assessment has been undertaken to estimate the likelihood and impact of such events. Table 12.12.1 outlines the hazards, personnel at risk, control measures, and responsible parties.

Hazards and Risks	Personnel at Risk	Risk Control Measures	Responsible Parties
Road Collision	- Public; - Drivers using quarry haul roads; - Vulnerable road users (pedestrians, cyclists)	- Maintain clear visibility by trimming vegetation; - Maintain and improve signage and road surfacing where necessary	Local Authority, Applicant
Road Surface Damage (e.g., potholes)	- Public - Drivers using quarry haul roads - Vulnerable road users	- Regular road pavement maintenance and repairs	Local Authority, Applicant
Flooding on Roads	- Public - Drivers using quarry haul roads; - Vulnerable road users	- Ensure drainage systems are functioning effectively - Enhance drainage where needed	Local Authority, Applicant
Snow or Frost on Roads	- Public - Drivers using quarry haul roads - Vulnerable road users	- Stock and apply salt/grit in advance; - Temporary warning signage for hazardous conditions	Local Authority
Injury on Site (e.g., slips/trips)	- Quarry employees - Delivery drivers	- Provide training for employees; - Maintain clear and safe walkways	Applicant
Vehicle Collision on Site	- Quarry employees - Delivery drivers	- Use designated internal walkways; - Enforce high-visibility clothing; - Supervise vehicle movements	Applicant

Table 12.12.1
Risk Assessment for Unplanned Events

Do-Nothing Scenario

- 1.83 If the proposed development does not proceed, Bennettsbridge Quarry would be expected to close when the existing approval for extraction expires. However, the local demand for limestone and concrete is likely to remain and, should the proposed development not proceed, would be met from other sources.
- 1.84 In this scenario, while the traffic-related impact of the proposed development would not occur in the immediate vicinity of the quarry, it is likely that the impact on the wider road

network would be unchanged or possibly even increase if the alternative sources require grater transport distances.

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Residual Effects upon decommissioning of proposed development

1.85 Taking into account:

- the mitigation measures for management of the potential impact on the pavement structure of the R700 and access road (Section 12.9); and
- the likelihood that HCV movements on the broader road network will be similar in the do-nothing scenario unchanged (Section 12.13);

1.86 the residual traffic and transport related impact of the proposed development is considered to be slight.

Difficulties Encountered

1.87 None encountered.

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ANNEX I TO CHAPTER 12
Traffic Survey of 12th November 2024



IDASO

Survey Name:	24883 - Limestone Quarry Bennettsbridge, Co. Kilkenny		Arm A - R700
Site:	Site 1		Arm B - Access To Bennettsbridge Limestone
Location:	R700/Access To Bennettsbridge Limestone		Arm C - R700
Date:	Tue 12-Nov-2024		
AM Peak:	08:00 — 09:00	Total:	770
PM Peak:	16:30 — 17:30	Total:	687
15 Min Peak:	08:15 — 08:30	Total:	227

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A => A										A => B										A => C										B => A										B => B												
TIME	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU							
07:00	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	5	6.3	0	0	33	1	1	3	0	38	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2.3	0	0	33	16	0	4	1	54	60.2	0	0	0	0	0	2	0	2	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0			
07:30	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	0	61	23	1	1	0	86	87.8	0	0	1	1	0	4	0	6	6.6	0	0	0	0	0	0	0	0	0	0	0	0	0			
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4.6	0	0	91	22	2	1	3	119	124.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
H/TOT	0	0	0	0	0	0	0	0	0	0	0	5	1	0	4	0	10	15.2	0	0	218	62	4	9	4	207	314.7	0	0	1	1	0	6	0	8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3	5.6	0	0	117	14	1	0	2	134	136.5	0	0	0	1	0	2	0	3	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141	13	0	0	0	154	154	0	0	0	0	0	2	0	2	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0			
08:30	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	3	0	0	116	16	1	2	0	135	138.1	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0			
08:45	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3	4.3	0	0	97	11	0	2	0	110	112.6	0	0	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
H/TOT	0	0	0	0	0	0	0	0	0	0	0	5	1	0	3	0	9	12.9	0	0	471	54	2	4	2	533	541.2	0	0	3	1	0	5	0	9	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2.3	0	0	89	9	2	0	0	100	101	0	0	0	0	0	2	0	2	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	4	6.6	0	0	55	5	0	0	0	60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4.6	0	0	41	6	1	1	0	49	50.8	0	0	0	1	0	2	0	3	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:45	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3	4.3	0	0	53	8	2	2	1	66	70.6	0	0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0			
H/TOT	0	0	0	0	0	0	0	0	0	0	0	3	1	0	6	0	10	17.8	0	0	238	28	5	3	1	275	282.4	0	0	3	1	0	4	0	8	13.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00	0	0	0	0	0	0	0	0	0	0	0	5	0	0	3	0	8	11.9	0	0	42	5	0	2	0	49	51.6	0	0	3	0	1	0	0	4	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:15	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2.5	0	0	45	6	2	1	1	55	58.3	0	0	1	0	1	3	0	5	9.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:30	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	3	4.8	0	0	46	4	0	3	0	53	56.9	0	0	1	0	1	2	0	4	7.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2.3	0	0	41	6	0	1	0	48	49.3	0	0	2	0	0	1	0	3	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
H/TOT	0	0	0	0	0	0	0	0	0	0	0	7	0	2	5	0	14	21.5	0	0	174	21	2	7	1	205	216.1	0	0	7	0	3	6	0	16	25.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	1	0	0	0	0	1	1	0	0	0	1	0	2	0	3	5.6	0	0	30	5	3	1	0	39	41.8	0	0	0	0	0	1	0	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	6.9	0	0	36	11	2	1	0	50	52.3	0	0	0	0	0	1	3	0	4	8.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	4	2	2	0	36	39.6	0	0	0	0	0	3	0	3	6.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:45	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	3	4.8	1	0	38	9	0	0	0	48	47.2	0	0	1	0	1	1	0	3	4.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
H/TOT	0	0	1	0	0	0	0	1	1	0	0	1	1	1	6	0	9	17.3	1	0	132	29	7	4	0	173	180.9	0	0	1	0	2	8	0	11	22.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	3.3	0	0	30																															

B=>B									B=>C									C=>A									C=>B									C=>C															
P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU							
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	3	0	1	0	18	19.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2.3	0	0	0	14	6	1	1	1	23	25.8	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2.3	0	0	0	28	5	2	4	0	39	45.2	0	0	0	0	0	0	1	0	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0		
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	15.8	0	0	0	75	23	3	7	1	109	120.6	0	0	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2.3	0	0	0	37	4	1	0	0	42	42.5	0	0	0	2	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	4	5.3	0	0	171	30	3	3	1	208	214.4	0	0	2	3	0	2	0	7	9.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	22	5	0	1	0	28	29.3	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	25	9	0	2	0	36	38.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4.3	0	0	0	27	3	1	1	0	32	33.8	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	4	5.8	1	0	30	4	1	2	0	38	40.3	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	2	0	8	11.1	1	0	104	21	2	6	0	134	142	0	0	4	2	1	1	0	8	9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	3	2	2	0	35	38.6	0	0	0	0	2	2	0	4	7.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4.6	0	0	35	6	3	4	0	48	54.7	0	0	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4.3	0	0	34	6	2	1	0	43	45.3	0	0	0	0	0	0	1	0	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	2	1	0	1	38	39.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	5	8.9	0	0	131	17	8	7	1	164	178.1	0	0	1	0	2	4	0	7	13.2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	30	5	3	1	1	40	43.8	0	0	1	0	1	1	0	3	4.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4.6	0	0	34	8	3	1	1	47	50.8	0	0	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	5	1	0	0	26	26.5	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1.5	0	0	32	10	1	1	0	44	45.8	0	0	1	0	0	2	0	3	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	4	7.1	0	0	116	28	8	3	2	157	166.9	0	0	3	1	1	4	0	9	14.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	3.3	0	0	24	4	2	0	0	30	31	0	0	2	1	0	3	0	6	9.9	0	0	0	0	0	0	0	0							

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ANNEX II TO CHAPTER 13
Results of PICADY Analysis for R700 Junction

Junctions 10													
PICADY 10 - Priority Intersection Module													
Version: 10.0.1.1519 © Copyright TRL Software Limited, 2021													
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com													
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution													

Filename: 24122 T-Junction.j10
 Path: C:\Users\civils\Kilgallen & Partners\2024 Jobs - Documents\24122 BBL - TTA Phase 2\03 Design & Calcs\3-1 Civil\Traffic
 Report generation date: 21/07/2025 12:20:23

- «(Default Analysis Set) - 2040 With Dev, AM
- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results

Summary of junction performance

	AM							PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS	Network Residual Capacity	
	A1 - 2040 With Dev														
Stream B-C	D1	0.1	8.78	0.07	A	A	68 %	D2	0.1	7.48	0.08	A	A	115 %	
Stream B-A		0.2	13.49	0.15	B		[Stream B-A]		0.2	12.03	0.14	B		[Stream B-A]	
Stream C-AB		0.1	8.18	0.07	A				0.1	7.23	0.11	A			
	A1 - 2035 With Dev														
Stream B-C	D3	0.0	8.53	0.03	A	A	84 %								
Stream B-A		0.1	12.35	0.10	B		[Stream B-A]								
Stream C-AB		0.1	7.87	0.05	A										
	A1 - 2035 With Dev														
Stream B-C								D4	0.1	7.13	0.05	A	A	129 %	
Stream B-A										0.1	11.51	0.09		B	[Stream B-A]
Stream C-AB										0.1	7.03	0.07		A	
	A1 - 2030 With Dev														
Stream B-C	D5	0.0	8.22	0.03	A	A	108 %								
Stream B-A		0.1	11.48	0.09	B		[Stream B-A]								
Stream C-AB		0.1	7.79	0.05	A										
	A1 - 2030 With Dev														
Stream B-C								D6	0.1	7.07	0.04	A	A	136 %	
Stream B-A										0.1	11.35	0.08		B	

Stream C-AB								0.1	6.97	0.06	A		[Stream B-A]
A1 - 2025 With Dev													
Stream B-C		0.0	8.25	0.03	A		102 %						
Stream B-A	D7	0.1	11.57	0.08	B	A	[Stream B-A]						
Stream C-AB		0.0	7.61	0.04	A								
A1 - 2025 With Dev													
Stream B-C								0.0	6.93	0.04	A		154 %
Stream B-A								D8	0.1	10.97	0.07	B	[Stream B-A]
Stream C-AB									0.1	6.86	0.06	A	
A1 - 2040 No Dev													
Stream B-C		0.0	7.89	0.01	A		114 %		0.0	6.84	0.01	A	161 %
Stream B-A	D9	0.0	11.34	0.03	B	A	[Stream B-A]	D10	0.0	10.52	0.03	B	[Stream B-A]
Stream C-AB		0.0	7.57	0.02	A				0.0	6.63	0.01	A	[Stream B-A]
A1 - 2035 No Dev													
Stream B-C		0.0	8.43	0.02	A		92 %						
Stream B-A	D11	0.1	11.98	0.07	B	A	[Stream B-A]						
Stream C-AB		0.0	7.76	0.04	A								
A1 - 2035 No Dev													
Stream B-C								D12	0.0	7.06	0.04	A	141 %
Stream B-A									0.1	11.35	0.07	B	[Stream B-A]
Stream C-AB									0.1	6.93	0.05	A	
A1 - 2030 No Dev													
Stream B-C		0.0	8.35	0.02	A		97 %						
Stream B-A	D13	0.1	11.75	0.07	B	A	[Stream B-A]						
Stream C-AB		0.0	7.69	0.04	A								
A1 - 2030 No Dev													
Stream B-C								D14	0.0	6.99	0.03	A	149 %
Stream B-A									0.1	11.18	0.07	B	[Stream B-A]
Stream C-AB									0.1	6.88	0.05	A	
A1 - 2025 No Dev													
Stream B-C		0.0	8.16	0.02	A		111 %						
Stream B-A	D15	0.1	11.25	0.06	B	A	[Stream B-A]						
Stream C-AB		0.0	7.51	0.03	A								
A1 - 2025 No Dev													
Stream B-C								D16	0.0	6.86	0.03	A	169 %
Stream B-A									0.1	10.81	0.06	B	[Stream B-A]
Stream C-AB									0.1	6.76	0.04	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	22148 T-Junction
Location	
Site number	
Date	13/02/2012
Version	
Status	(new file)
Identifier	

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Client	
Jobnumber	
Enumerator	TRLLIMITED\gburtenshaw
Description	

Units

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	Delay	0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2040 With Dev	AM	DIRECT	08:00	09:00	60	15

(Default Analysis Set) - 2040 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.09	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	68	Stream B-A	1.09	A

Arms

Arms

Arm	Name	Description	Arm type
A	R700 from Bennettsbridge		Major
B	from Development		Minor
C	from Kilkenny		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - from Kilkenny	7.30		✓	2.20	200.0	✓	10.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - from Development	One lane plus flare	10.00	8.00	6.00	3.00	3.00		10.00	55	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	142.071	0.098	0.247	0.155	0.353
B-C	161.245	0.093	0.236	-	-
C-B	172.446	0.252	0.252	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - R700 from Bennettsbridge		✓	100.000
B - from Development		✓	100.000
C - from Kilkenny		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 -
08:15

From	To			
		A - R700 from Bennettsbridge	B - from Development	C - from Kilkenny
A - R700 from Bennettsbridge		0.00	9.91	155.17
B - from Development		14.30	0.00	3.48
C - from Kilkenny		42.32	9.00	0.00

Demand (PCU/TS)

08:15 -
08:30

From	To			
		A - R700 from Bennettsbridge	B - from Development	C - from Kilkenny
A - R700 from Bennettsbridge		0.00	0.00	173.78
B - from Development		12.75	0.00	3.90
C - from Kilkenny		78.99	0.00	0.00

Demand (PCU/TS)

08:30 -
08:45

	To			
		A - R700 from Bennettsbridge	B - from Development	C - from Kilkenny
From	A - R700 from Bennettsbridge	0.00	10.78	157.11
	B - from Development	12.61	0.00	6.30
	C - from Kilkenny	75.14	9.26	0.00

Demand (PCU/TS)

08:45 -
09:00

	To			
		A - R700 from Bennettsbridge	B - from Development	C - from Kilkenny
From	A - R700 from Bennettsbridge	0.00	12.85	128.02
	B - from Development	10.28	0.00	9.15
	C - from Kilkenny	48.27	7.19	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - R700 from Bennettsbridge	B - from Development	C - from Kilkenny
From	A - R700 from Bennettsbridge	10	10	10
	B - from Development	10	10	10
	C - from Kilkenny	10	10	10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - R700 from Bennettsbridge	165.08	165.08
	B - from Development	17.78	17.78
	C - from Kilkenny	51.32	51.32
08:15-08:30	A - R700 from Bennettsbridge	173.78	173.78
	B - from Development	16.65	16.65
	C - from Kilkenny	78.99	78.99
08:30-08:45	A - R700 from Bennettsbridge	167.89	167.89
	B - from Development	18.91	18.91
	C - from Kilkenny	84.40	84.40
08:45-09:00	A - R700 from Bennettsbridge	140.87	140.87
	B - from Development	19.43	19.43
	C - from Kilkenny	55.46	55.46

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.07	8.78	0.1	A
B-A	0.15	13.49	0.2	B
C-AB	0.07	8.18	0.1	A

C-A				
A-B				
A-C				

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Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3.48	118.98	0.029	3.45	0.0	8.567	A
B-A	14.30	93.06	0.154	14.10	0.2	12.507	B
C-AB	9.00	130.82	0.069	8.92	0.1	8.116	A
C-A	42.32			42.32			
A-B	9.91			9.91			
A-C	155.17			155.17			

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3.90	116.63	0.033	3.90	0.0	8.781	A
B-A	12.75	86.54	0.147	12.75	0.2	13.418	B
C-AB	0.00	257.26	0.000	0.08	0.0	0.000	A
C-A	78.99			78.99			
A-B	0.00			0.00			
A-C	173.78			173.78			

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6.30	121.81	0.052	6.28	0.1	8.569	A
B-A	12.61	86.04	0.147	12.61	0.2	13.486	B
C-AB	9.26	130.11	0.071	9.18	0.1	8.181	A
C-A	75.14			75.14			
A-B	10.78			10.78			
A-C	157.11			157.11			

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9.15	136.24	0.067	9.13	0.1	7.787	A
B-A	10.28	94.93	0.108	10.34	0.1	11.711	B
C-AB	7.19	136.93	0.053	7.21	0.1	7.635	A
C-A	48.27			48.27			
A-B	12.85			12.85			
A-C	128.02			128.02			