



12.0 Traffic

12.1 Introduction

12.1.1 Background

PMCE Ltd has been commissioned by Tom Phillips & Associates on behalf of Breedon Cement Ireland Ltd. (Breedon) to prepare an Environmental Impact Assessment Report (EIAR) Traffic Chapter in relation to the proposed deepening of the north-western portion of the existing quarry extraction area by four extractive benches to 10m OD, over an area of c. 4.13 hectares at Killaskillen, Kinnegad, Co. Meath. The proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity of the existing cement plant located on the site.

The existing quarry, which has been in operation for a number of years, is permitted to extract limestone and shale for which planning was originally granted in April 2000 (Meath County Council (MCC) Reg. Ref. 982026; An Bord Pleanála Ref. PL17.111198). Planning permission was also granted for the development of an asphalt plant north of the quarry in 2001. Both facilities commenced production in 2002. Since this time, several planning permissions have been granted at the site, predominantly relating to increases to capacity and fuel types.

12.1.2 Competency of Chapter Authors

The Traffic and Transport Chapter has been prepared by Mr. Alan O'Reilly, who is a qualified Civil Engineer with extensive experience in the preparation of Transport Assessments and Traffic Modelling. Details of Alan's experience and qualifications are provided within the following table (Table 12.1).

Table 12.1: Competency of Chapter Authors

Principal Author	Alan O'Reilly
Title	Project Manager
Relevant Experience and Qualifications	<p>Experience: Alan is a Chartered Engineer and Senior Project Engineer with PMCE Ltd and has over 8 years' post-graduate experience specialising in Traffic and Transport Assessments. Alan is also an approved Road Safety Audit Team Leader in Ireland and an approved Road safety Audit Team Member in the UK and in Qatar, and has undertaken over 400 Road Safety Audits as either the RSA Team Leader or Team Member. Alan has also been involved in over 40 Traffic & Transport Assessments as both a Project Manager and Traffic Modeller.</p> <p>Qualifications:</p> <ul style="list-style-type: none"> • CEng MIEI (Chartered Engineer) • MSc (2012) • BAI (2011) • BA (2011) • Approved RSA Team Leader (Ireland & UK) • Ashghal approved RSA Member (Qatar) • Qualified PSDP
Professional Membership	<ul style="list-style-type: none"> • Chartered Engineer, Engineers Ireland • Committee Member, Roads and Transportation Society (Engineers Ireland)



12.1.3 Overview of Proposed Development

The proposed development involves the deepening of the north-western portion of the existing limestone quarry to 10m OD, which is consistent with the level approved for the adjoining quarry extraction area, as permitted under planning ref. 98/2026 (An Bord Pleanála ref. PL17.111198).

This will involve the deepening of the north-western portion of the quarry extraction area by four extractive benches to 10m OD, over an area of c. 4.13 hectares. The proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity of the existing cement plant. The proposed development will be served by the existing on site haul road from the existing vehicular access point on the L8021 to the northeast of the site.

12.1.4 Contents

The remainder of the Chapter is set out as follows:

- Section 12.2 outlines the methodology pursued in undertaking the study
- Section 12.3 describes the proposed development's receiving environment
- Section 12.4 outlines potential impacts arising from the development
- Section 12.5 sets out the baseline scenario
- Section 12.6 investigates potential prevention and mitigation measures
- Section 12.7 provides an assessment of impacts arising from the proposed development
- Section 12.8 describes the other Environmental Attributes which interact with Traffic
- Section 12.9 addresses residual impacts

12.2 Methodology

This study examines the operation of the existing road network and the potential traffic impacts of the proposed development. If necessary, suggested mitigation of identified development related impacts shall also be detailed.

The methodology adopted for this appraisal and Chapter involved, in brief:

- A site visit on the 25th of April 2022, at which time the weather was dry, and the ground surface was dry.
- 12-hour (7am – 7pm) manual classified traffic surveys carried out by Traffinomics on the 2nd of February 2022.
- Trip Generation and Trip Assignment – This is used to derive trip rates for both the AM and PM Peaks and to provide information as to which direction of travel vehicles will travel to/from the proposed development.
- Existing Traffic Assessment – The traffic count data was used to develop Junctions 9 models for the assessed junctions.
- 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 operational performance of the junctions and surrounding road network for 2023 (assumed year of opening/restoration), and at two future assessment years, the opening year +5 (2028) and the opening year +15 (2038).



This Chapter has been prepared taking into account the following policy documents:

- “Traffic and Transport Assessment Guidelines” (May 2014) published by Transport Infrastructure Ireland (TII).
- “Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections” (October 2021) published by Transport Infrastructure Ireland.
- Traffic Count Data, collected by Traffinomics on the 2nd of February 2022.
- Topographical Survey Data/Mapping provided by Breedon Group.
- “Project Appraisal Guidelines for National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts” (October 2016) published by Transport Infrastructure Ireland.
- TII Publications document DN-GEO-03031, “Rural Road Link Design” (June 2017) published by Transport Infrastructure Ireland (TII).
- TII Publications document DN-GEO-03060, “Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade-separated and compact grade-separated junctions)” (June 2017) published by Transport Infrastructure Ireland (TII).

12.3 Receiving Environment

12.3.1 Introduction

An understanding of the site's receiving environment was informed by a site visit undertaken on the 25th of April 2022 in order to confirm facilities and operating conditions for all road users on the adjoining road network, and by a 12-hour classified junction turning count survey of seven junctions within the surrounding road network. These junctions included:

- Junction 1 – L8021/Castlejordan Road T-junction
- Junction 2 – L8021/Site Access T-junction
- Junction 3 – L8021/R148/ M6 Westbound Off Slip Roundabout
- Junction 4 – R148/M6 Eastbound Slip Roads Staggered junction
- Junction 5 – R148/R446 Roundabout
- Junction 6 – R148/M4 Westbound On Slip T-junction
- Junction 7 – R148/M4 Eastbound Off Slip Roundabout.

12.3.2 Site Location

The subject site is located in Co. Meath, approximately 1km south of its border with Co. Westmeath. It lies between 2.5km and 4.5km southwest of the town centre of Kinnegad and between 1.2km and 3.5km north of the small village of Ballinabrackey in Co. Meath. Lands surrounding the subject site can be described as rural in character. Residential properties in the vicinity of the site primarily comprise of one-off dwellings fronting onto the L8021 Local Road to the east and west of the site. In addition, there are a number of residential properties within the village of Ballinabrackey. The application site's location is shown in Figure 12.1.

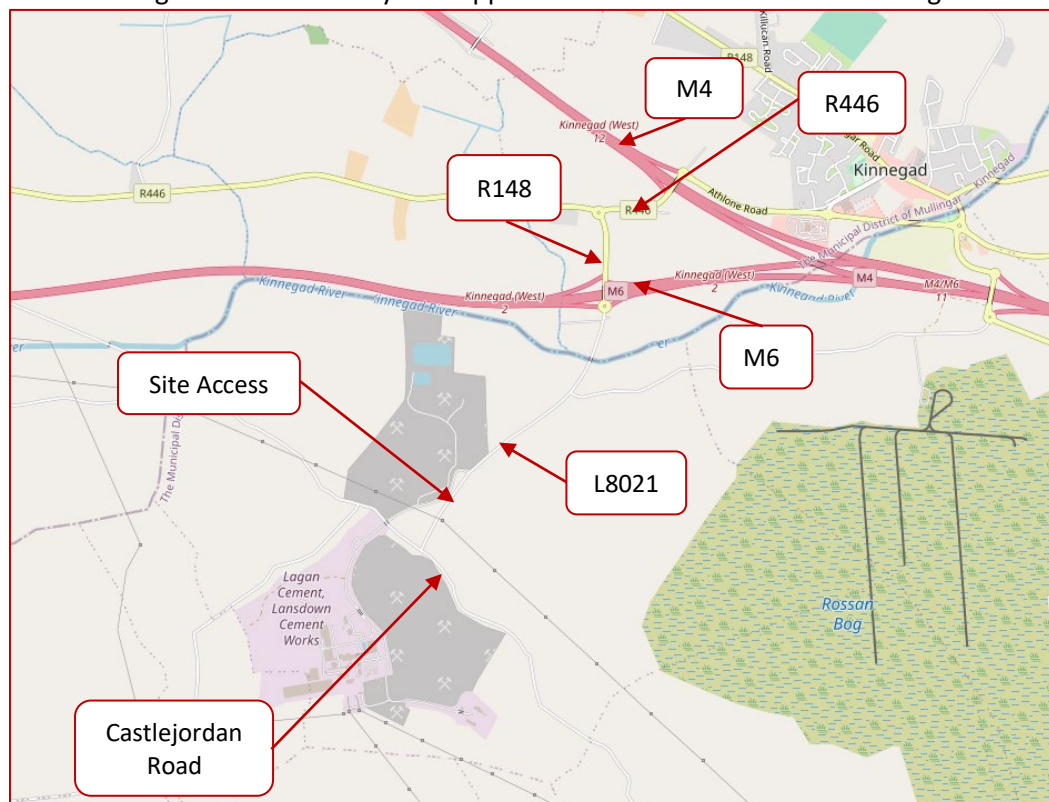


Figure 12.1: Local Site Location (Source: www.openstreetmaps.org)

12.3.3 Description of the Subject Site and Existing Quarry

The application site occupies a total area of approximately 4.13 hectares, whilst the area of Breedon Cement's overall landholding extends to approximately 286.02 hectares. The landholding under Breedon Cement's ownership borders the Kinnegad River to the north and straddles the L8021 Local Road under which a connecting underpass has been constructed. The limestone quarry lies to the south of this Castlejordan Road, with a shale quarry located to the north. An asphalt plant is located to the southeast of the site.

The cement works are located on the western side of the landholding, which are well screened by higher land to the north. There are 110kv ESB lines traversing the southern portion of the landholding and connecting with the sub-station, which is located within the area of the cement plant.

12.3.4 Existing Site Access Arrangements

The application site is accessed via a priority-controlled junction with L8021 to the northeast. The site access road is approximately 1.1km in length and connects the L8021 with the site office and car park. The access road curves around the existing quarry, with a few moderate bends in the horizontal alignment. It is approximately 8.7m wide, with no pedestrian footpaths on either side of the carriageway.



Figure 12.2: Site Access on L8021

12.3.5 Existing Site Layout

The internal site layout is characterised by a series of internal haul roads, providing access to the various parts of the quarry. Within the site there are a number of set-down areas that connect the internal haul roads, allowing for machinery and vehicles to park if required.

There is an office located to the west of the limestone quarry, at the end of the site access road. There is a sufficient number of car parking spaces available on the site to accommodate both direct employees and subcontractors.

The existing site layout is illustrated in Figure 12.3, where the development boundary and adjacent land ownerships are denoted by red and blue lines respectively.



Figure 12.3: Existing Site Layout

12.3.6 Existing Site Operations

The cement plant currently operates 24 hours a day, 7 days a week, year-round, with employees working in shifts during this time. The limestone quarry operates between 7am and 7pm on Monday to Saturday, excluding Bank Holidays. The extracted limestone material is processed internally within the site and transferred to the cement plant where it is used in the production of cement or to the asphalt plant for use in the production of bituminous materials. No limestone material extracted at the quarry is transported off site. Additional raw materials are imported to the site by HGVs (existing haul routes are detailed in Section 12.3.12).

12.3.7 Local Road Network

Castlejordan Road

The Castlejordan Road is a two-way single carriageway and runs in a northwest-southeast direction connecting the site to Castlejordan village. It is approximately 6m wide with a speed limit of 80kph in the vicinity of the site. As it is a rural local road, no footpaths or street lighting are provided.



Figure 12.4: L8021/Castlejordan Road T-Junction



L8021

The L8021 Local Road is a two-way single carriageway which runs in a north-south direction and connects the site to the M4 and M6 motorways. It is approximately 7.5 – 8.0m wide with a speed limit of 80kph in the vicinity of the site access. As it is a rural local road, no footpaths or street lighting are provided.



Figure 12.5: L8021 in the vicinity of the Site Access

R148

The R148 Regional Road is a two-way single carriageway that connects the L8021 and M6 to the R446 Regional Road. The R148 carriageway is 10m wide (however the road's width varies throughout its length) and there are no footpaths or hard shoulders present on either side of the carriageway. The R148 has a posted speed limit of 80kph.



Figure 12.6: R148 between Junction 4 and Junction 5

M6 Motorway

The M6 Motorway forms part of the Dublin - Galway route and runs from the junction at Kinnegad with the M4 motorway to Galway City. The site is connected to the M6 Motorway by the L8021 which intersects the M6 westbound carriageway on-, and off-, slips at Junction 2. The slip roads are one-way single carriageways with a hard strip with public lighting columns provided on both slip-roads.



Figure 12.7: M6 Westbound Off-slip



R446

The R446 Regional Road is a two-way single carriageway that connects the R148 to the M4 Motorway, Kinnegad Village to the north, and several towns to the west before terminating in Athlone, Co. Westmeath. The carriageway is approximately 7m wide (however the road's width varies throughout its length) and there are no footpaths or hard shoulders present on either side of the carriageway. The R446 has a posted speed limit of 80kph.



Figure 12.8: R446 Regional Road

M4 Motorway

The M4 Motorway forms part of the Dublin - Galway and Dublin - Sligo routes and runs from Lucan in Dublin to just northwest of Kinnegad where it transitions to the N4 National Road which continues as far as its terminal in Sligo Town. The site is connected to the M4 Motorway by the L8021 and the R148 which intersects the M4 westbound carriageway on-, and off-, slips at Junction 12. The slip roads are one-way single carriageways with a hard strip and the posted speed limit on both the on-slip and off-slip is 120kph, decreasing to 80kph upstream of the junction with the L8021. Public lighting is also provided on both slip roads.



Figure 12.9: M4 Westbound Off-slip

12.3.8 Traffic Survey Data Collection

Manual classified 12-hours junction turning counts (JTCs) were undertaken on Wednesday 2nd February 2022 at seven junctions. Figure 12.10 illustrates the location of the surveyed junctions relative to the site location. The count was carried out between 7:00am and 7:00pm, this time period encompassing the main operating hours of the quarry. The time period also includes the peak hours on the adjacent National, Regional and Local Roads. 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)
5. Buses

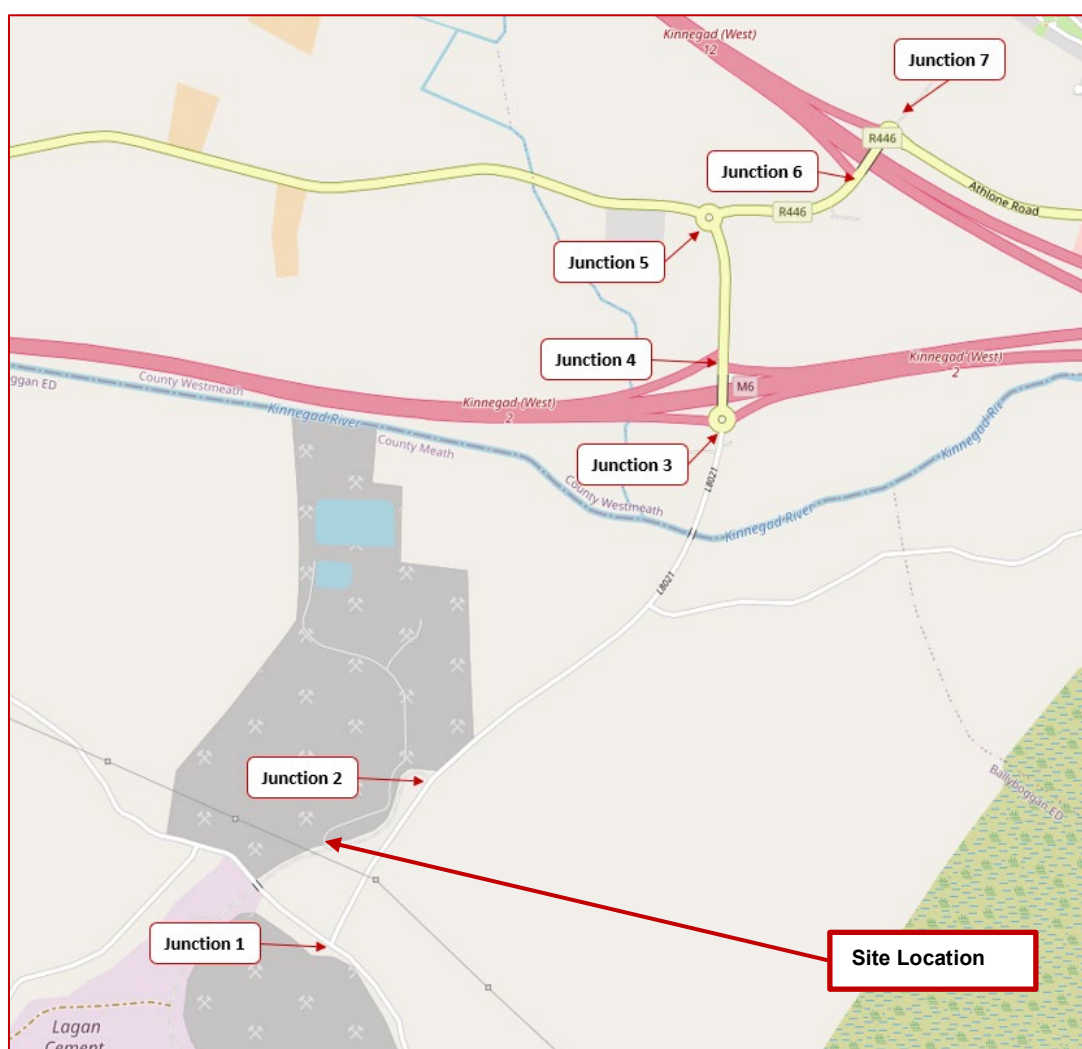


Figure 12.10: Traffic Survey Location

The detailed results of the traffic survey are summarised in Appendix 12.1. The morning and evening peak hours at each junction have been established as follows:

- **Junction 1 – Castlejordan Road/L8021 T-Junction** – 07:45-08:45 (AM Peak) & 16:45-17:45 (PM Peak)



- **Junction 2 – L8021/Site Access T-Junction** – 07:30-08:30 (AM Peak) & 16:30-17:30 (PM Peak)
- **Junction 3 – M6 WB On-slip/M6 WB Off-slip/R148/L8021 Roundabout** – 07:30-08:30 (AM Peak), 16:30-17:30 (PM Peak)
- **Junction 4 – R148/M6 EB Off-slip/M6 EB On-slip Staggered Crossroads** – 07:30-08:30 (AM Peak), 16:30-17:30 (PM Peak)
- **Junction 5 – R148/R446 Roundabout** – 07:30-08:30 (AM Peak), 16:30-17:30 (PM Peak)
- **Junction 6 – R148/M4 WB On-slip T-Junction** – 07:45-08:45 (AM Peak), 16:30-17:30 (PM Peak)
- **Junction 7 – R148/M4 EB Off-slip Roundabout** – 07:30-08:30 (AM Peak), 16:45-17:45 (PM Peak)

12.3.9 Road Collision Data Analysis

A review of the Road Safety Authority’s (RSA’s) Road Collision Database for the period 2005 to 2016 inclusive has been undertaken, during which operations at the quarry were ongoing, with the findings presented in the Figure 12.11. The database contains information on all reported collisions during this time period categorised by severity of injury and the year in which the collision occurred.

A review of the database identified that there were no recorded collisions on the surrounding road network within this 12 year period.

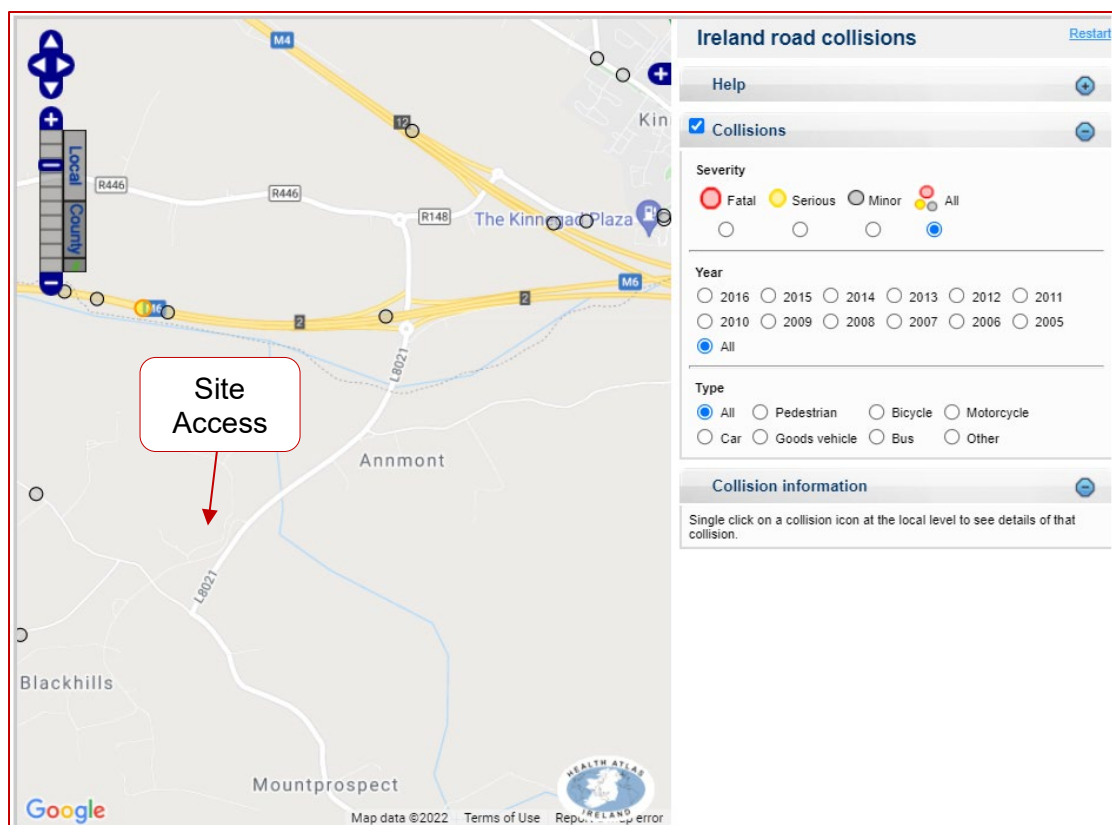


Figure 12.11: Road Collision Data (Source: www.RSA.ie)



12.3.10 Traffic Characteristics of Surrounding Road Network

Annual Average Daily Traffic

The traffic count data for each site has been converted to Annual Average Daily Traffic (AADT) values using the methodology described in “Expansion Factors for Short Period Traffic Counts” (Unit 16.2 NRA Project Appraisal Guidelines, August 2012). Annexes A to C of the above document were used in the expansion of traffic counts to AADTs. The AADTs at each junction, both existing and future, were calculated to determine the percentage increase in traffic volumes on the road network as a result of the trips generated by the proposed development.

Junction 1 and Junction 2 are located in County Meath and, as a result, a combined factor of 0.775 was arrived at by combining the individual hourly factors for the count duration. This factor was then used to determine the 24-hour traffic flow. This was then converted to a Weekly Average Daily Traffic (WADT) using an index of 0.95 for the Wednesday traffic count. Finally, this was converted to AADT using an index of 1.03 for the month of February. These factors were used to calculate the AADT for the roads at each of these two junctions.

Table 12.2: AADT Expansion Factors – Region: Mid-East (incl. Co. Meath)

Variable	Survey Period	Day of Week	Month of Year
Data Recorded	07:00hrs - 19:00hrs	Wednesday	February
Factor	0.775	0.95	1.03

Junctions 3 to 7 are located in County Westmeath and, therefore, a combined factor of 0.736 was arrived at by combining the individual hourly factors for the count duration. This factor was then used to determine the 24-hour traffic flow. This was then converted to a Weekly Average Daily Traffic (WADT) using an index of 0.97 for the Wednesday traffic count. Finally, this was converted to AADT using an index of 1.05 for the month of February. These factors were used to calculate the AADT for the roads at each of the five junctions.

Table 12.3: AADT Expansion Factors – Region: Midland (incl. Co. Westmeath)

Variable	Survey Period	Day of Week	Month of Year
Data Recorded	07:00hrs - 19:00hrs	Wednesday	February
Factor	0.736	0.97	1.05



Table 12.4: 'Baseline' Scenario (Junction 1) – Road Network AADT Calculation

Hour Ending	Castlejordan Road (N)	L8021	Castlejordan Road (S)
08:00	24	67	51
09:00	35	90	67
10:00	28	82	66
11:00	20	56	46
12:00	23	58	45
13:00	21	44	27
14:00	23	77	56
15:00	21	65	50
16:00	30	86	64
17:00	31	93	76
18:00	49	106	73
19:00	36	84	64
Period Total	341	908	685
<i>Period Total HGVs</i>	46	67	33
<i>% HGVs</i>	13.49%	7.38%	4.82%
Total AADT	431	1,146	865



Table 12.5: 'Baseline' Scenario (Junction 2) – Road Network AADT Calculation

Hour Ending	L8021 (S)	Site Access	L8021 (N)
08:00	67	117	164
09:00	90	50	138
10:00	82	41	117
11:00	56	47	103
12:00	58	41	97
13:00	44	39	83
14:00	77	64	133
15:00	65	42	101
16:00	86	33	117
17:00	93	87	168
18:00	106	65	159
19:00	84	18	102
Period Total	908	644	1,482
Period Total HGVs	67	238	303
% HGVs	7.38%	36.96%	20.45%
Total AADT	1,146	813	1,871



Table 12.6: 'Baseline' Scenario (Junction 3) – Road Network AADT Calculation

Hour Ending	M6 WB On Slip	R148	M6 WB Off Slip	L8021
08:00	139	288	4	175
09:00	155	251	9	133
10:00	90	175	11	114
11:00	107	193	11	103
12:00	91	177	8	98
13:00	78	146	6	80
14:00	85	201	6	138
15:00	120	187	8	103
16:00	124	229	12	115
17:00	166	285	19	174
18:00	176	295	16	157
19:00	122	197	14	87
Period Total	1,453	2,624	124	1,477
Period Total HGVs	223	412	41	296
% HGVs	15.35%	15.7%	33.06%	20.04%
Total AADT	2,011	3,631	172	2,044



Table 12.7: 'Baseline' Scenario (Junction 4) – Road Network AADT Calculation

Hour Ending	R148 (S)	M6 EB Off Slip	R148 (N)	M6 EB On Slip
08:00	288	139	352	11
09:00	251	130	359	18
10:00	175	79	240	10
11:00	193	80	254	9
12:00	177	79	223	9
13:00	146	79	207	10
14:00	201	96	265	14
15:00	187	102	271	4
16:00	229	127	326	16
17:00	285	138	410	13
18:00	295	150	416	9
19:00	197	110	303	6
Period Total	2,624	1,309	3,626	129
Period Total HGVs	412	223	535	32
% HGVs	15.7%	17.04%	14.75%	24.81%
Total AADT	3,631	1,811	5,018	179



Table 12.8: 'Baseline' Scenario (Junction 5) – Road Network AADT Calculation

Hour Ending	R148 (E)	R148 (S)	R446
08:00	402	352	74
09:00	426	359	105
10:00	293	240	69
11:00	298	254	68
12:00	289	223	70
13:00	271	207	78
14:00	323	265	70
15:00	349	271	90
16:00	409	326	117
17:00	514	410	166
18:00	533	416	157
19:00	416	303	135
Period Total	4,523	3,626	1,199
Period Total HGVs	626	535	127
% HGVs	13.84%	14.75%	10.59%
Total AADT	6,259	5,018	1,659



Table 12.9: 'Baseline' Scenario (Junction 6) – Road Network AADT Calculation

Hour Ending	R148 (W)	M4 WB On Slip	R148 (E)
08:00	402	153	527
09:00	426	222	586
10:00	293	180	433
11:00	298	169	433
12:00	289	131	390
13:00	271	156	399
14:00	323	188	459
15:00	349	186	499
16:00	409	231	596
17:00	514	297	739
18:00	533	339	794
19:00	416	265	659
Period Total	4,523	2,517	6,514
Period Total HGVs	626	330	844
% HGVs	13.84%	13.11%	12.96%
Total AADT	6,259	3,483	9,014



Table 12.10: 'Baseline' Scenario (Junction 7) – Road Network AADT Calculation

Hour Ending	R148 (E)	R148 (S)	M4 EB Off Slip
08:00	709	527	260
09:00	816	586	294
10:00	625	433	234
11:00	576	433	161
12:00	519	390	167
13:00	551	399	182
14:00	607	459	192
15:00	652	499	173
16:00	781	596	213
17:00	916	739	219
18:00	1012	794	258
19:00	796	659	169
Period Total	8,560	6,514	2,522
Period Total HGVs	1,096	844	344
% HGVs	12.8%	12.96%	13.64%
Total AADT	11,846	9,014	3,490

12.3.11 Traffic Characteristics of Proposed Development

Development Traffic Generation

Table 12.11 presents the expected traffic generation associated with the proposed development in the worst-case scenario, presented for both LVs and HVs and based on the following: -

- 120 no. employees are directly employed at the site.
- Staff members work in shifts, and it is assumed that 75% (90 no.) would enter/exit the site during the 12-hour period when the traffic surveys were recorded.
- 90 no. subcontractors were assumed to enter the site during the 12-hour period when the traffic surveys were recorded.
- 10 no. miscellaneous LV trips occur per day. Miscellaneous trips include trips in relation to inspections, maintenance, visitors, etc.



As the existing traffic volumes generated by the site are not expected to intensify as a result of the proposed development, the number of HGVs recorded by the traffic surveys entering/exiting the site were used to calculate the number of daily HGV trips at the site.

Table 12.11: Proposed Development Traffic Generation

Type	Proposed Development Daily Trips (One-Way)
LVs (Staff – Direct Employees)	90 (75% of 120)
LVs (Staff – Subcontractors)	90
LVs (Miscellaneous)	10
HGVs (recorded by traffic surveys)	120
Total (LVs + HGVs)	310

This equates to a total of 310 vehicles entering the site access and 310 vehicles exiting the site per day (i.e. a total of 620 trips).

Waste

As the proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity of the existing cement plant located on the site, it is considered that traffic related to waste management (i.e. storage, disposal, collection etc.) will remain at current levels. Therefore, it is considered that this will be included in the trips above as recorded by the existing traffic surveys and assumed miscellaneous trips.

Adjacent Developments

It is proposed to construct a solar photovoltaic (PV) energy development (Meath County Council Planning Application Ref. 22/958) on a site of circa 21.8 hectares on existing greenfield sites to the east and southwest of the access to the existing quarry. The proposed solar development shall include installation of PV panels, associated electrical infrastructure (invertors, control buildings etc.), and ancillary security and site development works. The proposed development shall utilise a new access on the L8021 Local Road opposite the access to the existing quarry.

As the (temporary) construction phase for solar farm developments generates substantially higher levels of traffic than during the subsequent operational phase, a construction phase site access strategy has been developed to minimise traffic impacts on the adjoining road network. It is proposed that the eastern parcel shall use a new proposed access junction onto the L8021, modified to accommodate vehicles during the construction phase. The western parcel of the development shall use a new proposed access onto the existing quarry access road.

During the construction phase of the proposed development, traffic generation would consist of HGV and staff trips. The types of vehicles used for delivery of construction materials and components will consist of either 12m rigid or 16.5m articulated trucks. When travelling to/from the site, construction traffic will use the L8021, the M6 Motorway and the M4 Motorway.

An average of circa 25-30, and a maximum of circa 40, staff will be based on-site during the peak construction phase. The majority of these staff, who will largely be specialist construction staff based locally for the duration of construction works, will be transited to and from the site via bus (1 no. buses is conservatively assumed). Construction staff shall arrive on-site prior



to 07:00hrs and depart after 18:00hrs and as such, are not expected to coincide with AM and PM peaks on the local road network.

During the operational phase of the development, traffic generation would be limited to periodic maintenance trips. These trips will involve a light van accessing the site on approximately six occasions per month. As such, the operational phase of the proposed development will generate very low levels of traffic.

A 27-week programme for completion of construction activities on the site is envisaged. During the peak construction weeks, a maximum of 2 inbound and 2 outbound daily HGV trips to the site is anticipated (excluding staff related bus trips). It has been assumed that, although the majority of staff (25) will travel to the site by bus, the remaining (15) staff will access the site by private car.

The construction is expected to commence in 2022 with the development opening in 2023. It is unclear if the construction stage will overlap with the opening of the proposed development, the subject of this Application. However, to ensure a conservative assessment, traffic related to the construction stage of the PV energy development has been added to the background traffic for this traffic assessment for the 2023 (Opening Year) analysis. Traffic related to the PV energy development during its operational stage is considered negligible in relation to operations at the quarry and so these trips have not been added to the network for the future assessment years following 2023.

Trip Distribution

Appendix 12.2 contains extracts from the Trip Rate Information Computer System (TRICS) database giving the forecast arrival/departure distribution for quarry sites. This was considered to be the most suitable category in the TRICS database for this development. By inspection it can be seen that the pattern of arrivals/departures is consistent with a short turnaround within the site, e.g. that vehicles generally arrive and depart within a short time period, likely to be less than an hour.

These trips have been distributed throughout the day according to trip rates estimated from the TRICS database which is based on surveyed traffic for similar types of developments in similar locations and of a similar scale.

Scope of Assessment

Section 2.1 of the “Traffic and Transport Assessment Guidelines” published by Transport Infrastructure Ireland recommends that in an urban, congested or ‘sensitive’ setting that a traffic assessment should cover all of the roads and junctions where the development traffic exceeds 5% of the existing or background traffic, or 10% of the background traffic when located in rural areas.

Figure 12.12 outlines the distributed development traffic as a percentage of the background traffic on the adjacent road network. To ensure a robust assessment, a threshold of 5% was used when determining what junctions should be included in this traffic assessment. The development traffic does not exceed 5% of the background traffic on the M4 Motorway slip roads, and so it is not considered necessary to include Junctions 6 and 7 in the junction, and link, capacity analysis.

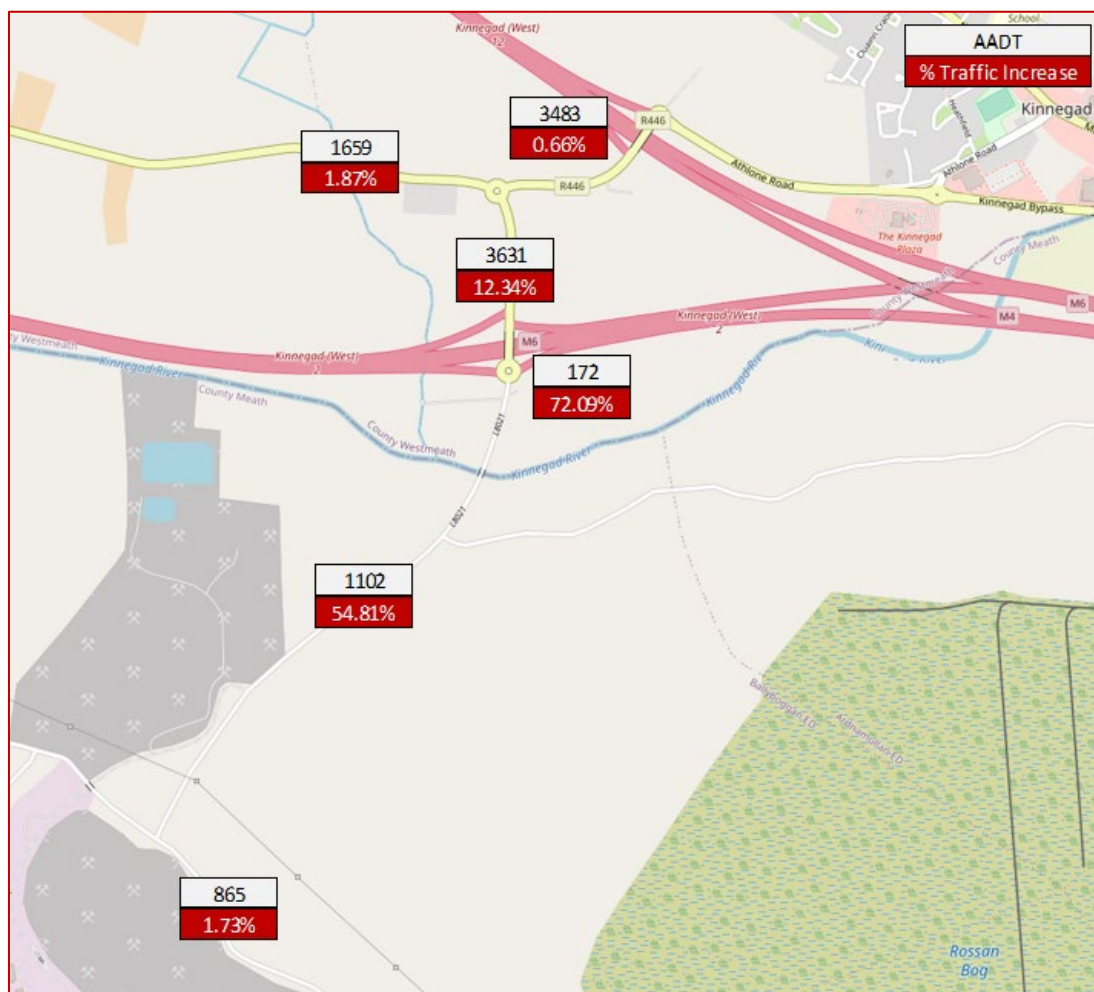


Figure 12.12: Site Traffic as a Percentage of Background Traffic

The proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity of the existing cement plant. There will also be no increase in employee generated traffic or traffic associated with the delivery or export of raw materials. The cement plant currently has an annual production rate of 700,000 tonnes per annum as per planning ref. TA/60580 (February 2007). The proposed development will be served by the existing on site haul road from the existing vehicular access point on the L8021 to the northeast of the site. Haul routes currently used on site will be retained.

12.3.12 Haul Routes

All HGV site traffic turns left onto the L8021 when exiting the site and turns right from the L8021 when entering the site. The majority of HGV traffic is expected to access the L8021 from the M6 to the northeast and the remaining HGV traffic will exit the M4 and use the R148 or the R446 Regional Road to the north when travelling to the site. It is assumed that HGVs will return via the same route when leaving the site. The assignment of HGV traffic through these



haul routes was developed using previous traffic distribution information contained in a 2009 EIS Report, submitted for a previous application at the site. Indicative haul routes to/from the site are presented in Figure 12.13.

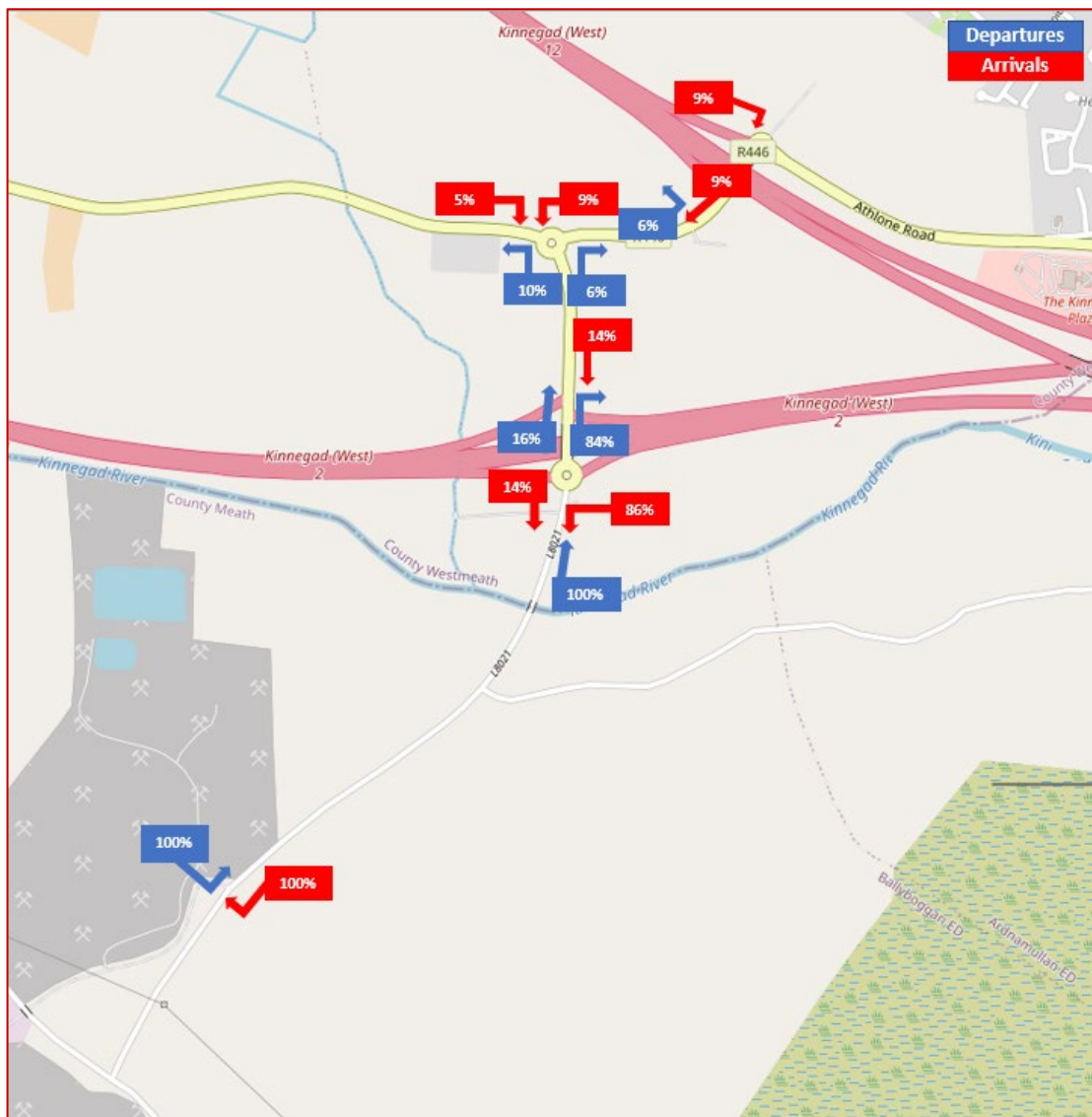


Figure 12.13: Assignment of HGV Traffic throughout the Surrounding Road Network

Trip Assignments

The distribution of the LV traffic on the adjacent road network is based on an assessment of the existing traffic flows throughout the road network derived from the traffic count data. Based on the traffic count data, the assignment of LV traffic to/from the site is shown in Figure 12.14

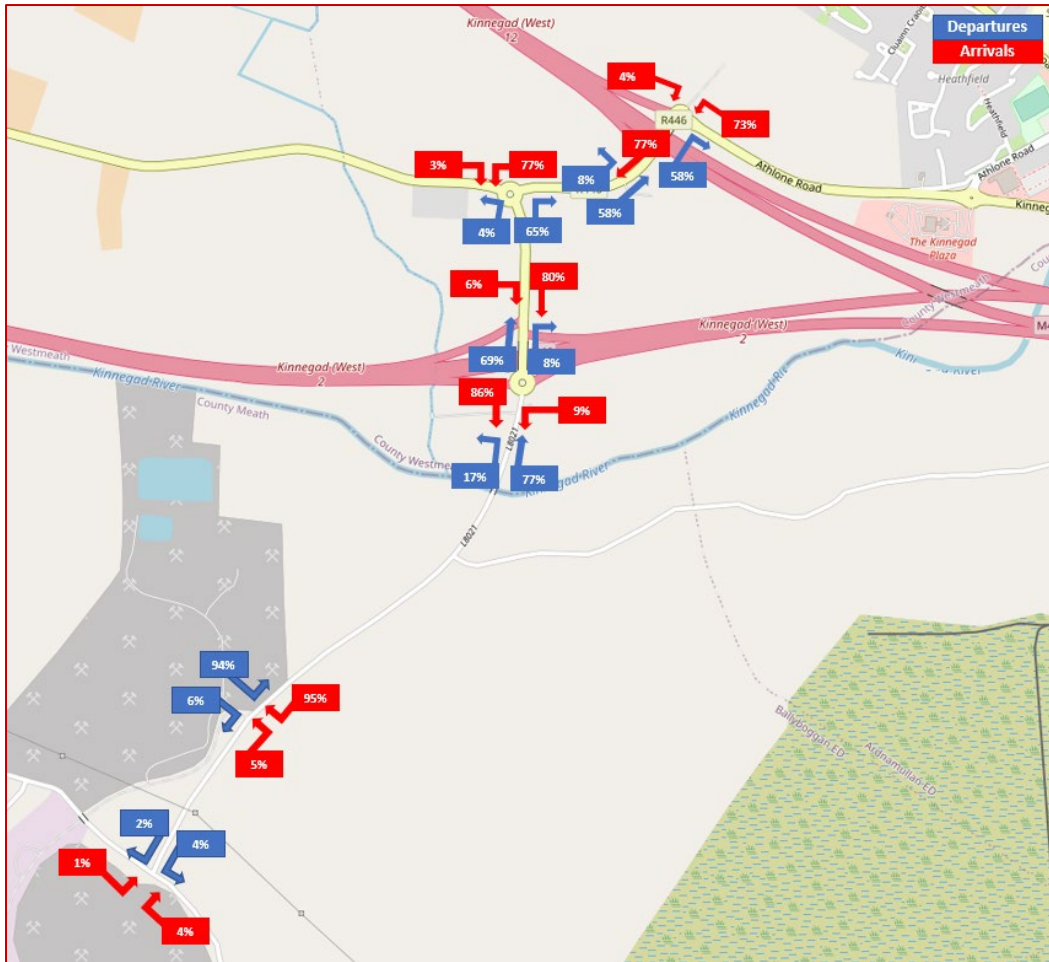


Figure 12.14: Assignment of LV Traffic throughout the Junction Network



12.4 Impacts

12.4.1 Introduction

This section of the Chapter sets out the likely impact on traffic as a result of the proposed development and includes details of likely impacts envisaged during the operational stage of the site.

12.4.2 Construction Stage

As the site is currently operational, and this application is in relation to the deepening of the existing quarry, construction works will not be necessary. The development will not involve a construction phase and therefore impacts associated with construction will be negligible.

12.4.3 Operational Stage

Assessment Years and Scenarios

Three assessment years, i.e. year of opening (2023), year of opening + 5 years (2028), and year of opening + 15 years have been considered for the operational phase impact assessment. In each assessment year, two scenarios are assessed, i.e. 'baseline' scenario (without development), and the 'do-something' scenario (with development).

Background Traffic Forecasting: 'Baseline' Scenario

Growth Factors outlined in the "Project Appraisal Guidelines - Unit 5.3 – Travel Demand Projections (PE-PAG-02017)," updated by TII in November 2021, have been used to determine future year traffic flows on the network from the estimated 2021 traffic count data. Information within these guidelines is provided for County Meath and County Westmeath from 2016 - 2030, from 2030 - 2040 and from 2040 - 2050 for low, central and high sensitivity growth scenarios. For this assessment, a central growth scenario has been adopted (a 'central' growth scenario was assumed given the site location and scale).

Growth factors are provided for LVs and HVs and have been applied to the traffic survey results detailed in Table 12.4 to Table 12.10 to estimate future year background traffic flows for the road network. The existing development traffic was excluded from the background traffic data before the growth factors were applied. The development traffic was then added to each future forecast year and capacity analysis undertaken.

As the site is located close to the border between County Meath and County Westmeath, the junctions assessed are located within both County Meath (Junctions 1 and 2) and County Westmeath (Junctions 3 to 5). Therefore, two sets of growth factors were used, according to the location of each junction. Central growth factors for each county are set out in Table 12.12 and Table 12.13.

Table 12.12: TII Growth Factors (Central) – County Meath

Year	Annual Growth Factor – LV	Annual Growth Factor – HV
2016-2030	1.0173	1.0365
2030-2040	1.007	1.0186



Table 12.13: TII Growth Factors (Central) – County Westmeath

Year	Annual Growth Factor – LV	Annual Growth Factor – HV
2016-2030	1.0161	1.0316
2030-2040	1.0062	1.0147

Traffic Impact

Link Capacity Assessment

The link capacity of a road is assessed in accordance with TII Publications document DN-GEO-03031 which provides guidance on recommended rural road layouts in its Table 6/1. A Level of Service (LOS) D is used when assessing a road for capacity. LOS is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, manoeuvrability, delay, and safety. A LOS D is used as at LOS D speeds begin to decline slightly with slight increase of flows and density begins to increase somewhat more quickly, and freedom to manoeuvre within the traffic stream is more noticeably limited, and the driver experiences reduced comfort levels.

L8021 Local Road

The L8021, adjacent to the site, has an average cross-section width of approximately 7m with no hard shoulders present. Therefore, the L8021 is considered to be most similar to the Type 3 Single Carriageway cross-section in TII Publications document DN-GEO-03031 with a capacity of 5,000 AADT for Level of Service D.

The combined background and development traffic volumes, outlined in Table 12.14 in each of the assessment years is less than the LOS D capacity of 5,000 AADT for a Type 3 Single Carriageway. It is considered, therefore, that the L8021 will operate within capacity for each of the assessment years, so will have a negligible impact on the local road network. Table 12.14 indicates that the traffic associated with the proposed development represents between 30.91% and 34.97% of the total traffic on the L8021 during the assessment years 2023 to 2038.

Table 12.14: Combined AADT for Each Assessment Year (L8021)

	Assessment Year		
	2023	2028	2038
Background Traffic	1,123	1,233	1,350
Site Traffic	604	604	604
Combined Traffic (Background + Site Traffic)	1,727	1,837	1,954
Site Traffic as % of Combined Traffic	34.97%	32.88%	30.91%

R148 Regional Road

The R148, north of the site, has an average cross-section width of approximately 7.0m with no hard shoulders present. Therefore, the R148 is considered to be most similar to the Type 3 Single Carriageway cross-section in TII Publications document DN-GEO-03031 with a capacity of 5,000 AADT for Level of Service D.

The combined background and development traffic volumes, outlined in Table 12.15 in each of the assessment years is less than the LOS D capacity of 5,000 AADT for a Type 3 Single



Carriageway. It is considered, therefore, that the R148 will operate within capacity for each of the assessment years, so will have a negligible impact on the local road network. Table 12.15 indicates that the traffic associated with the proposed development represents between 9.19% and 10.81% of the total traffic on the R148 during the assessment years 2023 to 2038.

Table 12.15: Combined AADT for Each Assessment Year (R148)

	Assessment Year		
	2023	2028	2038
Background Traffic	3,698	4,056	4,427
Site Traffic	448	448	448
Combined Traffic (Background + Site Traffic)	4,146	4,504	4,875
Site Traffic as % of Combined Traffic	10.81%	9.95%	9.19%

M6 Westbound Off Slip Road

The M6 Westbound Off-slip, northeast of the site, is a one-way single carriageway road with an average cross-section width of approximately 3.5m and a 1.5m hard shoulder present. Therefore, the M6 westbound Off-slip is considered to be most similar to the Type 3 Single Carriageway cross-section in TII Publications document DN-GEO-03031 with a capacity of 5,000 AADT for Level of Service D.

The combined background and development traffic volumes, outlined in Table 12.16 in each of the assessment years is less than the LOS D capacity of 5,000 AADT for a Type 3 Single Carriageway. It is considered, therefore, that the M6 Westbound Off-slip will operate within capacity for each of the assessment years, so will have a negligible impact on the local road network. Table 12.16 indicates that the traffic associated with the proposed development represents between 36.47% and 41.47% of the total traffic on the M6 westbound Off-slip during the assessment years 2023 to 2038.

Table 12.16: Combined AADT for Each Assessment Year (M6 Westbound Off Slip Road)

	Assessment Year		
	2023	2028	2038
Background Traffic	175	195	216
Site Traffic	124	124	124
Combined Traffic (Background + Site Traffic)	299	319	340
Site Traffic as % of Combined Traffic	41.47%	38.87%	36.47%

R446 Regional Road

The R446, northwest of the site, has an average cross-section width of approximately 6.0m with no hard shoulders present. Therefore, the R446 is considered to be most similar to the Type 3 Single Carriageway cross-section in TII Publications document DN-GEO-03031 with a capacity of 5,000 AADT for Level of Service D.

The combined background and development traffic volumes, outlined in Table 12.17 in each of the assessment years is less than the LOS D capacity of 5,000 AADT for a Type 3 Single Carriageway. It is considered, therefore, that the R446 will operate within capacity for each of the assessment years, so will have a negligible impact on the local road network. Table 12.17



indicates that the traffic associated with the proposed development represents between 1.52% and 1.80% of the total traffic on the R446 during the assessment years 2023 to 2038.

Table 12.17: Combined AADT for Each Assessment Year (R446)

	Assessment Year		
	2023	2028	2038
Background Traffic	1,689	1,844	2,003
Site Traffic	31	31	31
Combined Traffic (Background + Site Traffic)	1,720	1,875	2,034
Site Traffic as % of Combined Traffic	1.80%	1.65%	1.52%

Junction Capacity Assessment

The capacity of the surveyed junctions was assessed using the Transport Research Laboratory's (TRL) Junctions 9 computer programme.

Junction performance is measured as a ratio between the flow and capacity (RFC). The capacity analysis has been carried out for a period of 12-hours, which corresponds to the operational hours of the proposed development, for each of the assessment years, the Year of Opening (2023), Year of Opening +5 (2028), and Year of Opening +15 (2038). A rural junction with an RFC below 0.85 is considered to be operating within capacity, and an RFC of 0.85 indicates a junction operating at capacity.

The traffic to/from the site access at Junction 2 was removed from the traffic counts prior to applying the growth factors. This was done because the quarry is an existing development, whose operations are not proposed to intensify in the future, as a result of this application, and thus resulting in no increase in traffic volumes to/from the Site. The development traffic described in Table 12.11 was therefore considered to be accounted for in the traffic survey data, hence its removal from the data prior to estimating the future year traffic volumes.

To ensure a robust assessment, the removed traffic was replaced with the calculated development traffic, as this indicates the worse-case scenario for traffic generated by each facility within the site complex.

This step, however, was not taken when modelling the remaining junctions as it was not possible to distinguish between development traffic and traffic continuing through the road network, resulting in the calculated development traffic being added to surveyed development traffic. This approach includes an element of 'double counting'; however it is considered a conservative approach to the analysis of these junctions.

The detailed junction capacity analysis outputs for the analysed junctions, for each of the assessment years, are contained within Appendix 12.4 of this report.



Location 1: T-Junction of Castlejordan Road and the L8021

A summary of the junction capacity analysis results for this junction are shown in Table 12.18. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2023, 2028 and 2038, so will have a negligible impact on the local road network.

Table 12.18: Summary of Traffic Analysis at Junction 1

Stream	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
Stream	2023 Without Development			
L8021 – Castlejordan Road (E)	0.1	7.79	0.09	A
L8021 – Castlejordan Road (W)	0.1	15.07	0.08	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.1	7.22	0.13	A
Stream	2023 With Development			
L8021 – Castlejordan Road (E)	0.1	7.79	0.09	A
L8021 – Castlejordan Road (W)	0.1	15.07	0.09	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.2	7.22	0.14	A
Stream	2023 With Development & Solar Farm Construction Traffic			
L8021 – Castlejordan Road (E)	0.1	7.79	0.09	A
L8021 – Castlejordan Road (W)	0.1	15.07	0.09	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.2	7.22	0.14	A
Stream	2028 Without Development			
L8021 – Castlejordan Road (E)	0.1	7.94	0.10	A
L8021 – Castlejordan Road (W)	0.1	15.19	0.09	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.2	7.34	0.14	A
Stream	2028 With Development			
L8021 – Castlejordan Road (E)	0.1	7.94	0.10	A
L8021 – Castlejordan Road (W)	0.1	15.19	0.10	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.2	7.34	0.15	A
Stream	2038 Without Development			
L8021 – Castlejordan Road (E)	0.1	8.15	0.12	A
L8021 – Castlejordan Road (W)	0.1	15.31	0.11	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.2	7.52	0.16	A
Stream	2038 With Development			
L8021 – Castlejordan Road (E)	0.1	8.15	0.12	A
L8021 – Castlejordan Road (W)	0.1	15.31	0.11	C
Castlejordan Road (E) – Castlejordan Road (W)/ L8021	0.2	7.52	0.17	A



Location 2: Junction of the Site Access and the L8021

A summary of the junction capacity analysis results for this junction are shown in Table 12.19. The scenario which assesses the development and construction traffic associated with the adjacent Solar Farm development has been modelled as a crossroads junction. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2023, 2028 and 2038, so will have a negligible impact on the local road network.

Table 12.19: Summary of Traffic Analysis at Junction 2

	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
Stream	2023 Without Development			
Site Access - L8021 (N)	0.0	0.00	0.00	A
Site Access - L8021 (S)	0.0	0.00	0.00	A
L8021 (N) - L8021 (S)/Site Access	0.0	0.00	0.00	A
Stream	2023 With Development			
Site Access - L8021 (N)	0.3	9.89	0.26	A
Site Access - L8021 (S)	0.0	7.56	0.02	A
L8021 (N)- L8021 (S)/Site Access	0.5	12.17	0.37	B
Stream	2023 With Development & Solar Farm Construction Traffic			
Site Access - L8021 (N)/Solar Farm	0.3	9.87	0.26	A
Site Access - L8021 (S)/Solar Farm	0.0	7.59	0.02	A
L8021 (S) - Site Access/L8021(N)/Solar Farm	0.0	0.00	0.00	A
Solar Farm - Site Access/L8021 (S)	0.0	0.00	0.00	A
Solar Farm - Site Access/L8021 (N)	0.0	7.44	0.03	A
L8021 (N) - L8021(S)/Site Access/Solar Farm	0.5	12.09	0.37	B
Stream	2028 Without Development			
Site Access - L8021 (N)	0.0	0.00	0.00	A
Site Access - L8021 (S)	0.0	0.00	0.00	A
L8021 (N) - L8021 (S)/Site Access	0.0	0.00	0.00	A
Stream	2028 With Development			
Site Access - L8021 (N)	0.3	9.92	0.27	A
Site Access - L8021 (S)	0.0	7.59	0.02	A
L8021 (N) - L8021 (S)/Site Access	0.5	12.15	0.37	B
Stream	2038 Without Development			
Site Access - L8021 (N)	0.0	0.00	0.00	A
Site Access - L8021 (S)	0.0	0.00	0.00	A



	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
L8021 (N) - L8021 (S)/Site Access	0.0	0.00	0.00	A
Stream	2038 With Development			
Site Access - L8021 (N)	0.3	9.96	0.27	A
Site Access - L8021 (S)	0.0	0.02	0.02	A
L8021 (N) - L8021 (S)/Site Access	0.5	0.37	0.37	B



Location 3: Roundabout Junction of the M6 Westbound Slip Roads, R148, and L8021

A summary of the junction capacity analysis results for this junction are shown in Table 12.20. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2023, 2028 and 2038, so will have a negligible impact on the local road network.

Table 12.20: Summary of Traffic Analysis at Junction 3

	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
Stream	2023 Without Development			
R148	0.2	2.70	0.20	A
M6 WB Off Slip	0.0	3.03	0.02	A
L8021	0.1	2.68	0.10	A
Stream	2023 With Development			
R148	0.3	2.68	0.27	A
M6 WB Off Slip	0.0	1.88	0.02	A
L8021	0.2	2.24	0.18	A
Stream	2023 With Development & Solar Farm Construction Traffic			
R148	0.4	2.72	0.28	A
M6 WB Off Slip	0.0	3.07	0.03	A
L8021	0.2	2.88	0.20	A
Stream	2028 Without Development			
R148	0.3	2.79	0.21	A
M6 WB Off Slip	0.0	3.06	0.02	A
L8021	0.1	2.74	0.10	A
Stream	2028 With Development			
R148	0.4	2.76	0.29	A
M6 WB Off Slip	0.0	1.95	0.02	A
L8021	0.2	2.34	0.18	A
Stream	2038 Without Development			
R148	0.3	2.89	0.24	A
M6 WB Off Slip	0.0	3.09	0.02	A
L8021	0.1	2.82	0.11	A
Stream	2038 With Development			
R148	0.4	2.87	0.31	A
M6 WB Off Slip	0.0	2.03	0.02	A
L8021	0.2	2.44	0.19	A



Location 4: Staggered Crossroads Junction of the R148 and the M6 Eastbound Slip Roads

A summary of the junction capacity analysis results for this junction are shown in Table 12.21. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2023, 2028 and 2038, so will have a negligible impact on the local road network.

Table 12.21: Summary of Traffic Analysis at Junction 4

Stream	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
2023 Without Development				
M6 EB Off Slip – R148 (W)	0.3	7.82	0.25	A
M6 EB Off Slip – R148 (S)/ M6 EB On Slip	0.2	17.68	0.18	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	9.89	0.06	A
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A
2023 With Development				
M6 EB Off Slip – R148 (W)	0.3	8.03	0.26	A
M6 EB Off Slip – R148 (S)/ M6 EB On Slip	0.2	17.71	0.22	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	11.79	0.08	B
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A
2023 With Development & Solar Farm Construction Traffic				
M6 EB Off Slip – R148 (W)	0.3	8.04	0.26	A
M6 EB Off Slip – R148 (S)/ M6 EB On Slip	0.2	17.71	0.22	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	11.80	0.09	B
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A
2028 Without Development				
M6 EB Off Slip – R148 (W)	0.4	8.15	0.28	A
M6 EB Off Slip – R148 (S)/ M6 EB On Slip	0.2	18.02	0.20	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	11.51	0.07	B
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A
2028 With Development				
M6 EB Off Slip – R148 (W)	0.4	8.46	0.29	A
M6 EB Off Slip – R148 (S)/ M6 EB On Slip	0.3	18.06	0.24	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	11.87	0.09	B



	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A
Stream	2038 Without Development			
M6 EB Off Slip – R148 (W)	0.4	8.57	0.31	A
M6 EB Off Slip – R148 (S)/ M6 EB On Slip	0.2	18.44	0.23	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	11.63	0.08	B
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A
Stream	2038 With Development			
M6 EB Off Slip– R148 (W)	0.4	8.98	0.32	A
M6 EB Off Slip– R148 (S)/ M6 EB On Slip	0.3	18.48	0.26	C
R148 (S) – M6 EB Off Slip/ R148 (N)	0.1	11.96	0.10	B
M6 EB On Slip – R148 (S)	0.0	0.00	0.00	A
M6 EB On Slip – M6 EB Off Slip/ R148 (N)	0.0	0.00	0.00	A
R148 (N) – R148 (S)/ M6 EB Off Slip/ M6 EB On Slip	0.0	0.00	0.00	A



Location 5: Roundabout Junction of the R148 and the R446

A summary of the junction capacity analysis results for this junction are shown in Table 12.22. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2023, 2028 and 2038, so will have a negligible impact on the local road network.

Table 12.22: Summary of Traffic Analysis at Junction 5

	12 Hours (07:00 – 19:00)			
	Queue (Veh)	Delay (s)	RFC	LOS
Stream	2023 Without Development			
R148 (E)	0.2	3.05	0.20	A
R148 (S)	0.2	3.57	0.19	A
R446	0.1	4.35	0.07	A
Stream	2023 With Development			
R148 (E)	0.3	3.03	0.26	A
R148 (S)	0.3	3.53	0.25	A
R446	0.1	4.32	0.07	A
Stream	2023 With Development & Solar Farm Construction Traffic			
R148 (E)	0.4	3.06	0.28	A
R148 (S)	0.4	3.60	0.28	A
R446	0.1	4.37	0.07	A
Stream	2028 Without Development			
R148 (E)	0.3	3.15	0.22	A
R148 (S)	0.3	3.68	0.21	A
R446	0.1	4.51	0.09	A
Stream	2028 With Development			
R148 (E)	0.4	3.25	0.30	A
R148 (S)	0.4	3.78	0.29	A
R446	0.2	4.66	0.10	A
Stream	2038 Without Development			
R148 (E)	0.3	3.27	0.24	A
R148 (S)	0.3	3.82	0.23	A
R446	0.2	4.69	0.10	A
Stream	2038 With Development			
R148 (E)	0.4	3.25	0.30	A
R148 (S)	0.4	3.78	0.29	A
R446	0.2	4.66	0.10	A

12.5 Baseline Scenario

If the proposed development does not proceed, operations will continue at the current level until the operations permitted under the current permission are exhausted.

12.6 Prevention and Mitigation Measures

Road Safety

Site Access

The site is accessed via a priority-controlled T-Junction on the L8021 local road. The site access road is approximately 1.1km in length and connects the L8021 with the site office and carpark. The L8021 continues northeast of the site access towards Kinnegad in one direction and southwest where it meets the Castlejordan Road in the other direction. The site access road has a posted speed limit of 50kph and includes a short radius horizontal curve immediately upstream of the junction with the L8021.

Within the site access junction there is a physical splitter island separating entering and exiting vehicles. A blue 'Keep Left' arrow sign is provided within the island facing drivers entering the site. A Stop sign is provided upstream of the junction. Reboundable pencil bollards are provided from the island extending into the access road and through the horizontal curve to further delineate the opposing traffic lanes.

All HGV site traffic turns left onto the L8021 when exiting the development and turns right from the L8021 when entering the site. Traffic exiting the site is therefore unopposed and thus will result in a reduced risk of collisions at the site access. 'Heavy Vehicles Crossing' warning signs are provided on the L8021 on the approach to the site access in both directions.

Sightlines

The site is accessed from the L8021 Local Road and this road has a posted speed limit of 80kph.

The visibility splays at the site access were assessed in accordance with the criteria contained in TII Publications document DN-GEO-03060 "Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade-separated and compact grade-separated junctions)". For a speed limit of 80kph, this requires unobstructed visibility of 160m from a distance of 3.0m back from the edge of the major road.



Figure 12.15: Island and Signage within Site Access Junction



Figure 12.16: 'Heavy Vehicles Crossing' Sign located upstream of the access facing both directions



Figure 12.17: Visibility at the Site Access from 3.0m back to the North (Left) & South (Right)

An assessment of the sightlines, which included a visual assessment on site (see Figure 12.17), determined that the site access achieves these requirements to the south however, to the north, the adjacent boundary hedge partially restricts visibility in this direction. However, closer to the edge of the carriageway, full visibility is achievable to the north. All HGV traffic turns left when exiting the development which requires exiting drivers to wait for a gap in northbound traffic only, approaching from their right. As the full required visibility is achievable in this direction it is considered that the available visibility from the site access is adequate. The AADT on the L8021 is also low which indicates that frequent gaps in main road traffic will be available for exiting vehicles.

Nevertheless, the boundary hedge to the north of the site access, within the applicant's landholdings, will be cutback to maximise visibility in this direction. Appendix 12.3 graphically shows the visibility splays at the Site Access.

Parking

There are a sufficient number of car parking spaces provided at the site to accommodate the 210 staff members (direct employees and subcontractors). It is not expected that all employees will be on site at the same time due to shift work at the site. The parking provision will also cater for any miscellaneous trips which may occur in relation to the operations at the site.

Public Transport

There are currently no public transportation facilities available in the vicinity of the site access.

Pedestrians & Cyclists

The site is located in a rural area and does not have any pedestrian or cycle facilities available in the vicinity of the site access.



12.7 Assessment of Impacts

The following conclusions have been identified:

- 1) Following a link capacity analysis, it was determined that traffic generated by operations at the site will not result in capacity issues on any of the roads assessed within the surrounding road network during the assessment years 2023, 2028, 2038, so the proposed development will have a negligible impact on the local road network.
- 2) Following a junction capacity analysis, it was determined that traffic generated by operations at the Site shall not result in capacity issues at any of the junctions assessed during the assessment years 2023, 2028, or 2038, so the proposed development will have a negligible impact on the local road network.
- 3) The visibility splay at the site access has been assessed in accordance with TII Publication DN-GEO-03060 "Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade-separated and compact grade-separated junctions)". The required sightlines are achievable to the south at a point 3.0m back from the edge of the major road however sightlines to the north are partially restricted by the adjacent boundary hedge. However, closer to the edge of the carriageway, full visibility is achievable to the north. All HGV traffic turns left when exiting the development which requires exiting drivers to wait for a gap in northbound traffic only, approaching from their right. The AADT on the L8021 is also low which indicates that frequent gaps in main road traffic will be available for exiting vehicles. The boundary hedge to the north of the site access, within the applicant's landholdings, will be cutback to maximise visibility in this direction.

12.8 Interactions with other Environmental Attributes

Noise

There will be no intensification of operations at the existing site due to the proposed development. Therefore, an increase in noise levels, above those associated with the existing operations, will be negligible.

Air Quality & Climate

The development will not result in an increase in traffic volumes or operations at the existing quarry site. Therefore, the impact on existing air quality in the vicinity of the site will be negligible.

12.9 Residual Impacts

Should the construction stage associated with the proposed adjacent Solar Farm development overlap with the proposed development which is the subject of this Application, construction related traffic travelling to/from the Solar Farm will interact with development traffic on the local road network and at the existing quarry access, which, for the temporary construction stage, will operate as a crossroads junction with the Solar Farm construction access.

Junction capacity analysis has been undertaken for the temporary construction stage should this overlap with the commencement of the proposed development in 2023. The results indicate that all junctions analysed will operate within capacity, should any overlap occur in 2023.



APPENDIX 12.1 – TRICS DATA



APPENDIX 12.2 – TRAFFIC SURVEY DATA



APPENDIX 12.3 – VISIBILITY SPLAYS



APPENDIX 12.4 – JUNCTION CAPACITY RESULTS