

Byers Gill Solar  
EN010139

# 6.2.12 Environmental Statement

## Chapter 12 Traffic and Transport

Planning Act 2008

APFP Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms  
and Procedure) Regulations 2009

Volume 6

February 2024

Revision C01



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## 12 Traffic and Transport

### 12.1. Introduction

- 12.1.1. This Environmental Statement (ES) chapter presents the impact assessment and likely significant effects of Byers Gill Solar ('the Proposed Development') on traffic and transport.
- 12.1.2. The Environmental Impact Assessment (EIA) Scoping Report (ES Appendix 4.1) (Document Reference 6.4.4.1) sets out the scope of the traffic and transport assessment. In summary, this ES considers:
- the traffic and transportation baseline, established from desk studies and surveys;
  - potential environmental effects on traffic and transport;
  - the assessment methodology used to complete the impact assessment; and
  - highlights any necessary monitoring and/or mitigation measures that could impact on potential environmental effects that were identified in the EIA Scoping Report.
- 12.1.3. This ES chapter aims to:
- give details of relevant legislation, policy and guidance that has informed the assessment;
  - provide detail of the assessment methodology used to complete the impact assessment;
  - describe the potential effects of the Proposed Development on traffic and transport; and
  - describe the design mitigation and enhancements at the construction, operation and decommissioning phases of the Proposed Development.
- 12.1.4. It is noted that the traffic modelling used for the Proposed Development has inherently assessed the cumulative impacts already for traffic and transport, and as such these are intrinsic to the traffic and transport assessment and reported as part of the potential effects of the Proposed Development in this chapter. However, Chapter 13 Cumulative Effects (Document Reference 6.2.13) provides further clarification and information on the assessment of cumulative effects more generally for the Proposed Development, in relation to traffic and transport.
- 12.1.5. This ES chapter is supported by the following appendices:
- ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8)
  - ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1)
- 12.1.6. This ES chapter is also supported by ES Figure 12.1 Proposed Access Routes and Survey Locations (Document Reference 6.3.12.1), ES Figure 12.2 Order Limits and Study Area

(Document Reference 6.3.12.2) and ES Figure 12.3 Network Diagram (Document Reference 6.3.12.3).

- 12.1.7. This ES Chapter should also be read in combination with ES Chapter 9 Land Use and Socioeconomics (Document Reference 6.2.9), which provides further context of the likely impacts of severance and changes in traffic to land-use and socio-economic receptors, including Public Rights of Way (PRoW).
- 12.1.8. This ES chapter and the supporting ES Appendices and ES Figures have been prepared by competent experts at Arup. Full details of these competent experts are provided in ES Appendix 1.1 Competent Expert Evidence (Document Reference 6.4.1.1).

## **12.2. Legislative and policy framework**

- 12.2.1. This section identifies the key legislation, planning policy and guidelines relevant to the scope and methodology for the Traffic and Transport assessment.

### **Legislation**

- 12.2.2. The following key legislation is applicable to the assessment:
- Highways Act 1980
  - Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

### **Policy**

- 12.2.3. Under Section 104 of the Planning Act 2008 (the Act), the Secretary of State (SoS) is directed to determine a Development Consent Order (DCO) application with regard to the relevant National Policy Statement (NPS), the local impact report, matters prescribed in relation to the Proposed Development, and any other matters regarded by the SoS as important and relevant. Following their designation on 17 January 2024, there are three NPSs which are considered to be 'relevant NPS' under Section 104 of the Act:
- Overarching NPS for energy (NPS EN-1)
  - NPS for renewable energy infrastructure (NPS EN-3)
  - NPS for electricity networks infrastructure (NPS EN-5)
- 12.2.4. It is considered that other national and local planning policy will be regarded by the SoS as 'important and relevant' to the Proposed Development. A detailed account of the planning policy framework relevant to the Proposed Development is provided in the Planning Statement (Document Reference 7.1). The Policy Compliance Document (Document Reference 7.1.1) evidences how this assessment has been informed by and is in compliance with the NPSs and relevant national and local planning policies. It provides specific reference to relevant sections of the ES which address requirements set out in policy.

## Guidance

- 12.2.5. The following guidance has informed the assessment:
- IEMA Guidelines for the Environmental Assessment of Road Traffic (2023) [1]
  - IEA guidelines for The Environmental Assessment of Road Traffic (1993) [2]
  - The Design Manual for Roads and Bridges [3]

## 12.3. Scoping and Consultation

- 12.3.1. This section describes the scope of this Traffic and Transport assessment, including how the assessment has responded to the Scoping Opinion. A description of the consultation and engagement undertaken with relevant technical stakeholders to develop and agree this scope is also provided.

### Scoping

- 12.3.2. The EIA Scoping Report set out the proposed scope and assessment methodologies to be employed in the EIA and is provided in ES Appendix 4.1 EIA Scoping Report (Document Reference 6.4.4.1).
- 12.3.3. In response to the EIA Scoping Report, a Scoping Opinion was received from the Planning Inspectorate (PINS) on 6 December 2022 and is provided in ES Appendix 4.2 EIA Scoping Opinion (Document Reference 6.4.4.2)
- 12.3.4. ES Appendix 4.3 EIA Scoping Opinion Response Matrix (Document Reference 6.4.4.3) contains a table that outlines all matters identified by PINS in the EIA Scoping Opinion and how these have been addressed in the ES or other DCO application documentation.

### Consultation

- 12.3.5. Engagement has been undertaken within a number of stakeholders throughout the EIA process. The stakeholders consulted were:
- Cleveland Fire Brigade
  - Darlington Borough Council
  - Durham County Council
  - National Highways
  - National Rail
  - PINS
  - Stockton Borough Council
  - UK Health Security Agency
- 12.3.6. The Consultation Report (Document Reference 5.1) submitted alongside the DCO application contains a full account of the previous statutory consultation process and issues raised in feedback. Matters raised regarding the scope, methodology or mitigation

considered as part of the Traffic and Transport assessment were then subject to further discussions directly with stakeholders.

- 12.3.7. Table 0-1 provides a summary of engagement with relevant stakeholders which has been undertaken to inform the EIA.

**Table 0-1 Stakeholder engagement relating to Traffic and Transport**

Stakeholder	Comments	Response
<b>PINS</b>	PINS disagrees to scope out traffic and transport from the ES as it does not consider enough evidence has been provided.	Noted. Traffic and Transport is included in the ES. In addition, further evidence is detailed in this chapter and accompanying ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).
<b>PINS</b>	The ES needs to confirm the number of traffic movements and demonstrate that these do not exceed relevant thresholds for further assessment.	Noted. This chapter outlines the forecast trip generation and relevant thresholds.
<b>PINS</b>	The ES should provide baseline data for the effected road network and characterise the construction traffic change in terms of number, types and routing of movements in line with relevant guidance, including that for construction workers, and assess significant effects.	Noted. This chapter provides data on the baseline transport network and the forecast change in travel demand on the network during construction.
<b>PINS</b>	The Scoping Report states that due to the rural nature of the road network, and that the increase in construction traffic is expected to be within the daily variation of traffic flows, minimal impacts are anticipated. However, this is not evidenced through the provision of baseline data compared with the anticipated construction traffic movements and the capacity of the road network. Additionally, there is potential for weight and width restrictions on rural roads which is not discussed in the scoping report.	Noted. This chapter provides data on the baseline transport network and forecast changes in travel demand on the network during construction.  Baseline data and HGV composition can be seen in ES Figure 12.3 Network Diagram (Document Reference 6.3.12.3).
<b>Cleveland Fire Brigade</b>	It should be noted that Cleveland Fire Brigade now utilise a Magirus Multistar Combined Aerial Rescue Pump (CARP) which has a vehicle weight of 17.5 tonnes. This is greater than the specified weight in AD B Vol 12 Section B5 Table 15.2.	Noted. There are no changes to the highway network and therefore access for emergency vehicles is unchanged.

Stakeholder	Comments	Response
<b>Darlington Borough Council</b>	Largely agrees with the methodology put forward. However, the assessment fails to recognise that additional vehicle movements associated with construction would be mostly generated by construction work staff. Agreed that post-construction that any additional traffic would be accommodated on the local highway network.	Noted. This chapter outlines the forecast travel demand generated by construction workers and the ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) proposes measures to manage access arrangements to and from each site.
<b>Darlington Borough Council</b>	Subject to submission of transport assessment and CTMP, agreed that traffic and transport and glint and glare can be scoped out.	This ES chapter is supported by ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).
<b>National Highways</b>	The development proposals are in close proximity to the A1(M), which forms part of the Strategic Road Network, hence the need to review to ensure that the development proposals do not materially impact upon the capacity, operation and safety of the SRN.	The study area extends to include the SRN. Section 12.4 of this chapter details desk based surveys undertaken to review accidents and safety on the SRN.
<b>National Highways</b>	The SRN, specifically the A1(M), A19 and A66 should be included within the Study Area for assessments of the impact of the development proposals	Noted - the study area extends to include the SRN. Section 12.4 of this chapter details desk based surveys undertaken to review accidents and safety on the SRN.
<b>National Highways</b>	JBM will have to pay due cognisance to how the cabling proposals at the SRN, in terms of installation and maintenance.	Detail of the cabling process impact on Traffic and Transport can be found in ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8).
<b>National Highways</b>	The EMP, CEMP and CTMP will be the key documents- alongside the TA- to assessing the impact of the development proposals at the SRN, and where required, to provide appropriate mitigation. Where possible, the aforementioned documentation should be based on 'first principles' approach, drawing on the experience of JBM Solar and its appointed contractor, to ensure the development proposals are assessed robustly.	The travel demand forecasts take a first principles approach using information that JBM has gathered from their experience of developing Solar Farms elsewhere in the UK. This ES chapter is accompanied by ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).

Stakeholder	Comments	Response
<p><b>National Highways</b></p>	<p>JSJV request that any data from the construction of other solar farm developments which is used in calculating the projected construction traffic generation should be included in full within the TA for verification.</p>	<p>Information on similar solar farms used to inform this assessment is detailed in full in ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).</p>
<p><b>National Highways</b></p>	<p>JSJV request that the trip generation estimates take into account the varied sizes of the different solar PV module areas within the assessment of the trip generating potential.</p>	<p>Noted. The trip generation takes into account the size of the panel areas and access to the highway network.</p>
<p><b>National Highways</b></p>	<p>Given that the SRN should be included in the Study Area, it should be considered and assessed in terms of the impact on the base traffic conditions, which include road safety.</p>	<p>Section 12.4 of this chapter details desk based surveys undertaken to review accidents and safety on the SRN.</p>
<p><b>National Highways</b></p>	<p>The operational and decommissioning impacts on traffic will have to be set out by JBM Solar within the relevant documentations.</p>	<p>Section 12.4 sets out the impact of operational traffic. Based on evidence from solar farm developments elsewhere, it is forecast that when the Proposed Development is operational, a small number of maintenance trips are expected. Operational traffic is expected to be minimal, with occasional visits taking place by a handful of operatives. The majority of these trips will be by cars or vans, rather than HGVs. Thus, it is expected that any operational impacts on traffic and transport will be negligible.</p> <p>Section 12.8 gives detail on the decommissioning phase of the development. Given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned, it is not proposed that any further assessment of traffic and transport be undertaken for the decommissioning phase.</p> <p>ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) will set out how vehicle access to and from the site will be managed,</p>



Stakeholder	Comments	Response
		and it is expected that the principles agreed to minimise disruption during construction will be reviewed and applied during decommissioning and captured through the proposed Framework Decommissioning Management Plan.
<b>National Highways</b>	The proposed impacts during the decommissioning phase are stated to be similar to the construction phase, and as such, should be assessed accordingly.	Section 12.8 gives detail on the decommissioning phase of the development. The assessment of the construction phase represents a worst case scenario for what can be expected at the decommissioning phase. ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) will set out how vehicle access to and from the site will be managed, and it is expected that the principles agreed to minimise disruption during construction will be reviewed and applied during decommissioning and captured through the proposed Framework Decommissioning Management Plan.
<b>National Highway</b>	The TA and CTMP should be aligned, as there will be significant crossover between the two documents.	Noted - this ES chapter is supported by ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).
<b>National Highways</b>	Collision data for the Study Area should include five years where COVID-19 restrictions were not in place. The Study Area for collision data should take into account the SRN, paying due cognisance to the comments made within this document regarding the Study Area.	Section 12.4 of this chapter details desk based surveys undertaken to review accidents and safety on the Strategic Road Network and Local Road Network between 2015 and 2019.
<b>National Highways</b>	With regard to the TA, CTMP and Glint and Glare Assessment, due cognisance needs to be given to the parameters set out in this document.	This ES chapter is supported by ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).

Stakeholder	Comments	Response
<b>UK Health Security Agency</b>	<p>Traffic and Transport is proposed to be scoped out on the basis that traffic flows will be below the 10% change in accordance with the IEMA GEART rules. The assessed traffic volumes during construction identifies a worst case scenario of 72 HGVs per day, but this does not include construction worker vehicular access. It should be noted that the existing construction vehicle routes via local villages such as Bishopton may include sensitive locations (Bishopton Redmarshall Primary Scheme). The scoping report proposes a Construction Transport Management Plan (CTMP) will provide suitable mitigation. Traffic volume data, routes and proposed mitigation must include construction working transport requirements. The CTMP must include construction worker transport requirements. The CTMP must include the identification of sensitive location and any specific proposed mitigation, such as avoiding school opening and closing hours.</p>	<p>Noted. This chapter outlines the forecast travel demand generated by construction workers and ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) proposes measures to manage access arrangements to and from each site.</p>
<b>Durham County Council</b>	<p>On the basis that solar farms generate very little operational traffic the solar farm would not raise any concerns over road safety.</p>	<p>No response required.</p>
<b>Durham County Council</b>	<p>The main trips would be associated with the construction phase. A CTMP would need to be provided to show mitigation on the local road network. Request details of any proposed site access to ensure it is safe and suitable.</p>	<p>This ES chapter is supported by ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).</p>
<b>Network Rail</b>	<p>ES should include a Transport Assessment to identify any HGV traffic / haulage routes associated with the construction and operation of the site that may utilise railway assets such as bridges and level crossings during the construction and operation of the site.</p>	<p>This ES chapter is supported by ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) and ES Appendix 12.1 Transport Statement (Document Reference 6.4.12.1).</p>

## 12.4. Assessment Methodology

- 12.4.1. This section outlines the methodology employed for assessing the effects on Traffic and Transport from the construction, operation and decommissioning of the Proposed Development.

## Desk Based Study

12.4.2. Analysis has been undertaken to inform the baseline conditions. The analysis undertaken includes:

- analysis of baseline traffic data;
- the analysis of collision data (sourced online from the crashmap website [4]) on the LRN and surrounding SRN for the period 2015 to 2019; and
- the analysis of traffic routing to determine the most appropriate route from the SRN to the Panel Areas.

## Site Specific Surveys

12.4.3. A traffic survey was undertaken at 12 locations across the local highway network for a week between 15 - 21 March 2023, to assess the baseline vehicle flows that currently exist on the local network. The results of the traffic survey are provided in ES Figure 12.3 Network Diagram (Document Reference 6.3.12.3).

## Assessment criteria and Assignment Significance

12.4.4. The significance of an effect is determined by the sensitivity of a receptor and the magnitude of an impact. This section describes the criteria applied in this chapter to characterise the sensitivity of receptors and the magnitude of potential impacts. The terms used to define magnitude and sensitivity are based on those that have been used in the Institute of Environmental Management and Assessment's (IEMA) Guidelines for Environmental Impact Assessment [1] and the Design Manual for Roads and Bridges (DMRB) [3].

12.4.5. The receptors considered in this assessment are:

- pedestrians, horse riding and cyclists; and
- car drivers and passengers.

12.4.6. The criteria used to assess receptor sensitivity is shown in Table 0-2.

**Table 0-2 Receptor sensitivity**

Sensitivity	Definition
<b>Very High</b>	Receptors with the greatest sensitivity due to site-specific characteristics which make them sensitive to changes in traffic flows.
<b>High</b>	Receptors of high sensitivity to traffic flows including schools, colleges, playground, accident blackspots, retirement homes, urban/residential roads without footways that are used by pedestrians.
<b>Medium</b>	Receptors of medium sensitivity to traffic flows including congested junctions, doctors surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks, recreation facilities.
<b>Low</b>	Receptors with some sensitivity to traffic flows including places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.

Sensitivity	Definition
Negligible	Receptors with low sensitivity to traffic flows that are a sufficient distance from impacted road and junctions.

12.4.7. The magnitude of impact has taken into consideration the impact duration which, for the purpose of this assessment, is defined as followed:

- Short term: up to one year;
- Medium term: a period of more than one year, up to five years; and
- Long term: a period greater than five years.

12.4.8. The criteria used to assess the magnitude of impact is shown in Table 0-3

**Table 0-3 Magnitude of impact**

Magnitude of Impact	Definition
High	Changes which would likely significantly change conditions to the extent that it would significantly impact travel behaviour.
Medium	Changes which would change conditions to the extent that it may impact travel behaviour to a measurable degree.
Low	Changes which are likely to be perceptible but not to the extent that they would change conditions which would otherwise prevail.
Negligible	Changes which are just perceptible.
No Change	No loss of alteration or characteristics, with no observable impact.

### Severance

12.4.9. Severance is defined by the IEMA Guidance [1] as the perceived divisions that can occur within a community when it becomes separated by a traffic route.

12.4.10. The assessment thresholds, set out in Table 0-4, are based on changes in traffic flows set out in the IEMA Guidance.

**Table 0-4 Assessment thresholds**

Magnitude of Impact	Definition
High	More than 90% change in traffic flow
Medium	60% to 90%
Low	30 to 60%
Negligible	0% to 30%
No Change	No change in traffic flows

### Driver Delay

12.4.11. The nature of a road, along with capacity and congestion, can impact driver delay. The sensitivity on roads is considered to be low if there is generally no congestion and is not considered to be sensitive to changes in traffic.

- 12.4.12. The IEMA Guidance notes that driver delay is only likely to be 'significant' when the traffic in the network surrounding the development is already at, or close to, the capacity of the system.
- 12.4.13. The IEMA Guidance [1] does not define the magnitude of impact for driver delay. Therefore, for the purpose of this report, professional judgement has been used to assess the impact of driver delay.

### **Pedestrian, Horse Riding and Cyclist Amenity**

- 12.4.14. The IEMA Guidance [1] defines non-motorised amenity as the relative pleasantness of a journey. Pedestrian amenity is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic. The 1993 IEMA guidelines [2] suggest that the threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) has doubled. Although these thresholds no longer appear in the updated Department for Transport guidance [3], they have not been superseded by subsequent changes to guidance and are still in use and deemed relevant to this assessment. However, the assessment of amenity should pay full regard to specific local conditions.
- 12.4.15. The perception of traffic can impact upon feelings of fear and intimidation. This is dependent on the volume of traffic, the HGV composition, the proximity of traffic to people or the level of protection. Professional judgment must be used to determine the magnitude of impact on pedestrian, horse riding and cyclist amenity due to the absence of a commonly agreed threshold.

### **Accidents and Safety**

- 12.4.16. The IEMA Guidance [1] references the use of professional judgement to assess the accident and safety impacts. Implications of local circumstances, or factors which may elevate or lessen risks of accidents, such as junction conflicts, would be considered.
- 12.4.17. Changes in traffic flows and highway design could influence the risk of accidents. Therefore, professional judgement has been used to consider the risks in terms of accidents and safety, considering changes in traffic flows, existing accident clusters, and embedded design mitigation measures.

## **12.5. Assessment Assumptions and Limitations**

- 12.5.1. This section provides a description of the assumptions and limitations to the Traffic and Transport assessment.
- 12.5.2. In the Preliminary Environmental Information Report (PEIR), all Panel Areas were assumed to be constructed at once. Following on from statutory consultation, mitigation measures were developed to reduce the impact of construction traffic by limiting the number of panel areas that will be constructed at once.

- 12.5.3. Therefore, it is assumed that a maximum of three Panel Areas are to be constructed at any given time during the construction phase of the Proposed Development. Construction traffic has been forecast and capped to a maximum of deliveries and trips to three Panel Areas within the Study Area.
- 12.5.4. Construction trip rates have been informed by information from other solar farm sites of a similar nature, with construction expected to take up to two years.
- 12.5.5. Construction workers are assumed to be travelling together to the site in large cars (7 seat vehicles) as set out in travel measures provided within the Outline Construction Traffic Management Plan (Document Reference 6.4.2.8).
- 12.5.6. HGV trips will follow the designated routes as identified in ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) in order to avoid weight restrictions and villages where possible. Measures to encourage adherence to these routes are detailed in the Outline Construction Traffic Management Plan (Document Reference 6.4.2.8).
- 12.5.7. It is expected that the majority of construction vehicles accessing the Panel Areas will fall into the 'normal' size category (i.e. transit vans and HGVs). However, there is expected to be a requirement for two abnormal load deliveries to Panel Area C in order to bring sub-station components to site. These are considered abnormal due to the weight of the load rather than the dimensions, as they will exceed 44 tonnes. These loads are expected to reach the Proposed Development from the A66 and prior to the movement of these loads, a permit will be sought from the Local Highway Authority and local residents made aware of the proposals. This is covered in further detail within the Outline Construction Traffic Management Plan (Document Reference 6.4.2.8).
- 12.5.8. The impact of the closure/rerouting of PRoW is addressed in ES Chapter 9 Socio-economics and Land Use (Document Reference 6.2.9) and ES Appendix 2.15 Outline PRoW Management Plan (Document Reference 6.4.2.15). The impact on pedestrians, cyclists and horse-riders, in the traffic and transport assessment, focuses on impacts from an increase in traffic flow only.
- 12.5.9. Both on and off-road cable route options have been assessed. From a traffic and movement perspective, on-road cable routing would be the worst-case scenario as it would require traffic management to be implemented, which could include temporary lane closures or diversions. If cable construction is required in the adopted highway, ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) includes measures to minimise the impact that could arise from works on the highway (such as temporary road closures and diversions).
- 12.5.10. There are limitations on what has been included in the future baseline scenario due to the information that is publicly available on the relevant planning websites. Where traffic data from committed developments is known, this has been added to the future baseline. It is also not known which three sites will be constructed at once, and when they may commence and end construction. The order in which Panel Areas are

constructed may alter the impact at either end of the Study Area. Furthermore, the future baseline assumes all committed development traffic is on the network, which may not be the case when some of the sites commence construction.

12.5.11. The assessment does not include any junction impact assessments.

## 12.6. Study Area

12.6.1. The study area is bound by and includes the surrounding Strategic Road Network (SRN): A1(M), A66(T), A19(T) and A689. The study area further includes the Order Limits and surrounding Local Road Network (LRN). Lime Lane, Lodge Lane and the unnamed road running through Great Stainton to Bishopton are key local roads which link all the Panel Areas together and are included within the study area. A map of the study area and the six Panel Areas can be seen in ES Figure 12.1 Proposed Access Routes and Survey Locations (Document Reference 6.3.12.1).

## 12.7. Baseline Conditions

12.7.1. This section provides a description of existing conditions in the study area.

### Existing conditions

#### Highway Transport

12.7.2. The Proposed Development is located in a rural area, in between the urban conurbations of Darlington and Stockton on Tees. There are a number of villages in the study area including (from west to east) Brafferton, Great Stainton and Bishopton.

12.7.3. The surrounding SRN is comprised of the A1(M) to the west of the Order Limits, and the A66(T) to the south. The Proposed Development is also accessible from the A19(T) to the east. The highway network serving each Panel Area can be described as follows:

- Panel Area A: Brafferton
  - From the A1(M) Junction 59, access to Panel Area A would be via the A167 onto Lime Lane and Aycliffe Lane. Both Lime Lane and Aycliffe lane are rural roads, subject to the national speed limit, with a footway on one side of the carriageway. Vehicles will then access the Panel Area via an unnamed farm track off Brafferton Lane or via high House Lane (Brafferton).
- Panel Area B: around Hauxley Farm
  - HGVs travel from the A1(M) and access the Panel Area via A167, Lime lane and Lodge Lane. Both Lime Lane and Lodge Lane are rural, single-carriageway roads that are subject to the national speed limit.
- Panel Area C: Byers Gill Wood
  - Panel Area C is centrally located within the Order Limits however, the closest strategic road is the A66. Therefore, it is expected that HGV movements will be via the A66, connecting to Bishopton Lane/Elstob Lane. Bishopton Lane and Elstob Lane are rural roads with no footpaths.

- Panel Area D: Great Stainton
  - Panel Area D has the same access routes as Panel Area C, as it is also located off Bishopton Lane, North of Panel Area C.
- Panel Area E: West of Bishopton
  - The existing access into Panel Area E is located off the rural road that connects to Elstob Lane at a priority T-junction. Vehicular access to Panel Area E is expected to be via the A167, Lime Lane, Lodge Lane and an unnamed road east of Great Stainton and an unnamed road west of Bishopton.
- Panel Area F: North of Bishopton
  - Panel Area F is expected to be accessed via the A1(M) and will access the Panel Area via A167, Lime Lane, Lodge Lane and an unnamed road east of Great Stainton and an unnamed road north of Bishopton. These C-roads, with the national speed limit in place, have no footpaths.

- 12.7.4. The access routes to the Proposed Development from the SRN are shown in ES Figure 12.1 (Document Reference 6.3.12.1).
- 12.7.5. Collision data covering the study area has been sourced, for the period 2015 to 2019 inclusive, from crashmap.com [4]. The study period was selected as this removes Covid years, increasing accuracy. The study area includes the LRN and surrounding SRN.
- 12.7.6. Reviewing the data on the LRN (west to east) shows that there have been six slight collisions and one serious collision during the study period at the A167/Lime Lane junction. Three slight accidents have been recorded in the last five years at the Lime Lane/Lodge Lane junction, and a slight and serious accident were recorded at the Lodge Lane/Elstob Lane junction. Six slight accidents were recorded at the Bishopton Lane/Hill House Lane junction. Additionally, two slight accidents and one serious accident were recorded in Sadberge Village. One serious accident was recorded in Bishopton.
- 12.7.7. Reviewing the data on the SRN, a small cluster of slight incidents have been recorded at Junction 59 of the A1(M) between the period of 2015-2019. 11 slight accidents have been recorded at the A1(M)/A167 interchange during the assessment period.
- 12.7.8. HGVs accessing Panel Areas C and D and will use Bishopton Lane to access the A66. This junction has seen three slight accidents and one serious accident between 2015 and 2019.
- 12.7.9. A cluster of slight and serious accidents have been identified on the A19 between junctions for Middlesbrough and Norton. However, HGVs are not expected to be routed onto the A19.
- 12.7.10. Reviewing the accident data, five serious accidents have been recorded on the A689/Butterwick Road between the 2015 and 2019. However, HGVs are not expected to be routed onto the A689.



## Future Baseline

- 12.7.11. The general approach to defining future baseline for the Proposed Development is described in ES Chapter 4 Approach to EIA (Document Reference 6.2.4).
- 12.7.12. The potential overlap with traffic from other developments within the vicinity, as listed in the short list of developments, has been considered. Those committed developments that would use routes within the Study Area have been identified and any additional vehicle trips on those routes have been included in the future baseline scenario.
- 12.7.13. No changes to the highway network have been identified within the study area (e.g., committed highway improvement schemes) that are required to form part of the future baseline scenario.
- 12.7.14. The future baseline scenario includes traffic associated with the following developments:
- Gately Moor Solar Farm (22/0072/FUL) – This site, which was approved in 2022, includes two sites east and west of Bishopton Back Lane, within close proximity to the south of Panel Areas E and F of the Proposed Development. The access routes into the sites are located on Bishopton Back Lane and Redmarshall Road. The information available online identifies that the scale of HGV traffic travelling to the site during the construction period will be similar to the Proposed Development, with HGV trips averaging 5 deliveries per day (10 movements) during the construction period. Employees will travel in crew buses, with a maximum of 20 minibuses (940 movements) quoted in the Transport Assessment as potentially travelling to the site during the peak of the construction period. Operational traffic is expected to be negligible, and no estimates have been provided. The main access into the site is located on Redmarshall Road which is outside of the study area. A secondary access is located on Bishopton Back Lane to the south of Redmarshall Road, which again is outside of the Study Area. However, given the proximity of the site to two Panel Areas, construction traffic has been added to the network assuming trips travel through the Study Area to access the A1(M). These trips are included in the Future Baseline Scenario.
  - Whinfield Solar Farm (21/00958/FUL) – it is proposed that this Solar Farm development, which is located north of Panel Areas A and B, is accessed via the A1(M) at Junction 59 via the A167 and Lime Lane. There will be some overlap with the access routes within the Study Area that connect to the A1(M). The CTMP for the development estimates that the site could generate, at the construction peak, a total of 6 HGV trips per day (12 movements) and a maximum of 40 staff vehicles (80 movements) per day. These trips are included in the Future Baseline.
  - Forrest Park (DM/19/00283/OUT) – The development includes office, leisure and other ancillary development and is accessed via the A167 to the north of Junction 59. It will therefore overlap with trips to the Study Area that travel to/from the A1(M). The Transport Assessments only includes peak hour trips, rather than daily trips. From the traffic flow diagrams, the combined peak hours

would add 774 trips onto the A1(M) junction and 377 trips onto the extent of the A167 within the Study Area. These trips are included in the Future Baseline.

- Plot 3B Merchant Park Millennium Way Aycliffe Business Park (DM/23/02905/FPA) – The development includes industrial buildings including ancillary office space and other ancillary development and is accessed via the A167 to the north of Junction 59 via St Andrews Way. There will be some overlap with trips to the Study area that travel to/from the A1(M). The Addendum Transport Assessment only includes peak hour trips that show its greatest traffic impacts. The predicted trip generation is for an additional 523 trips (1,046 movements) per day. These trips are included in the Future Baseline.
- Concrete plant Aycliffe Quarry (DM/23/03701/WAS) – The development includes the erection of a concrete plant (retrospective) and a construction and demolition washing plant and is accessed via Lime Lane and the A167. It will therefore overlap with trips within the Study Area that connect to the A1(M) via Lime Lane. These trips are included in the Future Baseline and for robustness it has been assumed that all trips use the Lime Lane entrance.

12.7.15. The Future Baseline has considered the following nearby developments from the short list, but has not included any traffic associated with the development for the reasons outlined as follows:

- Summerville Farm Housing Development (22/0334/EIS) – The available information notes that HGVs will travel via Letch Lane to access this site during the construction period. The information notes that construction is likely to take around 8-9 years starting in 2022 so there is a probability of some overlap with the construction of the Proposed Development. However, no specific detail in terms of the number of construction vehicles has been provided and Letch Lane is just outside the Study Area of the Proposed Development. Trips from the Summerville Farm development will be dispersed along routes outside the Study Area including the A177 an Harrowgate Lane and therefore any additional traffic within the Study Area is expected to be negligible.
- California Farm Solar Farm (22/1511/FUL) – Approved in 2023, this Solar Farm development is located south-east of Carlton with access gained off Drovers Lane and Letch Lane. The CTMP for the development outline that trips using the Letch Lane access will travel onto the A1027 and Harrowgate Lane to access Letch Lane; these routes are all to the south and east of the Study Area. Access to Drovers Lane will be via the A66 and Yarm Back Lane, again to the south of the Study Area.
- Bishopton Lakes (21/01086/FUL) – This development, which is still awaiting a decision on planning, is located south of Bishopton Village and includes the development of 24 holiday lodges and a new access track. There is no formal transport documentation provided with the application but the highway officer response notes that it could generate an additional three movements though Bishopton Village (the Study Area) which is not considered a material impact. Given the lack of information, the conclusions of the highway officer and the

location of the site to the south of the Study Area, the development has not been included in the Future Baseline.

- Middlefield Farm (20/2692/FUL) – This Solar Farm development is located east of the Study Area and all traffic is routed via the A177, which is outside of the Study Area of the Proposed Development.
- Long Pasture (22/01329/FUL) – This proposed Solar Farm is located south of the Proposed Development and would be accessed via the A66 and Darlington Back Lane. All traffic would utilise routes to the west and would not cross into the Study Area.
- DB Symmetry Phase 2 Land East Of Lingfield Estate Lingfield Point (19/00036/OUT) – The traffic from Lingfield Estate is not expected to use the same routes as Byers Gill construction traffic and is therefore outside the Zol of the Proposed Development.
- Proposed New NWL Water Main Ketton Lane (23/00733/SCO) - The construction traffic will use some of the same access routes as Byers Gill and will intersect Byers Gill Access Routes in a handful of locations. However, due to this application only being at the scoping stage, it is unlikely that the two projects will be in construction simultaneously.
- Land North East Of Ricknall Grange Farm Ricknall Lane Preston-le-Skerne (DM/23/02331/FPA) – This development is for the conversion of agricultural land to wetland habitats with associated engineering works. The proposed development, following completion, will not be accessible by the public and hence will generate negligible trips.
- Land Off Cygnet Drive Bowesfield Lane Stockton-on-Tees (23/2102/FUL) – This development is for the erection of 257 dwellings located on the southern edge of Stockton-on-Tees. The proposed housing development is located west of the Proposed Development and would be accessed via the A135, which is outside the Zol of the Proposed Development.
- Land At Westland Way Stockton-On-Tees (23/1819/FUL) – The proposed industrial unit is located west of the Proposed Development and would be accessed via the A135, which is outside the Zol of the Proposed Development.
- Land At Wynyard Village Wynyard (23/0261/OUT) – This development is for up to 700 dwellings, community centre, care and medical facilities, open space, golf course improvements and associated works. Wynyard Village is located outside of the Study Area of the Proposed Development. This development, which is still awaiting a decision on planning, is located north of the Proposed development, in Wynyard. There is no formal transport documentation provided with the application, but the highway officer response recommends that it should not be given planning permission. Therefore, given the lack of information, the conclusions of the highway officer and the location of the site, the development has not been included in the Future Baseline.
- Land West Of Maynard Grove Wynyard (20/2408/OUT) – This development is for up to 130 dwellings and new local centre with associated landscaping and ancillary

works. Wynyard Village is located outside of the Study Area of the Proposed Development and 100% of the predicted residential trips are to gain access to the A689 network via the A689 Hartlepool Road, The Wynd, The Meadows roundabout. Therefore, the development has not been included in the Future Baseline.

- 12.7.16. The Future Baseline scenario has been used to determine the Traffic and Transport effects of the Proposed Development.

## 12.8. Potential impacts

- 12.8.1. Based on the design of the Proposed Development during operation and associated construction and decommissioning activities, the Proposed Development has the potential to impact on Traffic and Transport during construction, operation and decommissioning.

### Construction

- 12.8.2. The construction phase is of a temporary nature, however, during this temporary period the traffic generated by the Proposed Development could have the following effects:
- severance;
  - driver delay;
  - changes to pedestrian, horse riding and cyclist amenity; and
  - accidents and safety.

### Operation

- 12.8.3. Based on evidence from solar farm developments elsewhere<sup>1</sup>, it is forecast that when the Proposed Development is operational, a small number of maintenance trips are expected. Operational traffic is expected to be minimal, with occasional visits taking place by a handful of operatives. The majority of these trips will be by cars or vans, rather than HGVs.

### Decommissioning

- 12.8.4. Decommissioning of the Proposed Development could give rise to a similar level of effects as the construction phase of the Proposed Development. However, given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned, it is not proposed that any further assessment of traffic and transport be undertaken for the decommissioning phase.
- 12.8.5. A robust interpretation of the construction phase represents a worst-case scenario for decommissioning, and therefore will be used as a proxy for the decommissioning stage.

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<sup>1</sup> Gately Moor Solar Farm and Moreton Lane Solar Farm

Similar activities are expected to be undertaken and vehicle movements are not expected to exceed those required during construction. Consequently, no assessment, specific to decommissioning, has been undertaken.

## **12.9. Embedded mitigation**

- 12.9.1. The Proposed Development has been designed to avoid and prevent adverse environmental effects on hydrology and flood risk through the process of design development and consideration of good design principles.
- 12.9.2. Mitigation measures incorporated in the design and construction of the Proposed Development, considering the potential impacts, are reported as embedded mitigation in ES Chapter 2 The Proposed Development (Document Reference 6.2.2). The effects of the Proposed Development are assessed considering embedded mitigation is in place and are reported in Section 12.10.
- 12.9.3. Where required further mitigation is deemed required as a result of a potentially significant effect, this is termed essential mitigation. Essential mitigation is set out as part of the assessment of effects in Section 12.10.
- 12.9.4. A further definition of these classifications of mitigation and how they are considered in the EIA is provided in Section 4.5 in ES Chapter 4 Approach to EIA (Document Reference 6.2.4).

## **12.10. Assessment of likely significant effects**

- 12.10.1. This section presents the likely effects on Traffic and Transport resulting from the construction, operation and decommissioning of the Proposed Development.
- 12.10.2. The assessment of effects takes into account the potential impacts to each receptor (as set out in Section 12.8) following the implementation of embedded mitigation (as set out in Section 12.9). Where required to further mitigate potentially significant effects, essential mitigation measures are outlined as part of the assessment, and the overall significance of residual effects set out.

### **Construction Service and Delivery Vehicle Trips**

- 12.10.3. Construction trips have been estimated by JBM Solar / RWE based upon other recently developed JBM Solar / RWE, UK based, solar farm, and other local, sites of a similar scale to the Proposed Development. The number of trips have been based off kilowatt outputs from previous projects, and numbers factored to the Proposed Development approximate site size to understand how many trips the Proposed Development site could generate.
- 12.10.4. Based upon the trips assigned to each Panel Area, the construction traffic has been assumed to route to the Strategic Network; A1(M) and A66 using the most appropriate

route according to Google Maps whilst considering weight limit restrictions and avoiding residential villages.

- 12.10.5. A network diagram, showing how the trips have been distributed on the network alongside the percentage change expected during construction on each road within the study, area can be found in ES Figure 12.1 Proposed Access Routes and Survey Locations (Document Reference 6.3.12.1). Table 0-5 HGV trips per Panel Area presents the assumed HGV delivery trips during construction to the Proposed Development, per Panel Area, and the Strategic Road construction traffic is assumed to use.

**Table 0-5 HGV trips per Panel Area**

Panel Area	Approx Hectare Size (ha)	Construction Trips	Strategic Road
A	114.34	8	A1(M)
B	52.51	4	A1(M)
C	110.72	8	A66
D	87.90	6	A66
E	26.64	2	A1(M)
F	104.89	8	A1(M)
Average		6	

- 12.10.6. An assumption of the assessment is that a maximum of three Panel Areas will be constructed at any given time.
- 12.10.7. Based on the trip generation presented in Table 12-5, the average number of HGV trips each Panel Area could generate per day is approximately six construction trips (12 movements) per Panel Area, per day, during the construction phase.
- 12.10.8. If three sites are constructed at any given time it expected that the average number of HGV trips added to the network per day would be 18 trips (36 two-way movements).
- 12.10.9. There is also expected to be two abnormal load deliveries to Panel Area C of the Proposed Development. This relates to the delivery of sub-station components and the weight of these loads could exceed the threshold of 44 tonnes for a normal load.
- 12.10.10. The abnormal load is expected to reach the substation site (Area C) from the A66; therefore, the assigned route is the same as the access to/from Panel Area C, via the A66. The abnormal load route is shown in ES Figure 12.1 Proposed Access Routes and Survey Locations.
- 12.10.11. It will be the responsibility of the operator of the abnormal load to notify the authorities following the Department for Transport requirements at the time the

application is required. The authorities may advise an alternative route to the one shown in ES Figure 12.1, but for the purpose of this assessment, the most appropriate route at this time has been identified.

### **Construction Worker Trips**

- 12.10.12. The potential overlap with traffic from other developments in the vicinity has been considered. Those committed developments that would use routes within the study area have been identified, and any additional vehicle trips on those routes have been included in the future baseline scenario. Appendix 12.3 Network Diagram (Document Reference 6.3.12.3) shows the percentage change in vehicle flows between the existing (2022) baseline and the future baseline scenario.
- 12.10.13. It is expected that three Panel Areas will be constructed at any given time during the construction phase of the Proposed Development, and that each Panel Area could require up to 100 employees (300 on site at any one time). Based on similar sites constructed elsewhere, and as outlined in the measures within the outline CTMP (Document Reference 6.4.2.8) that aim to consolidate worker trips where possible, employees are expected to travel to the site in teams of 7. This is forecast to result in approximately 15 car/LGV trips to each site (30 two-way movements). Across three sites, the employee trips could generate 45 car tips (90 two-way movements).
- 12.10.14. As with HGV movements, employee trips have been routed to Panel Areas via the most appropriate route from the SRN. The total vehicle trips are shown in ES Figure 12.3 Network Diagram (Document Reference 6.3.12.3).

### **Severance**

- 12.10.15. To consider whether this potential change in traffic flows would have a severance effect, judgement has to be made on the magnitude of change in accordance with IEMA guidance and the sensitivity of receptors.
- 12.10.16. The receptors are users of the roads (pedestrians, cyclists, bus passengers, car drivers and freight drivers) within the Study Area. The receptor sensitivity within the Study Area is generally deemed to be Low as there are residential areas and public land uses, but the roads have few direct frontage accesses and have capacity to accommodate change. Given the importance of the SRN, receptor sensitivity to changes on the A1(M) and A66 is defined as High.
- 12.10.17. During the construction phase, the majority of roads within the study area see an increase of less than 10%. The Institute of Environmental Assessment Guidelines for the Environmental Assessment of Road Traffic [1] notes that a change in traffic of less than 10% is considered to have no discernible environmental effect, given that daily variations in background traffic flow may fluctuate by this amount.
- 12.10.18. There are however some routes where construction traffic would temporarily increase daily traffic flows by more than 10% as shown in the future baseline scenario. Lime Lane

is forecast to see an increase of up to 12% in daily traffic flows and Aycliffe Lane an increase of up to 20%. However, these roads are subject to low traffic flows, as shown in the baseline data presented in ES Figure 12.3 Network Diagram (Document Reference 6.3.12.3), and as such a small increase in trips will show a high percentage change in traffic flow. IEMA guidance [1] urges caution when applying thresholds to low baseline flows and suggests that professional judgement be used. Moreover, the receptor sensitivity is considered to be low, as the LRN has some sensitivity to changes in traffic flows, but has capacity to accommodate the temporary change in flows. There are also no footpaths on Lime Lane and an absence of frontages, and therefore it is not deemed to have a significant impact on severance. Overall, the increase in construction traffic, when assessing the Future Baseline Scenario, would amount to less than one additional vehicle per minute, on Lime Lane, in a twelve-hour time period. Therefore, it is considered that the magnitude of impact is negligible and the overall effect of the Proposed Development on severance on the LRN is not significant.

- 12.10.19. Additionally, all the traffic associated with the Forrest Park planning application (DM/19/00283/OUT), which is a large mixed use development just to the west of the Study Area, is assumed to be on the network in the future baseline scenario. However, the Forrest Park development is being constructed in six phases and therefore the traffic presented in ES Figure 12.3 Network Diagram (Document Reference 6.3.12.3) shows a worst case scenario on what the future baseline conditions could be on Lime Lane.
- 12.10.20. The A1, A19 and A66 are all part of the SRN and, within the vicinity of the study area, are all dual carriageway routes with high daily average flows. For example, the A1 is subject to a AADF of approximately 40,000 vehicles at Junction 59. As heavily used routes and as part of the SRN, receptor sensitivity is defined as High.
- 12.10.21. Reviewing the impact on the SRN routes, the increase in HGV vehicles on the SRN, at the construction phase, is considered to be not significant as the change is below the 30% threshold of change as set out in the Institute of Environmental Assessment's Guidelines for the Environmental Assessment of Road Traffic [1]. Whilst the sensitivity of the receptor is deemed to be High and is higher than the LRN as a more heavily used network, it is considered that the overall effect on severance on the SRN, during construction, is negligible, and not significant in EIA terms.
- 12.10.22. It is considered that no essential mitigation measures are required, and as such residual effects remain as reported.

### **Driver Delay**

- 12.10.23. The IEMA Guidelines note that these delays are only likely to be 'significant' when the traffic in the network surrounding the development is already at, or close to, the capacity of the system.
- 12.10.24. Traffic data was collected in 2022 to understand the level of existing baseline traffic on the network within the Study Area and the existing capacity on the system. This is



shown in Figure 12.3 Network Diagram (Document Reference 6.3.12.3). The traffic survey data indicates that the local road network is not heavily used – the busiest links on the LRN are Elstob Lane and Bishopton Lane that recorded more than 2,500 vehicles per day in each direction. Whilst no local junction modelling has been undertaken, professional judgement has been made that links and junctions within the Study Area operate within theoretical capacity.

- 12.10.25. It is deemed that receptor sensitivity to Driver Delay within the Study Area is negligible.
- 12.10.26. During the construction phase, it is expected that there will be an average of six deliveries per day (12 movements per day), per Panel Area. This has been capped based on three sites being constructed at any one time, which would lead to 18 trips (36 two-way movements) per day.
- 12.10.27. The Future Baseline Scenario presents a cumulative increase in traffic flow. However, IEMA Guidelines [1] state that delays are only set to be significant when the traffic on the network is already at, or close to the capacity of the system.
- 12.10.28. Therefore, the temporary increase in traffic during construction is not expected to have a significant impact on driver delay with the magnitude of impact being negligible.
- 12.10.29. It is expected that cable construction could cause a greater level of driver delay, should road based cable route options be chosen as the preferred route over the off-road options. This is because road-based cables may require temporary traffic management or lane closures and/or the temporary closure of some routes, and the need for diversions, during installation, potential effects which would not be experienced through the construction of the off-road options.
- 12.10.30. However, where this might be the case, it is proposed that cabling works will be outside of network peak hours and traffic management (e.g. single lane closures) or temporary diversions would seek to minimise any increase in journey length, therefore having minimal impact. Should final cable route selection include road options, further detail about mitigation against driver delay caused by cabling works would be provided through an update to the Outline Construction Traffic Management Plan (Document Reference 6.4.2.8).
- 12.10.31. The survey data indicates that there is no existing capacity issue on the network, and ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) includes measures to manage traffic arrangements to / from the site. The IEMA Guidance [1] does not define the magnitude of impact for driver delay and therefore professional judgement has to be applied to assess the potential impact of the Proposed Development on driver delay. It is therefore considered that there would be a negligible effect on driver delay during construction if the off-road cabling option was taken forward. However, a worst-case scenario would be for on-road cabling to be required, which could have a temporary minor adverse impact on driver delay.

12.10.32. It is considered that no essential mitigation measures are required, and as such residual effects remain as reported.

### **Pedestrian, Horse Riding and Cyclist Amenity**

12.10.33. Due to a negligible increase in traffic on the LRN, it is anticipated that the impact of the Proposed Development on pedestrian, horse riding and cyclist amenity will not be material, and, if at all, only in isolated locations.

12.10.34. Receptor sensitivity to Pedestrian, Horse Riding and Cyclist Amenity within the Study Area is deemed to be low as changes are likely to be perceptible but not to the extent that they would change conditions which would otherwise prevail.

12.10.35. However, it is acknowledged that the addition of HGVs to the network and additional traffic associated with the Proposed Development could have some temporary impact on the pleasantness of any pedestrian, horse riding or cyclist journey in the area. However, with the implementation of mitigation and given the temporary nature of the impact, it is considered the likely effect to pedestrian, horse riding and cyclist amenity will be low, which is not significant.

12.10.36. It is considered that no essential mitigation measures are required, and as such residual effects remain as reported.

12.10.37. The impact of the closure/rerouting of PRow is addressed in ES Chapter 9 Socio-economics and Land Use (Document Reference 6.2.9) and ES Appendix 2.15 Outline PRow Management Plan (Document Reference 6.4.2.15).

### **Accidents and Safety**

12.10.38. Collision data covering the study area has been sourced, for the period 2015 to 2019 inclusive, from crashmap.com [3]. The study area includes the LRN and surrounding SRN. The data has been considered as part of the baseline conditions review, and clusters at some junctions have been identified. However, there are no specific trends or common causation factors that have been identified for the collisions.

12.10.39. The receptors are users of the roads (pedestrians, cyclists, bus passengers, car drivers and freight drivers) within the Study Area. The receptor sensitivity within the Study Area is generally deemed to be Low as there are residential areas and public land uses, but the roads have few direct frontage accesses and have capacity to accommodate change. Given the importance of the SRN, receptor sensitivity to changes on the A1(M) and A66 is defined as High.

12.10.40. The IEMA Guidance [1] references the use of professional judgement to assess the accident and safety impacts. The Proposed Development will generate additional traffic in the Study Area during the construction period. However, there is no evidence of a prevailing road safety issues within the Study Area and therefore the magnitude of impact of the increased traffic flow on accidents and safety is expected to be negligible and the overall significance of effect is not significant.

12.10.41. It is considered that no essential mitigation measures are required, and as such residual effects remain as reported.

### **Operation**

12.10.42. The average number of daily trips, in the operation phase of the development, has been provided by JBM Solar / RWE using previous examples of their UK based solar developments that are comparable in terms of operational maintenance requirements. The total operational trips expected for the Proposed Development, based on the example operational trips and site size, is 73 operational trips per year (146 movements a year) across the Panel Areas, equating to 0.4 trips per day (0.8 movements).

12.10.43. Therefore, based on the anticipated operational trips of 0.4 trips per day (0.8 movements per day) and the average road flow of 2023, operational trips will increase daily traffic by 0.02%.

12.10.44. Overall, an expected increase of 0.02% on daily traffic is negligible as it is under the allowed 10% set out in the Institute of Environmental Assessment's Guidelines for the Environmental Assessment of Road Traffic [1].

12.10.45. It is considered that no essential mitigation measures are required, and as such residual effects remain as reported.

### **Decommissioning**

12.10.46. Decommissioning of the Proposed Development could give rise to the same level of forecast trip generation as the construction phase of the Proposed Development. Therefore, the construction stage represents a worst case scenario of the potential impacts of the decommissioning phase.

12.10.47. However, given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned, it is not proposed that any further assessment of traffic and transport be undertaken for the decommissioning phase. ES Appendix 2.8 Outline Construction Traffic Management Plan (Document Reference 6.4.2.8) sets out how vehicle access to and from the site will be managed and ensure that the impacts from decommissioning traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised. It is expected that the principles agreed to minimise disruption during construction will be reviewed and applied during decommissioning and captured through ES Appendix 2.7 Outline Decommissioning Environmental Management Plan (Document Reference 6.4.2.7).

12.10.48. At present it is therefore assumed that no essential mitigation measures are required, and as such residual effects remain as reported.

### **Enhancement opportunities**

- 12.10.49. Enhancement measures are over and above what is required to mitigate the adverse effects of the Proposed Development. No enhancement opportunities have been identified for traffic and transport.

### **12.11. Monitoring**

- 12.11.1. There is no monitoring proposed in relation to the Traffic and Transport effects given the predicted scale of change on the LRN/SRN.

### **12.12. Summary**

- 12.12.1. Table 0-6 provides a summary of the identified impacts, mitigation and likely effects of the Proposed Development on Traffic and Transport. The table has been subdivided into effects for construction, operation and decommissioning.

**Table 0-6 Traffic and Transport assessment summary**

Impact	Embedded/Essential Mitigation and how secured	Receptor Sensitivity	Magnitude of impact	Significance of effect
Construction				
Severance on Pedestrians, Horse Riding and Cyclists	CTMP secured through a requirement of the DCO.	Low on LRN High on SRN	Negligible	Negligible, not significant in EIA terms
Pedestrians, Horse Riding and Cyclists Amenity	CTMP secured through a requirement of the DCO.	Low on LRN High on SRN	Low	Negligible, not significant in EIA terms
Car Drivers and Passengers Driver Delay	CTMP secured through a requirement of the DCO.	Low on LRN High on SRN	Negligible	Minor adverse (on-road cabling) or negligible (if all cabling off-road), not significant in EIA terms
Car Drivers and Passengers Accidents and Safety	CTMP secured through a requirement of the DCO.	Low on LRN High on SRN	Negligible	Negligible, not significant in EIA terms
Operation				
Severance on Pedestrians, Horse Riding and Cyclists	Adequate access route accommodated in the design for occasional maintenance access requirements	Low on LRN High on SRN	Negligible	Negligible, not significant in EIA terms
Pedestrians, Horse Riding and Cyclists Amenity	Adequate access route accommodated in the design for occasional maintenance access requirements	Low on LRN High on SRN	Negligible	Negligible, not significant in EIA terms
Car Drivers and Passengers Driver Delay	Adequate access route accommodated in the design for occasional maintenance access requirements	Low on LRN High on SRN	Negligible	Negligible, not significant in EIA terms
Car Drivers and Passengers Accidents and Safety	Adequate access route accommodated in the design for occasional maintenance access requirements	Low on LRN High on SRN	Negligible	Negligible, not significant in EIA terms
Decommissioning				
Severance on Pedestrians, Horse Riding and Cyclists	DEMP secured through a requirement of the DCO.	Low on LRN	Negligible	Negligible, not significant in EIA terms

Impact	Embedded/Essential Mitigation and how secured	Receptor Sensitivity	Magnitude of impact	Significance of effect
Pedestrians, Horse Riding and Cyclists Amenity	DEMP secured through a requirement of the DCO.	High on SRN	Negligible	Negligible, not significant in EIA terms
Car Drivers and Passengers Driver Delay	DEMP secured through a requirement of the DCO.	Low on LRN	Negligible	Negligible, not significant in EIA terms
Car Drivers and Passengers Accidents and Safety	DEMP secured through a requirement of the DCO.	High on SRN	Negligible	Negligible, not significant in EIA terms

## References

- [1] Institute of Environmental Management and Assessment, “Guidelines for Environmental Impact Assessment,” 2023.
- [2] Institute of Environmental Assessment (IEA), “The Environmental Assessment of Road Traffic,” 1993.
- [3] National Highways, “Design Manual for Roads and Bridges,” 2020.
- [4] “CrashMap,” [Online]. Available: <https://www.crashmap.co.uk/>. [Accessed 1 October 2023].