



# BEACON FEN ENERGY PARK

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### List of Outstanding Issues and Information

Outstanding issue/info.	Section/Paragraph	Responsibility	Action

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## 9. ACCESS AND TRAFFIC

### 9.1 Introduction

9.1.1 This Chapter reports the preliminary assessment of the likely significant effects of the Proposed Development on Access and Traffic. In particular it considers the potential for likely significant effects of severance to communities and of delays, amenity and safety of motorised and non-motorised road users.

9.1.2 This Chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the front end of this PEIR (Chapters 1 – 5) and particularly to the description of the Proposed Development in Chapter 2 which includes details about the Site, the design parameters and construction duration and methodology, as well as the final chapter, 'Summary of Environmental Effects' (Chapter 17).

9.1.3 This Chapter is accompanied by the following Figures and Appendices:

- Appendix 9.1 which provides details of policy and guidance considered relevant and implications for the access and traffic assessment;
- Figure 9.1 which sets out the location plan of the Proposed Development with local council boundaries, transport infrastructure and background traffic levels;
- Figure 9.2 which shows forecasts of traffic on selected roads in 2028 and 2041 including development related traffic;
- Figure 9.3 which shows locations of road traffic accidents; and
- Figure 9.4 which shows Heavy Goods Vehicle (HGV) one way traffic movements to the Proposed Development over the construction duration.

9.1.4 As set out within Chapter 1, the information set out within this Chapter is preliminary and intended to inform consultees (both specialist and non-specialist) about the likely environmental effects of the Proposed Development, helping to inform their consultation responses.

### 9.2 Policy and Guidance

9.2.1 The policy and guidance considered relevant to the assessment of Access and Traffic are listed below, with details provided in Appendix 9.1.

## Planning Policy

9.2.2 The applicable planning policy includes:

- National Planning Policy Framework (NPPF) (2023);
- Overarching National Policy Statement for Energy (EN-1, November 2023);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023);
- Lincolnshire Local Transport Plan 5 (2022);
- Central Lincolnshire Local Plan (adopted in 2023) which includes North Kesteven District; and
- South East Lincolnshire Local Plan 2011-2036 (adopted in 2019) which includes Boston Borough and South Holland District.

## 9.3 Consultation & Scope of Assessment

### Consultation Undertaken to Date

9.3.1 Consultation will be ongoing throughout the preparation of the DCO application; to date, it can broadly be divided into the following key stages:

- EIA Scoping;
- Early Non-Statutory Consultation; and
- Direct Topic-Specific Consultation.

9.3.2 Table 9.1 provides a summary of the consultation activities undertaken in support of the preparation of this Chapter. Copies of relevant correspondence are provided in Appendix 9.2.

**Table 9.1 – Summary of Consultation Undertaken to Date**

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF CONSULTATION RESPONSE	HOW THIS HAS BEEN ADDRESSED
<b>EIA Scoping</b>				
PINS	26 May 2023	Scoping Response	Content for Public Rights of Way (PROW) to be addressed in the socio-economic chapter providing cross-referencing is provided. Agrees that operational traffic movements may	Cross-referencing with socio-economic chapter is provided, where appropriate within this chapter.

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF CONSULTATION RESPONSE	HOW THIS HAS BEEN ADDRESSED
			<p>be scoped out. Noting the potential for replacement of panels and other components within the lifetime of the Proposed Development and potential for this to give rise to likely significant effects. Noted that a Decommissioning Statement will be submitted as part of the DCO application and prior to decommissioning, an Outline Decommissioning Environmental Management Plan (oDEMP) will be prepared and agreed with the relevant LPA</p>	<p>Operational impacts are updated but remain proposed to be scoped out. Equipment Replacement assessment is addressed in this chapter to the PEIR. The oDEMP will include traffic measures.</p>
<p>Lincolnshire County Council (LCC)</p>	<p>16 May 2023</p>	<p>Letter to PINS</p>	<p>Agree that this matter should be scoped-in. Standard supporting documents include: • Transport Assessment (TA); • Travel Plan to ensure construction workers can use alternative modes than the private car; and • Construction Traffic Management Plan (CTMP). The</p>	<p>Confirmed that the suggested documents (TA, Travel Plan and CTMP) and their methodologies will be discussed with LCC. LCC Lincs Laboratory kindly supplied traffic data for the A17. Confirmed that the access &amp; traffic assessment in</p>

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF CONSULTATION RESPONSE	HOW THIS HAS BEEN ADDRESSED
			<p>Council would assist the Applicant with the scope of these documents. Consider cumulative construction (&amp; possibly operation) impacts with other large scale Development consent Order (DCO)-projects are detailed.</p>	<p>the PEIR considers the cumulative impact of neighbouring developments. Moreover, our data and assessment methodologies have been compared with the Heckington Fen scheme to ensure consistency where appropriate.</p>
<p>North Kesteven District Council (NKDC)</p>	<p>18 May 2023</p>	<p>Letter to PINS</p>	<p>Traffic assessment &amp; data should include the A52 and A17. Operational traffic impacts can be scoped out, however impact of component replacement during operation should be estimated. Cumulative construction (and where relevant operational) effects associated with DCO and TCPA (1990) schemes detailed. Detailed comments also address PRow.</p>	<p>The A52 is within the traffic study area, although removal of the southern site largely removes the traffic impact; the A17 is the main focus of the access &amp; traffic assessment. Confirmed that the access &amp; traffic analysis addresses the impact of trips associated with the Equipment Replacement phase. Confirmed that the access &amp; traffic analysis includes consideration of cumulative projects.</p>

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF CONSULTATION RESPONSE	HOW THIS HAS BEEN ADDRESSED
UK Health Security Agency	12 May 2023	Letter to PINS	We recommend inclusion of background levels of PM2.5. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants	The wider approach to this PEIR acknowledges that traffic impact is an important component of the air quality assessment; the traffic and air quality assessment teams have worked together to integrate our approach.
<b>Early Non-Statutory Consultation</b>				
LCC	13 June 2023	Bilateral meeting	<p>Detailed issues identified by LCC:</p> <ul style="list-style-type: none"> <li>• As a general principle keep construction traffic on A and B roads where possible, take direct routes to sites and avoid villages;</li> <li>• Accident analysis and mitigation on A52 may be required, as there have been several fatalities – check if mitigation schemes are identified;</li> <li>• Percentage traffic increases on local roads may be significant given low background flows;</li> <li>• One-way construction traffic routes are favoured to avoid</li> </ul>	The current assumed access strategy respects the principles outlined by LCC, in providing left-in, left-out only access on the A17. Due cognisance of these principles has informed the PEIR and will inform the subsequent traffic assessment as part of the ES in support of the DCO application



ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF CONSULTATION RESPONSE	HOW THIS HAS BEEN ADDRESSED
			<p>conflict on local roads;</p> <ul style="list-style-type: none"> <li>• Left-in, left-out access to A17 is preferred to avoid cross movements of HGVs on a high-speed road with heavy traffic flows;</li> <li>• SPA is required to demonstrate negotiability of local roads by construction vehicles;</li> <li>• Abnormal loads and routing should be provided – single track roads are not generally suitable;</li> </ul> <p>Passing places favoured as an effective form of mitigation.</p>	

### Scope of the Assessment

9.3.3 The Scoping Report proposed to include traffic impacts associated with the construction phase. Taking advice from the Scoping Opinion and NKDC, traffic impacts associated with replacing equipment during the operational phase, including the solar panels (which have a shorter design life than the Proposed Development as a whole) will also be assessed. This is referred to as the Equipment Replacement phase, which for the purpose of this assessment is assumed to take place in 2051, 23 years after the assumed start of operation. This year is chosen because it is a reasonable indication of when equipment may need to be replaced and also the final year for which Department for Transport (DfT) local traffic forecasts are available, reflecting the level of uncertainty associated with future traffic conditions.

### Effects not considered within the Scope

9.3.4 The Scoping Report proposed scoping out impacts during the operational and decommissioning phases. Since preparation of the Scoping Report, additional data has been made available from the Applicant which anticipates 15-18 new

jobs on site during the operational phase (refer Chapter 15, Table 15.12. Due to a lack of close proximity of the Site to significant public transport infrastructure or large population centres, it is likely that the majority of staff travel to/from the Site will be by car, although some level of car sharing is likely to take place.

- 9.3.5 It is estimated that staff at the Site will operate in shifts to cover a 7-day week, and that not all staff will be working each day. Therefore, the maximum daily vehicle trips are not typically expected to exceed 20 trips per day, comprising 10 arrivals and 10 departures.
- 9.3.6 This implies a higher level of travel to and from the Site than one light vehicle per week, as was originally anticipated, and set out within the Scoping Report. The updated level of use remains negligible in relation to background traffic. Furthermore, it is likely that this very low level of traffic generation will be assigned to multiple routes as multiple operational accesses are envisaged. Therefore, there will be no potential significant effects arising from operational traffic.
- 9.3.7 Moreover, background traffic conditions during the decommissioning phase beyond 50 years are uncertain, and are unlikely to exceed the effects during the construction phase. As such, this phase is not considered further in the ES, and will instead be addressed through submission and agreement with the LPA of an Outline Decommissioning Environmental Management Plan (oDEMP). This approach is confirmed in the Scoping Opinion (ID 3.4.3).
- 9.3.8 As agreed in the Scoping Response, assessment of Public Rights of Way (PRoW) is included within the Socio-Economic chapter (Chapter 15). Section 15.5 provides an overview of the baseline PRoW conditions in the vicinity of the Site. No significant effects on PROW are identified.

## Limitations & Exclusions

- 9.3.9 The information within this Chapter is preliminary and intended to inform consultees. As such, this PEIR has been prepared at a point in the design process when parameters of the design are certain enough for an assessment to be based upon, but there is still sufficient flexibility to incorporate feedback from consultees.
- 9.3.10 The outstanding matters at this stage are the following:
- It is not yet confirmed whether the access route will be removed following construction or remain in place during operation.
  - Proposed cable corridor construction access route definition and any associated baseline traffic data and sensitive receptor identification;

- Baseline traffic on Asgarby Road, a small part of which forms part of the construction access route to the solar array;
- Estimates of numbers of construction workers specific to the Proposed Development; comparative numbers from local precedents have been considered at this stage. This is consistent with the approach adopted in the socio-economic assessment.
- Abnormal Indivisible Load (AIL) access routes to the Site;
- Source locations and Port of Entry (PoE) for components; and
- Details of any specific off-site mitigation related to construction and/or AIL access.

9.3.11 Data specific to the Proposed Development concerning numbers of construction workers would refine the above assessment of traffic generated by the Proposed Development. However, by applying data from a larger development (at the nearby Heckington Fen scheme), a worst-case scenario has been applied which is unlikely to understate impacts.

9.3.12 As discussed above, the Site Access Strategy for the Cable Corridor is not yet determined. However, it is envisaged there will be a number of access points along the Cable Corridor utilising existing highway to connect with the A17. Traffic generated by construction will be distributed across these multiple access points and routes. It is therefore envisaged that traffic impact on each route will not be material, subject to usual embedded mitigation, such as management of traffic movements via a CTMP. The TA that will inform the ES will be prepared once the access strategy is determined. This chapter is, therefore, pending the main Technical Appendix that will inform the ES chapter.

9.3.13 Similarly, during equipment replacement, it is possible that the access route will be removed following construction. Therefore, vehicular traffic associated with equipment replacement may rely on existing highway routes between A17 and the site. Whilst equipment replacement traffic has not been quantified, intensity of activity on site, and hence traffic generation, will be substantially lower than during the construction phase. Therefore, it is likely that traffic impact on local roads during equipment replacement will not be material.

9.3.14 Notwithstanding the above, on links where a reasonable estimate of development generated traffic volumes can be undertaken, meaningful analysis of the likely effects on potential sensitive receptors can be undertaken. This is most applicable to the A17 in the vicinity of the Site.

9.3.15 The next steps to in preparation of the ES to address the above are to produce:

- a Transport Assessment (TA) which will provide an assessment of the Proposed Development on the transport network, as an annex to the ES;
- a framework Construction Traffic Management Plan (CTMP) which will include a Delivery Management Plan (DMP), an Abnormal Loads DMP and a Construction Staff Travel Plan (TP) and set out measures to manage and mitigate impacts of construction related traffic, also as a technical annex to the ES; and
- a Decommissioning Environmental Management Plan (DEMP) which will accompany the ES and will set out measures to manage and mitigate traffic and other impacts during the decommissioning phase.

9.3.16 The above will form Technical Appendices to the ES.

## **9.4 Assessment Methodology & Significance Criteria**

### **Extent of the Study Area**

- 9.4.1 The Site location is shown in Figure 9.1, along with background traffic data. The study area was chosen to include highway links and locations where material changes in traffic levels during the construction and equipment replacement phases are most likely. The highway links within the study area are considered likely to be subject to a material change in traffic regardless of the origin of materials and staff.
- 9.4.2 The Scoping Report identified a broad study area comprising A17, A15 and A52, and a number of B-roads and unclassified roads which may form construction access routes. As further project details have emerged, the routes likely to be used for construction access have been refined to comprise:
- the A17 between the grade separated interchange at Kirby la Thorpe and the roundabout at Drayton, interchanging with the A52;
  - a small section of Asgarby Road (between the villages of Asgarby and Ewerby) which forms part of the assumed access to the solar Site;
  - the cable laying corridor (with access to it yet to be determined); and
  - the existing haul route to the National Grid Bicker Fen substation.

### **Assessment Methodology**

9.4.3 The applicable guidance includes:

- National Planning Policy Guidance on Travel Plans, Transport Assessments and Statements (2014);
- Environmental Assessment of Traffic and Movement (IEMA, 2023); and
- DMRB LA 104 Environmental Assessment and Monitoring Revision 1 (2020).

9.4.4 The methodology is in accordance with the IEMA’s 2023 ‘Environmental Assessment of Traffic and Movement’. The assessment focuses on the degree of significance and consequences of changes within the study area during the construction and equipment replacement phases of the Proposed Development. The method of baseline data collection and assessment is also in accordance with current guidance and industry best practice, for example the Department for Transport’s Transport Appraisal Guidance<sup>1</sup>.

9.4.5 The IEMA Guidelines recognise the importance of professional judgement and consultation as follows:

*“These updated and replacement Guidelines are intended to complement professional judgement and the experience of trained and competent assessors. As the environmental impact of traffic and movement will vary on a case-by-case basis, the experience and expertise of the assessor will remain of primary importance, along with adequate consultation.” Extract from Executive Summary*

9.4.6 As above, the Access & Traffic ES Chapter will be informed by a full TA which will be undertaken in accordance with National Planning Policy Guidance (NPPG Travel Plans, Transport Assessments and Statements, March 2014) and included as a Technical Appendix of the ES.

### Potential Effects of the Proposed Development

9.4.7 Table 9.2 below provides a summary of the key issues to be considered (scoped in) within the assessment in relation to access and traffic.

**Table 9.2 Summary of potential likely significant effects considered in this chapter**

RECEPTOR	Potential Effects	Scoped in
Local residents and users of the area through which construction traffic passes	Severance effects resulting from increased traffic flows	✓
Road users – vehicle occupants	Effects of increased traffic flows on driver and passenger delay, and accidents and safety.	✓

<sup>1</sup> Available at <https://www.gov.uk/guidance/transport-analysis-guidance-tag> in particular Unit M1.2 Data Sources and Surveys dated May 2020

RECEPTOR	Potential Effects	Scoped in
Non-motorised road users – pedestrians and cyclists	Effects of increased traffic flows on severance, delay and amenity, fear and intimidation, and accidents and safety.	✓

9.4.8 Of these issues, or effects, “severance” and “non-motorised road user amenity” are explained by the IEMA as follows:

*“severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure.” Paragraph 3.13*

*“Pedestrian amenity is broadly defined as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic. This definition also includes pedestrian fear and intimidation, and can be considered to be a much broader category including consideration of the exposure to noise and air pollution, and the overall relationship between pedestrians and traffic.” Paragraph 3.29*

9.4.9 Further to the above, Table 9.3 below provides details of the matters to be scoped out of the assessment.

**Table 9.3 Matters to be scoped out of the assessment**

MATTER	Rationale
Public Right of Way (PRoW) users	To be assessed in the socio-economic assessment (refer Scoping Opinion ID 3.4.1)
Operational phase impacts	Not likely to be significant due to negligible traffic flows (refer Scoping Opinion ID 3.4.2)
Decommissioning phase impacts	Potential effects and mitigation similar to construction phase, but also on the basis that it is not possible to accurately predict what the baseline will be in 40 years, it is not possible to undertake a meaningful assessment. It is, therefore, proposed that an assessment of the decommissioning phase of the Proposed Development is scoped out of the assessment. As confirmed in the Scoping Opinion a oDEMP to be agreed with the LPA is suitable to address this (refer Scoping Opinion ID 3.4.3)

### Baseline and future baseline traffic scenarios

9.4.10 Most recent traffic counts are the starting point for defining the current traffic baseline scenario. It is proposed that 7-day, 24-hour ATC surveys will be undertaken on links comprising the construction traffic routes within the study

area to collect baseline traffic flow and composition data, where suitable data for recent years is not already available. It is anticipated that additional data may be collected as part of the Transport Assessment, once more detail regarding construction access routes is known. However, the preliminary traffic estimates included in this chapter demonstrate that the changes in traffic are negligible, and there is a reasonable level of certainty that the development effects will not materially change with the collection or validation of new baseline data.

9.4.11 Future year baseline traffic flows are then defined, during the representative years for construction in 2028 and for equipment replacement phase in 2051. DfT TEMPRO<sup>2</sup> local growth factors are applied to the current traffic baseline scenario. For the A17 and connecting minor roads in the vicinity of the solar array, local factors specific to Heckington (Middle Layer Super Output Area or MSOA level, data reference E02005464) are considered appropriate. For the route to the National Grid substation at Bicker Fen, the relevant factors relate to Swineshead and Bicker (MSOA reference E020005422). These growth factors are considered applicable to the A52 (from its interchange with the A17) and Cowbridge Rd. The relevant TEMPRO traffic growth factors are shown in Table 9.4 below.

**Table 9.4 Traffic growth factors**

LOCATION	Start & End Year	Origin	Destination	2 way Growth Factor (to 2 significant figures)
Heckington	2021-2028	1.0363	1.0367	1.037
Heckington	2021-2051	1.1098	1.1109	1.11
Swineshead & Bicker	2018-2028	1.0894	1.0898	1.090
Swineshead & Bicker	2023-2028.	1.0424	1.0426	1.043

9.4.12 Cumulative effects of other development in the surrounding area are also considered in estimating the future year baseline traffic flows as below.

9.4.13 Estimates of traffic generated during the construction phase, taking account of variation in construction traffic profile during this time, are compared against the future baseline estimated traffic flow and composition data. This forms the basis of the with and without Proposed Development comparison and thereby underpins the impact assessment.

<sup>2</sup> <https://www.gov.uk/government/publications/tempo-downloads>

## Road safety impacts

9.4.14 Accident data from the Department for Transport is available for analysis via Crashmap<sup>3</sup> for the study area, as shown at Figure 9.3. Examining collision data (“collision cluster” analysis) can identify any trends or sensitive locations. This understanding of baseline conditions can then be used to assess the potential road safety impacts of increasing traffic flows in the area.

## Traffic thresholds

9.4.15 The following broad rules of thumb, as set out in the IEMA guidance, are used to determine which links within the study area are considered for further assessment:

- Rule 1 – Include highway 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 links of high sensitivity where traffic flows are predicted to increase by 10% or more.

9.4.16 Where construction related traffic flows are below the changes set out in Rules 1 and 2 above, a detailed assessment of effects is not necessary. In cases where background traffic is very low and substantially below capacity, exceedance of the thresholds alone may not require more detailed assessment because any changes will be imperceptible at any receptor and therefore result in negligible effects.

## Sensitive Receptor Identification

9.4.17 The 2023 IEMA guidance identifies potential sensitive receptors as follows:

- People at home;
- People at work;
- Sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors);
- Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools);
- Retail areas;
- Recreational areas;
- Tourist attractions;
- Collision clusters and routes with road safety concerns; and
- Junctions and highways links at (or over) capacity.

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<sup>3</sup> <https://www.crashmap.co.uk/>



## Significance Criteria

- 9.4.18 The IEMA guidance sets out recommendations and thresholds for how to assess the impacts and the significance of changing traffic conditions on sensitive receptors, as set out above. The assessment findings will depend on both the sensitivity of the receptor and the magnitude of change (i.e. impact). Guidelines are available, with criteria set out below. For example, Table 9.5 shows how differences in journey times or traffic levels generate different impacts on typical road users and nearby residents. However, as recognised in the IEMA guidance, much of the impact assessment process comes down to professional judgement.
- 9.4.19 LA 104 is a helpful resource for determining how impacts can be assessed as beneficial or adverse and further characterised as major, moderate, minor or negligible. Typical descriptions of the magnitude of impact from LA 104 are set out in Table 9.5 below.

**Table 9.5 Magnitude of impact**

MAGNITUDE OF IMPACT (CHANGE)		Typical Description
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.
No Change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

- 9.4.20 LA 104 also provides limited criteria on which to assess the magnitude of impact. It is proposed to apply the magnitudes of impact from the IEMA Guidelines, with its ‘substantial’ magnitude treated as being comparable to the

LA 104 ‘major’ magnitude and reworded as such. A summary of the criteria used to determine the magnitude of impact in the assessment is provided in Table 9.6 below.

**Table 9.6 Impact Criteria**

IMPACT	Magnitudes of Impact			
	NEGLIGIBLE	MINOR	MODERATE	SUBSTANTIAL
Severance	Change in total traffic or HGV flows of less than 30%.	Change in total traffic or HGV flows of 30-60%.	Change in total traffic or HGV flows of 60-90%.	Change in total traffic or HGV flows over 90%.
Driver delay	Change in journey time of less than 30 secs.	Change in journey time of 30secs-1min.	Change in journey time of 1min-2mins.	Change in journey time of more than 2mins.
Pedestrian delay	Change in total traffic or HGV flows of less than 30%.	Change in total traffic or HGV flows of 30-60%.	Change in total traffic or HGV flows of 60-90%.	Change in total traffic or HGV flows over 90%.
Pedestrian amenity	Change in total traffic or HGV flows of less than 30%.	Change in total traffic or HGV flows of 30-60%.	Change in total traffic or HGV flows of 60-90%.	Change in total traffic or HGV flows over 90%.
Fear & Intimidation	Change in total traffic or HGV flows of less than 30%.	Change in total traffic or HGV flows of 30-60%.	Change in total traffic or HGV flows of 60-90%.	Change in total traffic or HGV flows over 90%.
Accidents & Safety	Change in total traffic or HGV flows of less than 30%.	Change in total traffic or HGV flows of 30-60%.	Change in total traffic or HGV flows of 60-90%.	Change in total traffic or HGV flows over 90%.

## 9.5 Baseline Conditions

### Current Baseline Conditions

#### Baseline Traffic Conditions Definition

- 9.5.1 Relevant aspects of baseline traffic conditions include the highway network (briefly described below), levels of use of the network and road traffic accident records. This baseline reflects the most recent data available.

## Highway Network

- 9.5.2 Access to the solar array Site is via the A17 and a new dedicated access road, which includes a small section of Asgarby Road between the villages of Asgarby and Ewerby, as shown in Figure 9.1.
- 9.5.3 The A17 is a principal road in the vicinity of the Site. It is a single carriageway and maintained by the local highway authority, LCC. Heckington Village is bypassed; other more distant destinations are Sleaford and Newark to the north-west and King's Lynn to the south-east. The speed limit on the A17 in the vicinity of the Site is 50mph, although the highway authority is considering reducing this to 40mph between Heckington and East Heckington<sup>4</sup>. No pedestrian or cyclist infrastructure is observed on the A17 within the study area.
- 9.5.4 Asgarby Road serves villages and isolated rural properties and is unclassified.
- 9.5.5 The A52 forming part of the access route to the Bicker Fen substation is a principal route maintained by LCC. It connects Boston in the East with Grantham in the West. The A52 is a single carriageway road and the national speed limit (60mph) applies. No pedestrian or cyclist infrastructure is observed on the A52 in the vicinity of the National Grid Bicker Fen haul route.
- 9.5.6 Local unclassified roads connect Bicker Fen substation to the A52; this is the existing National Grid haul route. From north-west to south-east (broadly) the road links are Vicarage Drove, Bicker Drove, Cowbridge Road, Ing Drove and a new private access road onto the A52 south of Bicker village. The access road was constructed around 2020 to facilitate connections (such as the Viking Link, as below) with the National Grid at the substation.
- 9.5.7 Physical restrictions to movement on local unclassified roads in the vicinity of the Site and Cable Corridor include narrow roads with sharp bends, waterway and railway crossings and weight restrictions. These characteristics have implications for the Site and Cable Corridor Access Strategy, particularly for heavy vehicles.

## Most Recent Traffic Flow Data

- 9.5.8 Data for traffic flows on the A17 is taken from the three following sources (also shown in Table 9.7 below and in Figure 9.1):
- 9.5.9 DfT manual traffic count data on 21.04.21 from a Site (reference 16215<sup>5</sup>) located on the A17, approximately 6km west of Heckington. The counts took place over twelve hours (7am-7pm) with the data factored to Annual Average

<sup>4</sup> <https://www.lincolnshire.gov.uk/downloads/file/7716/east-heckington-a17-traffic-regulation-order>

<sup>5</sup> <https://roadtraffic.dft.gov.uk/manualcountpoints/16215>

Daily Traffic (AADT) flows by the DfT<sup>6</sup>. The most recent count was undertaken on 21.04.21, but previous daily data from manual counts in 2018 and 2014 is also shown for comparative purposes.

- 9.5.10 Heckington Fen Energy Park ATC data<sup>7</sup> was collected from 24.03.22-30.03.22 at a Site located on the A17, approximately 5.5km east of Heckington and west of the Heckington Site access. This data was collected in relation to the ES, for Heckington Fen. The data was collected by a data collection specialist on behalf of the Heckington Fen Energy Park Project Team<sup>8</sup>. This raw data has been reviewed and is credible and within the range of comparable traffic counts on the A17. AADT estimates were taken directly from the count data. The HGV composition in Table 9.7 below includes HGVs only (consistent with DfT methodology) whereas the Heckington Fen published reports also include buses, accounting for a small but insignificant variation.
- 9.5.11 LCC manual count data from a Site located on the A17 at East Heckington (reference SL21<sup>9</sup>), approximately 6km east of Heckington. Each year two 12-hour manual counts were undertaken, with the AADT flows estimated using DfT methodology.
- 9.5.12 Regarding traffic flows on the A52, our data source is another DfT Count Site (ref 46559<sup>10</sup>) located approximately 2.4km south of the new Bicker Fen substation access road. The most recent manual count was undertaken on 17.04.18, and this data is our preferred source. This is preferred to DfT estimates for more recent years, which are estimated based on the 2018 count, and are intended for regional and national aggregation purposes, rather than an accurate estimate of flows on that particular link<sup>11</sup>. The previous count at this location was undertaken in 2008 and is included because it demonstrates that traffic levels on the A52 have been static over intervening years.
- 9.5.13 The Heckington Fen ES includes ATC data<sup>12</sup> for Cowbridge Road on the route between the A52 and the Bicker Fen substation. The data was recorded over a week from 18.05.23-24.05.23, so is therefore good quality. It is also reproduced in Table 9.7 below.

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<sup>6</sup> The raw data from site 16215 shows that 16226 vehicles were counted over 12 hours, so that the growth factor from 12 hour weekday traffic to AADT is 1.105

<sup>7</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010123/EN010123-000545-6.3.14.2%20-%20ES%20Appendix%2014.2-%20Automatic%20Traffic%20Count%20-%20Rev%202.pdf>

<sup>8</sup> Heckington Fen Energy Park ES Appendix 14.2

<sup>9</sup> Lincolnshire County Council Traffic Monitoring Report 2023 available at <https://www.lincolnshire.gov.uk/downloads/file/8046/lincolnshire-transport-monitoring-report-2023>.

<sup>10</sup> <https://roadtraffic.dft.gov.uk/manualcountpoints/46559>

<sup>11</sup> Data disclaimer at <https://roadtraffic.dft.gov.uk/manualcountpoints/46559>

<sup>12</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010123/EN010123-000545-6.3.14.2%20-%20ES%20Appendix%2014.2-%20Automatic%20Traffic%20Count%20-%20Rev%202.pdf>

**Table 9.7 Summary of Most Recent Traffic Data**

<b>DATA SOURCE</b>	<b>Annual Average Daily Traffic (AADT) flow (veh)</b>	<b>HGV as% of AADT flow</b>	<b>Weekday Peak hour flow (veh)</b>
A17 DfT Manual Count 2021	17,922	15.8%	1627 (7-8am)
A17 DfT Manual Count 2018	23,515	12.9%	2160 (8-9am)
A17 DfT Manual Count 2014	18,887	13.5%	1758 (8-9am)
A17 Heckington Fen (western site) ATC 2022	20,373	20.5%	1774 (7-8am)
A17 LCC Manual Count 2022	16,332	11.8%	-
A17 LCC Manual Count 2021	16,867	12.5%	-
A17 LCC Manual Count 2018	18,224	10.1%	-
A17 LCC Manual Count 2014	16,864	9.5%	-
A52 DfT Manual Count 2018	6,695	8.6%	693 (8-9am)
A52 DfT Manual Count 2008	6,487	12.7%	619 (8-9am)
Cowbridge Rd Heckington Fen ATC 2023	136	3.7%	No defined peak

9.5.14 All three data sources for the A17 are reliable and reflect that there is daily, monthly and seasonal fluctuation in traffic flow. The DfT data for the A17 in Table 9.6 particularly shows an unusual degree of variation of traffic flows over the years – total traffic, the peak hour and HGV composition all change. Similarly, the Heckington Fen data shows a higher share of HGV traffic than the other data sources. Collectively, the estimated AADT flows for the A17 are reasonably consistent, but it is good practice to avoid undue or spurious levels of accuracy. For this reason, future baseline traffic flows below are defined to two significant figures only.

9.5.15 Regarding cycling, the DfT manual count data shows nil journeys in 2021 on the A17 and two journeys in 2018 on the A52 (ATC equipment does not generally collect data for this mode). The nature of these roads, with relatively high motorised traffic speeds and no dedicated facilities, is not conducive to cycling. Similarly, absence of dedicated facilities means that walking in the study area is most likely confined to village centres and public rights of way.

## Baseline Traffic Flows

9.5.16 The starting point for traffic assessments are base year estimates of the AADT flow in the study area. Figure 9.1 and Table 9.7 above show the locations and volumes of various traffic count data. The A17 is of greatest importance because traffic levels are higher and sensitive receptors are most numerous on this corridor. Data is also however presented for the A52 and the National Grid haul route since construction traffic related to the Proposed Development is predicted in these corridors.

9.5.17 Concerning the A17, our preferred data source is the DfT manual count site in 2021, located the closest to the proposed Energy Park Site access (approximately 1km distant). The variability of data for the A17 was noted above. The best estimate of the baseline AADT on the A17 for 2021 is, therefore, taken as 18,000 vehicles with HGVs at 16% of the total. The peak hour is 7-8am and the peak flow (two-way) is estimated from recorded data at 1,650 vehicles. We note that the LCC and most recent DfT data are similar and that Heckington Fen traffic data, located on the A17 to the east of our study area, found higher levels of traffic and more HGVs. Generally, however, the data sources are compatible and, our traffic assessment findings are not sensitive to the estimate of AADT.

9.5.18 The equivalent figures for the A52 are also based on the relevant DfT manual count site. The baseline year is 2018 when the AADT is estimated at 6700 with 8.6% HGV. Finally, the National Grid haul route baseline estimated AADT flow on Cowbridge Rd is also shown at Table 9.8 for the year 2023.

**Table 9.8 Baseline AADT Estimates**

ROAD	Baseline Year	Baseline AADT	BASELINE HGV COMPOSITION
A17	2021	18000	15.8%
A52	2018	6700	8.6%
Cowbridge Rd	2023	136	3.7%

## Accident Records

9.5.19 The Crashmap database<sup>13</sup> provides DfT road accident data for the five years from 2018 to 2022 within the study area reproduced at Figure 9.3. Our analysis found:

- 54 accidents (of which six involved fatalities) on the A17 between the Kirby la Thorpe and A52 interchanges;
- Eight accidents took place on the A17 and its slip roads at the Kirby la Thorpe interchange;

<sup>13</sup> <https://www.crashmap.co.uk/>

- Five accidents on the A52;
- 12 accidents took place on the A17 through East Heckington (between the B1395 and the Shell garage);
- For the minor rural roads north of the A17 and south of the Proposed Development there were two slight and one serious accidents over the five years, with no clustering or other patterns; and
- For the minor rural roads from the A52 to the Bicker Fen substation no accidents are recorded.

9.5.20 The A17 through East Heckington and at the Kirby la Thorpe interchanges has experienced relative concentrations of accidents. The rural roads within proximity of the Site are in contrast notably low in accident numbers. No other patterns or common issues are however observed.

9.5.21 For comparison, the ES related to the nearby Heckington Fen Solar Park assessed data from Lincolnshire Road Safety Partnership for the five-year period to 31 March 2022, with the study area comprising approximately 4.5km on the A17 centred on East Heckington (east of the study area for this Proposed Development). There were 18 personal injury collisions over the five years (slightly earlier than the above assessment). The Heckington Fen road assessment of road accidents similarly found that *“they are generally randomly located, that all incidents appear to have occurred as a result of temporary driver error or misjudgement. It is therefore concluded that there are no obvious highway safety patterns or problems within the study area”*.

### Sensitive Receptors

9.5.22 People living and/or working on roads affected by the Proposed Development would be sensitive receptors. These potential sensitive receptors would be located at properties with direct access to roads such as the A17.

9.5.23 Users of the A17 and A52 roads are also potential sensitive receptors, travelling through links at or close to capacity at certain times of the day and/or as non-motorised users. Our analysis however found no dedicated infrastructure for cyclists or pedestrians and no evidence of walking or cycling on these roads. No locations with links or junctions at or close to capacity or with concentrations of vulnerable users, retail areas, recreational areas, tourist attractions or routes with road safety concern were identified in this analysis.

### Future Baseline Conditions

9.5.24 Traffic levels for the future baseline are estimated using DfT TEMPRO growth factors as detailed in section 9.4 & Table 9.4 above applied to the above baseline AADT flows. Table 9.8 below and Figure 9.2 present the estimates.

**Table 9.9 Future Baseline AADT Estimates**

ROAD	Baseline Year	Baseline AADT	Growth Factor	Future Baseline Year	Future Baseline AADT
A17	2021	18000	1.037	2028	19,000
A17	2021	18000	1.11	2051	20,000
A52	2018	6700	1.090	2028	7,300
Cowbridge Rd	2023	136	1.043	2028	140

## 9.6 Assessment of Effects

### *Embedded Mitigation*

9.6.1 The assessment is undertaken with the following design solutions and assumptions regarding construction activity at the Site:

- Principal construction access to the Site will be from the A17, with a left-in/left-out arrangement, as requested by LCC and consistent with the construction access strategy for the nearby Heckington Fen Energy Park (subject to its own DCO application), reducing conflicting manoeuvres with other traffic and improves safety;
- All construction traffic will be the subject of a comprehensive CTMP and Delivery Management Plan (DMP), which will together set out suitable measures to safely manage and monitor construction traffic, ensuring that highway safety and the free flow of traffic on public highway is maintained;
- The CTMP will also include an Abnormal Loads DMP, setting out all traffic management and mitigation measures required to ensure safe and efficient transport of these loads. All abnormal load movements are regulated by National Highways and will be subject to separate agreement with the relevant highway authorities and police through the ESDAL system;
- The majority of contractor staff are expected to arrive at the Site by minibus. Car trips will be minimised to senior staff. A Construction Staff Travel Plan will be implemented to minimise the impacts of construction staff travel to/from the Site and maximise the use of shared transport; and
- The DEMP provides for mitigation and monitoring of traffic during decommissioning.

### *Construction Phase Development Impact*

9.6.2 Construction activities are assumed to take place on the solar array area between January 2026 and June 2029 and cable installation activities are assumed from January 2026 to March 2028. The timescale and works



associated with expansion of the Bicker Fen substation depend on the Heckington Fen Energy Park proposed development (adjacent bays at the substation are planned for Heckington Fen Energy Park and this Proposed Development) which has a scheduled duration of 60 weeks.

- 9.6.3 Figure 9.4 shows the schedule of HGV deliveries and cable laying traffic (one way) over time related to both construction activities at the solar array area and to cable installation. On average, 22 vehicles per day are estimated to travel to the Site, amounting to an AADT value of 31 two-way trips<sup>14</sup>. The average scenario is considered the most representative for sensitive receptors over the 30-month duration. However, and as shown in Figure 9.4, variations from the average occur; the worst-case impact takes place during February 2028 when some 56 HGVs per day are estimated to travel to the Site. The TA, in due course, will look at peak traffic generation to assess the impact of construction traffic on the local highway network.
- 9.6.4 By comparison, the Heckington Fen ES estimates that 17 HGV deliveries per day will be required during construction, also on average<sup>15</sup>, leading to an AADT value of 29 HGV trips. This demonstrates consistency in estimates with a comparative scheme. The greater HGV value is not shown in the estimated data. Nonetheless, the two sets of data and specifically the AADT values are similar (at 29 HGVs for Heckington Fen and 31 HGVs for this Proposed Development).
- 9.6.5 ‘Left-in/left-out’ movements for heavy vehicles travelling off and onto the A17 requires heavy vehicles to travel beyond the Site either inbound or outbound. HGVs would be required to undertake a U-turn at junctions on the A17, depending on origin/destination either at Sleaford/Kirby la Thorpe or the A52 Donington Road interchanges (to the west and east respectively, where junction design avoids cross movements). Therefore, the AADT value is doubled and distributed evenly to the A17 in both directions from the Site. For this element of the Proposed Development 31 HGVs are estimated on the A17 both east and west.
- 9.6.6 In terms of traffic to the cable route corridor, an average of 13 HGVs per working day are estimated to be required for this work over the 15-month duration. Allowing for two-way trips and converting from working day to AADT gives a value of 19 HGVs. In addition, construction worker traffic is estimated

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<sup>14</sup> On the basis that each HGV generates 2 (inbound and outbound) vehicle movements and work on site is planned Monday – Friday only. So the AADT estimate of vehicles required is multiplied by 2 and reduced by 5/7.

<sup>15</sup> Paragraphs 14.6.2 & 14.6.7 which also state plans for six working days per week, at

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010123/EN010123-000480-6.1.14%20-%20Chapter%2014%20-%20Transport%20and%20Access%20-%20Rev%202%20-%20Track%20Change.pdf>

for the Heckington Fen ES as one minibus (sufficient for the 10 workers required), resulting in a two-way AADT of 2 vehicle trips. In total, the AADT value for this element of the Proposed Development construction amounts to 21 vehicles. As for the Solar Park Site, the traffic impact will apply both east and west of the A17, with other roads to be determined.

- 9.6.7 As above, detailed estimates of construction workers at the Proposed Development have not yet been undertaken as construction phasing and methods are still being developed. Therefore, at this stage, the Heckington Fen construction worker traffic estimates are adopted for the Proposed Development as they are based on assessment of a comparable project.
- 9.6.8 At Heckington Fen, the ES states that typically 150 workers and a maximum of 400 construction workers are estimated on Site per day. The workers are expected to arrive via 14-seater minibuses, with car trips minimised to senior staff. Applied to the Proposed Development, some 12 minibus trips to the Site would be typical. Converting to two-way AADT values would generate 17 vehicle trips for this purpose.
- 9.6.9 Concerning travel to the National Grid Bicker Fen Substation Extension our estimates are as follows. Whilst details of our construction phasing and workforce remain to be confirmed, for the purposes of this assessment, we have assumed realistic parameters informed by National Grid, professional judgement and precedent from the nearby Heckington Fen proposed development to allow for a preliminary assessment of the likely significant effects of the Proposed Development. The estimates comprise 2076 vehicles over 60 weeks plus six two-way trips for construction workers on six days per week for access to the Site. This amounts to an AADT value of 15 vehicles, including 10 HGVs. The Heckington Fen ES assumes that all these 15 vehicles will be routed via the A17, the A52, the new National Grid access road south of Bicker village, Ing Drove, Cowbridge Road, Bicker Drove and Vicarage Drove. The need for additional works at the substation depends on the Heckington Fen and other proposed energy schemes; in practice much of the necessary works are in common.
- 9.6.10 Total traffic related to construction of the Proposed Development is summarised below at Table 9.10 and in Figure 9.2.

**Table 9.10 Construction Traffic Generation**

Purpose	Destination	Traffic Route	Additional Traffic 2-way AADT	Additional HGV Traffic 2-way AADT
Deliveries & Cable Laying	Solar Site	A17	31	31
Construction Worker	Solar Site	A17	17	0
Plant	Cable Laying Corridor	A17 & TBC	8	8
Construction Worker	Cable Laying Corridor	A17 & TBC	2	0
Deliveries	National Grid Bicker Fen Substation	A17, A52 & National Grid haul route	10	10
Construction Worker	National Grid Bicker Fen Substation	A17, A52 & National Grid haul route	5	0
All purposes	All	A17	73	49
All purposes	All	A52 & National Grid haul route	15	10

9.6.11 In summary, the combined total of HGV and construction worker travel to the Site has an estimated impact on the AADT of 73 vehicles, of which 49 are HGVs. The estimated development impact on the study area and the magnitude of change, making reference to magnitude of impact criteria in Table 9.4 is summarised in Table 9.11 below.

**Table 9.11 Construction Traffic Impact Compared to Baseline**

TRAFFIC TYPE	ROAD	2028 BASE	DEVELOPMENT GENERATED	% CHANGE	MAGNITUDE OF IMPACT (CHANGE)
All Traffic	A17	19000	73	0.4	Negligible Adverse
HGV	A17	3000	49	1.6	Negligible Adverse
All Traffic	A52	7300	15	0.2	Negligible Adverse
All Traffic	Cowbridge Rd	140	15	11	Negligible Adverse

## Conclusion

9.6.12 The magnitude of change falls below the 30% threshold identified above in para 1.4.15, and substantially below this threshold on the A17 and the A52. Given that Cowbridge Road on the National Grid haul route is not considered of high sensitivity, the 10% threshold also set out above does not apply. Therefore, the effects of the Proposed Development on local residents and

workers and on Driver Delay and Accidents and Safety during construction are negligible, and **Not Significant**.

## Operational Phase Effects

- 9.6.13 Operational Phase access and traffic effects are related to on-site employment, estimated at 15-17 full time equivalent jobs. The traffic impact of this level of activity is negligible in relation to the construction phase and for this reason have been agreed with PINS as not within scope.
- 9.6.14 Equipment Replacement is likely however to generate traffic. There will be requirement for periodic replacement of some or all of the Solar and BESS elements. At this stage, the level of vehicle trips associated with component replacement (e.g. batteries and panels) is expected to be considerably lower than the level of vehicle trips generated during the peak construction phase. For example, even in the instance that full panel replacement is required, this would be programmed in stages over a much longer period than the construction phase (when the panels will be installed more rapidly). BESS equipment is also likely to be replaced incrementally. This approach would maximise the number of panels which are kept 'live' at any given time and avoid compromising the electricity generating capacity of the Scheme. Otherwise, components would be replaced as and when required throughout the operational lifetime of the scheme (circa. 40-year period). As such, it is not considered necessary to include an assessment of the operational phase, including in the instance that any components need to be replaced.
- 9.6.15 However, a key difference between the construction and equipment replacement phases is that it is not yet known whether the bespoke construction haul road will be removed following construction, which will mean that the Equipment Replacement phase may rely on access via a different access route. Whilst this strategy and any alternative access is yet to be determined, any such alternative would likely rely on use of lower trafficked roads between the A17 and the site. . Therefore, it is necessary to consider whether equipment replacement is likely to have a material impact on traffic flows, and therefore whether there is potential for significant effects. Experience of solar park construction elsewhere and based on information from solar panel manufacturers<sup>16</sup> suggests that replacing circa 25% of the solar panels at the Proposed Development could generate 1000 two-way HGV movements. Adopting a robust assumption that this would take place over 3 months and with no additional works on Site would lead to an indicative AADT traffic impact of 11 HGVs or approximately 22%<sup>17</sup> of the HGV impact of the

<sup>16</sup> Limebury Farm Solar Park, planning reference 1/1096/2022/FULM Torrington District Council

<sup>17</sup> 11 divided by the Table 9.10 49 HGVs estimated to be generated on the A17.

Proposed Development construction. This indicative assessment only concerns HGV traffic, not construction worker traffic and the rate at which solar panels are replaced is a critical determinant (a faster rate of replacement would intensify the traffic impact).

9.6.16 Similarly, replacement of BESS units generates a two-way vehicle trip per unit, and multiple units would need to be replaced in a single day for HGV traffic impact to exceed that set out above for panel replacement. This is unlikely, and an intensive 3-month period of panel replacement, as set out above, represents a robust scenario.

9.6.17 The above is intended to provide an indication of a robust worst case traffic impact. Given that the Construction Effects of the Proposed Development are negligible, and allowing for access during equipment replacement via lightly trafficked local roads, it is very likely that Equipment Replacement would have negligible and **Not Significant** effects also.

### Decommissioning Phase Effects

9.6.18 The Proposed Development has an anticipated design life of 40 years. Future year baseline flows can be estimated to an extent using DfT data as set out in Table 9.9; given the uncertainty of extrapolating planning and traffic conditions forecasts are taken to the year 2051 only (approximately half-way through the design life). In 2051 baseline traffic flows are estimated to grow marginally to an AADT of 20,000. Given that traffic generated during decommissioning would be less than the construction phase (because no works are planned at the National Grid Substation) and that on current trends baseline traffic will grow it is highly likely that the effects will remain negligible and **Not Significant**.

## 9.7 Mitigation

9.7.1 No additional mitigatory measures beyond those identified at Section 9.6 above are considered necessary because the Traffic and Access effects are negligible and **Not Significant**.

## 9.8 Residual Effects

9.8.1 There is no change from that reported in Section 1.6 above. The residual effects remain negligible and not significant.

## Monitoring

### Construction Traffic Monitoring

- 9.8.2 Control and monitoring of construction traffic will be via a CTMP, incorporating a DMP and abnormal load DMP, and a construction staff Travel Plan. These Plans will include mechanisms for local residents to raise any issues with the construction team.

### Decommissioning Traffic Monitoring

- 9.8.3 Monitoring of the Decommissioning traffic impact will be undertaken via the DEMP, which will also provide the mechanism for additional mitigation to be introduced if issues relating to access and traffic arise during the decommissioning phase.

## 9.9 Assessment of Cumulative Effects

### Intra-Cumulative Effects

- 9.9.1 Potential Intra-cumulative effects are generally considered to be likely in respect of road traffic effects on noise and air quality. The noise and air quality chapters however do not identify any significant effects from road traffic in relation to noise or air quality.
- 9.9.2 No Intra-Cumulative Effects are identified because the Traffic and Access Effects are negligible and **Not Significant**.

### Inter-Cumulative Effects

#### Cumulative Developments

- 9.9.3 The developments below have been identified as having the potential to have a cumulative effect in relation to access and traffic with the Proposed Development. A preliminary view on the potential for such effect is also detailed.

#### Heckington Fen Solar Park<sup>18</sup>

- 9.9.4 The planned solar park is located north-east of Heckington and the A17. The ES was completed in February 2023. The development comprises a 500MW solar generation facility with energy storage.
- 9.9.5 Automatic traffic data is available in Technical Appendix 14.2 ATC Survey Data of August 2023 via the Planning Inspectorate website, as a supporting document to the ES. The data was counted at three sites on the A17 East of

<sup>18</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010123/EN010123-000135-6.1.14%20-%20Chapter%2014%20-%20Transport%20and%20Access.pdf>

Heckington over seven days from 24.03.2022 to 30.03.2022. This is, therefore, considered to be good quality data. The average weekday flow for the westernmost Site (east of Heckington and the B1395) is estimated at 22,078 vehicles and the average daily flow is estimated at 20,373 vehicles. The ES states that HGVs comprised 21.4% of total daily traffic. Traffic growth factors are not applied, the analysis is based on 2022 annual average traffic levels. Additional construction related vehicles are estimated at up to 39 HGVs and 104 vehicles<sup>19</sup> AADT, resulting in a negligible impact on the A17 (see also below). See also the summary below.

### [Springwell Solar Park](#)<sup>20</sup>

- 9.9.6 The Scoping Report was prepared in March 2023. The site is located north of Sleaford, intersected by the A15 and remote from the A17. The development comprises 800MW capacity solar PV, a substation and battery storage. Subject to approval “*construction is indicatively scheduled to commence in 2026 and last for approximately 48 months across two phases, followed by a commissioning period of approximately 6 months*”.

### [Viking Link](#)<sup>21</sup>

- 9.9.7 Works to facilitate the Viking Link electrical interconnector with an approximate capacity of 1,400 megawatts (MW) extending from Revsing, Jutland, (Denmark) to Bicker Fen, Lincolnshire (UK) comprising the installation of two subsea high voltage direct current (DC) cables between Mean Low Water Springs (MLWS) and landfall at Boygrift in East Lindsey, the installation of two onshore DC cables between the landfall at Boygrift and the converter station at North Ing Drove in South Holland, the erection of converter station buildings (relating to land in adjoining authority), plus temporary and permanent ancillary infrastructure. End to end cable tests were completed by end August 2023 and all other works are expected to be complete by the end of 2023. Therefore, no cumulative impacts on the A17 are anticipated during the construction period for the Proposed Development.

### [Lincolnshire Reservoir](#)<sup>22</sup>

- 9.9.8 The application is expected to be submitted to the Planning Inspectorate in September 2025. It is not anticipated that significant construction activities will commence within the construction timescale for the Proposed Development

<sup>19</sup> Table 14.9 on page 27 of <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010123/EN010123-000481-6.1.14%20-%20Chapter%2014%20-%20Transport%20and%20Access%20-%20Rev%202.pdf>

<sup>20</sup> <https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/springwell-solar-farm/>

<sup>21</sup> <https://www.viking-link.com/>

<sup>22</sup> <https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/lincolnshire-reservoir/>

and there is therefore not considered to be the potential for a cumulative impact.

### Outer Dowsing Wind Farm<sup>23</sup>

9.9.9 A Scoping Report was submitted in July 2022. Onshore elements relate to grid connection. The site boundary (a corridor between Holbeach and Mablethorpe) is located East of Beacon Fen and the development does not impact on the Beacon Fen study area including the A17. Therefore, there is not considered to be potential for a cumulative impact.

### Temple Oaks Renewable Energy Park<sup>24</sup>

9.9.10 A Scoping Report was submitted in June 2022. The development is for a 240MW solar farm with battery storage and substation. The development location is south-west of Folkingham and it is served by the A15. *“The Renewable Energy Park will connect to the National Grid Bulk Supply Point at Bicker Fen (c.15km to the north-east of the site as the crow flies)”*. There are no predicted impacts on the A17. Therefore, there is not considered to be potential for a cumulative impact.

### Triton Knoll<sup>25</sup>

9.9.11 Construction of offshore wind turbines; now operational. The development included a new access road from the A17 south of Swineshead Bridge to a new onshore substation south of the South Forty Foot Drain (shown at Figures 1-3), connected to the National Grid at Bicker Fen substation. These works are now complete, so that there will be no additional impact of this scheme on the A17 during the construction phase associated with the Proposed Development, so there is no potential for cumulative impact.

### Summary

9.9.12 The only potential other development that has been identified as having a traffic impact on A17 during the construction phase for the Proposed Development is Heckington Fen. The ES for Heckington Fen identifies that it will have a Negligible impact on the A17 during construction and, therefore, no significant cumulative effects are identified.

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<sup>23</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010130/EN010130-000037-EN010130-Scoping-Report.pdf>

<sup>24</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010126/EN010126-000020-Temple%20Oaks%20Scoping%20Report%20220630%20re-ISSUED.pdf>

<sup>25</sup> <https://www.nationalgrid.com/electricity-transmission/network-and-infrastructure/bicker-fen-substation-works> and <https://www.tritonknoll.co.uk/>



9.9.13 No Inter-Cumulative Effects are identified because there are no other potential developments with significant transport effects within the study area. Effects are **Not Significant**.

## 9.10 Summary

9.10.1 Existing baseline conditions in the vicinity of the Proposed Development are shown at Figure 9.1 and 9.3. Our findings are that:

- The A17 is the principal and busiest road, with an estimated AADT based on a DfT count of 18000 vehicles and 15.8% HGV;
- The A52 has an estimated AADT also based on a DfT count of 6700 with 8.6% HGVs;
- Other local roads are predominantly rural and unclassified with considerably lower traffic use;
- There are no facilities for cyclists or pedestrians and minimal levels of walking and cycling on these roads;
- There are no there are no obvious highway safety patterns or problems on local roads;
- Local people living and/or working at properties adjacent to roads providing site access are potential sensitive receptors; and
- No locations with links or junctions at or close to capacity or with concentrations of vulnerable users, retail areas, recreational areas, tourist attractions or routes with road safety concern were identified in the baseline assessment.

9.10.2 Our assessment has predicted future baseline traffic during construction and a future year, representative of when replacement of future on Site equipment (principally, solar panels) would take place. Our traffic growth forecasts are based on the DfT TEMPRO model. Future year traffic is shown at Figure 9.2. Our findings are that:

- Future traffic on the busiest road, the A17, is estimated to grow to 19000 vehicles by 2028 and to 20000 vehicles by 2051 AADT; and
- Seven other development schemes in the area were assessed and none were found to generate significant traffic flows on roads in the area cumulative to this Proposed Development, for example the Viking Link which is now substantially complete and the Heckington Fen proposal which is anticipated to generate negligible traffic (39 HGVs and 104 vehicles AADT) on the A17.

9.10.3 Monitoring and embedded mitigation measures proposed include the following:

- Construction access to the Site will be from the A17 with a left-in/left-out only arrangement;
- Construction traffic will be safely managed and monitored via a CTMP and Delivery Management Plan (DMP) to be agreed as part of planning processes;
- Abnormal loads are as yet uncertain, but will be addressed through an Abnormal Loads DMP and will be subject to agreement with the relevant highway authorities and police through the ESDAL system;
- A construction staff Travel Plan will be implemented to minimise the impacts of construction staff travel to/from the Site and maximise the use of shared transport, particularly minibuses; and
- The DEMP provides for mitigation and monitoring of traffic during decommissioning.

9.10.4 The Proposed Development is predicted to generate future construction traffic. The HGV traffic estimates in this chapter are based on information from the project engineer. For construction worker travel, information from a comparable local development at Heckington Fen has been used to inform traffic estimation. The findings and predicted effects are as follows:

- An additional 73 vehicles AADT including 49 HGVs are predicted on the A17, which amounts to an impact of 0.4% compared to the baseline, substantially below the EIMA recommended 30% threshold for significance;
- An additional 15 vehicles AADT including 10 HGVs are predicted on the A52, which amounts to an impact of 0.2% compared to the baseline, also substantially below the EIMA recommended 30% threshold for significance;
- Therefore, the Access and Traffic effects of the Proposed Development during construction are negligible, and **Not Significant**;
- Operational Phase access and traffic effects are related to on-site employment, estimated at 15-18 full time equivalent jobs. The traffic impact of this level of activity is negligible in relation to the construction phase and therefore been agreed with PINS as not within scope; and

- An indicative assessment has found it is very likely that Equipment Replacement at a mid-point of the scheme design life would have negligible effects and is therefore **Not Significant**

9.10.5 Residual Effects of the Proposed Development are found to be **Not Significant**. Additional traffic impact analysis will take place during preparation of the forthcoming TA which will include consultation with LCC highways. Monitoring of effects is proposed through the CTMP, the DMP and the DEMP.

9.10.6 No Cumulative Effects are identified because there are no other potential developments with significant transport effects within the study area. Cumulative Effects are therefore **Not Significant**.

9.10.7 A summary of the likely significant residual effects of the Proposed Development on the receptors considered within this chapter are summarised in Table 9.12 below.

**Table 9.12: Discipline - Summary Assessment Matrix**

Issue	Description of Impact	Geographical Significance							Impact	Nature	Significance	Mitigation Measures
		I	N	R	C	D	P	L				
<b>Transport and Access</b>												
No Significant Effects												

# BFEP Appendices