

Breackerie Wind Farm

Environmental Impact Assessment Report

Volume 1

Chapter 13: Traffic & Transport

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13 TRAFFIC AND TRANSPORT

Introduction

- 13.1 This chapter assesses the likely effects of the proposed development on the existing transport network and sensitive receptors as a result of the construction, operation and decommissioning phases. The key objectives of the chapter are to:
- Describe the assessment methodology and significance criteria used in completing the assessment;
 - Describe the current traffic and transport conditions;
 - Identify and assess the likely effects;
 - Identify and describe the mitigation measures proposed to address any significant effects; and
 - Assess any residual effects post mitigation implementation.
- 13.2 This chapter has been prepared by SYSTRA Ltd and is supported by the following figures as contained within Volume 2: Figures:
- Figure 13.1: Study Area;
 - Figure 13.2: Traffic Counter Locations; and
 - Figure 13.3 Abnormal Loads Route.
- 13.3 The chapter is supported by Technical Appendices (as set out within Volume 4: Technical Appendices) comprising:
- Appendix 13.1: Abnormal Loads Assessment
- 13.4 SYSTRA has extensive experience in the preparation of Traffic and Transport EIA Report Chapters (formerly Environmental Statements). SYSTRA's EIA team have produced Traffic and Transport EIA Report Chapters and Abnormal Loads Assessment reports for numerous wind farm developments across Scotland and for several developments within Argyll and Bute including Blarghour Windfarm and Glasvaar Windfarm.

Policy Context

- 13.5 This Chapter has been prepared taking cognisance of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations). The following policy documents, data sources and guidelines have been used to inform this assessment:
- National Planning Framework 4 (NPF4);
 - Planning Advice Notice (PAN) 75 – 'Planning for Transport';
 - Institute of Highways and Transportation (IHT) publications - "Guidelines for Traffic Impact Assessment", 1998;

- Institute of Environmental Management and Assessment (IEMA) publication - “Guidelines for the Environmental Assessment of Road Traffic”, 2023 (“the IEMA Guidelines”); and
- Department for Transport (DfT) publication “Design Manual for Roads and Bridges” (DMRB).

Consultation

- 13.6 As part of the EIA Scoping exercise, a consultation exercise was undertaken to inform the design of the Proposed Development, to seek agreement on the scope of the traffic and transport assessment work and to understand if there are any specific issues that need to be addressed for the application.
- 13.7 The Scoping Opinion was received from the Scottish Government Energy Consents Unit (ECU)/ Scottish Ministers on 9th September 2022, with an addendum issued on 10th May 2023 and a further addendum issued on 24th May 2023.
- 13.8 Consultation relevant to the traffic and transport assessment was undertaken with Argyll and Bute Council, as local roads authority and with Transport Scotland, as managers of the trunk road network. A summary of these consultation responses is provided in Table 13.1 below.

Table 13.1: Consultation Responses

Consultee	Date Received	Consultation Response(s)	How and where is this addressed?
Transport Scotland (TS)	21st June 2023	It is acknowledged that Hazardous Loads effects may not be applicable, and that Noise and Vibration may be assessed separately to the traffic and transport assessment within the EIA. This should be confirmed in the traffic and transport assessment.	Paragraph 13.23 confirms Hazardous Loads are not applicable and Noise and Vibration are assessed separately.
		It is acknowledged that “any significant cumulative traffic impacts associated with other developments commencing in tandem with the proposed development” will be considered.	A review of other developments is provided in the Cumulative Effects section of this Chapter.
		Transport Scotland would advise that study area road links must be clearly defined, with the points beyond which the effects of development traffic would likely be diluted clearly specified. A plan should be	The Study Area road links are defined in Figure 13.1.

Consultee	Date Received	Consultation Response(s)	How and where is this addressed?
		provided to illustrate the study area extents.	
		Transport Scotland would highlight that an assessment of study area accident history is required, as part of the traffic and transport assessment	Trunk road accident data was obtained from Transport Scotland and a detailed review of accidents within the study area is provided in Table 13.6.
		A detailed construction programme must be provided as part of the traffic and transport assessment, which sets out anticipated construction traffic volumes by month throughout the construction period.	A detailed construction programme is provided in Table 13.8.
		Details of anticipated site staff trip generation throughout the construction programme should be provided in the traffic and transport assessment.	Staff vehicle numbers are discussed in Paragraph 13.66.
		It is advised that the traffic and transport assessment must be supported by an Abnormal Loads Assessment (ALA), which details effects associated with the transportation of abnormal loads and mitigation measures to address these. The ALA must identify pinch points identified on the proposed abnormal loads route and must include swept paths plans for each pinch point location.	A full Abnormal Loads Assessment is provided in Appendix 13.1.
Argyll and Bute Council	13th June 2023	The applicant should be made aware that there will be no financial contributions from Argyll & Bute Council towards the work required to facilitate the works or to make good any damage directly attributable to the construction of the wind farm. The applicant should be made aware that they will be responsible for making good any damage to the public roads which is directly attributable to the	It is anticipated that a Section 96 Agreement will be put in place to cover accelerated Wear and Tear. This will be put in place with Argyll and Bute Council post-consent and will cover an agreed area of the local road network.

Consultee	Date Received	Consultation Response(s)	How and where is this addressed?
		construction of the wind farm.	
		Traffic Management Plan to be submitted for approval by Roads & Infrastructure Services prior to any work starting on site. The Traffic Management Plan should include: details of all materials, plant, equipment, components and labour required during the construction, operation and decommissioning phase.	A detailed Construction Traffic Management Plan (CTMP) will be submitted post-consent and secured by planning condition.
		A detailed Method Statement in relation to access and transport of materials, plant and equipment. Method statement to be submitted for approval by Roads & Infrastructure Services prior to any work starting on site.	A detailed Method Statement will be agreed with Roads & Infrastructure Services post consent and secured by planning condition.
		New passing places to be provided and existing passing places to be extended where required. Locations and construction details to be agreed with Roads & Infrastructure Services prior to any work starting on site.	Consultation regarding passing places will be undertaken with Argyll and Bute Council's Roads and Infrastructure Services team post-consent. New passing places can be provided on the site access route in advance of works starting on site.
		The applicant to inspect and submit a report which identifies areas of road which will be vulnerable to the proposed traffic loading. The report will include an assessment of any culverts or other structures. The report will include measures to mitigate against any likely damage. Details of the report to be agreed with Roads & Infrastructure Service prior to any work starting on site.	Consultation will be undertaken with Argyll and Bute Council's Structures team prior to any Abnormal Loads deliveries being made which is in line with the AL permitting process.
		A detailed condition survey to be carried out between the B842 Claonaig - Southend Road / UC10 Glenbreakerie Road junction and the application site prior to any work starting on site. The condition survey	A detailed condition survey will be undertaken post consent and secured by planning condition. The scope of which will be agreed with Argyll and Bute Council's

Consultee	Date Received	Consultation Response(s)	How and where is this addressed?
		to be recorded by means of video and photographs. A copy of the video and photographs to be submitted to Roads & Infrastructure Services for written approval.	Roads & Infrastructure Services.

Scope of Assessment

- 13.9 The assessment is made with reference to the Proposed Development, as described in Chapter 3: Project Description.
- 13.10 The most identifiable traffic and transport characteristic associated with wind farm developments is the need to transport the wind turbine components to the Site. Turbine components would be delivered to an appropriate Port of Entry (PoE) and then transported as abnormal loads to the Site via the public road network. Initial assessment has identified the likely PoE for the turbines would be Campbeltown Harbour from where the abnormal loads vehicles would navigate onto the A83 trunk road, travelling north-west until the left-hand turn towards Machrihanish. From here, a further left turn would be taken to proceed southwards past Campbeltown Airport towards Stewarton. At Stewarton, the turbine delivery vehicles would proceed southwards on the B842 until the fork just before Killellan. The vehicles would use the right-hand fork to Dalsmeran, proceeding down an Unclassified Road leading to the edge of the site and existing forestry tracks to the site entrance.
- 13.11 It is anticipated that the route from the port of delivery will generally be of a suitable standard to accommodate the abnormal loads associated with the proposed development. The full Abnormal Loads Assessment report is included in Technical Appendix 13.1. This report contains swept path analysis and identifies areas of overrun and over-sail beyond the road boundary as well as identifying impacts on street furniture and key pinch points on the route.
- 13.12 There is also a need to bring to Site general construction materials (concrete, aggregates, pipes, cabling, etc.) in standard heavy goods vehicles (HGVs). The characteristic of this form of traffic is a temporary intensification of HGV traffic on the road network. This intensification varies depending on the scale of the development, the construction stage and operational requirements. A small amount of traffic would also be generated by construction workers commuting to/from the Site during the construction and operational stages.
- 13.13 The potential for a cumulative assessment in respect of the traffic and transport effects has been considered for other wind farm developments within the surrounding area that would potentially utilise the same road network as the proposed development during the construction period.

- 13.14 It is recognised that the construction period represents the greatest intensification in traffic although it is important to note that this intensification is temporary in nature. The parameters and assumptions used to inform this chapter have been designed to represent a robust and worst-case scenario.

Potential Effects Scoped Out

- 13.15 On the basis of a detailed desktop study, the professional judgement of the Environmental Impact Assessment (EIA) team and experience from other relevant projects and policy guidance, the following characteristics have been scoped out of this Traffic and Transport Chapter:

Access Tracks

- 13.16 The impact of increased traffic associated with the proposed development on existing access tracks within the Site (including the private site access track which is being upgraded) is not anticipated to have a discernible environmental effect and is therefore not assessed in this Chapter. The impact and effects of the proposed development on the Local Road network is however assessed.

Operational Stage

- 13.17 Once the proposed development is operational, the amount of traffic associated with the wind farm is minimal, relating to maintenance of wind turbines only. Vehicles used for maintenance are likely to be road-going 4x4s. There may, on rare occasions be the need for HGV access to the wind turbines. It is estimated that on average there would be two 4x4s accessing the Site on a monthly basis and one HGV every 1 – 3 months. It is considered that the impact and effect of vehicle movements during the operational phase would be negligible. In respect of traffic and transport, the operational phase of the proposed development is therefore not assessed in this Chapter.

Decommissioning Stage

- 13.18 Consent for the proposed development is sought for a 35 year period, after which the proposed development would be decommissioned unless a further application is submitted for an operational extension. Traffic associated with the decommissioning stage is anticipated to be significantly less than that generated during construction. Given the timescales involved and the likelihood for changes to the baseline situation during this period, the traffic and transport impacts and effects of wind farm decommissioning are not assessed in this Chapter.

Junction Capacity Assessment

- 13.19 The effect of construction related vehicles on the road network, in respect of traffic flows, both in isolation and cumulatively, is considered unlikely to be significant in terms of peak hour congestion. Therefore, full detailed junction capacity assessments have not been undertaken.

- 13.20 It is anticipated that the volume of traffic associated with the construction of the proposed development would not have a discernible effect on roads and sensitive receptors out-with the Study Area (see below for definition of the Study Area) as the effects of traffic are diluted with increasing distance from the point of origin.

Assessment Methodology and Significance Criteria

Assessment of Effects

- 13.21 The assessment of effects is based on the project description as outlined in Chapter 3: Project Description.
- 13.22 This assessment is structured around the consideration of potential environmental effects relating to traffic and transport, as identified by the IEMA Guidelines and including the following:
- Noise;
 - Severance;
 - Driver delay;
 - Pedestrian delay;
 - Pedestrian amenity;
 - Accidents and safety;
 - Hazardous loads (e.g. nuclear products); and
 - Dust and dirt.
- 13.23 The environmental effects associated with visual impact and noise are addressed in Chapter 6: Landscape and Visual and Chapter 10: Noise. There are no hazardous loads associated with the Proposed Development.
- 13.24 Guidance for the assessment of the environmental effects of generated traffic is provided in the IEMA document, "Guidelines for the Environmental Assessment of Road Traffic". The document is the only guidance document currently available that sets out a methodology for assessing potentially significant environmental impacts where a Proposed Development is likely to give rise to changes in traffic flows.
- 13.25 The guidance suggests that in order to determine the scale and extent of the assessment and the level of impact the development will have on the surrounding road network, the following two 'rules' should be followed:
- Rule 1 – Include road links where traffic flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%; and
 - Rule 2 – Include any other specifically sensitive area where traffic flows are predicted to increase by 10% or more.

- 13.26 It is considered that both rules from the IEMA Guidelines are appropriate to apply when assessing the potential effects of the proposed development on the road network. These rules are used to identify the road links within the Study Area where a full assessment of environmental effects associated with an intensification in road traffic may be required.

Study Area

- 13.27 The Study Area for the assessment of traffic and transport has been identified using the assessment thresholds within the IEMA Guidelines as an aide and is indicated by Figure 13.1: Study Area. The study area has been predicated on the access location to the Site and the proposed routes to the access point from the external road network.
- 13.28 To determine appropriate access routes to the Site, detailed consideration and assessment of the surrounding road network has been undertaken in the form of a comprehensive desk-based study. This established that the most likely routes for general construction HGV traffic are from the north via the A83(T), or from Campbeltown in the east of the Kintyre peninsula, then southwest on the B842, B843, B842 and Unclassified Road south to site. A Construction Traffic Management Plan (CTMP) will be used to ensure that construction vehicles are kept on the preferred haul routes and do not use other routes.
- 13.29 It is expected that the turbine components would be transferred by abnormal load vehicles to the Site from Campbeltown Harbour, via the A83, travelling north-west until the left-hand turn towards Machrihanish. From here, a further left turn would be taken to proceed southwards past Campbeltown Airport towards Stewarton. At Stewarton, the turbine delivery vehicles would proceed southwards on the B842 until the fork just before Killellan. The vehicles would use the right-hand fork to Dalsmeran, proceeding down a minor road leading to the edge of the site and the existing forestry tracks already established, where a site entrance would be created.
- 13.30 The Study Area is as follows:
- The A83(T) between Glenbarr and Campbeltown;
 - The B843;
 - The B842; and
 - The Unclassified Road linking the Site to the B842.
- 13.31 It is highly unlikely that there will be any significant effects on the road network outside of the Study Area identified above.

Desk Based Research and Data Sources

- 13.32 The traffic and transport Study Area characteristics have been determined by a desk-based assessment. Data for the A83(T) was sourced from 24-hour ATC surveys from the Transport Scotland National Traffic Data System (NTDS) database with the most recent available data from 2021, however this traffic data appeared inconsistently low compared to surrounding counts, most likely as a result of Covid-19. As an alternative, traffic data for this location was sourced from the Department for Transport (DfT) website in the form of manual traffic count data from 2019. This traffic data was factored up to a baseline year of 2022 using NRTF low growth (1.022).

13.33 Traffic surveys were carried out in order to obtain baseline traffic data for the remaining links in the study area. Data has been sourced as follows:

- A83(T) Drumore to Campbeltown, DfT manual count data 2019 (counter number 91292);
- B843 approx. 700m west of Whinhill Road, December 2022 - 7 day ATC survey;
- B842 approx. 750m south of B843, December 2022 - 7 day ATC survey; and
- Minor Unclassified Road to Dalsmeran approx. 650m south of B842, December 2022 - 7 day ATC survey.

Assessment of Significance

13.34 The following section sets out the methodology used to assess the significance of effects at locations along the proposed routes within the study area where total traffic levels or the level of HGV traffic exceed the screening thresholds set out by IEMA.

Sensitivity

13.35 The sensitivity to change in traffic levels of any given road segment and the receptors located along that road segment are generally assessed by considering the residual capacity of the network under existing conditions.

13.36 Where there is a high degree of residual capacity, the network may readily accept and absorb an increase in traffic and therefore the sensitivity may be said to be low. Conversely, where the existing traffic levels are high compared to the road capacity, there is little spare capacity, and the sensitivity to change in traffic levels will be considered to be high.

13.37 Consideration has been given to the composition of the traffic on the road network, under both existing and proposed conditions. For example, LGVs have less effect on traffic and the road system than HGVs. Similarly, HGVs can have less effect than abnormal load vehicles, depending on the frequency of the abnormal loads.

13.38 The criteria that has been used to make judgements on the sensitivity of the receptor(s) and the magnitude of change are presented in Table 13.2.

Table 13.2: Receptor Sensitivity

Sensitivity	Description
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance. Local residents whose daily activities depend upon unrestricted movement within their environment. Receptors such as schools, colleges, hospitals and accident hotspots.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low of local importance. Areas such as trunk road or A class roads constructed to accommodate significant HGV volumes.

Magnitude

- 13.39 The magnitude of traffic effects is a function of the existing traffic volumes, the percentage increase and change due to the proposed development, changes in the type of traffic and the temporal distribution of traffic (day of week, time of day).
- 13.40 The determination of magnitude has been undertaken by reviewing the Proposed Development, establishing the parameters of the receptors that may be affected and quantifying these effects utilising IEMA Guidelines and professional judgement.
- 13.41 Consideration is given to the composition of the traffic on the road network, under both existing and proposed conditions. For example, LGVs have less effect on traffic and the road system than HGVs. Similarly, HGVs can have less effect than abnormal load vehicles, depending on the frequency of the abnormal loads.
- 13.42 The criteria that has been used to make judgement on the magnitude of the effect on the receptor(s) is presented in Table 13.3.

Table 13.3: Magnitude of Change

Magnitude	Description
Major	Total loss of, or major/substantial alteration to, key elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed. Generally a rule of >90% (or >70% at sensitive receptors) change in traffic is considered to be a major magnitude.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed. Generally, a rule of 60% - 90% (or 40% - 70% at sensitive receptors) change in traffic is considered to be a moderate magnitude.
Minor	A minor shift away from baseline conditions. Change arising from the loss / alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation. Generally, a rule of 30 – 60% (or 10% - 40% at sensitive receptors) change in traffic is considered to be a minor magnitude.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation. Generally, a rule of <30% (or <10% at sensitive receptors) change in traffic is considered to be a negligible magnitude.

Significance

- 13.43 As a guide to inform the assessment, but not as a substitute for professional judgement, criteria for determining the significance of traffic related effects are set out in Table 13.4. This is based on combining the magnitude of the effect with the receptor sensitivity.

Table 13.4: Significance Criteria Matrix

Sensitivity	Magnitude of Change				
		Major	Moderate	Minor	Negligible
	High	Major	Major/ Moderate	Moderate	Moderate/ Minor
	Moderate	Major/ Moderate	Moderate	Moderate/ Minor	Minor
	Low	Moderate	Moderate/ Minor	Minor	Negligible

- 13.44 The effects recorded in grey highlighted cells are considered to be **Significant**.
- 13.45 Significance is categorised as major, major/moderate, moderate, moderate/minor, minor or negligible. Effects judged to be of moderate/minor, minor or negligible significance are considered **Not Significant**.

Baseline Conditions

- 13.46 The following paragraphs detail the baseline conditions of the road links identified as being within the Study Area in addition to the Site access tracks.

Access Tracks

- 13.47 Access from the public road to the turbine locations will be provided via a network of existing forestry tracks from the Unclassified Road running south from the B842 and signposted for Dalsmeran. Any new tracks required would be constructed at the commencement of the construction phase and would remain until the end of the decommissioning phase. They would have a general running width of 5-6m, with widening on corners and would be surfaced with coarse aggregate. All vehicles accessing the proposed development will utilise these access tracks.

A83 (T)

- 13.48 The A83(T) is a trunk road in the west of Scotland, extending 158km from Tarbet on the western shore of Loch Lomond to Campbeltown at the south of the Kintyre peninsula. The A83(T) passes through settlements such as Inveraray, Lochgilphead and Tarbert, as well as numerous smaller settlements and has a number of isolated properties and farms along the route. The A83(T) is a single carriageway generally without footways and is subject to the national speed limit (60mph) except for sections through towns and villages where the speed limit is reduced to 30mph.
- 13.49 Construction traffic travelling from central Scotland will use the A83(T) to travel down the Kintyre peninsula towards Campbeltown, before accessing the proposed development via the B842/ B843 and Unclassified road to the Site entrance.

B842

- 13.50 The B842 routes approximately 60km down the eastern side of the Kintyre peninsula from Claonaig to Campbeltown, continuing to the southern extent of the peninsula at Southend.
- 13.51 Within the study area, the B842 routes west from Campbeltown for approximately 1.3km before the road changes designation to the B843. The B843 continues in an east to west direction to Machrihanish on the west coast, while the B842 resumes in a southwest direction from the junction with the B842 at Stewarton. The B842 is a rural single carriageway road and is approximately 6m wide. There are no footways along the route and there are a small number of isolated properties along the route.
- 13.52 All construction traffic will utilise the section of B842 south of Stewarton to reach the Unclassified Road to Dalsmeran from where the proposed development is accessed.

B843

- 13.53 The B843 is a rural single carriageway with a width of approximately 6m. The road extends approximately 7km in an east/west direction from approximately 1km east of Stewarton to Machrihanish on the western coast of the Kintyre peninsula.
- 13.54 The B843 is subject to varying speed limits with sections of 30 mph through settlements such as the small village of Drumlemble whilst the National Speed Limit applies on the rest of the route.

- 13.55 Construction traffic routing south via Campbeltown will use the section of B843 to the east of Stewarton before routing south on the B842 to access the Site.
- 13.56 Abnormal loads routing south via the Unclassified Road adjacent to the airport will use a short section of the B843 before turning south onto the B842 towards the proposed development.

Unclassified Road to Dalsmeran

- 13.57 The Unclassified Road routing southwest from the B842 will provide access to the Site and is currently signposted for Dalsmeran. The Site will be accessed from existing forestry tracks leading from this Unclassified Road, approximately 1.4km south of the B842. This rural road is single track with a width of approximately 3m and grass verges each side. The route is subject to the national speed limit.

Baseline Traffic Flows

- 13.58 Table 13.5 indicates the two-way Average Annual Daily Traffic (AADT) in the Study Area and the percentage of traffic which is classified as HGVs. The source of the data is described in Paragraph 13.33. The table below also indicates the capacity of each road link as per the guidance contained within the DMRB. Future year traffic forecasting to 2027 (assumed as the year construction would begin) using the National Roads Traffic Forecast 'low growth' rate (1.021 from 2022 to 2027) has been applied to the data to represent a robust assessment of the baseline conditions.

Table 13.5: Study Area Baseline Traffic Flows

Counter Location	DMRB Capacity (two-way per 12 hrs)	Base AADT	Base HGV	2027 ADT	2027 HGV	Percentage HGV
1. A83 Drumore – ATC00082	12,240	2,874	829	2,950	850	29%
2. B843	10,800	2,213	202	2,271	207	9%
3. B842	10,800	890	99	913	102	11%
4. Unclassified Road	1,680	36	2	37	2	6%

Please note minor variances due to rounding may occur.

Road Safety

- 13.59 Five year accident data (2018 – 2022) for the trunk road within the study area (A83) has been obtained from Transport Scotland. The CrashMap website has been utilised to determine the number of accidents that have occurred in the previous five years (2017 – 2021) within the remaining road links identified in the Study Area. The results of this investigation are indicated by Table 13.6 with additional commentary provided on serious and fatal accidents, if applicable.

Table 13.6: Accident Statistics

Counter Location	Slight	Serious	Fatal	Comment
A83(T)	4	4	0	Four serious accidents distributed across the extents of the A83 in the study area.
B843	3	0	0	
B842	2	0	1	One fatal accident in 2020 involving 2 vehicles and 3 casualties
Minor Unclassified Roads	3	0	0	One slight accident near the airport in 2021 involving 2 vehicles and 1 casualty

- 13.60 Table 13.6 indicates that a total of twelve slight, four serious and one fatal accident have occurred within the Study Area over the previous five years, however, the accidents are spread out across the road network and no accident 'hotspots' are identifiable.

The 'Do Nothing' Scenario

- 13.61 If the proposed development was not implemented then it is likely that there would be no significant changes to the traffic and transport situation in the vicinity of the proposed development, other than changes to background traffic as a result of general traffic growth and any nearby committed developments. There are no specific accident issues that would warrant any special consideration as part of this application.

Identification and the Evaluation of Key Impacts

Construction Programme

- 13.62 The construction traffic associated with the proposed development would comprise of construction workers, HGVs / LGVs carrying construction materials & plant, and abnormal load vehicles carrying the main wind turbine components.
- 13.63 There is expected to be approximately 30 personnel working on-site at any one time. It is important to note that the number of personnel on-site would vary during the construction process. In general, work hours are expected to be between 07:00 to 19:00 on weekdays and 07:00 to 13:00 on Saturdays which means that staff would generally arrive and depart outside the peak hours associated with the surrounding road network (typically 8:00 to 9:00 and 17:00 to 18:00). Turbine delivery, erection and commissioning activities may take place out-with these hours depending on weather conditions.

13.64 Estimates of traffic generation associated with the construction phase of the proposed development have been calculated from first principles and consider the following activities:

- Installation of construction compound/storage area for Site office facilities and storage of materials and components;
- The felling of existing areas of forestry to make way for ground infrastructure, with suitable buffers to allow normal operation of the wind farm;
- The excavation of the borrow pit and extraction of aggregate for approximately 7.74 km of new tracks, upgrades to up to approximately 5 km existing tracks and hardstandings;
- Construction of new permanent Site tracks and the upgrading of existing sections;
- Installation of hardstandings and outrigger pads for the support of the cranes that would be used for the erection of the turbines;
- Construction of foundations for the support of the turbine structures;
- Wind turbine delivery and erection;
- Installation (if necessary) of transformers in separate housings alongside each wind turbine;
- Installation of on-Site High Voltage (HV) cabling, communication cabling and earthing;
- Installation of Supervisory Control and Data Acquisition (SCADA) system;
- Construction of substation;
- Commissioning of Site mechanical and electrical equipment; and
- Reinstatement, landscaping, removal of temporary Site offices, reseeding verges, borrow pit and areas around turbine bases.

13.65 The works would mainly follow the order detailed above, but many would be carried out concurrently to reduce the overall length of the construction programme. There would be construction phasing, with civil engineering works progressing in some areas whilst turbines are being erected elsewhere. In order to minimise disruption to land use, Site restoration would be undertaken as early as possible in development areas and where possible, existing tracks will be used to minimise the construction required on site.

13.66 In order to calculate a robust scenario, information was gathered regarding the materials required and the size of average loads associated with the construction vehicles. Table 13.7 includes an estimate of construction vehicle numbers required for each task during the construction period.

Table 13.7: Estimated No. of HGV Trips during Construction

Construction Task	Vehicle Type	Approximate No. of Loads
Site Access, Site Tracks, Hard Standings etc*	Stone Wagons	2,493
Forestry Extraction	Low Loaders	1,057
Misc. Material Deliveries	Various	720
Geotextiles	Low Loader	20
Foundations	Concrete Wagons	917
Foundation Reinforcement Deliveries	Low Loader	80
Cabling (including sand)	Various	594
Abnormal Loads	Abnormal Load Vehicles	368
Cranes	Cranes	20
Substation Building	Various	152
Energy Storage	Low Loader	4
Site Establishment & Removal, Plant, Fuel and Misc.	Flat Beds & Low Loaders Fuel and Misc. Wagons	200
Total Inbound Trips		6,625
Total Trips (Inbound plus outbound)		13,250

*assumes 70% stone requirements are imported to the Site

- 13.67 With regard to forestry extraction, it is noted that the associated vehicle numbers in Table 13.7 above only cover the overlap period with the construction of the Proposed Development. In addition to the figure quoted, there will be further vehicle movements (Approx 2,743) associated with forestry extraction which will occur in advance of the main construction activities of the windfarm. These activities will take place under existing planning consents to extract timber and will be spread over 12-18 months in advance of the main construction works.
- 13.68 Up to four potential on-site borrow pits have been identified and it is likely that a high proportion of the required stone can be sourced from them. It is the Applicant's intention to win stone in this manner in order to construct access tracks and hardstanding areas. The use of borrow pits will help to reduce HGV levels considerably. Initial studies have identified that there should be enough stone from the borrow pits to satisfy all stone requirements on site. However, for the purpose of undertaking a robust assessment, it has been assumed that 70% of the stone estimated to be required to construct the site would be sourced from an off-site location thus the assessment undertaken represents a conservative and robust approach.
- 13.69 In addition to the construction vehicles identified in Table 13.7, it is anticipated that there would be up to 60 total daily private car/LGV trips associated with construction staff/welfare. This equates to a maximum of 30 arrivals and 30 departures at the start and end of the working day. Staff vehicle trips have been included in the assessment shown in Table 13.9.

- 13.70 It is anticipated that the abnormal loads will require car or LGV escort vehicles while transporting the turbines. This would equate to approximately four vehicles per day when transporting the abnormal loads. This impact is considered to be negligible, therefore **Not Significant**, and has not been assessed further.
- 13.71 The construction of the proposed development would take approximately 18 months. Using the indicative construction programme, the number of construction trips that are anticipated to visit the Site for each month of the construction period has been calculated and is presented within Table 13.8.

Table 13.8: Estimated No. of HGV Trips per Month

Construction Activity	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Establishment and Site Compound Creation / Removal	50	50															50	50
Site Access, Site Tracks, Hard Standings etc (Imported Stone)*				357	356	356	356	356	356	356								
Forestry Felling and Extraction		118	118	118	118	117	117	117	117	117								
Misc. Material Deliveries	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Foundations				131	131	131	131	131	131	131								
Foundation Reinforcement Deliveries				16	16	16	16	16										
Cabling										149	149	148	148					
Abnormal Loads											92	92	92	92				
Cranes											10			10				
Substation Building									51	51	50							
Energy Storage										2	2							
Geotextile Delivery		5		5		5		5										
Total Inbound Trips	90	213	158	667	661	665	660	665	695	846	343	280	280	142	40	40	90	90
Total Trips (Inbound plus outbound)	180	426	316	1,334	1,322	1,330	1,320	1,330	1,390	1,692	686	560	560	284	80	80	180	180

**assumes 70% stone requirements are imported to the Site*

- 13.72 The construction Site may be operational 11 hours every weekday (07:00 – 19:00) and 6 hours on a Saturday (07:00 – 13:00), therefore vehicles could be arriving or leaving at any time during this working week of 5.5 days. Construction vehicles would be arriving and departing the Site at regular intervals during expected Site working hours.
- 13.73 Table 13.8 indicates that the HGV trips are relatively well spread out over the duration of the construction period. Months 4-10 have the highest number of trips associated with the importation of stone for the construction and upgrading of the Site access track network. The last four months are very light in terms of HGV trips when compared with the months with stone importation/access track construction. The peak is in Month 10 where there is an overlap between stone importation and cable deliveries.

Abnormal Load Movements

- 13.74 With regard to the movement of abnormal load vehicles, Table 13.8 indicates that abnormal loads will only be transported over four months of the 18 month construction period. Assuming 92 inbound abnormal load vehicle trips per month, this equates to approximately 23 inbound trips per week. It should be noted that abnormal load vehicles will retract to the size of an HGV for their return journey once the loads have been delivered to the destination, therefore there will effectively be 23 inbound abnormal load movements plus 23 outbound HGV trips per week.
- 13.75 The schedule of movements of abnormal loads will be agreed upon following discussions with the road authorities, hauliers and Police Scotland to ensure the least impact on the road network as possible.
- 13.76 Given the low number of abnormal load deliveries and the short duration for which abnormal load vehicles will be on the road network, it is not anticipated that the number of abnormal load vehicles will give rise to any significant environmental effects within the Study Area. As a result, no further assessment of the effect of abnormal load vehicles has been undertaken.

Worst-Case Assessment

- 13.77 The worst-case month for general construction traffic (HGVs) is Month 10 with 1,692 total HGV trips estimated. Assuming four weeks per month, this equates to approximately 423 total HGVs per week (212 inbound and 212 outbound). Month 10 is therefore used to assess the impact and potential effects of the proposed development on the transport network. This estimate of HGV movements assumes that 70% of stone requirements are imported; however, there is a high possibility that a significantly higher proportion of stone could be sourced on-site which would significantly reduce the number of HGV movements. It is therefore considered that the traffic levels assessed are maximum case and therefore provide a robust assessment.
- 13.78 The daily HGV trip generation for Month 10 is therefore estimated to be approximately 77 total trips, 38 inbound and 38 outbound, (assuming 5.5 days per week). This equates to approximately six total HGV trips per hour (three inbound and three outbound), assuming

an 11 hour working day. It is important to note that this represents a minor number of trips over a temporary period.

Construction Effects

Construction Traffic Impact

- 13.79 In order to assess a robust scenario, a distribution of 100% of HGV traffic along each road link has been assumed. It is important to note that this represents a worst-case scenario for each road link.
- 13.80 Table 13.9 details the daily percentage increases in traffic flows associated with the construction of the proposed development at the traffic counter locations within the Study Area during the worst-case month. The location of the traffic counters is illustrated in Figure 13.2.

Table 13.9: Construction Traffic Impacts on Routes within Study Area

	1. A83	2. B843	3. B842	4. Unclassified Road to Site
2022 AADT	2,874	2,213	890	36
2022 HGV count	829	202	99	2
Month 10 / worst-case daily traffic flow (staff + HGV trips)	137	137	137	137
2027 ADT + Month 10 worst-case traffic	3,087	2,408	1,050	174
2027 HGV count + Month 10 HGV traffic	927	284	179	79
Percentage increase in total traffic due to the proposed development	5%	6%	15%	371%
Percentage increase in HGVs due to the proposed development	9%	37%	76%	3747%

Please note minor variances due to rounding may occur.

- 13.81 Table 13.9 indicates that the temporary increase in daily total traffic levels during the worst-case month is considered to be negligible for the A83 with a total traffic increase of 5% and an HGV traffic increase of 9%, both of which fall below the 'Rule 2' increase of 10% or more at sensitive locations and therefore no further assessment of this link is required.
- 13.82 The total traffic levels along the B843 and B842 would increase by 6% and 15% respectively with the addition of proposed development traffic, which is considered to be a negligible amount. The increase in HGVs on the B843 and B842 during the worst-case month is predicted as 37% and 76% respectively. It should be noted that the high percentage increase in HGV levels is attributable to the low baseline HGV traffic levels on these routes. Notwithstanding this, this level of increase exceeds the IEMA Rule 1 threshold (30%) and requires a full assessment of effects to be undertaken for the affected road links which is detailed below.

- 13.83 Table 13.9 indicates that the increase in total traffic on the Unclassified Road providing access into the Site is 371% and the increase in HGV traffic is 3747% in the worst case month. This large increase is due to the very low base level of traffic on the route (36 daily vehicle trips and 2 daily HGV trips). The increase on this road link therefore exceeds the IEMA Rule 1 threshold (30%) and requires a full assessment of effects to be undertaken which is detailed below.

Severance

- 13.84 The IEMA Guidelines advise that “*Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery*”.
- 13.85 The potential for traffic associated with the proposed development to cause severance is assessed on a case by case basis using professional judgement where non-negligible traffic increases are predicted on roads through residential settlements.
- 13.86 Increased severance can result in the isolation of areas of a settlement or individual properties. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. Severance effects could equally be applied to residents, motorists or pedestrians.

B843

- 13.87 With reference to Table 13.3, the increase in HGV traffic of 37% (284 vehicles per day) represents a minor magnitude of change on this section of the route.
- 13.88 The sensitivity of this road link to an increased severance effect is considered to be low in accordance with Table 13.2 due to the low number of existing road users and very small number of isolated residential properties along the route.
- 13.89 When the minor magnitude of effect is combined with the low sensitivity of the receptor in accordance with Table 13.4, it can be concluded that there will be a minor severance effect which is considered to be **Not Significant** in accordance with EIA regulations.

B842

- 13.90 With reference to Table 13.3, the increase in HGV traffic of 76% (179 vehicles per day) represents a moderate magnitude of change on this section of the route, with this increased magnitude of change due to the low baseline levels of HGV traffic.
- 13.91 The sensitivity of this road link to an increased severance effect is considered to be low in accordance with Table 13.2 due to the low number of existing road users and very small number of isolated residential properties along the route.
- 13.92 When the moderate magnitude of effect is combined with the low sensitivity of the receptor in accordance with Table 13.4, it can be concluded that there will be a moderate/minor severance effect which is considered to be **Not Significant** in accordance with EIA regulations.

Unclassified Road to Site Access

- 13.93 With reference to Table 13.3, the increase in HGV traffic of 3745% (79 vehicles per day) represents a major magnitude of change on this road link. This increased magnitude of change is again due to the low baseline levels of HGV traffic (2 HGV vehicles per day) rather than there being high traffic volumes associated with the construction of the Proposed Development.
- 13.94 The sensitivity of this road link to an increased severance effect is considered to be low in accordance with Table 13.2 due to the very low number of existing road users, with only a small number of farms located along the route.
- 13.95 When the major magnitude of effect is combined with the low sensitivity of the receptor in accordance with Table 13.4, it can be concluded that there will be a moderate severance effect which is considered to be **Significant** in accordance with EIA regulations and therefore requires mitigation.

Driver Delay

- 13.96 Some driver delay may be experienced when construction traffic is accessing the Site. The IEMA Guidelines advise “delays are only likely to be significant when the traffic on the network surrounding the Site is already at, or close to, the capacity of the system”.
- 13.97 Traffic delay to non-development traffic may occur at several points on the network surrounding the Site including:
- At the Site entrance where there will be additional turning movements;
 - At intersections along the local road network which might be affected by increased traffic; and
 - At side roads where the ability to find gaps in traffic may be reduced, thereby lengthening delays.
- 13.98 It is noted that there are no known significant areas of congestion within the Study Area at this point in time.

B843

- 13.99 With reference to Table 13.3, the 37% increase in HGV traffic on the B843 is considered to be a minor magnitude of change.
- 13.100 The sensitivity of the B843 to an increased driver delay effect is considered to be low in accordance with Table 13.2, as there are few junctions and therefore potential locations where other road users may be delayed. Furthermore, the baseline traffic flow is low, therefore there is sufficient available capacity to accommodate additional vehicle movements without causing delay to other road users.
- 13.101 Combining the minor magnitude of the change with the low sensitivity of the receptor in accordance with Table 13.4 equates to an effect which is classed as minor and is considered to be **Not Significant** in accordance with EIA regulations.

B842

- 13.102 With reference to Table 13.3, the increase in HGV traffic on the B842 of 76% is considered a moderate magnitude of change.
- 13.103 The sensitivity of the B842 to an increased driver delay effect is considered to be low in accordance with Table 13.2, as there are few junctions and therefore potential locations where other road users may be delayed. Furthermore, the baseline traffic flow is low, therefore there is sufficient available capacity to accommodate additional vehicle movements without causing delay to other road users.
- 13.104 Combining the moderate magnitude of the change with the low sensitivity of the receptor in accordance with Table 13.4 equates to an effect which is classed as moderate/minor and is considered to be **Not Significant** in accordance with EIA regulations.

Unclassified Road to Site Access

- 13.105 With reference to Table 13.3, the increase in HGV traffic of 3745% represents a major magnitude of change on this link. This is due to the low baseline levels of HGV traffic (2 HGV vehicles per day).
- 13.106 The sensitivity of the Unclassified Road to an increased driver delay effect is considered to be Moderate in accordance with Table 13.2 as there very few junctions and therefore potential areas for the delay of other road users by turning HGVs. Furthermore, the baseline traffic flow is very low, with the road primarily used to access a small number of farms. It is however, a single track road so delay can occur when vehicles meet other on-coming vehicles. The instances of this will increase as a result of development traffic.
- 13.107 When the major magnitude of effect is combined with the moderate sensitivity of the receptor in accordance with Table 13.4, it can be concluded that there will be a major / moderate driver delay effect which is considered to be **Significant** in accordance with EIA regulations and therefore requires mitigation.

Pedestrian Delay and Amenity

- 13.108 Traffic volumes, traffic composition, traffic speed, the existence of pedestrian footways and the existence of pedestrian crossings all contribute to the level of general pleasantness, fear, intimidation and delay experienced by pedestrians and other vulnerable road users.

B843

- 13.109 With reference to Table 13.3, the increase in HGV traffic on the B843 of 37% is considered a minor magnitude of change.
- 13.110 A footway is present on the north side of the carriageway leading from Stewarton towards Campbelltown therefore the sensitivity of the B843 to increased pedestrian delay and reduced amenity effect is considered to be medium in accordance with Table 13.2.

- 13.111 Combining the minor magnitude of the effect with the medium sensitivity of the location in accordance with the matrix in Table 13.4, it is considered that increased traffic associated with the proposed development will have a moderate / minor effect on pedestrian delay and amenity. This effect is assessed as **Not Significant** in accordance with the EIA Regulations.

B842

- 13.112 With reference to Table 13.3, the increase in HGV traffic on the B842 of 76% is considered a moderate magnitude of change.
- 13.113 The section of the B842 between Stewarton and the minor road where access to the site is taken has no footways present and it is not expected that pedestrians would use this route, therefore the sensitivity of the B842 to increased pedestrian delay and reduced amenity effect is considered to be low in accordance with Table 13.2.
- 13.114 Combining the moderate magnitude of the effect with the low sensitivity of the location in accordance with the matrix in Table 13.4, it is considered that increased traffic associated with the proposed development will have a moderate / minor effect on pedestrian delay and amenity. This effect is assessed as **Not Significant** in accordance with the EIA Regulations.

Unclassified Road to Site

- 13.115 With reference to Table 13.3, the increase in HGV traffic of 3745% represents a major magnitude of change on this link which is due to the low baseline levels of HGV traffic (2 HGV vehicles per day).
- 13.116 The sensitivity of the road link to an increased pedestrian delay and reduced pedestrian amenity effect is considered to be low in accordance with Table 13.2 as there will be very low pedestrian activity along this road link due to the lack of footways present and no amenities within reasonable walking distance.
- 13.117 Combining the major magnitude of change with the low sensitivity of the receptor in accordance with Table 13.4 equates to an effect which is classed as moderate and **Significant** as per the EIA Regulations. Mitigation will be required.

Accidents and Safety

- 13.118 The most recently available accident data for the road links within the Study Area has been provided in Table 13.6 for the period between 2017 and 2022. The data indicates that a total of twelve slight, four serious and one fatal accident have occurred within the study area in the previous five years.
- 13.119 An approximate calculation has been undertaken to quantify the level of accident risk that could be expected due to an increase in traffic associated with the Proposed Development. The likelihood of an accident occurring is commonly expressed in accidents per million vehicle-km. Accidents that are appraised in relation to transport are predominantly those in which personal injury is sustained by those involved (personal injury accidents (PIAs)).

13.120 For the purpose of this calculation, it has been assumed that the length of road is approximately 7.2km (B843, B842 and minor road to site) and can be classified as 'rural typical single carriageway' in accordance with the criteria set out within DMRB.

13.121 Accident rates from the DMRB for this standard of road are:

- Rural typical single carriageway: 0.190 Personal Injury Accidents (PIA) per million vehicle-km.

13.122 Assuming a return trip on the 7.2km route for each of the 6,625 vehicles during the construction period, a total distance of 95,400 km is obtained. Based on the rate above; this suggests 0.0363 accidents during the construction period associated with the additional traffic.

13.123 It is considered that the magnitude of this effect is negligible but receptor sensitivity to this effect is always considered as high. When combined, the effect can be classified as moderate/minor and **Not Significant**.

Dust and Dirt

13.124 IEMA Guidelines acknowledge that it is not practical to quantify the level of dust and dirt that can be anticipated from development traffic. Therefore, a quantitative description of the effect on dust and dirt from construction traffic is not provided here.

13.125 It is acknowledged that HGVs would have the potential to collect debris on their tyres when accessing the proposed development. This could be transferred to the road surface when vehicles travel away from the Proposed Development and can be deposited on the road in the form of either dust or mud depending on weather conditions.

13.126 For all locations within the Study Area, the magnitude of the effect is considered to be negligible and the sensitivity of the receptors low. The overall significance of the environmental effect of dust and dirt at all receptors within the Study Area is regarded as minor and therefore **Not Significant**.

Cumulative Effects and Interaction of Effects

Cumulative Effects

13.127 Cumulative effects have been considered for other wind farm developments in the vicinity of the proposed development. These developments are at various stages of planning and are yet to be constructed however could utilise a common access route for general construction traffic. The potential for cumulative effects has been assessed by reviewing data available from the Traffic and Transport Chapters within the respective EIARs for the relevant developments.

13.128 Whilst the developments identified may share a similar route for abnormal load vehicles, the restrictions in place and requirement for Police Scotland approval and escort means that abnormal load deliveries would not be permitted to occur at the same time. Therefore, there is no scope for a cumulative effect of abnormal load movements.

High Dalrioch Windfarm

- 13.129 The proposed High Dalrioch Windfarm is at scoping stage and is located approximately 4km northeast of the Proposed Development. The application is for the erection of 10 turbines for a period of 50 years. It is noted that the High Dalrioch Development is proposed to be accessed from the B842 so could potentially share similar characteristics in terms of abnormal loads route and construction HGV routes. As the development is just at scoping stage, there is no information available with regard to traffic generation. However, both wind farm developments would be required to implement a Construction Stage Traffic Management Plan to ensure that deliveries are scheduled appropriately to minimise the impact to the public road network and ensure that discernible cumulative effects are avoided.

Tangy IV Wind Farm

- 13.130 The planning application for Tangy IV Wind Farm, comprising 16 turbines located approximately 3km north of Kilchenzie on the Kintyre peninsula was consented in December 2019. Tangy IV proposes to repower and extend the existing Tangy I and Tangy II Wind Farms replacing the existing 22 turbines with a new 16 turbine wind farm.
- 13.131 Tangy IV is located north of Campbeltown on the A83, therefore the only overlap in route is the use of the A83 from Campbeltown harbour and no cumulative effects would occur on the B842 or B843. The A83 has a considerable amount of residual capacity, therefore, it is not expected that any significant cumulative effects will occur if the construction phases overlap, however should this occur, both wind farm developments will implement a Construction Traffic Management Plan to ensure that deliveries are scheduled appropriately to minimise the impact to the public road network and ensure that discernible cumulative effects are avoided.

Clachaig Glen Wind Farm

- 13.132 The proposed 14 turbine Clachaig Glen Wind Farm, approximately 20km north of Campbeltown, gained consent in December 2019. A revised design is currently at application stage and comprises a Proposed Development of 12 larger turbines, near Muasdale, east of the A83 on the Kintyre peninsula.
- 13.133 The proposed development would be accessed via the A83 therefore the only overlap in access routes is the use of the A83 from Campbeltown harbour and no cumulative effects would occur on the B842 or B843. The A83 has a considerable amount of residual capacity, therefore, it is not expected that any significant cumulative effects will occur if the construction phases overlap, however should this occur, both wind farm developments will implement a Construction Traffic Management Plan to ensure that deliveries are scheduled appropriately to minimise the impact to the public road network and ensure that discernible cumulative effects are avoided.

Proposed Wind Farms to the North of the Kintyre Peninsula

13.134 In addition to the proposed developments detailed above, several wind farms are proposed for the northern section of the Kintyre peninsula. These proposed developments are over 30km north of the proposed Breackerie development and the only cumulative effect would be the use of the A83. The A83 is a good standard trunk road with a high level of residual capacity and with increasing distance from the proposed development the likely cumulative effects of any construction traffic will be diluted.

13.135 Proposed windfarms in the north of the Kintyre peninsula include:

- Narachan Wind Farm (currently at application stage), proposal for 11 turbines located to the east of Tayinloan Village.
- High Constellation Wind Farm (consented), 10 turbines located 4km south east of Clachan.
- Eascairt Wind Farm (consented), 13 turbines located approximately 6km south west of Skipness.

Summary

13.136 In summary, it is highly unlikely that the peak construction period associated with another wind farm development in the area would overlap with the peak construction period of the proposed development as the applications are at different stages in the planning process and each development has varying lengths of construction period. The high traffic generating activities, such as the importation of stone and concrete, only occur over a few months of the whole construction period for each development. It is unlikely that the local capacity for concrete and stone production could supply several developments at once, therefore, high traffic generating activities would naturally be staggered.

13.137 Furthermore, implementation of a CTMP (further details in “Mitigation Measures” section below) for each development would ensure that there are open lines of communication with ABC, Police Scotland, Transport Scotland, other stakeholders and wind farm developers to monitor the progress of the construction stages. This process would flag whether construction HGV traffic is reaching unacceptable levels and would ensure that action is taken accordingly to minimise effects.

13.138 It should be noted that the A83 (where the greatest overlap could occur) is a good standard trunk road with a high level of residual capacity. The A83 is currently well-used by HGVs and it is considered that the A83 can suitably accommodate short-term spikes in traffic flow.

Interaction of Effects

13.139 In addition to the effects assessed in full within this chapter (i.e. severance, driver delay etc.), there are also visual and noise effects which are inter-related to the traffic and transport impacts associated with the construction phase of the Proposed Development. These effects are assessed respectively within Chapter 6: Landscape and Visual Amenity and Chapter 10: Noise.

Mitigation Measures

- 13.140 The assessment predicts that, prior to mitigation measures, the effect of severance, driver delay and pedestrian delay and amenity as a result of increased levels of HGVs associated with the proposed development would be significant along certain road links within the Study Area. In accordance with the EIA Regulations mitigation is required to address these potential effects. It is therefore proposed to prepare and implement a comprehensive Construction Traffic Management Plan (CTMP) which is intended to mitigate the identified effects by ensuring that they are minimised as far as possible within the Study Area to a level which is considered to be not significant.
- 13.141 The CTMP will identify measures to reduce the number of construction vehicles as well as identifying measures to mitigate the impact of vehicles. The CTMP will identify the programme of works, the agreed routes to Site and details of a Site Liaison who would have responsibilities for managing traffic and transport impacts and effects. A community liaison officer will be appointed to facilitate the communication of information with local residents and members of the public. The CTMP will also identify measures to reduce and manage construction staff travel by private car, particularly single occupancy trips. The CTMP would include the following measures as a minimum:
- Immediately upon commencement, all deliveries, operatives and visitors to the Site will report to the security gate. This will be communicated to all early works contractors at their pre-start meeting.
 - The main contractor will develop a logistics plan highlighting the access point for the project, loading bay, pedestrian / vehicular segregation, welfare, storage, security and material handling that would be enforced following full Site establishment.
 - Approved haul routes will be identified to the Site and protocols put in place to ensure that HGVs adhere to these routes and do not pass through areas to be avoided.
 - Specific measures as appropriate on the unclassified road to Site such as speed restrictions for all construction traffic with clear signage.
 - All contractors will be provided with a Site induction pack containing information on delivery routes and any restrictions on routes.
 - Construction HGV traffic will be restricted between the network peak hours and school run hours which are generally 08:00 – 09:00, 15:00 – 16:00 and 17:00 – 18:00 Monday to Friday, if necessary.
 - Temporary construction Site signage would be erected along the identified construction traffic routes to warn people of construction activities and associated construction vehicles.
 - A construction traffic speed limit (for example, 20mph) could be imposed along any route or section of route deemed necessary such as within Campbeltown and along the unclassified road to the Site access.
 - The construction material 'lay down' areas will allow for a staggered delivery schedule throughout the day, avoiding peak and unsociable hours (i.e. before 06:00 and after 22:00).

- Forestry felling will be undertaken as localised 'keyhole' felling. Timber will be stockpiled on-site and transported off-site during quieter months of the construction programme in relation to vehicle movements.
- An integral part of the progress meetings held with all trade contractors is the delivery schedule pro-forma. All contractors will be required to give details of proposed timing of material deliveries to the Site. At this stage they would be given a specific area for delivery.
- The CTMP and compliance monitoring therein will be included within all trade contractor tender enquiries to ensure early understanding and acceptance/compliance with the rules that would be enforced on this project.
- Under no circumstances will HGVs be allowed to lay-up in surrounding roads. All personnel in the team will be in contact with each other and with Site management, who in turn will have mobile and telephone contact with the subcontractors.
- Roads will be maintained in a clean and safe condition.
- A wheel washing facility would be installed on-site during the construction period in order to reduce mud and debris being deposited onto the local road network.

Residual Effects

- 13.142 Following implementation of the CTMP as a mitigation measure, the following paragraphs assess the likely residual effects of increased traffic levels within the Study Area during construction of the proposed development.
- 13.143 The CTMP will ensure that the volume of HGV trips is minimised as much as possible and will include measures such as localised 'keyhole' forestry felling, stockpiling of timber and the recycling/reuse of materials on-site where possible. The CTMP will ensure that there is signage along the construction routes to make residents aware of the additional HGV traffic and to provide the opportunity to plan accordingly. The CTMP will ensure that construction HGVs do not travel during peak periods or at the start/end of the school day and that they adhere to a lowered speed limit. Each of these measures will contribute to minimising the level of effect experienced by residents in Campbeltown and the isolated properties along the routes within the Study Area.
- 13.144 Furthermore, it is important to recognise that all effects associated with increased construction traffic will be temporary in nature and that this assessment has considered the worst-case possible impact at each location.
- 13.145 The residual effects of severance, driver delay, pedestrian delay and amenity after implementation of a CTMP are therefore considered to be minor and Not Significant.

Summary

- 13.146 This assessment has considered the effects on the road network of HGV traffic associated with the construction phase of the proposed development.
- 13.147 The construction programme associated with the proposed development is anticipated to cover an 18 month period, during which 6,625 inbound HGVs would access the Site equating to 38 inbound and 38 outbound daily HGV trips during the busiest construction

month (Month 10). The movement of abnormal loads is not anticipated to exceed 50 total trips per week (25 inbound abnormal loads plus 25 return trips of HGV size) over the course of four months (with no overlap during the busiest construction months).

- 13.148 A robust assessment was undertaken based on a conservative approach for the two-way construction traffic movements and the worst-case scenario for each link by assuming 100% distribution of traffic along each road. The impact of construction traffic could increase traffic flows along the road links within the Study Area by the following:
- 5% along the A83;
 - 6% on the B843 between Campbeltown and the B842;
 - 15% on the B842 south of the B843; and
 - 371% on the Unclassified Road to Site.
- 13.149 The percentage increase in HGVs associated with the worst-case month of the construction programme for the Proposed Development could increase HGV levels by the following:
- 9% along the A83;
 - 37% on the B843 between Campbeltown and the B842;
 - 76% on the B842 south of the B843; and
 - 3747% on the Unclassified Road to Site.
- 13.150 The impacts and effects of the proposed development represent a conservative approach assuming that 70% stone requirements are imported to the Site while it is anticipated that a much larger proportion of stone will be won from on-site borrow pits. Furthermore, these increased traffic levels are temporary in nature and are likely to be lower during the other 17 months of construction.
- 13.151 The percentage traffic increases on the unclassified road to Site appear very high due to the low base level of daily traffic using the road. It is noted that the road has sufficient residual capacity, allowing it to accommodate the stated increase in trips without giving rise to any significant effects. The 3747% increase in HGV traffic equates to an increase of 3 inbound and 3 outbound HGV trips per hour during the worst case month of the 18 month construction period.
- 13.152 The significance of the predicted effects of the proposed development on the traffic and transport resource during the construction phase has been discussed in this chapter and is summarised in Table 13.10.

Table 13.10: Summary of Construction Effects and Significance

Predicted Effect	Significance	Mitigation	Significant of Residual Effect
Severance	Minor to Moderate – Significant	CTMP	Minor – Not significant
Driver Delay	Minor to Moderate – Significant	CTMP	Minor - Not significant
Pedestrian Delay and Amenity	Moderate/Minor to Moderate – Significant	CTMP	Minor – Not significant
Accidents and Safety	Moderate/Minor – Not Significant	Not required	Not significant
Dust and Dirt	Negligible – Not Significant	Not required	Not significant

13.153 With reference to Table 13.10, this chapter concludes that the environmental effects associated with increased traffic as a result of the proposed development are deemed to be not significant once mitigation is put in place. It is also noted that the increased traffic leads to potential effects that are temporary in nature, can be accommodated by the existing road network within the Study Area, and can be managed effectively by implementation of a Construction Traffic Management Plan.