Green Hill Solar Farm

EN010170

Environmental Statement

Chapter 13: Transport and Access

Revision A

Prepared by: KMC Transport Planning

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APFP Regulation 5(2)(a)

Schedule of Changes

Revision	Section Reference	Description of Changes	Reason for Revision
A	[cover]	Updated to Revision A	As required for submission at Deadline 2.
	[throughout]	Updates to document references	As required for submission at Deadline 2.
	Figures 13.3 to 13.5 and 13.18 to 13.23	Update to Figures 13.3 to 13.5 and addition of Figures 13.18 to 13.23	Additional figures added for clarity over worker, HGV and AIL routes for Deadline 1.
	Tables 13.11 and 13.12 Paragraph 13.8.28 to 13.8.29	Tables added.	Additional information provided for clarity over routes to each access for Deadline 2.
	Paragraph 13.6.39	Text updated.	Typographical error, amended to “CC4” for Deadline 2.
	Paragraph 13.8.34	Text amended.	Clarity over the number of AIL movements associated with the Cable Route Corridor.
	Paragraph 13.9.9 and bullet points following	Additional text.	Additional measures added into the oCTMP (Revision A) submitted at Deadline 1 included.

Contents

Issue Sheet

Report Prepared for: Green Hill Solar Farm
DCO Submission

Examination Deadline 2

Chapter 13: Transport and Access

Revision A

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13 Transport and Access

13.1 Introduction

13.1.1 This Chapter presents the findings of the Environmental Impact Assessment (EIA) concerning the potential transport and access impacts of the Scheme during the construction, operation and maintenance, and decommissioning phases.

13.1.2 The following aspects will be considered within the transport and access assessment process:

- An overview of the transport and highway networks within the vicinity of the Sites and Cable Route Corridor;
- Forecasts of vehicle movements expected during the construction, operation and maintenance, and decommissioning phases; and
- Consideration of the likely effects of forecast vehicles movements on receptors within a defined study area with consideration of specific assessment criteria.

13.1.3 For project description details, refer to **Chapter 4: Scheme Description [~~EN010170/APP/GH6.2.4~~REP1-031]** of this Environmental Statement (ES).

13.1.4 This Chapter has been prepared by KMC Transport Planning Ltd (see Statement of Competence **[~~EN010170/~~APP~~/GH6.3.1.1~~-065]**).

13.1.5 The assessment has been undertaken in accordance with the guidance provided in the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (2023) (~~0~~Ref 13.1).

Appendices and Figures

13.1.6 This Chapter is supported by the following appendices:

- **Appendix 13.1: Transport and Access Assessment Tables [APP-150]**
- **Appendix 13.2: Transport Assessment [APP-151 to APP-153]**
- **Appendix 13.3: Cumulative Schemes [APP-154]**

13.1.7 This Chapter is supported by the following standalone figures:

- **Figure 13.1: Transport and Access Study Area for the Scheme [APP-432]**
- **Figure 13.2: Overview of routes to all Scheme Sites, Compounds and Cable Corridor [APP-433]**
- **Figure 13.3~~:~~ A: HGV Routes to Scheme Sites (North Area) [REP1-117]**
- **Figure 13.4~~:~~ A: HGV Routes to Scheme Sites (Central Area) [REP1-119]**
- **Figure 13.5~~:~~ A: HGV Routes to Scheme Sites (South Area) [REP1-121]**

- **Figure 13.6: Location of Traffic Surveys and Department for Transport Traffic Counts [APP-437]**
- **Figure 13.7: Location of Traffic Counts (North Area) [APP-438]**
- **Figure 13:8: Location of Traffic Counts (Central Area) [APP-439]**
- **Figure 13.9: Location of Traffic Counts (South Area) [APP-440]**
- **Figure 13.10: Public Rights of Way (PRoW) within the Study Area (North Area) [APP-441]**
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- **Figure 13.12: Public Rights of Way (PRoW) within the Study Area (South Area) [APP-443]**
- **Figure 13.13: Access Locations for Sites and Cable Corridor (North Area) [APP-444]**
- **Figure 13.14: Access Locations for Sites and Cable Corridor (Central Area) [APP-445]**
- **Figure 13.15: Access Locations for Sites and Cable Corridor (South Area Part 1) [APP-446]**
- **Figure 13.16: Access Locations for Sites and Cable Corridor (South Area Part 2) [APP-447]**
- **Figure 13.17: Access Locations for Sites and Cable Corridor (South Area Part 3) [APP-448]**
- **Figure 13:18: Worker Routes to Scheme (North Area) [REP1-123]**
- **Figure 13:19: Worker Routes to Scheme (Central Area) [REP1-124]**
- **Figure 13:20: Worker Routes to Scheme (South Area) [REP1-125]**
- **Figure 13:21: AIL Routes to Solar and BESS Sites Green Hill A B C E [REP1-126]**
- **Figure 13:22: AIL Routes to Solar and BESS Sites Green Hill BESS F G [REP1-127]**
- **Figure 13:23: AIL Routes to Solar and BESS Sites Green Hill BESS [REP1-128]**

13.1.8 This Chapter is supported by the following tables:

- ~~**Table 13.1: Relevant Scoping Opinion Comments**~~
- ~~**Table 13.2: Statutory Consultation Comments**~~
- ~~**Table 13.3: Sensitivity of Receptors**~~
- ~~**Table 13.4: Magnitude of Impact Criteria**~~
- ~~**Table 13.5: Significance of Effects Matrix**~~

13.2 Consultation

Scoping Opinion

13.2.1 An EIA Scoping Report **[~~EN010170/~~APP~~/GH6.3.2.1~~-066 to APP-074]** was submitted to the Planning Inspectorate (PINS) in July 2024, with a formal request for a Scoping Opinion. PINS subsequently issued the Scoping Opinion on **[~~EN010170/~~APP~~/GH6.3.2.2~~-075]** 30th August 2024.

Table 13.1: Relevant Scoping Opinion Comments

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
The Planning Inspectorate (PINS)	ID 3.8.1 Decommissioning Stage The Applicant proposes to scope out a standalone assessment for the decommissioning phase of the Proposed Development. The Inspectorate is content this is scoped out of the assessment. The Inspectorate is content that a standalone assessment for the decommissioning phase is not required at this stage, provided that any effects that are predicted to be significant are assessed in the relevant ES chapters and that an ODEMP is	The approach is agreed. An Outline Decommissioning Statement (Revision A) is included as part of the application **[~~EN010170/APP/GH7.3~~REP1-135]**	Section 13.4 of this Chapter sets out the details on the decommissioning phase and why it is not included as part of the assessment.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	submitted with the application that takes into consideration transport and access.		
	ID 3.8.2 Baseline No baseline information for the Cable Route Search Area is described in the SR. This should be included in the ES when the Cable Corridor has been refined.	Baseline information for the Cable Route Search Area has been derived based on traffic surveys, site visits and a desktop exercise.	A description of the baseline information for the Cable Route Corridor is included at Section 13.6 of this Chapter.
	ID 3.8.3 Public Rights of Way (PRoW) users It is not confirmed at this stage whether the proposed development would result in any PRoW, National Cycle Network route or other recreational routes being diverted or stopped up. This should be confirmed in the ES. The ES should assess impacts on users of PRoW, National Cycle Network	Consideration has been given to PRoW, the National Cycle Network and other recreational routes when defining the sensitivity of the traffic links within the study area. Impacts on these users is based on the percentage change in traffic / HGVs resulting from the various phases of the Scheme.	The sensitivity of the links is included in **Appendix 13.1**, **[~~EN010170/~~APP~~/GH6.3.13.1~~-150]** which takes account of PRoW, National Cycle Network and other recreational routes. The impact of the Scheme on these users is included in Section 13.10 of this Chapter and the assessment tables included in **Appendix 13.1 [~~EN010170/~~APP~~/GH6.3.13.1~~-150].**

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	routes or other recreational routes during construction, operation and decommissioning. The assessment of impacts of PRoW should be supported by pedestrian/user counts where possible. The locations of any diversions or closured should be illustrated within the ES.		
	ID 3.8.4 Study area The ES should justify how the study area has been identified for assessment. A plan illustrating the extent of the study area, the expected route(s) of construction traffic and anticipated number of vehicle movements should be included within the ES.	The Study Area is defined by access points to the Sites and the Cable Corridor and the routes between these access points and the Strategic Road Network (SRN) that traffic is forecast to route along. The roads that make up the SRN are defined in Section 13.6.	The Study Area is shown in **Figure 13.1 [~~EN010170/~~APP~~/GH6.4.13.1~~-432]** and the justification for the study area is set out in Section 13.4 of this Chapter.
Bedford Borough Council	Paragraph 4.10 Site Access It is suggested that a) the number of site accesses	The site access strategy for the Sites and Cable Corridor is based on a series of site visits, topographical surveys and traffic volume and speed surveys. Where possible existing field	The site access strategy and design of the accesses, including visibility splays is set out in the Transport Assessment, which is included in **Appendix 13.2**

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	are kept to an absolute minimum; b) the proposed visibility splays are re-assessed (currently stated collectively as 430m from access point) to ensure the absolute minimum removal of existing hedgerows that would affect the landscape setting of the Public Highways. The Applicant should evidence their approach to the location of site access in all cases.	accesses have been utilised (with upgrades as required) and visibility splays are based on observed speeds rather than posted speeds in order to minimise impact on hedgerows. Where hedgerows are within the visibility splays, hedgerows can be coppiced and maintained during the construction phase to 600mm rather than removed.	**[~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153].**
	Paragraph 13.1 In general, BBC is in agreement regarding the approach to transport and access as set out by the Applicant and makes no further comment in this regard.	Noted.	Noted.
	Paragraph 13.3 Wider Transport Network BBC notes that numerous bridleways cross and surround the Site, forming an important leisure-use network across the	Consideration has been given to PRoW when defining sensitivity of the traffic links within the study area. Impacts on PRoW users is based on the percentage change in traffic / HGVs resulting from the various phases of the Scheme.	The sensitivity of the links is included in **Appendix 13.1 [~~EN010170/~~APP/~~GH6.3.13.1~~-150]**, which takes account of PRoW. The impact of the Scheme on PRoW users is included in the assessment set out in Section 13.10 of this Chapter and the assessment tables

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	countryside. These should be assessed within the Transport chapter of the ES.		included in **Appendix 13.1 [~~EN010170/~~APP/~~GH6.3.13.1~~-150]**.
	Paragraph 13.4 Receptors Within the High receptor sensitivity category, stabled / riding schools and camping sites are suggested to be included with the 'receptor type'	Stabled / riding schools and camping sites have been included as high and medium sensitivity receptors, respectively. Horses and their riders are considered as vulnerable road users and therefore attributed with high sensitivity. Campsites and their users are considered to be similar to tourist attractions and therefore attributed medium sensitivity.	**Table 13.3** of this Chapter sets out the sensitivity of receptors and includes stabled/riding schools and camping sites.
Bozeat Parish Council	No consideration has been given to repowering, which has the potential to cause greater disruption than construction as this includes the removal of existing equipment and the installation of replacement equipment.	A comparison of traffic movements during the replacement period of the operation and maintenance phase against the traffic movements during the construction phase has been undertaken to justify not separately assessing the replacement period.	Section 13.8 of this Chapter sets out the justification for not assessing the replacement period of the operation and maintenance phase.
	It is of concern that it is proposed that decommissioning is scoped out. This should be included.	The Scoping Opinion published by PINS confirms that the decommissioning phase is acceptable to scope out of the assessment. An Outline Decommissioning Statement (Revision A) is included as part of the	Section 13.4 of this Chapter sets out the details on the decommissioning phase and why it is not included as part of the assessment.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
		application [~~EN010170APP/GH7.3~~REP1-135]	
	The methodology tables do not contain a consideration of the duration for which adverse impacts are experienced nor the numbers of people affected.	As set out in Chapter 2 on EIA Process and Methodology, short term effects are up to 12 months, medium term effects are 1-5 years and long-term effects are more than 5 years. These durations have been applied to the transport effects set out in this Chapter.	Refer to **Chapter 2: EIA Process and Methodology** [~~EN010170/~~**APP**~~/GH6.2.2~~-039] for the definition of duration of environmental effects.
	Table 13.2 contains errors. The entries for Driver delay and Non-motorised user delay run together over the page break and some of Road user and pedestrian safety and Hazardous/large loads do not make sense. Additionally, the "Severance of communities" based on percentage increases does not appear to be a logical or reliable metric because traffic impacts will move around the different sites that make up overall scheme. If the increased flows are measured	This table has been updated to correct the drafting error and now forms Table 13.4 of this Chapter. The methodology for severance of communities is in accordance with IEMA guidelines. The assessment is based on peak forecast traffic for each Site and assumes each is constructed at the same time. Whilst an unlikely scenario, this assumes a worst case, cumulative effect of all Scheme traffic for ES assessment purposes.	**Table 13.4** of this Chapter sets out the Magnitude of Impact. Section 13.8 of this Chapter sets out the traffic generation of the proposed Scheme.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	against the whole construction period then they will not fairly reflect the impact experienced over a shorter period at a single site.		
Mears Ashby Parish Council	The Council also has concerns regarding the identification of "local routes" to reach Green Hill sites C, D and E from identified SRN and Major Road Network (MRN) routes.	HGV traffic is proposed to utilise the SRN and MRN for the majority of the journey to/from Green Hill C, D and E. It is only for the last section of the journey that local roads will need to be utilised. This Chapter has assessed the environmental effects of the Scheme traffic on the roads within the study area and proposes mitigation measures to mitigate any significant adverse effects.	Refer to **Figure 13.4 [EN010170/APP/GH6.4.13.44A (Revision A) [REP1-119]**, which shows the proposed HGV routes (solid lines) and **Figure 13.19 [REP1-124]** forecast construction worker routes (dashed lines) to access Green Hill C, D and E. Refer to the assessment tables in **Appendix 13.1 [EN010170/APP/GH6.3.13.1-150]** which include the assessment of these routes.
	Highfield Road is identified as a suitable local route to access Green Hill site D notwithstanding that this route is described in the report as, "a single lane rural road with limited passing places". Highfield Road is unsuitable for HGV's and large vehicles with no room to	Highfield Road is proposed to be utilised by HGVs to access Green Hill E. The DCO will include powers to make passing places within the highway as one measure of controlling construction traffic effects on this road, and this may be an option along Highfield Road to enable vehicles to pass safely.	Refer to the assessment tables in **Appendix 13.1 [EN010170/APP/GH6.3.13.1-150]**, which include Highfield Road. Refer to the **Transport Assessment** (**Appendix 13.2**) **[EN010170/APP/GH6.3.13.2-151 to APP-153].** for details of the access strategy for Green Hill E.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	manoeuvre and no passing or turning places.		
	Wilby Road is identified as bisecting Green Hill site E, "and can be used to access Green Hill site E and the A509. The comments regarding Highfield Road also apply for Wilby Road. Additionally, Wilby Road has an acute left right bend in a dip which limits visibility and makes it unsuitable for use by HGVs. Such usage would pose a significant risk to other road users.	Wilby Road is not proposed to be used by ~~HGVsto~~HGVs to access Green Hill E other than to cross it for movements between fields in the designated area. Wilby Road and will only be used by construction worker traffic to access Green Hill E. The assessment in this Chapter is on this basis.	Refer to **Figure 13.~~4~~ ~~[EN010170/APP/GH6.4.13.4~~4A (Revision A) [REP1-119]**, which shows the proposed HGV routes ~~(solid lines)~~ and **Figure 13.19 [REP1-124]** shows the forecast construction worker routes ~~(dashed lines)~~ to access Green Hill E. Refer to the assessment tables in **Appendix 13.1 [~~EN010170/~~APP~~/GH6.3.13.1~~-150]**, which include the assessment of these routes.
	Mears Ashby Road is identified as providing access to Green Hill site E. This road is a major commuter route between the A45 and A43 and has two blind bends at the summit of high ground limiting visibility for road users. The road also has significant agricultural,	Mears Ashby Road is not proposed to be used by HGVs and will only be used by construction worker traffic to access Green Hill E. The assessment in this Chapter is on this basis. The access in this location is only required to construct a small proportion of the overall site. As such, a low number of construction traffic is forecast to use this route.	Refer to **Figure 13.~~4~~ ~~[EN010170/APP/GH6.4.13.4~~4A (Revision A) [REP1-119]**, which shows the proposed HGV routes (~~solid lines)~~ and **Figure 13.19 [REP1-124]** shows the forecast construction worker routes ~~(dashed lines)~~ to access Green Hill E. Refer to the assessment tables in **Appendix 13.1 [~~EN010170/~~APP~~/GH6.3.13.1~~-150]**, which include the assessment of these routes.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	cycling and pedestrian traffic.		
Grendon Parish Council	The scope needs expanding to consider the routes that site traffic will use	This Chapter has assessed the routes that are forecast to be used by worker traffic and construction traffic (i.e. HGVs).	Refer to Section 13.8 of this Chapter which sets out the trip generation and distribution of traffic.
Earls Barton Parish Council	It is requested that anything effecting (including transport and access) the A4500, The Wickets Estate or the Parish of Earls Barton as a whole is scoped into the report.	A4500 is included within the Study Area which passes the Wickets Estate. The Scheme will not affect highway links across the entire Parish of Earls Barton so this has not been assessed.	Refer to the assessment tables in **Appendix 13.1[~~EN010170/~~APP~~/GH6.3.13.1~~-150].**
Holcot Parish Council	The Sywell Road through Holcot is the de facto northern ring road for Northampton and whilst this road is classified by the Applicant as 'a local road' per the definition, it should be included in all road-related assessments as a significant route.	Sywell Road through Holcot is included in the study area as a local road which may be used by construction worker traffic. It is not considered as a suitable route for construction traffic (i.e. HGVs). HGVs will not be routed on this section of Sywell Road. Access to the route via Moulton Road will be limited to LGVs and generally used during the operation phase.	Refer to the assessment tables in **Appendix 13.1[~~EN010170/~~APP~~/GH6.3.13.1~~-150].**
North Northamptonshire Council	The scope of the Transport Assessment is to be agreed with NNC and is to include an Abnormal	The Transport Assessment includes an assessment of Abnormal Loads. The Construction Traffic Management Plan includes measures to manage worker	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.2~~-151 to APP-153].**, the **Outline Public Rights of Way**

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	Loads Assessment, Travel Plan, Construction Traffic Management Plan and Public Rights of Way Management Plan.	travel as well as construction traffic requires a Construction Worker Travel Plan to be prepared, and this will be approved as part of the detailed CTMP which is secured by a DCO Requirement. A PRoW and Permissive Path Management Plan has been prepared, which sets out the approach to managing construction traffic and traffic associated with a programme of replacements, where it interacts with PRoW and the Permissive Paths within the Scheme.	**and Permissive Paths Management Plan ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]** and the **Outline Construction Traffic Management Plan ~~[EN010170/APP/GH7.9~~(Revision A) [REP1-145]**
	The application site is likely to be affected by Public Rights of Way. The applicant needs to be made fully aware of their responsibilities in respect of PRoW which may be affected by the proposed development.	The effects of the Scheme on PRoW are assessed as part of this Chapter. In addition, a PRoW and Permissive Path Management Plan has been prepared, which sets out the approach to managing construction traffic and traffic associated with a programme of replacements, where it interacts with PRoW and the Permissive Paths within the Scheme.	Refer to the assessment tables included as **Appendix 13.1 [~~EN010170/~~APP/~~GH6.3.13.1~~-150]** and the **Outline Public Rights of Way and Permissive Paths Management ~~Plan~~ ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]**
National Highways	Having reviewed the information provided within the Scoping Report, it is apparent that the locations proposed for the solar farm are not likely to impact upon the safe and efficient	The assessment within this Chapter and the Transport Assessment (Appendix 13.2) set out the assessment of the effects of the development on the SRN during the construction phase.	Refer to the assessment tables in **Appendix 13.1 [~~EN010170/~~APP/~~GH6.3.13.1~~-150]** for the effect of the development on the SRN.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	operation of the SRN. National Highways is therefore satisfied that in terms of the operation of the proposed sites, there shall be no adverse impact to users of the SRN. National Highways concerns relate primarily to the construction phase of the proposal.		
	Regarding potential cable routing, a range of routing options are identified, from National Highways perspective, where these routes are to be accommodated within, alongside, or beneath the SRN the relevant licences and permissions shall need to be obtained from National Highways.	This is noted and relevant licences and permissions for horizontal directional drilling of the cable route under the SRN will be obtained post DCO and prior to commencement of the construction phase. Protective Provisions are included within the DCO to manage this process.	This is not referenced within this Chapter as licences and permissions will follow post DCO and prior to commencement of the construction phase.
West Northamptonshire Council	The LHA does not comment on environmental impacts and does not have any comments to make on this EIA scoping opinion request but does note from the submitted document	A Transport Assessment, Outline Public Rights of Way and Permissive Paths Management Plan and Outline Construction Traffic Management Plan (CTMP) accompany the DCO submission.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.2~~-151 to APP-153]**., the **Outline Public Rights of Way and Permissive Paths Management Plan ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]** and the **Outline Construction**

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	that the applicant intends to submit a separate Transport Assessment, Outline Public Rights of Way Management Plan and Outline Construction Traffic Management Plan (CTMP) with the DCO application.		**Traffic Management Plan ~~[EN010170/APP/GH7.9~~(Revision A) [REP1-145]**

Statutory Consultation

13.2.2 Further consultation in response to formal pre-application engagement was undertaken through the Preliminary Environmental Information Report (PEIR). **Table 13.2** outlines the statutory consultation responses relating to transport and access and how these have been addressed through the ES.

Table 13.2: Statutory Consultation Comments

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
Bozeat Parish Council	The list of assessed traffic effects should be extended include the impact on residential amenity from noise, vibration and fumes when traffic volumes increase.	The wider effects are considered across various chapters of the ES.	ES **Chapter 14: Noise and Vibration [~~EN010170APP/GH6.2.14~~APP-051]** and ES **Chapter 16: Air Quality [~~EN010170APP/GH6.2.16~~APP-053]**

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	Route 80 is incorrectly categorised as of Negligible sensitivity even though it passes through residential areas within Bozeat and passes by residential dwellings and a Spa just beyond the village boundary. This route is also commonly used by walkers, cyclists and horse riders for leisure and so should anyway be categorised as of High sensitivity.	Link '80' is located to the west of Bozeat. In the context of the receptor sensitivity criteria detailed in **Table 13.3**, the sensitivity is considered appropriate. Link 81 passes from Green Hill F through to the A509. This route is classified as high sensitivity.	**Appendix 13.1 [~~EN010170/~~APP~~/GH6.3.13.1~~-150]** of this Chapter of the ES.
	We contest the rating of Route 81 as of Medium sensitivity because it has low traffic volumes and it passes through residential areas.	The link has been redefined as high sensitivity, with reference to the criteria set out in **Table 13.3** of the ES. The link passes along the edge of a residential area and is in the vicinity of an equestrian centre and horses may route along or cross this link.	**Appendix 13.1 [~~EN010170/~~APP~~/GH6.3.13.1~~-150]** of this Chapter of the ES.
	We are vehemently opposed to the proposed access route through Bozeat. Access to Site F is available through two other access points on the A509 and it is wholly unnecessary and unjustifiable	The access is required to ensure access to all sections of Green Hill F. The traffic that is forecast to use this access and route in summarised in Table 13.16 of the ES Transport and access Chapter To help minimise traffic effects, other access points from the A509 that avoid	Access points are identified in **Table 13.10** and movements in **Table 13.~~16~~18** of the ES Transport and Access Chapter.

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
		routes through Bozeat will be used in addition to the access from Easton Lane.	
West Northamptonshire Council	Fully scaled and annotated site access / layout plans would need to be provided for each of the respective site. The plans would need to clearly indicate both the red line and public highway boundaries.	. Works to the highway are detailed in the works plans, access plans and street plans.	Provided in the Works Plan**[~~EN010170/~~APP/~~GH2.4~~-009]** the Streets Plan **[~~EN010170/~~APP/~~GH2.5~~-010]** and the Streets Plan **[~~EN010170/~~APP/~~GH2.7~~-012].**
	On safety grounds, a site access vehicle visibility plan for each site should be provided demonstrating that visibility splays based on current design standards and 85th percentile surveyed vehicle speeds can be accommodated fully within the public highway boundary or within land that is under the applicant's control.	Visibility splays are provided at all accesses in accordance with posted speed limits or those commensurate with the 85th percentile recorded speeds. Achievable splays are also provided. Some access points will require traffic management to control construction traffic.	Refer to the Transport Assessment in **Appendix 13.2 [~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153]**, and the **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	It should be demonstrated that the vehicle route / access to and from the site can be suitably accommodated	Swept path analysis drawings have been prepared for all site access junctions where use by HGVs is expected.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153]**, and the **Outline Construction Traffic Management Plan**

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
			~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]
	For PRoW mitigation and management measures put forward as appropriate during each of the construction and operational phases.	Where construction traffic is forecast to cross PRoW within any Site or within the Cable Route Corridor, appropriate management measures are proposed.	Refer to the **Outline Public Rights of Way and Permissive Paths Management Plan** ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]
	The cumulative forecast trip generation and distribution for each phase of construction and operation should be clearly set out and quantified. Trip generation (construction / operation) numbers should be informed through a site specific first principles approach and data from other sources / comparable sites.	Vehicular movements relating to the construction phase are set out in this ES Chapter and further detailed in the Transport Assessment. Operation phase movements are also considered alongside movements associated with the replacement period.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.2~~-151 to APP-153].** and Section 13.8 of this ES Chapter.
	There should be a planning mechanism secured in order to ensure that prior to the decommissioning phase that a suitable assessment is required to be undertaken and at the time and submitted for approval.	The decommissioning phase is included as part of this ES Chapter. An Outline Decommissioning Statement is also included as part of the application [~~EN010170APP/GH7.3~~REP1-135] and is secured by the Requirement.	The decommissioning phase is included within this ES Chapter at Section 13.4. Refer to the **Outline Decommissioning Statement** ~~[EN010170/APP/GH7.3]~~(Revision A) [REP1-135]

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	Further to the above points, the forecast design years would need to be suitably determined considering the cumulative impacts of key phases of the construction period and opening operational years	The future year of 2029 has been assessed, which is the end of the expected construction period. Future traffic growth is applied together with an assessment of cumulative effects for schemes that are likely to have an influence on the Study Area in 2029.	The assessment of cumulative effects for the future year of 2029 is summarised in Section 13.13 of this ES Chapter
	Vehicle delay aspects would need to be both a qualitative and quantitative assessment with the use of traffic modelling tools as appropriate	Vehicle forecasts are outlined in the Transport Assessment. Given the level of vehicular trips generated and temporary effects during the construction phase, the Scheme traffic effects are proposed to be managed and mitigated by an Construction Traffic Management Plan (CTMP).	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.2~~-151 to APP-153].**, and the **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	The Abnormal Load assessment should take account of the size of vehicles, routes to and from the site, highway constraints and swept path analysis where relevant	An abnormal load assessment has been undertaken and forms part of the Transport Assessment~~.~~ [APP-151 to APP-153].	Refer to the Transport Assessment in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.2~~-151 to APP-153].**, and the **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	The TA / CTMP should define the proposed vehicle routes and demonstrate that the manoeuvrability of vehicles can be safely and	The proposed HGV routes use the most suitable roads to provide access to the Scheme and swept path analysis has been undertaken as part of the selection of the HGV routes.	Section 13.4 of this ES Chapter.

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	sufficiently accommodated within the road constraints	Refer to **Outline ~~CTMP [APP/GH7.9]~~Construction Traffic Management Plan (Revision A) [REP1-145]**	
	Provision of an Outline Public Rights of Way Management Plan is requested	Refer to **Outline PRoW and Permissive Paths Management Plan ~~[APP/GH7.10~~(Revision A) [REP1-147]**	Refer to **Outline Public Rights of Way and Permissive Paths Management Plan ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]**
	Outline Construction Traffic Management Plan (CTMP) should cover both on-site construction activities as well as those associated with the cable route installation.	The OCTMP includes measures to manage traffic to/from the Sites and Cable Route Corridor.	Refer to **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	An overlay of the construction related traffic and general traffic routes and volumes to and from each of the specific sites would help	Section 6 of the Transport Assessment provides a summary of the baseline traffic and the development related traffic for the various phases of the Scheme.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.1~~-151 to APP-153].**
	The application of Tempro growth factors and the consideration of cumulative schemes when determining future baseline flow. This method should also include traffic generation resulting	Future year of 2029, which is the end of the expected construction period is used together with an assessment of cumulative effects for schemes that are likely to have an influence on the Study Area.	Section 13.13 of this ES Chapter

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	from allocated / committed development		
Milton Keynes City Council	The opportunity to create a link between Lavendon Footpath 5 and Lavendon Bridleway 2 should be explored.	Permissive paths are identified and proposed as part of the Scheme. The link described is proposed as part of the Scheme.	Refer to the **Outline Public Rights of Way and Permissive Paths Management Plan ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]**
North Northamptonshire Council and National Highways	National Highways look forward to receiving more detailed information regarding the estimated number of construction vehicles for the cable routing as it becomes available.	Details for HGV and construction worker vehicle movements are provided in this ES Chapter.	Section 13.8 of this ES Chapter.
	Any proposed directional drilling under National Highways network will require compliance with The Design Manual for Roads and Bridges (DMRB) Chapter CD622 (Managing Geotechnical Risk) and subject to a Section 50 licence	The detailed requirements will as described be subject to later technical approval processes post any grant of the DCO. Protective Provisions are included within the DCO to manage this process.	Refer to **Draft Development Consent Order ~~[EN010170/APP/GH3.1~~(Revision A) [REP1-008]**
	National Highways would appreciate the inclusion of specific trip generation numbers for the operation	Vehicle movement associated with the operation and maintenance phase and replacement period are provided in this ES Chapter.	Section 13.8 of this ES Chapter.

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	phase in the forthcoming TA.		
	Further detailed information on the methodology used to calculate staff numbers and the timeline allocated for the construction of each Site, and whether construction activities will be phased or carried out concurrently	Vehicle movements associated with the construction phase (worker and HGV movements) are summarised in this ES Chapter.	Section 13.8 of this ES Chapter.
	HGV trip generation should be broken down into hourly two-way HGV trips,	A daily vehicle movement profile is provided in the Transport Assessment.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153].**
Bedford Borough Council	The Construction Traffic Management Plan (CTMP) will be the critical mechanism for managing the impact of construction traffic throughout the Construction Phase.	An OCTMP has been prepared which includes a range of measures to manage construction traffic. The full CTMP will be prepared and submitted to the relevant local planning authority for approval as per the DCO Requirement.	Refer to the **Outline Construction Traffic Management Plan [~~EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	There may need to be further discussion on the details of the visibility splays at the numerous site access	Visibility splays are shown at all proposed access points with suggested traffic management measures defined in the OCTMP.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153]**, and the **Outline Construction Traffic Management Plan**

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	points, temporary signage and traffic signals,		**~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
Wilby Parish Council	Wilby has 'No HGV' routes	Construction routes for HGVs have been identified that avoid Wilby.	Refer to **Figure 13.2 [~~EN010170/~~APP/~~GH6.4.13.2~~-433]** for an overview of the routes to the Sites, Compounds and Cable Corridor.
	Mears Ashby Road has bad bends and reduced widths with soft verges, not suitable for large and increased traffic.	Access from Mears Ashby Road leading to Wilby Road is limited to operational traffic and that associated with vehicles crossing between fields during construction.	Refer to **Figure 13.2 [~~EN010170/~~APP/~~GH6.4.13.2~~-433]** for an overview of the routes to the Sites, Compounds and Cable Corridor.
	A detailed traffic plan is essential to manage construction traffic/vehicles including specified days and hours of operation.	An OCTMP has been prepared which details measures to manage construction traffic including days of the week and time of day.	Refer to the **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145].**
Earls Barton Parish Council	Traffic management plan does not account for flooding on the road from A45 to the BESS	OCTMP details that construction routes must be used unless otherwise agreed by the relevant highway authority.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153].**, and the **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	What mitigation is being proposed to ensure that the condition of the roads frequented by construction	OCTMP commits to a pre-commencement road survey and remedial measures to correct any damage caused by the development.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP/~~GH6.3.13.2~~-151 to APP-153]**, and the **Outline Construction Traffic Management Plan**

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	traffic is not adversely affected		**~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
Holcot Parish Council	Local roads, particularly Sywell Road, are busy outside the 'traditional' peak hours quoted - these need to be extended by around an hour each side and the implications considered accordingly.	The commitment to avoid the busiest period will balance the practical construction of the Scheme whilst avoiding peak periods.	Refer to the **Transport Assessment** in **Appendix 13.2 [~~EN010170/~~APP~~/GH6.3.13.1~~-151 to APP-153]**, and the **Outline Construction Traffic Management Plan ~~[EN010170APP/GH7.9~~(Revision A) [REP1-145]**
	Cable route search areas are not mentioned in respect of site access. Presumably these will generate significant access requirements?	The access strategy for the Cable Corridor is summarised within this Chapter as well as details of the Cable Corridor compounds	**Table 13.10** of this ES Chapter summarises the access points, including for the Cable Corridor.
	4.2.8 says that sensitive routes through villages have been avoided wherever possible. We are unable to find these routes in the detailed documentation.	Construction routes for HGVs have been selected based on a combination of site visits, traffic surveys, review of sensitivity receptors and highway characteristics.	Refer to **Figure 13.2 [~~EN010170/~~APP~~/GH6.4.13.2~~-433]** for an overview of the routes to the Sites, Compounds and Cable Corridor.
	Link 26 (Brixworth to Holcot) is 'medium' sensitivity - for reasons discussed above, this is a problem route and should attract a 'high' assessment. Link 27 (A43-Sywell Road) is 'negligible'	The sensitivity has been afforded with reference to the criteria set out in **Table 13.3** of the ES.	**Table 13.3** summarises the sensitivity receptors criteria and **Appendix 13.1 [~~EN010170/~~APP~~/GH6.3.13.1~~-150]** of this Chapter of the ES summarises assessment tables.

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	sensitivity on your assessment - similarly, this is not the case.		

13.3 Legislation, Planning Policy and Guidance

13.3.1 This section provides an overview of the legislation, planning policy and guidance against which the Scheme will be considered for transport and access.

Planning Policy

National Planning Policy

National Policy Statement (NPS) for Energy EN-1 (Ref 13.2)

13.3.2 National Policy Statement for Energy (NPS EN-1) (Ref 13.2). is part of a suite of NPSs issued by the Secretary of State for Energy Security and Net Zero and sets out the government's policy for delivery of major energy infrastructure.

13.3.3 The role of solar power generation is outlined in section 3.3. Paragraph 3.3.20 of NPS EN-1 (Ref 13.2) states that "*Wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation)".*

13.3.4 In addition, the role of electricity storage is set out with paragraph 3.3.25 stating *"Storage has a key role to play in achieving net zero and providing flexibility to the energy system, so that high volumes of low carbon power, heat and transport can be integrate".*

13.3.5 Section 5.14 of NPS EN-1 (Ref 13.2) outlines matters relating to traffic and transport and confirms in paragraph 5.14.5 that "*if a project is likely to have significant transport implications, the applicant's ES should include a transport appraisal"*. It confirms in paragraph 5.14.1 that *"all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Impacts may include economic, social and environmental effects"..*

13.3.6 The requirement to consult with relevant highway authorities is set out in paragraph 5.14.6. Paragraph 5.14.7 of NPS EN-1 (Ref 13.2) sets out a clear approach towards mitigation of transport impacts, with a Travel Plan being prepared to include demand management and monitoring measures. Details of measures to improve access by active, public and shared transport should be provided as well as demand management measures.

13.3.7 Specific reference is made within NPS EN-1 to undertaking the appraisal of the construction and operational stages with specific reference in paragraph 5.14.13 to HGV movements. Paragraph 5.14.14 goes on to state that schemes with substantial HGV traffic should control HGV movements to specific periods and routes, provide sufficient parking and arrangements for abnormal loads. Paragraph 5.4.15 gives regard to the cost effectiveness of demand management measures compared to new transport infrastructure.

13.3.8 Paragraph 5.14.21 concludes that "The Secretary of State should only consider refusing development on highways grounds if there would be an unacceptable impact on highway safety, residual cumulative impacts on the road network would be severe, or it does not show how consideration has been given to the provision of adequate active public or shared transport access and provision".

National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (Ref 13.3)

13.3.9 National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (Ref 13.3) is part of the suite of NPSs and provides a technology specific NPS covering renewable electricity generation (both onshore and offshore). Section 2.10 of NPS EN-3 (Ref 13.3) considers solar photovoltaic generation and considers in paragraph 2.10.9 that "*solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector"*.

13.3.10 With consideration of factors influencing site selection and design, paragraph 2.10.35 suggests that proposals need to consider the suitability of the access routes during both the construction and operation phases *"with the former likely to raise more issues""*.

13.3.11 PRoWs are considered in paragraphs 2.10.40 to 2.10.45 of NPS EN-3 (Ref 13.3). The need to ensure the continued recreational use of PRoWs is set out, considering both construction and operation phases. The requirement to manage and ensure the safe use of PRoWs as part of an outline Public Rights of Way Management Plan is set out in paragraph 2.10.45.

13.3.12 Construction traffic impacts are considered in paragraphs 2.10.120 to 2.10.126. It is stated in paragraph 2.10.121 that "*Public perception of the construction phase of solar farms will derive mainly from the effects of traffic movements, which is likely to involve smaller vehicles than typical onshore energy infrastructure but may be more voluminous"*. The assessment of the potential routes to the site for delivery of material is required as well as the section of the most appropriate routes.

13.3.13 The cumulative effects of schemes on local roads is set out in paragraphs 2.10.139 to 2.10.144. The management of vehicle is considered to be an effective mitigation in this regard. This may include controls on the number of vehicle movements and use of specific routes as paragraph 2.10.139 identifies.

13.3.14 Paragraph 2.10.161 confirms that operation phase traffic in respect of maintenance will generally be *"very light, in some instances as little as a few visits each month by a light commercial vehicle or car"*. Where replacement of equipment is required, *"this may generate heavier commercial vehicle movements, but these are likely to be infrequent""*.

National Planning Policy Framework (as amended December 2024)

13.3.15 The National Planning Policy Framework (NPPF) (Ref 13.4) sets out the Government's planning policies for England and how these are expected to be applied.

13.3.16 Section 9 of the NPPF sets out the policy for promoting sustainable transport.

13.3.17 Paragraph 109 sets out the reasons why transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach.

13.3.18 Paragraph 110 acknowledges that *"opportunities to maximise sustainable transport solutions will vary between urban and rural areas…"*

13.3.19 The key test for transport within the NPPF is set out in paragraph 116 which identifies the only reasons why development proposals should be prevented or refused on transport grounds *"if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios."*

Local Planning Policy

North Northamptonshire Joint Core Strategy 2011-2031 (Adopted 2016)

13.3.20 The North Northamptonshire Joint Core Strategy (JCS) (Ref 13.5) is the strategic Local Plan for Corby, East Northamptonshire, Kettering and Wellingborough. A series of policies are provided which are relevant to transport and access matters.

13.3.21 Policy 15 – Well-connected towns, villages and neighbourhoods states that the Local Plan will strengthen connectivity within and around settlements by managing investment to include improvements to walking and cycling infrastructure.

13.3.22 Policy 16 – Connecting the network of settlements identifies a series of infrastructure improvements to improve various transport modes.

13.3.23 Policy 17 – North Northamptonshire's strategic connections, provide further infrastructure improvements across a range of modes. The policy also sets out that new development that would prejudice the role of the strategic connections will not be permitted.

13.3.24 Policy 26 – Renewable and low carbon energy identifies that *"proposals for sensitively located renewable and low carbon energy generation will be supported".* It is caveated that specific criteria must be met which includes the need to ensure development does not result in an adverse impact on the capacity and safety of the highways network and of public rights of way.

West Northamptonshire Joint Core Strategy Local Plan Part 1 (Adopted 2014)

13.3.25 The West Northamptonshire Joint Core Strategy (JCS) Local Plan (Ref 13.6) outlines that it is a *"key document in ensuring places are shaped and made in a way which meets the needs of the people of today whilst ensuring the needs of future generations are safeguarded".*

13.3.26 Objective 1 of the West Northamptonshire JCS encourages renewable energy production in appropriate locations. Paragraph 5.106 considers that renewable energy proposals should seek to minimise traffic generation. Renewable energy is outlined in Policy S11 – Low carbon and renewable energy which sets out the need for sensitive design.

13.3.27 Policy C1- Changing behaviour and achieving modal shift states that improvements to the area should seek to reduce transport energy use.

13.3.28 Policy C2 – New developments, sets out that proposals will be required to mitigate effects on the highway network and be supported by a Transport Assessment.

13.3.29 Policy C5 – Enhancing local and neighbourhood connections identifies a need to improve rural walking networks.

Plan: MK 2016 – 2031 (Adopted 2019)

13.3.30 Plan: MK 2016 – 2031 (Ref 13.7) sets out the Council's strategy for meeting the (then) Borough's needs until 2031, setting the vision and framework for the future development of the area.

13.3.31 Strategic Objective 13 of the Local Plan identifies a commitment to *"mitigate the Borough's impact on climate change and reduce carbon dioxide emissions through……. Promoting community energy networks and strategic renewable energy developments".*

13.3.32 Policy SC2 Community energy networks and large-scale renewable energy schemes confirms that *"Low carbon and renewable energy schemes will be attributed significant weight in their favour, and will be supported where it can be demonstrated that there will not be any significant negative social, economic, or environmental impacts associated with them".*

13.3.33 Policy CT2 – Movements and access states that *"Development proposals will be required to minimise the need to travel, promote opportunities for sustainable transport modes, improve accessibility to services and support the transition to a low carbon future".* Proposals should ensure that they do not result in inappropriate traffic generation or compromise highway safety.

13.3.34 Policy CT2 also identifies that development proposals that generate significant amounts of movement should provide a Transport Assessment. Further, those *"which generate a significant number of heavy goods vehicle movements will be required to demonstrate, by way of a Routing Management Plan, that no severe impacts are caused to the efficient and safe operation of the road network and no material harm is caused to the living conditions of residents or the natural environment".*

13.3.35 Consideration has also been given to the new emerging Local Plan MK City Plan 2050.

13.3.36 Policy GS7 Wind Turbine and Solar PV Spatial Strategy provides a specific policy relevant to Solar schemes. Whilst no specific reference to transport matters is made in Policy GS7, the requirement to conform with other policies of the plan is set out.

13.3.37 The key transport policy within the emerging plan is Policy GS10 Movement and Access. Whilst the emphasis for new development is on placemaking and the movement of people and therefore less directly relevant to the Scheme, aspects such as ensuring safe access are stated in the policy. Policy GS10 of the emerging plan states "*Proposals must seek to fully mitigate their impact on the operation and safety of the local and strategic highway network".*

Guidance

Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (2023)

13.3.38 The aim of the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (Ref 13.1) is to "*provide practitioners with good practice advice on how to carry out the*

assessment of traffic and movement of people as part of a statutory EIA or non-statutory environmental assessment".

13.3.39 The guidelines further state the importance of professional judgement and consultation by stating *"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".*

Strategic road network and the delivery of sustainable development (2022)

13.3.40 National Highways act as the highway authority for the Strategic Road Network (SRN) in England. The circular '*Strategic Road Network and the delivery of sustainable development'* (01/2022) (Ref 13.8) sets out the way in which National Highways engage with the development industry, public bodies and communities to assist the delivery of sustainable development.

13.3.41 The circular recognises the role National Highways has in achieving net zero road user emission by 2050 as part of its role as a statutory consultee in the planning system.

13.3.42 The circular states that National Highways *"expects development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancement"*".

13.4 Assessment Methodology and Significance Criteria

13.4.1 The methodologies described in the following section have been developed in line with the relevant guidance for assessing potential significant effects.

Study Area

13.4.2 The Study Area has been defined by identifying the likely routes to be used by traffic (i.e. worker and freight) travelling to/from the Scheme during the construction, operation and maintenance, and decommissioning phases. The Study Area includes routes forecast to be used by traffic generated by the Scheme to travel to/from the Scheme to the Strategic Road Network (SRN) and Major Road Network (MRN). The Study Area is the area whereby significant transport and access effects could occur.

13.4.3 The Study Area is presented in **Figure 13.1**- **[APP-432].**

Access routes within the Study Area

13.4.4 The routes on the highway that vehicle movements associated with the Scheme are forecast to take have been assessed. Broadly this relates to construction traffic but will also be relevant to movements during the operation and maintenance phase and later decommissioning.

13.4.5 Routes have been identified that are suitable for Heavy Goods Vehicle (HGV)[1] movements. More sensitive routes through villages have been avoided where

[1] An HGV refers to any Heavy Goods Vehicle that has a gross weight over 3.5 tonnes. *'A Simplified Guide to Lorry Types and Weights' Department for Transport, October 2003*

possible. Road character and geometry have also been considered. The HGV routes assessed between each Site and the SRN are presented in **Figures 13.23 to 13.5. (Revision A) [REP1-117, REP1-119, & REP1-121]. Figure 13.2 [APP-433]** provides an overview of all the routes assessed in the Study Area and **Figures 13.3, (Revision A) [REP1-117], 13.4 (Revision A) [REP1-119]** and **13.5, (Revision A) [REP1-121]** illustrate the construction HGV routes within the northern, central and southern parts of the Study Area, respectively.

13.4.6 Alongside the proposed construction HGV routes, other routes that are forecast to be used by smaller vehicles, principally those associated with construction workers and later maintenance visits, have been considered. Whilst car/ Light Goods Vehicle (LGV) routes across the Study Area are numerous and cannot be entirely discounted as a possible route a driver may take; the most direct routes have been identified. The routes assessed for cars/LGVs between each Site and the SRN are presented in **Figures 13.2 to 13.5. It should be noted that cars/LGVs will also utilise the routes identified for all vehicles.18 to 13.20 [REP1-124 to REP1-125]**.

13.4.7 Finally, routes for AILs have been determined and are set out in **Figures 13.21 to 13.23 [REP1-126-128]**. AILs are subject to an additional approvals process by the highway and bridge authorities and police, which will stipulate the exact route that must be taken along with any other requirements, such as police escort. The routes are likely, but not guaranteed, to be the AIL routes set out in Figures 13.21, 13.22 and 13.23. Further details on the AIL movements and sizes are set out in **Table 13.16** and in the **Transport Assessment [APP-151 to APP-153]**.

~~13.4.7~~13.4.8 The routes effectively define the roads or ‘links’ to be included in the assessment.

Sources of Information

~~13.4.8~~13.4.9 The relevant information sources used for the assessment are as follows:

- Automatic Traffic Count (ATC) surveys;
- Department for Transport (DfT) ‘Road Traffic Statistics’ database;
- Personal injury accident data;
- Highway boundary information;
- Ordnance survey data;
- Topographical surveys; and
- Site visits.

Impact Assessment Methodology

Assessment of development phases

~~13.4.9~~13.4.10 The assessment identifies that movements associated with the operation and maintenance phase are expected to be below those that may occur during the construction phase. Accordingly, traffic movements during the

construction phase provide a focus for the assessment of the Scheme's effects as set out in this Chapter of the ES.

~~13.4.10~~13.4.11 The number of vehicles associated with the decommissioning phase is not anticipated to exceed those generated in the construction phase. Additionally, industry standard traffic forecasting tools do not provide data that would extend to the 60-year design life of the Scheme. Transport and access effects for the decommissioning phase will be largely the same as for the construction phase and are therefore not assessed in this Chapter of the ES with the approach confirmed through the Scoping Opinion.

Initial sifting

13.4.1113.4.12 Following the determination of the Study Area, an initial sifting exercise has been used to remove road links where the transport effects of the Scheme are not considered to be significant.

13.4.1213.4.13 Within the IEMA Guidelines (Ref 13.1) two broad rules are suggested that can be used as criteria to assist in limiting the scale and extent of the environmental assessment:

- Rule 1: Include highway links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%); and
- Rule 2: Include highway links of high sensitivity where traffic flows have increased by 10% or more.

13.4.1313.4.14 A sensitive link in Rule 2 is one that is considered a 'high' sensitivity as defined under the criteria set out later in this section in **Table 13.3**.

13.4.1413.4.15 The IEMA Guidelines Ref 13.1 state that, as a starting point, a 30% change in traffic flow (Rule 1) represents a reasonable threshold for including a highway link within an environmental assessment.

13.4.1513.4.16 Under Rule 2, the IEMA Guidelines state it would not be appropriate to consider links of high sensitivity where traffic flows are forecast to change by less than 10%, unless there are significant changes in the composition of traffic, e.g. a large increase in the number of HGVs.

13.4.1613.4.17 Road links within the Study Area that do not meet the above IEMA thresholds are considered to experience non-significant effects on transport as a result of the Scheme and no further assessment is required.

Assessed traffic effects

13.4.1713.4.18 In accordance with the IEMA Guidelines (Ref 13.1), the transport and access effects that have been assessed are as follows:

- Severance of communities;
- Non-motorised user delay;
- Non-motorised user amenity;
- Fear and intimidation on and by road users;
- Road vehicle driver and passenger delay;
- Road user and pedestrian safety; and
- Hazardous or large loads (including abnormal loads).

13.4.1813.4.19 The following methodologies and assumptions have been applied to assess the likely transport effects of the Scheme and will be applied to the assessment in the ES. These have been applied to highway links that meet the IEMA initial sifting criteria (i.e. Rules 1 and 2).

Severance of communities

13.4.19 13.4.20 Severance is defined in the IEMA Guidelines (Ref 13.1) as the perceived division that can occur within a community when it becomes separated by major transport infrastructure. It describes a series of factors that separate people from places and other people. Such division may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure.

13.4.20 13.4.21 The measurement and prediction of severance is difficult, but relevant factors include road width, traffic flow, speed, the presence of crossing facilities and the number of movements across the affected route.

13.4.21 13.4.22 Different groups in a community may be more affected by severance than others. Accordingly, consideration of severance relates to:

- The nature of transport infrastructure on any assessed link (for example type and speed of road, availability of crossing facilities);
- The characteristics of movements on that link (for example people crossing roads, the speed and volume of traffic); and
- The nature of receptors that may travel to facilities on that link (for example people travelling to schools or places of employment).

13.4.22 13.4.23 The effect the Scheme may have on receptors on any transport link has been assessed with consideration of the current severance caused by traffic and related factors, and the extent to which additional traffic may exacerbate any identified issues.

13.4.23 13.4.24 The IEMA Guidelines (Ref 13.1) identify that "*The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively*".

13.4.24 13.4.25 The thresholds provide a starting point for assessment to consider the potential effects of the Scheme with the full consideration of severance made with regard to specific local conditions outlined above.

Non-motorised user delay

13.4.25 13.4.26 Changes in the volume, composition and / or speed of traffic may affect the ability of people to cross roads or travel along transport links. Typically, increases in traffic levels would be the main cause of increased delays, although increased non-motorised user activity itself can also contribute.

13.4.26 13.4.27 The IEMA Guidelines (Ref 13.1) identifies that there are a range of factors that can influence delay, and this might vary dependent upon whether a location is within an urban or rural environment. Accordingly, the IEMA Guidelines do not set down definitive thresholds where it is instead suggested that *"the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect"*.

13.4.27 13.4.28 The IEMA Guidelines (Ref 13.1) state that *"Pedestrian delay and severance are closely related effects and can be grouped together"*. Accordingly,

the changes in traffic flows identified for severance of communities have been applied when considering non-motorised user delay.

~~13.4.28~~13.4.29 The above approach is deemed a robust starting point for narrowing down affected links within the Study Area. Thereafter, judgements against the characteristics of transport links, receptor sensitivity and infrastructure provision have been made.

Non-motorised amenity

~~*13.4.29*~~*13.4.30* The IEMA Guidelines (Ref 13.1) define non-motorised amenity as "*the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and the infrastructure provision relative to traffic.*"

~~13.4.30~~13.4.31 The IEMA Guidelines (Ref 13.1) describe that previous guidance presented tentative thresholds for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled.

~~13.4.31~~13.4.32 These thresholds have been used as a starting point for any assessment of a link, alongside consideration of local conditions. The defined thresholds have been used alongside further judgments and the wider consideration of infrastructure.

Fear and intimidation on and by road users

~~13.4.32~~13.4.33 The IEMA Guidelines (Ref 13.1) identify that fear and intimidation is dependent upon a number of factors including traffic volumes and speeds, vehicle composition and the proximity of road users to traffic as a factor of infrastructure that is in place. It is stated that *"While most of these factors can be quantified, there will be a need for judgement to be exercised in determining the degree of fear and intimidation".*

~~13.4.33~~13.4.34 The IEMA Guidelines (Ref 13.1) sets out a weighting system to provide an approximation of the likelihood of fear and intimidation. This relates to non-motorised users. The approach allows the degree of hazard to be assessed with reference to the established thresholds, and a score provided for each combination for each highway link within the Study Area.

~~13.4.34~~13.4.35 Any necessary assessment of a highway link will consider the changes in total vehicle, HGVs or vehicle speeds, suggesting a degrees of hazard score (as Table 3.1 of the IEMA Guidelines (Ref 13.1). The total hazard score can then be applied to determine the level of fear and intimidation referenced in Table 3.2 of the IEMA Guidelines (Ref 13.1). This is undertaken for the baseline and with the consideration of Scheme traffic. Any changes in the score are considered against the criteria in Table 3.3 of the IEMA Guidelines (Ref 13.1) to consider a magnitude of impact where the 'step changes' in hazard score, reflecting the changes in traffic flows from the baseline conditions can be assessed.

~~13.4.35~~13.4.36 The approach outlined in the IEMA Guidelines (Ref 13.1) has been used to assess effects relating to fear and intimidation on non-motorised road users.

Road vehicle driver and passenger delay

~~13.4.36~~13.4.37 Traffic delays to non-development traffic can occur at several points on transport networks. The IEMA Guidelines (Ref 13.1) identify that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. Generally, this relates to junction capacity rather than the capacity of a section of road.

~~13.4.37~~13.4.38 Proportional and absolute increases in traffic numbers provide an indication of likely effects upon driver delay. Such assessments help inform the extent of required highway capacity assessments which will normally form part of the technical work reported within the Transport Assessment, and which generally focuses on conditions in the network peak periods.

~~13.4.38~~13.4.39 The assessment of vehicle driver and passenger delay has been undertaken through consideration of proportional and absolute impacts and judgments of highway network performance as detailed in the **Transport Assessment (Appendix 13.2~~).~~) [APP-151 to APP153].**

Road user and pedestrian safety

~~13.4.39~~13.4.40 Collision clusters within the Study Area have been identified by undertaking a detailed review of the baseline characteristics to determine the road safety sensitivity of the highway network. The assessment is based on an analysis of personal injury collision data occurring within the most recent five years.

~~13.4.40~~13.4.41 Patterns or road safety factors that could be exacerbated by traffic or movement have been identified and considered in the context of construction movements strategies, their managements and the temporary nature of effects.

~~13.4.41~~13.4.42 Given the temporary nature of effects that are expected from the Scheme, the approach is considered appropriate.

~~13.4.42~~13.4.43 As outlined in the IEMA Guidelines (Ref 13.1), as set out in **Table 13.1** the relevant authorities have been engaged to consider the best approach for determining the significance of road safety effects.

Hazardous / large loads

~~13.4.43~~13.4.44 Whilst the Scheme is not expected to result in the movement of hazardous loads, the movement of specific equipment and materials will fall within the categorisation of large or abnormal loads.

~~13.4.44~~13.4.45 The movement of large (abnormal) loads is regulated by National Highways and will be subject to separate agreement with the relevant highway authorities and police through the Electronic Service Delivery for Abnormal Loads (ESDAL) system.

~~13.4.45~~13.4.46 A specific assessment of abnormal loads has been undertaken as part of the Transport Assessment. Appropriate routes for abnormal load movements and mitigation strategies to secure safe passage have been identified. This ES chapter considers if other transport impacts arising from abnormal loads could result.

Sensitivity of Receptors

~~13.4.46~~13.4.47 Receptors of potential effects associated with the Scheme can be people, wildlife, or elements of the natural and built environment. In the context of this Chapter, receptors are considered to be users of the transport networks to whom the transport effects of the Scheme from its construction, operation and maintenance, and decommissioning would be perceptible.

~~13.4.47~~13.4.48 The users of the transport networks are considered to be:

- Non-motorised users using the highway and public rights of way networks (pedestrians, cyclists, and equestrians); and
- Drivers and passengers of motorised vehicles (including public transport and emergency services) using the highway network.

~~13.4.48~~13.4.49 All receptors will exhibit a greater or lesser degree of sensitivity to the changes brought about by the Scheme. The sensitivity of a receptor is a function of its capacity to accommodate change. For example, transport users (receptors) that have a higher sensitivity to changes in traffic are those visiting places such as schools, hospitals and playgrounds.

~~13.4.49~~13.4.50 Further, the sensitivity of a receptor can also be a function of the infrastructure on a highway link. For example, where there is a high concentration of pedestrians, and limited facilities such as crossings and footways, the transport users would have a higher sensitivity to changes in traffic.

~~13.4.50~~13.4.51 Therefore, highway links which have these characteristics are assumed to have a higher concentration of these users and therefore are classified with a higher sensitivity.

~~13.4.51~~13.4.52 The sensitivity of highway links with regard to infrastructure and the receptors on those links are set out in **Table 13.3** which has been prepared with reference to the high-level detail set out in paragraph 1.30 of the IEMA Guidelines (~~0~~Ref 13.1).

Table 13.3: Sensitivity of Receptors

Receptor Sensitivity	Receptor Type
High	Receptors of greatest sensitivity to traffic flows, such as schools, hospitals, playgrounds/recreational spaces, accident blackspots, retirement/nursing homes, stabled/horse riding schools. Includes areas with no footways with high pedestrian footfall and congested areas.
Medium	Receptors with moderate sensitivity to traffic flow, such as conservation areas, historical buildings, tourist attractions, camping sites and residential areas.
Low	Receptors with low sensitivity to traffic flows, and those distant from affected roads.

Receptor Sensitivity	Receptor Type
Negligible	Receptors with no material sensitivity to traffic flows.

Magnitude of Impacts

~~13.4.52~~13.4.53 For those links that are screened into the assessment using Rules 1 and 2 of the IEMA Guidelines (Ref 13.1), the criteria set out in **Table 13.4** has been used to determine the likely magnitude of impacts. The criteria are based upon the IEMA Guidelines (Ref 13.1), and in the case of non-motorised user delay and amenity, has been adapted and added to in order to allow a suitable assessment of the Scheme and associated effects.

~~13.4.53~~13.4.54 However, the absolute level of an impact is also important (e.g. the total flow of traffic or HGVs on a link) and will be considered in the analysis. In addition, it is important to note that impacts during construction, operation and maintenance, and decommissioning are not permanent but are temporary and this is material when considering the impact magnitude criteria attached to them.

Table 13.4: Magnitude of Impact Criteria

<table>
<tr><th rowspan="2"></th><th colspan="4">Magnitude of Impact</th></tr>
<tr><th>High</th><th>Medium</th><th>Low</th><th>Negligible</th></tr>
<tr><td>Severance of communities</td><td>Change in total traffic or HGV flows of >90%</td><td>Change in total traffic or HGV flows of ≥=60 and <90%.</td><td>Change in total traffic or HGV flows of ≥=30 and <60%.</td><td>Change in total traffic or HGV flows of > 0 and <30%</td></tr>
<tr><td>Driver delay</td><td rowspan="2">Changes which are likely to be perceptible and which could change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour.</td><td rowspan="2">Changes which are likely to be perceptible and which would materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to measurable degree.</td><td rowspan="2">Changes which are likely to be perceptible but not to the extent that it would materially change conditions which would otherwise prevail.</td><td rowspan="2">Changes which are unlikely to be perceptible (based on professional judgement).</td></tr>
<tr><td>Non-motorised user delay</td></tr>
<tr><td>Non-motorised user amenity</td><td colspan="4">Magnitude of impact is based on professional judgement regarding the “pleasantness” of a journey and is affected by the composition, speed or volume of traffic introduced as a result of the Scheme. This judgment will be considered against a quantitative consideration of traffic movement where the relevance of amenity becomes more significant through halving or doubling traffic volumes. The IEMA Guidance suggests that assessors use their judgement to determine whether pedestrian amenity is a significant effect and as such, the magnitude of change for pedestrian amenity has been defined qualitatively based on professional judgement.</td></tr>
</table>

	Magnitude of Impact			
	High	**Medium**	**Low**	**Negligible**
Fear and intimidation on and by road users	As IEMA guidance: Two step changes in level	One step change in level, but with: a) >400 vehicle increase in average 18hr two-way all vehicle flow; and/or b) >500 increase in total 18hr heavy vehicle flow	One step change in level, with a) <400 vehicle increase in average 18hr two-way all vehicle flow; and/or b) <500 increase in total 18hr heavy vehicle flow	No change in step changes
Road user and pedestrian safety	Magnitude of impact to be based on professional judgement following analysis detailed in the Transport Assessment on collision history and the nature of movements associated with the Scheme.			
Hazardous / large loads	Magnitude of impact to be based on professional judgement following the outcomes of the abnormal loads assessment which will be an appendix to the Transport Assessment, frequency and size of abnormal loads and consideration of wider traffic effects.			

Assessment of Significance

~~13.4.54~~13.4.55 The significance of the effect of the Scheme from transport impacts has been classified with due regard to the sensitivity of the receptor and magnitude of impact.

~~13.4.55~~13.4.56 The significance of effects matrix for transport effects is presented **Table 13.5**.

Table 13.5: Significance of Effects Matrix

Magnitude of impact	Sensitivity of Receptor			
	High	**Medium**	**Low**	**Negligible**
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Minor
Low	Moderate	Minor	Minor	Negligible
Negligible	Minor	Minor	Negligible	Negligible

~~13.4.56~~13.4.57 Following the classification of an effect, a clear statement is provided as to whether the effect is 'significant' or 'not significant'. As a general rule, major and moderate effects are considered to be significant and minor and negligible effects are considered to be not significant.

~~13.4.57~~13.4.58 As noted above, the IEMA Guidelines (Ref 13.1) state that *"these updated and replacement Guidelines are intended to complement professional judgement and the experience of trained and competent assessors"* and goes on to state that *"the experience and expertise of the assessor will remain of primary importance."* Further, the guidance states that assessments *"should consider the forecast changes to baseline (magnitude of change/ impact), the relative value/sensitivity/importance of the affected asset/receptor and the scale, nature and significance of the effect (consequence)".*

~~13.4.58~~13.4.59 Accordingly, professional judgement has been applied where appropriate in addition to the consideration of absolute level of traffic in combination with the percentage change in traffic when defining significance.

13.5 Assessment Assumptions and Limitations

13.5.1 The methodology for transport and access has made several assumptions that has informed the assessment.

13.5.2 Forecasts of the traffic generation of the Scheme during the construction, operation and maintenance, and decommissioning phases have been developed by the Applicant and their consultants. The forecasts are based on professional judgement and derived from experience with other developments similar in scale and nature to the Scheme and are considered to represent a realistic estimation.

13.5.3 The distribution of worker traffic is based on Census journey to work data as well as an assumption that the minibuses will pick up workers from Wellingborough and Northampton.

13.5.4 The distribution of HGVs is based on the following assumptions:

- All HGVs to/from Green Hill A, A2 and B would route via the A14;
- HGVs to/from Green Hill C, D and E would route via the A14 and A45 (50% split); and
- All HGVs to/from Green Hill BESS, F and G would route via the A45.

13.5.5 As part of the Cable Route Corridor, there are three compounds (Construction Compound 1 (CC1), CC2 and CC4). CC1 is assumed to be served by the A14 and CC2 and CC4 are assumed to be served by the A45.

13.5.6 Notwithstanding the limitations and assumptions referenced, it is considered that the methodology and conclusions to this Chapter are robust.

13.6 Baseline Conditions

13.6.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Transport and Access.

13.6.2 The Scheme comprises nine Sites as described in **Chapter 3: The Development Site ~~[EN010170/APP/GH6.2.3~~(Revision A) [REP1-029]**.

13.6.3 Baseline data comprises traffic survey information for highway links within the Study Area. This is based on a combination of Automatic Traffic Count (ATC) data and traffic count data soured from the DfT. The extent of traffic surveys is illustrated in **Figure 13.6 [APP-437].**

13.6.4 Baseline conditions for the Sites and the highway and transport networks within the Study Area are outlined below.

Existing Baseline

Highway Network

13.6.5 The SRN and MRN will form the primary routes for all vehicle movements until the local routes need to be used to access each of the Sites.

13.6.6 The A45 and A14 are both part of the SRN and are both dual carriageways. The A43, A428 and A509 form part of the MRN and are A roads designed to accommodate high traffic flows and Heavy Goods Vehicles (HGVs). The A43, A428 and A509 are predominantly single carriageway roads.

13.6.7 The SRN and MRN in relation to the Sites and Cable Route Corridor that comprise the Scheme are illustrated in **Figure 13.1 [APP-432].**

13.6.8 An overview of the highway network in the vicinity of each Site and on the Cable Route Corridor is provided.

Green Hill A

13.6.9 Green Hill A is located to the west of the A43, taking access off Broughton Road which is subject to a 60mph speed limit and has a single lane in both directions.

13.6.10 Newland Road bisects Green Hill A and is a designated Quiet Lane, subject to an advisory 20mph speed limit with signage in place. A Quiet Lane is a nationally recognised designation of single-track road with no line markings or footpaths and with low traffic flows and speeds that is shared by motorised and non-motorised traffic.

13.6.11 Newland Road connects into Broughton Road, which in turn can be accessed at the three-arm roundabout between Broughton Road and the A43. The section of Broughton Road between Newland Road and the A43 is subject to a derestricted speed limit. There is a 7.5T weight restriction (except for loading) along Broughton Road between Old and the junction with Mawsley Road. Weight limits, such as this is, are typically in place to prevent HGV traffic from using a specific route, but do not prohibit HGVs whose destination is along the section of highway with the weight restriction.

13.6.12 Heading north at the junction between Kettering Road and the A43, traffic will route to the A14 which forms part of the SRN.

Green Hill A.2

13.6.13 Green Hill A.2 is located west of the A43 and taking access from Kettering Road (on the southern side) with each road providing a boundary. Kettering Road is subject to a derestricted speed limit and is a single carriageway road with a 7.5T weight restriction (except for loading).

13.6.14 Kettering Road connects to the A43 to the east of the access to A.2 in the form of a priority junction with a ghost island right turn lane facility. Heading north from this junction connects to the A14, which forms part of the SRN.

Green Hill B

13.6.15 Green Hill B is located to the west of the A43 and connects onto both Sywell Road to the northeast and Moulton Road to the northwest, both of which are single carriageway roads forming part of the local highway network.

13.6.16 Sywell Road routes east west and connects to the A43 to the east of Holcot via a priority roundabout. It is subject to a derestricted speed limit and has a 7.5T weight restriction (except for loading). An access track to Green Hill B from Moulton Road is also available with Moulton Road leading to Holcot and Sywell Road to the north of the access.

13.6.17 Heading north at the roundabout between the A43, Sywell Road, Holcot Lane, the A43 connects to the A14, which forms part of the SRN.

Green Hill C

13.6.18 Green Hill C is located to the west of the A509 along Sywell Road, a single carriageway road subject to a derestricted speed limit. Sywell Road becomes Moonshine Gap to the east, which subsequently connects into Sywell Road (through Park Farm Industrial Estate) in the form of a priority junction.

13.6.19 Sywell Road (routing through Park Farm Industrial Estate) is subject to a 40mph speed limit and connects to the A509 via a 4-arm roundabout. Both Sywell Road and Moonshine Gap form part of a 'Black Route' for Sywell Aerodrome. A Black Route refers to a section of road being suitable and recommended for HGVs accessing nearby industrial areas.

13.6.20 Heading north the A509 routes around Wellingborough and connects to the A14 at Junction 9. To the south, the A509 connects to the A45 on the southern side of Wellingborough, Both the A14 and A45 form part of the SRN.

Green Hill D and Green Hill E

13.6.21 Green Hill D and Green Hill E are located to the west of the A509 and north of the A45. Both take access off Highfield Road, with Green Hill D bordering Highfield Road, a single lane rural road subject to a derestricted speed limit and a 7.5T weight restriction (except for loading). Generally, these limits are in place to prevent general HGV traffic from using a specific route but does not prohibit HGVs whose destination is along the section of highway with the weight restriction.

13.6.22 To the north, Highfield Road connects into Moonshine Gap, a single carriageway road also subject to a derestricted speed limit. Moonshine Gap connects into Sywell Road (through Park Farm Industrial Estate) in the form of a priority junction.

13.6.23 Sywell Road (routing through Park Farm Industrial Estate) is subject to a 40mph speed limit and connects to the A509 via a 4-arm roundabout. Both Sywell Road and Moonshine Gap form part of a 'Black Route' for Sywell Aerodrome, meaning it is suitable and recommended for HGVs.

13.6.24 Heading north, the A509 connects to the A14 and heading south, the A509 connects to the A45, both of which form part of the SRN.

13.6.25 Wilby Road bisects Green Hill E running east-west between Wilby to the east and Mears Ashby to the west. It is subject to a derestricted speed limit and a 7.5T weight restriction (except for loading).

13.6.26 Mears Ashby Road (leading to Earls Barton Road)runs parallel to the west of the Green Hill E and has a 7.5T weight restriction (except for loading) and is subject to a derestricted speed limit.

13.6.27 Heading south along Earls Barton Road connects to a priority junction between Earls Barton Road, Washbrook Lane, and Mears Ashby Road. Continuing south along Mears Ashby Road connects to the A4500 and Northampton Road (B573), which runs along the western border of Earls Barton. Northampton Road connects the A45 to Earls Barton and is a signed 'Black Route' for the Earls Barton Industrial Estate, meaning it is suitable and recommended for HGVs.

Green Hill F

13.6.28 Green Hill F lies immediately to the west of the A509. Easton Lane and Easton Way bisects Green Hill F and connects to London Road (through Bozeat) to access the A509, with both being single carriageway local roads.

Green Hill *G*

13.6.29 Green Hill G is located north of the A428 and east of the A509. The A509 and A428 are single carriageway roads with a derestricted speed limit. The junction of the A509 and A428 is formed by a four-arm roundabout with priority control. Both the A509 and A428 form part of the MRN.

Green Hill BESS

13.6.30 The Green Hill BESS is to the south of the A45 and surrounds the Grendon Substation. Station Road is a single carriageway road that connects the Site to the A45 and has a 7.5T weight limit (except for loading) applied between the Green Hill BESS and to the south of the access for Earls Barton Quarry. To the north of the quarry access along Station Road is a signal controlled, single way bridge.

Cable Route Corridor Route - Green Hill A to A.2

13.6.31 This section of the Cable Route Corridor passes through adjacent agricultural land, to the east of Walgrave before crossing Kettering Road.

Cable Route Corridor Route - Green Hill A.2 to Construction Compound 1

13.6.32 The Cable Route Corridor passes from Green Hill A.2, across agricultural fields, and crossing Red House Lane. South of Red House Lane, agricultural fields are crossed before the Cable Route Corridor crosses the A43, before splitting towards Green Hill B to the west and Green Hill C to the east.

Cable Route Corridor Route – Construction Compound 1 to Green Hill B

13.6.33 The Cable Route Corridor crosses the A43 from adjacent to Construction Compound 1, across a number of agricultural fields for approximately 1.2km. The Cable Route Corridor then crosses Kettering Road, which connects Walgrave to

the A43, before running adjacent to the access road and connecting into Green Hill B.

Cable Route Corridor Route – Construction Compound 1 to Green Hill C

13.6.34 The Cable Route Corridor crosses a number of agricultural fields adjacent to the Northampton Shooting Ground, before crossing the Sywell Aerodrome along its eastern boundary before connecting into Green Hill C.

Cable Route Corridor Route - Green Hill C to Green Hill D

13.6.35 The Cable Route Corridor passes from the eastern extent of Green Hill C, continuing along an agricultural field before crossing Moonshine Gap and entering Green Hill D.

Cable Route Corridor Route - Green Hill D to Green Hill E

13.6.36 The Cable Route Corridor passes from Green Hill D's eastern boundary, crossing Highfield Road and an agricultural field before entering Green Hill E at its northwestern corner.

Cable Route Corridor Route – Green Hill E to Green Hill BESS via Construction Compound 2

13.6.37 The Cable Route Corridor leaves Green Hill E at its eastern boundary continuing south where it crosses Mears Ashby Road. The route continues south along agricultural fields and adjacent to Construction Compound 2 to Doddington Road (B573), where it crosses and then passes alongside the A45 on its northern side.

13.6.38 The Cable Route Corridor continues crossing Nene Way and Station Road before it routes southwards, under the A45. Once the Cable Route Corridor crosses under the A45 it continues south, crossing Grendon Road before reaching and continuing to cross at Station Road and connect with Green Hill BESS.

Cable Route Corridor Route - Green Hill BESS to Green Hill F and Construction Compound ~~3~~4

13.6.39 The Cable Route Corridor continues from the eastern boundary of Green Hill BESS, heading south towards Green Hill F. The Cable Route Corridor passes through agricultural fields following the alignment of Station Road, crossing Station Road. The route continues south, again running across agricultural fields and adjacent to Construction Compound ~~3~~4, where it crosses Yardley Road and through agricultural fields before entering Green Hill F.

13.6.40 The Cable Route Corridor has two options connecting through Green Hill F. To the west, the cable route connects between fields FF15 and FF30 by crossing Yardley Road into agricultural fields to the south before connection into field FF30.

13.6.41 To the east, the Cable Route Corridor to the east connection between field FF22 and FF25 by crossing Easton Lane.

Cable Route Corridor Route – Green Hill F and Green Hill G

13.6.42 The Cable Route Corridor passes from the southern part of Green Hill F through agricultural fields for 2km before crossing the A509 and entering Green Hill G.

Vehicle Flows

13.6.43 In order to establish the baseline traffic conditions for the Study Area, ATC surveys were undertaken. The surveys were undertaken between Monday 24th and Sunday 30th June 2024 and between Monday 1st and Sunday 7th July 2024. For some sections of the highway, such as the A45, Department for Transport (DfT) data has been used, providing counts undertaken between 2022 and 2024.

13.6.44 **Figures 13.7, [APP-438], 13.8, [APP-439], 13.9 [APP-440]** show the locations of the traffic surveys and DfT traffic count locations for the north area, central area and south area, respectively.

13.6.45 The baseline two-way traffic count data for the roads within the vicinity of the Sites, together with a survey location diagram, is provided in **Appendix 13.1 [APP-150].** For each of the roads, the Annual Average Daily Traffic (AADT) flows and the number and proportion of Heavy Goods Vehicles (HGVs) is provided.

13.6.46 A summary of vehicle movements on the roads from which immediate access to the Sites is proposed be taken is provided in **Table 13.6**.

Table 13.6: Two-way vehicle movements on the site access roads

Highway Link		Site link relates to	2024 Baseline Total vehicle AADT flows	2024 Baseline AADT HGVs traffic flows
1	Boughton Road	A	1,802	365
10	Kettering Road	A.2	1,447	173
27	Sywell Road	B	7,630	1,633
33	Sywell Road	C	5,234	727
34	Highfield Road	D & E	973	117
48	Mears Ashby Road	E	3,496	376
67	A509	F	12,937	1,862
80	Easton Lane	F	957	136
61	A428	G	7,042	1,193
75	Station Road	BESS	1,818	254

Road Safety

13.6.47 Statistics showing Personal Injury Collisions (PIC) on the local road network have been obtained for the most recent five-year period from 1 February 2020 to 31 January 2025. A breakdown of the PIC history across the Scheme is presented in **Table 13.7**. The defined areas for the Scheme are presented in the worker route plans within **Figures 13.318 to 13.520 [REP1-124 to REP1-125].**

Table 13.7: Recorded Personal Injury Collision History Across the Study Area

Road	Slight	Serious	Fatal	Total
North Area				
A14	26	3	1	30
A43	31	19	5	55
A509 - Between A14 and A45	42	15	0	57
A5128	3	1	0	4
A5193	3	1	0	4
Bourton Way	0	1	0	1
Broughton Road	1	0	1	2
Kettering Road	1	0	0	1
Red House Lane	0	0	0	0
Sywell Road	2	2	0	4
Rutherford Drive	2	0	0	2
Central Area				
Moonshine Gap	3	0	0	3
Wilby Road	3	0	0	3
A4500 & Mears Ashby Road	4	1	1	6
B573	8	5	0	13
South Area				
Station Road	4	7	1	12
Easton Lane	1	0	0	1
A509 - Between A45 and A428	22	11	1	34
A45	32	4	0	36
Denington Road	1	0	0	1
Whitworth Way	3	0	0	3
A428	5	3	0	8

13.6.48 **Table 13.7** indicates that generally, accidents are spread throughout the Study Area. Across principal A-roads, the number of accidents is higher than for local roads as would be expected given the nature of these roads, the level of traffic that they accommodate and the extents they cover within the Study Area.

Public Rights of Way

13.6.49 The Public Right of Way (PRoW) network for North Northamptonshire, West Northamptonshire, and Milton Keynes City Councils have been assessed to determine the PRoWs which are relevant to the Study Area.

13.6.50 There are a number of PRoW that run through or nearby each Site or within the vicinity of the Cable Route Corridor. These are detailed in the **Outline PRoW and Permissive Paths Management Plan ~~[EN010170/APP/GH7.10~~(Revision A) [REP1-147]** and summarised below.

Green Hill A

13.6.51 There are no Public Rights of Way (PRoWs) within the red line of Green Hill A, with the closest being Footpath DF4 on the north side of Broughton Road, in the western corner of the site (see **Figure 13.7~~).~~ [APP-438]**).

Green Hill A.2

13.6.52 There are no PRoWs within the red line of Green Hill A.2, however the southern boundary boarders Bridleway CT3 (refer to **Figure 13.10~~).~~ [APP-441]**).

Green Hill B

13.6.53 Footpath CW1 is the only PRoW which is within the red line of Green Hill B. The footpath dissects both the access route to Green Hill B (from Sywell Road) and through the most eastern section of the Site (see **Figure 13.11~~).~~ [APP-442]**).

Green Hill C

13.6.54 Part of Bridleway TN7 is contained within the red line of Green Hill C (refer to **Figure 13.11~~).~~ [APP-442]**).

Green Hill D

13.6.55 Footpath TN3 routes north to south through Green Hill D (refer to **Figure 13.11~~).~~ [APP-442]**).

Green Hill E

13.6.56 Footpath TN1 passes through the red line of Green Hill E on the west side of the Site. Footpath TN1 runs from Wilby Road in Mears Ashby to Earls Barton Road to the west of Green Hill E and becomes Footpath TN 2 on the western side of Earls Barton Road.

13.6.57 Further to this, the PRoW TN10, which is a Byway Open to All Traffic, connects the Site to Mears Ashby and Footpath TU3 runs adjacent to the northernmost boundary of Green Hill E (refer to **Figure 13.11~~).~~ [APP-442]**).

Green Hill F

13.6.58 There are a number of PRoWs which run through Green Hill F. Those which run through the area north of Eastern Lane are:

- Footpath TA1
- Footpath TA3
- Footpath TA4

- Footpath TD2
- Footpath TD3

13.6.59 On the southern section of Green Hill F, the PRoWs that are contained within the Site are listed below:

- Bridleway TD8
- Footpath TD5
- Footpath TD7

13.6.60 All PRoWs interacting with Green Hill F can be seen in **Figure 13.12~~.~~ [APP-443].**

Green Hill G

13.6.61 As Green Hill G falls within the City of Milton Keynes Borough, the PRoWs fall within their jurisdiction. The PRoWs that interact with Green Hill G are listed below:

- Lavendon FP5
- Lavendon BW2
- Lavendon BW4
- Lavendon BW14
- Lavendon BW15

13.6.62 All PRoWs interacting with Green Hill G can be seen in **Figure 13.12~~.~~ [APP-443].**

Green Hill BESS

13.6.63 Public Footpath TF3 runs through the northernmost area of Green Hill BESS, which can be seen in **Figure 13.12~~.~~ [APP-443].**

Cable Route Corridor A to A.2

13.6.64 Footpath NN|DT|8 crosses the Cable Route Corridor in an east to west orientation, providing a route via Kettering Road, Walgrave, towards Broughton.

Cable Route Corridor A.2 to B

13.6.65 Bridleway NN|CT|3 crosses the Cable Route Corridor from east to west, south of Green Hill A.2. Two PRoWs, Bridleway NN|CT|5 and Footpath NN|CT|6, cross the Cable Route Corridor in a north-south direction, ending at Kettering Road. Footpath NN|CW|1 crosses the Cable Route Corridor from north to south at the east side of Site B.

Cable Route Corridor B to C

13.6.66 Footpath CW1 is the only PRoW which crosses the Cable Route Corridor B to C.

Cable Route Corridor C to D

13.6.67 Between Green Hill C and D, the Cable Route Corridor crosses Footpath NN|TN|3.

Cable Route Corridor D to E

13.6.68 No ProW route through this section of the Cable Route Corridor.

Cable Route Corridor E to Green Hill BESS

13.6.69 Byway (open to all traffic) TC14 and Footpath TC17 both cross this section of the Cable Route Corridor.

Cable Route Corridor Green Hill BESS to F

13.6.70 Several PROWs cross this section of the Cable Route Corridor:

- Footpath NN|TF|10;
- Footpath NN|TF|4; and
- Bridleway NN|TD|9.

Cable Route Corridor Green Hill F to G

13.6.71 Bridleway NN|TD|8 (Easton Maudit village towards Warrington), crosses the Cable Route Corridor in this location in an east-west orientation.

13.6.72 **Figures 13.10~~,~~ [APP-441], 13.11~~,~~ [APP-442],** and **13.12 [APP-443]** provide location plans of all identified PRoWs.

Public Transport

13.6.73 Northampton, Wellingborough, and Kettering all have railway stations with direct services connecting to London, Birmingham, Nottingham, Corby, Bedford, Luton as well as other nearby settlements. The driving distance from each Site to the nearest railway station is listed below:

- Green Hill A: Kettering Railway Station – 5.4 miles;
- Green Hill A.2: Kettering Railway Station – 5.8 miles;
- Green Hill B: Kettering Railway Station – 8.7 miles;
- Green Hill C: Wellingborough Railway Station – 6.2 miles;
- Green Hill D: Wellingborough Railway Station – 6 miles;
- Green Hill E: Wellingborough Railway Station – 6 miles;
- Green Hill BESS: Wellingborough Railway Station – 7.7 miles;
- Green Hill F: Wellingborough Railway Station – 5.2 miles; and
- Green Hill G: Wellingborough Railway Station – 8.9 miles.

13.6.74 No site is further than 10 miles from the nearest railway station.

13.6.75 Wellingborough and Northampton railway stations typically have four services running per hour on a weekday whilst Kettering has eight services per hour.

Future Baseline

13.6.76 For the transport and access assessment of Green Hill, the following comparison of traffic scenarios is made:

- 2024 Baseline
- 2024 Baseline + Green Hill

13.6.77 The comparison of the above scenarios for the ES assessment summarised in this Chapter and included in **Appendix 13.1 [APP-151]** provides a worst-case assessment of the environmental effects of the Scheme. This is because the initial sifting of highway links by applying Rules 1 and 2 is based on percentage change in traffic. Basing the initial sifting on the 2024 Baseline provides a higher percentage change than would be the case for the Future Year Baseline for the construction phase.

13.6.78 No confirmed planned highway works within the Study Area have been identified and therefore the highway network remains as existing infrastructure for the purposes of the assessment.

13.6.79 For the Cumulative Effects assessment, consideration has been given to the 2029 future year, which aligns with the expected end year of construction. These details are set out in the Cumulative Effects section of this ES Chapter.

13.7 Receptor Sensitivity

13.7.1 The sensitivity of highway links across the study area has been assessed using the criteria set out in **Table 13.3**. Each link has been considered against the criteria and a sensitivity defined.

13.7.2 The sensitivity classification and reasoning for the sensitivity classification for each link is provided in **Appendix 13.1 [APP-151].**

13.7.3 Links that have been classified as having High sensitivity are presented in **Table 13.8**.

Table 13.8: Highway links with High sensitivity

Highway link		Sensitive Receptor(s)	Sensitivity
5	Newland Road	The road is a Quiet Lane and provides access to a horse therapy centre	High
6	Newland Road	The road is a Quiet Lane and provides access to a horse stables	High
16	A508 - From Maidwell to junction with A14	Passes through the village of Maidwell which is a residential area. PRoW. Primary school in village.	High
28	Sywell Road - East of access to Green Hill B to Holcot	Horse riding school along the link.	High
30	Overstone Road (between roundabout with A43 and Sywell)	Route passes past Overston Primary School	High
37	A509 - Between junction with A14 and Wellingborough	Passes through the village of Isham which is a residential area and has a primary school.	High
43	A4500 Main Road (between A509 roundabout and Mears Ashby Road junction)	Route passes past Wilby Primary School	High

	Highway link	Sensitive Receptor(s)	Sensitivity
71	Hardwater Road - Between junction Main Road to Great Doddington	Summer Leys Local Nature Reserve is adjacent to this section of Hardwater Road	High
74	Station Road - A45 to junction with Whiston Road	Passes past a Sportsground & Marina with the potential for pedestrians and cyclists	High
78	Easton Way - From Grendon to Green Hill F	Passes past Grendon Primary School and a play area	High
79	Easton Way - From Green Hill F crossing to Easton Maudit	Passes through the village of Easton Maudit which has a horse riding centre	High
81	London Road - From red line of Green Hill F to roundabout with A509	Passes through the residential area of Bozeat. There is an equestrian centre to the east of Bozeat which may cross this link.	High

13.8 Traffic Forecasts Associated with the Scheme

13.8.1 This section provides a forecast of traffic movements that may be associated with the construction and operation phases of the Scheme.

Programme

13.8.2 The traffic forecasts presented in this section assume a 2-year programme for construction of the Scheme. The anticipated construction programme (and the basis for the assessment of effects in the ES) is broken down for each Site below. More information on the indicative programme can be found in **Chapter 4: Scheme Description (Revision A)** of the ES [~~EN010170/APP/GH6.2.4~~**REP1-031**].

13.8.3 A summary of the construction programme with the number of construction days expected for each Site is presented in **Table 13.9**.

Table 13.9: Construction Periods for each Site

Green Hill Site	Number of Construction Days
Green Hill A	358
Green Hill A.2	211
Green Hill B	211
Green Hill C Solar	169
Green Hill C BESS	240
Green Hill D	133
Green Hill E	473
Green Hill F	498

Green Hill Site	Number of Construction Days
Green Hill G	370
Green Hill BESS	360

13.8.4 The construction of the cable connection between the Sites and the Grendon National Grid Substation will be undertaken across the 2-year programme for the Scheme. Cables will be installed in groups or sections to ensure that works are completed in the most efficient manner possible. This approach will ensure that not all access points and section of the highway network within the Study Area simultaneously accommodate movements associated with the construction of the Cable Connection.

Construction and Maintenance Vehicle Accesses for Solar Sites and Cable Route Corridor

13.8.5 A total of 47 access points across the Scheme are proposed for construction and operation purposes for the Sites, Cable Route Corridor and Cable Construction Compounds. The majority of access points will be improved existing field accesses.

13.8.6 The access locations for the northern, central and southern area of the Study Area are presented in **Figures 13.13** to **13.17** **[APP-444 to APP-448]** and summarised in **Table 13.10**.

Table 13.10: Access Locations

Access Ref	Location	Description	Use
Green Hill A			
Access-A-1	Broughton Road	Improved existing field access	Construction Operation Cable Route Corridor
Access-A-2	Broughton Road	Improved existing field access	Operation
Crossing-A-1 (E)	Newland Road	New access	Construction Operation
Crossing-A-1 (W)	Newland Road	Improved existing field access	Construction Operation
Green Hill A.2			
Access-A.2-1	Kettering Road	Improved existing field access	Construction Operation Cable Route Corridor
Green Hill B			
Access-B-1	Sywell Road	Improved existing field access	Construction Operation Cable Route Corridor
Access-B-2	Moulton Road	Existing access to farm	Operation

Access Ref	Location	Description	Use
Green Hill C			
Access-C-1	Sywell Road	Existing access to solar farm	Construction Operation Cable Route Corridor
Green Hill D			
Access-D-1	Highfield Road	Improved existing field access	Construction (including replacement) Cable Route Corridor
Access-D-2	Highfield Road	Improved existing field access	Construction Operation
Access-D-3	Highfield Road	Improved existing field access	Construction Operation
Access-D-4	Highfield Road	Improved existing field access	Construction (including replacement)
Access-D-5	Highfield Road	Improved existing field access	Operation
Green Hill E			
Access-E-1	Highfield Road	Improved existing field access	Construction Operation Cable Route Corridor
Access-E-2	Earls Barton Road	Improved existing field access	Construction Operation
Crossing E-1 (N)	Wilby Road	New access	Construction Operation
Crossing-E-1 (S)	Wilby Road	Improved existing field access	Construction Operation
Green Hill BESS			
Access-BESS-1	Station Road	Improved existing field access	Emergency
Access-BESS-2	Station Road	Improved existing field access	Construction Operation Cable Route Corridor
Access-BESS-3	Station Road	Improved existing field access	Construction Operation
Access-BESS-4	Station Road	New access	Emergency
Green Hill F			
Access-F-1	A509	Existing access to quarry	Construction Operation Cable Route Corridor

Access Ref	Location	Description	Use
Access-F-2	Easton Lane	Improved existing farmyard access	Construction Operation Cable Route Corridor
Access-F-3	A509	Existing access	Construction Operation Cable Route Corridor
Crossing-F-1 (E) **Crossing-F-1 (W)**	Easton Way	Improved existing field access	Construction Operation Cable Route Corridor
Green Hill G			
Access-G-1	A428	Improved existing field access	Construction Operation
Cable Route Corridor			
CR1	Kettering Road	Improved existing field access	Cable Route Corridor
CR2	Kettering Road	Improved existing field access	Cable Route Corridor
CR3	Red House Lane	Improved existing field access	Cable Route Corridor
CR4	A43	Improved access to Northampton Shooting Ground	Cable Route Corridor Construction Compound
CR5	Sywell Road	Improved existing field access	Cable Route Corridor
CR6	Moonshine Gap	Improved existing field access	Cable Route Corridor
CR7	Sywell Road	Improved existing field access	Cable Route Corridor
CR8 & CR9	Mears Ashby Road	Improved existing field access	Cable Route Corridor
CR10	A4500	Improved existing field access	Cable Route Corridor
CR11	A4500	Improved existing field access	Cable Route Corridor
CR12	Doddington Road (B573)	New access	Cable Route Corridor Construction Compound
CR13	Doddington Road (B573)	New access	Cable Route Corridor

Access Ref	Location	Description	Use
CR14	Doddington Road (B573)	Improved existing field access.	Cable Route Corridor
CR15	Station Road	Improved existing field access.	Cable Route Corridor
CR16	Station Road	Improved existing access to quarry	Cable Route Corridor
CR17	Station Road	Existing access to Grendon Sub-Station	Cable Route Corridor
CR18	Station Road	Improved existing field access.	Cable Route Corridor Construction Compound
CR19 & CR20	Yardley Road	Improved existing field and new access.	Cable Route Corridor
CR21 & CR22	Yardley Road	Improved existing field access.	Cable Route Corridor
CR23	Easton Lane	Improved existing field access.	Cable Route Corridor
CR24	A509	Improved existing field access.	Cable Route Corridor

13.8.7 **Table 13.11** below summarises the roads that form the construction HGV route(s) to each site access and the permitted HGV movements at each site access.

Table 13.11: Construction HGV Routes to Solar and BESS Site Accesses

Site	Site Access	HGV Route to Site Access	Permitted HGV movements at site access
Green Hill A	Access A-1	A14, A43, Old Road, Broughton Road	Left in / right out
	Access A-2	N/A (Operational and worker access only)	
	Crossing A-1 (E)	Across Newland Road	Crossing over Newland Road only. No HGVs along Newland Road
	Crossing A-1 (W)		
Green Hill A.2	Access A2-1	A14, A43, Kettering Road	Left in / right out
Green Hill B	Access B-1	A14, A43, Sywell Road (Holcot)	Left in / right out
	Access B-2	N/A (Operational and worker access only)	
Green Hill C	Access C-1	A509, Sywell Road (Wellingborough)	Right in / left out

Site	Site Access	HGV Route to Site Access	Permitted HGV movements at site access
Green Hill D	Access D-1	A509, Sywell Road (Wellingborough), Highfield Road	Right in / left out
	Access D-2		
	Access D-3		
	Access D-4		Right in / left out and crossing between D-4 and E-1.
	Access D-5	N/A (Operational and worker access only)	
Green Hill E	Access E-1	A509, Sywell Road (Wellingborough), Highfield Road	Either along Highfield Road and left in / right out or along an internal haul road within Site D and crossing Highfield Road between Access D-4 and Access E-1
	Access E-2	A45, Northampton Road, Mears Asby Road (Earls Barton), Earls Barton Road	Right in / left out
	Crossing E-1 (N)	Wilby Road (Mears Ashby)	Crossing over Wilby Road only.
	Crossing E-1 (S)		
Green Hill BESS	Access BESS-1	N/A (Emergency access only)	
	Access BESS-2	A45, Grendon Road, Station Road	Left in / right out
	Access BESS-3		Left in / right out
	Access BESS-4	N/A (Emergency access only)	
Green Hill F	Access F-1	A509	All movements permitted on A509
	Access F-2	A509, London Road (Bozeat), Easton Lane (Bozeat)	Left in / right out
	Access F-3	A509	All movements permitted on A509
	Crossing F-1(E)	Easton Way (Easton Maudit)	Crossing over Easton Way only
	Crossing F-1(W)		
Green Hill G	Access G-1	A509, A428	Left in / right out

13.8.8 The accesses labelled 'CR' are for construction of the cable corridor and its compounds. Further to this, the cable corridor can be accessed by a number of site accesses, as set out in **Table 13.10**.

13.8.9 **Table 13.12** below summarises the roads that form the construction HGV route(s) to the cable corridor site accesses and the permitted HGV movements at each cable corridor access.

Table 13.12: Construction HGV Routes to Cable Corridor Accesses

Cable Corridor Access	HGV Route to Cable Corridor	Permitted HGV movements cable corridor access
CR1	A14, A43, Kettering Road	Left in / right out
CR2		Right in / left out
CR3	A14, A43, Red House Lane	Left in / right out
CR4	A14, A43	Left in / left out with u-turn at roundabout to the south at the junction of A43 / Sywell Road / Holcot Lane
CR5	A14, A43, Sywell Road	Right in / left out
CR6	A509, Sywell Road	Right in / left out
CR7		Left in / right out
CR8	Either via Access E-1 (A509, Sywell Road (Wellingborough), Highfield Road) or via Access CR10 (A4500)	Crossing only over Mears Ashby Road (Wilby)
CR9		
CR10	A4500	Left in / right out
CR11		Right in / left out
CR12	A45, Doddington Road	Right in / left out
CR13		
CR14	N/A (Construction worker and inspection access during operation only)	
CR15	A45, Grendon Road	Left in / right in and left out
CR16	A45, Station Road	Right in / left out
CR17		Left in / right out
CR18		Right in / left out
CR19	A45, Grendon Road, Station Road, CR18 and along the haul route for the cable corridor	Crossing over Yardley Road only
CR20		
CR21	A509, Access F-1, through Green Hill F, across Easton Way at Crossing F-1 to exit at CR21 to Yardley Road	Left out / right in

Cable Corridor Access	HGV Route to Cable Corridor	Permitted HGV movements cable corridor access
CR22	CR21, Yardley Road (Easton Maudit) to CR22	Right in / left out
CR23	A509, London Road (Bozeat), Easton Lane (Bozeat)	Right in / left out
CR24	A509	All movements

Construction Phase Traffic

HGVs

~~13.8.7~~13.8.10 Construction across the Scheme will comprise the preparation of Sites, installation of access tracks, installation of security fencing and the placing of PV panels and supporting structures. The installation of transformers/inverters also forms part of the Scheme, alongside the grid connection. For the BESS, construction will also include the installation of battery systems and a switch room.

~~13.8.8~~13.8.11 Equipment used for construction will generally be delivered across the scheme by a combination of articulated and rigid HGVs.

~~13.8.9~~13.8.12 HGV movements will be strictly managed to ensure that vehicle movement is controlled and kept to a minimum. On a day-to-day basis, the largest vehicle that will be used to deliver equipment to the Scheme will be a 16.5m articulated HGV.

~~13.8.10~~13.8.13 There will be a small number of abnormal load movements to transport large transformers. Additional information on the movement of abnormal loads is set out within the **Outline Construction Traffic Management Plan (Revision A) (OCTMP) [~~EN010170/APP/GH7.9~~REP1-145]** with an AIL assessment provided as part of the **Transport Assessment [~~EN010170/~~APP-151 to APP~~/GH6.3.13.2~~-153]**.

~~13.8.11~~13.8.14 The recent DCO consent for a Solar Farm at Cottam, Lincolnshire has been used to provide a benchmark for forecasting HGV numbers. The number of trips per Site has been determined on a pro rata basis, using the overall size of each Site as a guide to determining HGV forecasts.

~~13.8.12~~13.8.15 It is expected that there will be a relatively flat profile of deliveries across the construction period for the Scheme and each individual Site. Notwithstanding this, a peak HGV activity has been identified through the indicative programme with the delivery of HGV modules. The expected HGV deliveries for modules and forecast period has been used to identify a peak period HGV movement for each Site. These peak periods are greater than the typical, average flat profile that might be expected across the entire construction period and therefore allows for peaks across the construction period. For Green Hill C, the higher of the values between the solar and BESS construction has been taken forward for assessment.

13.8.1313.8.16 **Table 13.1** sets out a summary of the HGV movements that are forecast to be associated with the construction phase of the Scheme

Table 13.11:.13: Forecast Construction Traffic - HGVs

Construction activity	Vehicle type	Green Hill A	Green Hill A.2	Green Hill B	Green Hill C BESS	Green Hill C Solar	Green Hill D	Green Hill E	Green Hill F	Green Hill G	Green Hill BESS
Construction Period (Working Days)	-	358	211	211	240	169	133	473	498	370	360
Modules and Batteries	16.5m Articulated	226	107	108	500	48	44	355	390	299	500
Mounting Structures	16.5m Articulated	178	84	85	40	38	34	279	307	235	40
Conversion units	16.5m Articulated	10	5	5	-	2	2	15	16	13	-
Access Track	10m Tipper/ 10m Rigid	182	86	87	0	39	35	287	315	241	39
General - fencing, landscaping		400	189	190	0	85	77	628	690	528	85
Total HGV deliveries during construction phase	**-**	**995**	**471**	**475**	**540**	**212**	**191**	**1,564**	**1,719**	**1,315**	**664**
Average daily HGV deliveries	**-**	**3**	**2**	**2**	**2**	**1**	**2**	**3**	**4**	**4**	**2**
Peak HGV daily deliveries	**-**	**8**	**9**	**9**	**4**	**5**	**9**	**9**	**9**	**9**	**4**
Peak HGV daily movements (two-way)	**-**	**15**	**18**	**18**	**8**	**10**	**18**	**18**	**17**	**19**	**8**

~~13.8.14~~13.8.17 The forecasts for HGV traffic generated during the construction phase of the Scheme have been assigned to the local road network, utilising the most direct route to the SRN. The analysis allows a comparison to be made against the baseline traffic to consider the effects of HGV Scheme traffic upon highway links and receptors on those links. This is reported in Section 13.10. The assessment considers highway links across which movements associated with each individual Site may overlap on the highway.

Worker movements

~~13.8.15~~13.8.18 A peak of 787 construction workers is anticipated to be working across the Scheme during the day.

~~13.8.16~~13.8.19 To account for peak periods at the different Sites, the groupings of Sites across the North, Central and South areas have been assessed separately where these represent different sections of the highway network, with peak workers in each area considered. Taking these individual areas into account, 1,099 construction workers across the Scheme have been taken forward for assessment as a reasonable worst case.

~~13.8.17~~13.8.20 For the assessment, construction workers have been assigned across Sites on a proportional basis based on size / module numbers. In addition, 67 workers are assigned to work at the construction of Green Hill BESS. For Green Hill C, the worker numbers for the Solar and BESS aspects have been set out separately. To assess a worst case, the peak worker numbers for the BESS element of Green Hill C have been assessed in combination with Green Hill D and Green Hill E.

~~13.8.18~~13.8.21 Construction worker shifts will be scheduled so that workers are not arriving or departing any Site during the highway network peak hours of 0800-0900 and 1700-1800.

~~13.8.19~~13.8.22 Measures are proposed to minimise the number of construction workers travelling by car or van. The measures include the provision of shuttle buses to transport construction workers to and from each Site. This is particularly important for workers who are travelling from a wider area, who are likely to use local accommodation. These construction workers can be transported to the Site by shuttle buses. It is expected that generally minibuses will be used to provide the shuttle bus service.

~~13.8.20~~13.8.23 On average, it has been assumed that a shuttle bus will be able to accommodate 15 workers. As such, a spread of between 40% and 60% of construction workers across the Scheme Sites is expected to arrive by shuttle bus. This is a similar range to other DCO Solar Scheme consents. For example, Longfield Solar Farm (PINS reference EN010118) assumed that 55% of the workforce would arrive by shuttle bus and Cottam Solar Project (PINS reference EN010133) assumed 50%.

~~13.8.21~~13.8.24 Construction workers who drive to any Site will be encouraged to car share where possible and this occurs naturally regardless. An assumption of 1.5 construction workers per car / van has been made based on the national car / van occupancy average.

13.8.2213.8.25 The forecast of construction workers and the number of vehicle movements is presented in **Table 13.1214**.

Table 13.12:.14: Forecast Daily Construction Traffic – Workers

Construction activity	Green Hill A	Green Hill A.2	Green Hill B	Green Hill C BESS	Green Hill C Solar	Green Hill D	Green Hill E	Green Hill F	Green Hill G	BESS
Total Workers by Grouping	330			-	259			367		-
Average workers	169	80	81	76	28	25	206	208	159	67
% Travel by shuttle bus	44%	56%	56%	39.47%	54%	60%	51%	51%	47%	22%
Travel by shuttle bus	75	45	45	30	15	15	105	105	75	15
Travel by car / van	94	35	36	46	13	10	101	103	84	52
Number of shuttle buses	5	3	3	2	1	1	7	7	5	1
Number of cars and vans	63	24	24	31	9	7	68	69	57	35
Total daily vehicles	**68**	**27**	**27**	**33**	**10**	**8**	**75**	**76**	**62**	**36**
Total daily two-way vehicle movements	**136**	**54**	**54**	**66**	**20**	**16**	**150**	**152**	**124**	**72**

Cable route vehicle movements

~~13.8.23~~13.8.26 For the construction of the cable connections across the Cable Route Corridor, temporary accesses are required. These will use three construction compounds (CC); CC1 at the A43, CC2 at the B573 and CC4 at Yardley Road~~.~~ (for HGVs and some worker traffic, CC4 will be accessed via CR18 on Station Road. Vehicles will then route along a constructed haul road).

~~13.8.24~~13.8.27 Based on input from construction experts, it is forecast that a reasonable worst case for each compound will generate up to 11 HGV arrivals per day for the delivery of material and equipment with a further 5 LGV movements for this purpose.

~~13.8.25~~13.8.28 There will also be up to 24 construction workers per compound, arriving by car / van and shuttle bus where a lower occupancy rate of 12 workers has been assumed per shuttle.

~~13.8.26~~13.8.29 A summary of worker and HGV movement forecast for the cable route construction is presented in **Table 13.**

Table 13.~~13:~~.15: Forecast Daily Construction Traffic – Cable Compounds

	CC1	CC2	CC4
Average workers	24	24	24
% Travel by shuttle	50%	50%	50%
Travel by shuttle	12	12	12
Travel by car / van	12	12	12
Number of shuttles	1	1	1
Number of cars and vans	8	8	8
HGV deliveries per day	11	11	11
Total daily vehicles	**25**	**25**	**25**
Total daily two-way vehicle movements	**50**	**50**	**50**

Abnormal Loads

~~13.8.27~~13.8.30 The Abnormal Load movements associated with the substations ~~and~~, the Sites and Cable Route Corridor they relate to are summarised in **Table 13.~~14~~16**.

Table 13.~~14:~~.16: Summary of Abnormal Load movements for Green Hill Sites

Green Hill Site	Substation voltage	Transformer sizes	Number	Access
Green Hill A	132kV	120/140MVA 132/33 kV – L: 7.6m, W: 2.7m, H: 4.5m – Weight: 95 tonnes	2	Broughton Road

Green Hill Site	Substation voltage	Transformer sizes	Number	Access
Green Hill B	132kV	60/90MVA 132/33kV L:7m, W:2.6m, H:4m – Weight: 65 tonnes	1	Sywell Road
Green Hill C	400kV	150MVA 400/33 kV – L: 8m, W: 4m, H: 4.9m – Weight: 155 tonnes	4	Sywell Road
		240MVA 400/132kV – L: 10m, W: 3.8m, H: 4.7m – Weight: 183 tonnes	1	
Green Hill E	132kV	120/140MVA 132/33 kV – L: 7.6m, W: 2.7m, H: 4.5m – Weight: 95 tonnes	2	Highfield Road
Green Hill F	132kV	120/140MVA 132/33 kV – L: 7.6m, W: 2.7m, H: 4.5m – Weight: 95 tonnes	2	Easton Lane
Green Hill G	132kV	120/140MVA 132/33 kV – L: 7.6m, W: 2.7m, H: 4.5m – Weight: 95 tonnes	2	A428
Green Hill BESS	400kV	4 x 150MVA 400/33 kV – L: 8m, W: 4m, H: 4.9m – Weight: 155 tonnes	4	Station Road
		1 x 240MVA 400/33kV - L: 10m, W: 3.8m, H:4.7m Weight: 183 tonnes	1	

~~13.8.28~~13.8.31 The information presented in **Table 13.~~14~~16** shows that across the 9 Green Hill Sites and at varying times across the two-year construction programme, a total of 19 abnormal load movements will be necessary.

~~13.8.29~~13.8.32 30 tonne cable drums will be required to deliver the connection between the Sites to Grendon National Grid Substation. The drums will be delivered on a Cable Reel Trailer and this vehicle, together with its material is classified as an abnormal load. The vehicle is smaller than those required to deliver the transformers at around 26m in length. ~~Multiple~~The forecast peak cable drum deliveries on a single day will ~~be required~~total 12 deliveries (24 two-way cable drum movements) spread across the ~~Cable Route Corridor~~cable corridor.

Operation Phase Traffic

General maintenance

~~13.8.30~~13.8.33 During the operation and maintenance phase, traffic associated with any of the Sites will be associated with ongoing maintenance. This is expected to be infrequent and result in limited vehicle movements. Those people arriving to undertake maintenance would generally be expected to travel by car, appropriate

4x4 type vehicle or light van. Suitable access will be retained from the highway to enable ongoing maintenance to take place.

~~13.8.31~~13.8.34 The frequency of more regular maintenance visits would reasonably be expected to be limited to no more than two visits per month to any single Site.

~~13.8.32~~13.8.35 Across the 60-year lifetime of the scheme, it is expected that alongside the regular maintenance of equipment, infrastructure such as batteries will require replacement. Solar panels will continue to work at a degraded rate, with replacement undertaken as required.

Replacement of equipment

~~13.8.33~~13.8.36 The replacement of equipment will be related to vehicle trips associated with both the movement of workers and the transportation of equipment to and from each Site.

~~13.8.34~~13.8.37 The replacement of panels would be undertaken in stages, with individual sections of Sites being taken offline at a time.

~~13.8.35~~13.8.38 The replacement of equipment within the Sites will essentially require the delivery of new modules and, separately, the removal of old modules for recycling. Battery equipment will also need to be removed, and new equipment installed.

~~13.8.36~~13.8.39 An indicative programme for replacement has been developed which would see all Sites within the Scheme replaced over a 2-year period, approximately 30 years following the original construction.

~~13.8.37~~13.8.40 In addition to HGV movements associated with the delivery of new equipment and the removal of old equipment, workers will clearly need to be in place to undertake the work. The same assumptions for the construction phase have been applied to the replacement period with peak workers identified for each of the Site groupings to ensure a robust assessment.

~~13.8.38~~13.8.41 A comparison of construction phase vehicle movements against those associated with the replacement period is provided in **Table 13.~~15~~17**.

Table 13.11: Comparison of forecast daily construction and replacement vehicle trips

Construction activity	Green Hill A	Green Hill A.2	Green Hill B	Green Hill C BESS	Green Hill C Solar	Green Hill D	Green Hill E	Green Hill F	Green Hill G	Green Hill BESS
Construction peak daily HGV deliveries	8	9	9	4	5	9	9	9	9	4
Construction daily worker vehicles	68	27	27	33	10	8	75	76	62	36
Construction total daily vehicles	76	36	36	37	15	17	84	85	71	40
Replacement daily HGVs	4	3	3	5	2	2	3	3	3	5
Replacement daily worker vehicles	38	17	18	26	6	5	65	45	35	35
Replacement total daily vehicles	42	20	21	31	8	7	68	48	38	40
Difference in HGVs between replacement and construction	**-4**	**-6**	**-6**	**+1**	**-2**	**-7**	**-5**	**-5**	**-6**	**+1**
Difference in worker vehicles between construction and replacement	**-30**	**-10**	**-9**	**-7**	**-4**	**-3**	**-10**	**-31**	**-27**	**-1**

~~13.8.39~~13.8.42 Construction activities relate to more than the simple delivery and installation of equipment. It includes excavation, construction of routes across Sites and other associated works such as landscaping. In this context, maintenance and replacing faulty or end-of-life equipment represents a lower requirement for vehicle movements associated with materials, and fewer people to undertake the work.

~~13.8.40~~13.8.43 Further, the programme for maintenance and the replacement of equipment across the Scheme should naturally be staged such that this is not concurrent across all of the Sites. The staggered approach is different to the worst-case assumptions made in considering construction traffic whereby all of the Sites are assumed to be under construction simultaneously.

~~13.8.41~~13.8.44 For the reasons outlined above, operational traffic is expected to result in fewer vehicle trips across the Scheme when compared to construction phase traffic. This is the case for both total traffic movements and HGV movements.

~~13.8.42~~13.8.45 Where operation traffic is expected to be lower that construction traffic, the transport and access assessment in this Chapter of the ES has been undertaken solely on construction traffic and effect during this development phase.

13.9 Embedded Mitigation Measures

13.9.1 The way that potential environmental impacts have been or will be prevented, avoided or mitigated to reduce impacts to a minimum through design and/or management of the Scheme is outlined in this section and will be taken into account as part of the assessment of the potential transport effects. Proposed environmental enhancements are also described where relevant.

13.9.2 The following embedded mitigation measures have been incorporated into the Scheme's design.

Embedded Construction Mitigation Measures

13.9.3 Embedded mitigation includes the consideration of appropriate routes to and from each Site for HGV movements.

13.9.4 A desktop assessment, confirmed through a series of site visits has been undertaken to review the range of possible highway routes that are available to access each Site. Initially, all direct routes that connect the Sites to the SRN and MRN were identified.

13.9.5 Each route was assessed to consider key constraints such as:

- Weight restrictions;
- The location of settlements along routes and sensitivity receptors along the routes; and
- Narrow carriageways and single lane tracks.

13.9.6 In all cases the most appropriate route was selected and identified as the designated route to provide access to each Site for HGV traffic. HGV construction traffic routes are presented in **Figures 13.~~2~~3** to **13.5~~.~~ (Revision A) [REP1-117 to REP1-121].**

13.9.7 The routes will be designated as construction routes and controlled through a Construction Traffic Management Plan (CTMP) and the application is supported by an **Outline CTMP [EN010170/APP/GH7.9] (Revision A) [REP1-145].**

13.9.8 The OCTMP provides a framework for the management of construction vehicle movements (freight and worker movements) to and from the Scheme. It will ensure that the effects of the construction phase are minimised. The OCTMP sets out construction access arrangements, construction vehicle routing, construction vehicle trip generation, and the management/mitigation measures.

13.9.9 The OCTMP identifies a range of measures to manage construction traffic including but not limited to:

Within the Sites

- A compound area for contractors including appropriate parking spaces. Contractors and visitors will be advised of parking facilities and instructed that they should not park on local roads;
- Wheel wash facilities will be provided ahead of vehicles exiting the Sites to minimise mud or debris spill on the local highway network;
- All construction vehicles will access and egress the Site in a forward gear. Where required, banksmen or other traffic management will be utilised at crossing access points, to ensure the safe manoeuvring of HGVs across public highway;
- A requirement for engines to be switched off on-Site when not in use; and
- Spraying of areas with water supplied as and when conditions dictate to prevent the spread of dust.

Outside the Sites

- Prior to commencement, undertake a Road Condition Survey on the minor roads proposed for construction access and repair of any damage post construction. Extents to be agreed with the highway authorities;
- ~~Defined working days and times;~~
- Defined working days and times, with construction deliveries by HGV scheduled to arrive between 09:30-16:30. In addition, construction worker shift patterns will be coordinated to avoid travel during the network peak hours of 08:00-09:00 and 17:00-18:00. Workers will be advised of local schools in the vicinity of access points (e.g. Grendon Primary School) and advised not to travel past these during the school drop off and pick up times (typically 08:00-09:00 and 15:00- 16:00);
- Defined HGV routes~~;~~ (see **Figures 13.3, 13.4, and 13.5 (Revision A) [REP1-117, REP1-119, & REP1-121]**;
- Signage to direct construction vehicles along the proposed HGV routes;
- Delivery drivers, contractors and visitors will be provided with a route plan in advance of delivering to the Scheme, to ensure that vehicles follow identified routes;

- Banksmen will record the direction HGVs arrive from. Any that do not arrive from the direction adhering to the HGV routes will be recorded and any instances on non-compliance will be raised with the relevant contractor;
- Signage informing workers, contractors and visitors that parking is not permitted on roads in the vicinity of the Sites or access roads;
- Use of temporary traffic management to construct, and where required, manage construction accesses;
- Use of banksmen to manage PRoWs where construction activities temporarily interact with the PRoW network;
- Vehicles carrying waste material off-Site to be sheeted;
- Notwithstanding wheel washing measures, a road sweeper will be used as required to alleviate any residual debris generated during the construction phase~~; and~~. Visual inspections of the public highway in the vicinity of the site accesses will be undertaken on a daily basis by the site manager. Where inspections identify visible deposits of mud, dust, or debris on the public highway, or where concerns are raised by the local highway authority, a road sweeper will be deployed promptly to remove such material;
- In the event of an incident on a proposed HGV route which temporarily closes the road HGVs will be required to following the approved diversion route set by the highway authority. Diversion routes are required to be on the same class of road as the closed highway to ensure that the route is suitable for the traffic volume; and
- Residents and businesses in the vicinity of the Sites will be provided with contact details of the Site Manager to report any identified issue.

Embedded Operation Mitigation Measures

13.9.10 Appropriate provision will be put in place to ensure that the programme for battery and panel equipment across the lifetime of the Scheme is such that traffic effects are minimised.

13.9.11 Unlike the construction phase which necessarily seeks to deliver the Scheme within an appropriately short timescale, requiring several Sites to be constructed at the same time, the replacement aspect does not have the same requirement. Further, it would be undesirable to effectively shut down power generating operation whilst replacements take place across the whole Scheme.

13.9.12 As such, it is appropriate to consider a programme of replacement equipment on the basis that this occurs on a site-by-site basis. Not all of the Sites will be replaced at a single moment in time ensuring there are no combined traffic effects in this regard and the overall traffic effects are minimised. A two year replacement programme has been considered where work on some sites may occur at the same time but can be managed across the Scheme so that associated traffic uses different sections of the road network and minimises impact.

Embedded Decommissioning Mitigation Measures

13.9.13 The decommissioning of the Scheme will be 60 years from first operation. Prior to decommissioning, a Decommissioning Traffic Management Plan will be prepared and submitted to the relevant highway authorities and will set out the management measures for managing traffic associated with the decommissioning of the Scheme. It is expected that similar embedded measures to those proposed in the OCTMP will be included in the Decommissioning Traffic Management Plan which forms part of the Decommissioning Statement which is secured by a Requirement in the DCO.

13.10 Assessment of Impacts and Effects

Construction Phase

13.10.1 A summary of the 2024 baseline daily traffic flows for key links with Green Hill traffic (Total Vehicles and HGVs) is provided in **Table 13.~~16~~18** alongside the percentage change in traffic when compared to the 2024 Baseline. Table 13.18 provides a summary of the key links utilised by the Scheme, i.e. the links that form part of multiple construction routes and will therefore see the greatest volume of construction traffic. The detailed assessment of the transport effects of the Scheme is included in **Appendix 13.1 [APP-150]**, with Table 13A1.3 providing this data for all links assessed within the Study Area.

Table 13.12: Percentage Change in Daily Traffic resulting from the Scheme

Link	Road	2024 Base + Green Hill AADT Two-way Total Vehicles	% increase from 2024 Baseline	2024 Base + Green Hill AADT Two-way HGVs	% increase from 2024 Baseline
8	**A43**	24,897	0.47%	5,017	1.10%
9		23,488	0.86%	5,641	0.94%
12		23,782	0.92%	3,190	1.39%
29		24,774	0.85%	3,421	0.54%
17	**A14**	53,118	0.11%	11,863	0.30%
18		54,413	0.10%	10,915	0.32%
19		75,023	0.06%	11,540	0.30%
20		87,642	0.13%	11,414	0.78%
21		81,335	0.15%	10,885	0.31%
22		66,291	0.01%	9,116	0.00%
30	**Sywell Road**	4,998	1.91%	569	0.00%
32		5,335	1.94%	727	0.00%
33		5,351	2.25%	737	1.32%
35		6,455	2.66%	557	8.59%

Link	Road	2024 Base + Green Hill AADT Two-way Total Vehicles	% increase from 2024 Baseline	2024 Base + Green Hill AADT Two-way HGVs	% increase from 2024 Baseline
36		6,447	2.66%	766	6.10%
34	**Highfield Road**	1,166	19.81%	152	29.33%
37	**A509 (North of A45)**	22,483	0.56%	1,398	2.45%
38		15,109	0.84%	2,712	1.25%
39		16,229	1.28%	2,327	1.46%
40		21,005	0.98%	1,483	2.31%
41		19,762	1.04%	3,097	1.09%
42		29,460	0.81%	1,530	2.24%
43	**A4500**	9,879	0.12%	996	0.00%
49		6,692	0.05%	1,166	0.00%
50		8,330	0.04%	956	0.00%
53	**A45**	51,361	0.24%	2,682	1.90%
54		53,985	0.35%	3,252	0.99%
55		53,220	0.20%	3,725	0.88%
56		58,326	0.11%	4,025	0.80%
57		67,246	0.10%	4,160	0.77%
58		99,805	0.37%	5,787	0.87%
82		53,235	0.23%	3,736	1.17%
59	**A428**	17,919	0.45%	835	2.20%
60		5,672	1.44%	984	1.86%
61		7,180	1.96%	1,211	1.57%
62		7,062	0.28%	1,193	0.00%
63	**A509 (South of A45)**	13,645	0.64%	656	2.82%
64		11,258	0.77%	1,651	1.10%
65		11,258	0.77%	1,651	1.10%
66		13,051	0.88%	1,880	0.97%
67		13,093	1.21%	1,880	0.97%
68		12,472	1.27%	1,650	1.10%
69		13,073	1.21%	2,451	0.74%
70	**Main Road**	5,506	0.00%	734	0.00%
73		1,548	0.00%	234	0.00%

Link	Road	2024 Base + Green Hill AADT Two-way Total Vehicles	% increase from 2024 Baseline	2024 Base + Green Hill AADT Two-way HGVs	% increase from 2024 Baseline
74	**Station Road**	3,047	3.85%	433	7.53%
81	**London Road (Bozeat)**	1,506	4.98%	155	4.86%

Significance of Effect

13.10.2 The initial sifting exercise is based on comparing the 2024 Baseline + Green Hill against the 2024 Baseline traffic. The initial sifting exercise results in no links during the construction phase exceeding the thresholds in Rules 1 and 2. Therefore, the construction phase would not have a significant adverse effect on any of part of the Study Area with regards to the following transport related effects:

- Severance of communities;
- Non-motorised user delay;
- Non-motorised user amenity;
- Fear and intimidation on and by road users;
- Road vehicle driver and passenger delay; and
- Road user and pedestrian safety.

13.10.3 With regards to abnormal loads, these movements will be low in number and infrequent over the construction phase as set out in **Table 13.~~14~~16**. The abnormal loads will be managed through the OCTMP **[~~EN010170/APP/GH7.9~~(Revision A) [REP1-145]** and will be escorted, where required in accordance with the abnormal load approval by the police and highway authorities. Given the low number and the proposed management of the abnormal loads, the movements would not result in a significant adverse effect of sensitive receptors which will be minor and temporary in nature.

Operational Phase

13.10.4 Traffic associated with the operation and maintenance phase (including replacement of equipment) is considered to be lower than that associated with the construction phase.

Significance of Effects

13.10.5 The effects of the scheme during the operation and maintenance phase will be lower or no worse than the construction phase.

Decommissioning Phase

13.10.6 Traffic associated with the decommissioning phase is considered to be lower than that associated with the construction phase.

Significance of Effects

13.10.7 The effects of the scheme during the decommissioning phase will be lower or no worse than the construction phase.

13.11 Additional Mitigation Measures

13.11.1 There are no adverse significant transport effects of the Scheme and therefore the effects have been adequately mitigated through the embedded mitigation and additional mitigation measures are not required.

13.12 Residual Effects

13.12.1 There are no adverse significant residual transport effects on sensitive receptors within the Study Area.

13.13 Cumulative Effects

13.13.1 A list of cumulative projects can be found in **Appendix 25.1 [~~EN010170/~~APP~~/GH6.3.25.1~~-188]** of the ES. A summary of cumulative effects will be listed within **Chapter 25: Cumulative Effects [~~EN010170/~~APP~~/GH6.2.25~~-062]** of this ES.

Cumulative effects

13.13.2 Traffic growth factors from the DfT TEMPro tool have been derived and applied across routes within the Study Area. This approach is applied with separate factors to links on the MRN and SRN. Minor routes that are unlikely to experience growth have different growth applied.

13.13.3 Consideration of cumulative schemes is also made in this section, with comparisons to growth factors to avoid the duplication of traffic increases.

13.13.4 The TEMPro growth factors applied to highway links within the Study Area are shown in **Table 13.~~17~~19**.

Table 13.13: TEMPro Growth Factors 2024 to 2029 (AADT)

Road	MSOA	Road Type	Growth Factor to 2029
A14	Kettering 011	Trunk	1.065360611
A43	Daventry 005	A Road	1.05740182
A509 (N)	Wellingborough 005	A Road	1.042883142
A45	Wellingborough 009	Trunk	1.065514026
A509 (S)	Wellingborough 010	A Road	1.043335281
A428	Milton Keynes 001	A Road	1.047680724
All other roads	Wellingborough 009	All	1.054912455

13.13.5 A number of cumulative schemes are proposed in the local area. These have been identified through reviewing the location of developments and details contained in planning applications. The long list and short list of considered developments within the Zone of Influence is included in **Appendix 13.3 [APP-154]** alongside the review of the schemes and consideration of which schemes are to be included / scoped out of the assessment of cumulative effects.

13.13.6 The review of potential cumulative schemes considered the following:

- A number of potential cumulative developments are only at scoping stage. As such, the traffic and transport details are not available and could not be included within the assessment of cumulative effects.
- A number of the potential cumulative developments were not considered to assign any or a negligible level of development trips within the Green Hill Study Area. These were not included within the assessment of cumulative effects.

13.13.7 The developments highlighted in **Table 13.~~18~~20** are considered to potentially have a transport and access effect on the Study Area in combination with the Scheme.

13.13.8 Traffic movements associated with these cumulative schemes have been taken from the data available in Transport Assessments. Factors to derive daily vehicle movements were derived together with assumptions on the likely traffic movements that might occur during the construction year (2029) and to remove any traffic that may already be on the network due to schemes already (partially) being occupied during the 2024 traffic surveys, which were undertaken to inform this assessment.

13.13.9 Table 13. presents the traffic movements that have been forecast to be associated with the identified cumulative schemes.

Table 13~~.18:~~.20: Summary of daily two-way vehicular movements generated by cumulative schemes (AADT)

Cumulative Scheme	A14	A45	A509 (N)	A43	A509 (S)	A4500	Main Road	Sywell Road (Through Overstone)
Glenvale Park [1]	791	2130	1893			646		
Grendon Lakes Battery Storage Facility [2]					24		24	
Land between Park Farm Way and Shelley Road, Wellingborough [3]	275	740	658			225		
Symmetry Park, Kettering [4]	1163		434					
Hanwood Park [5]	1744	2492	2492					
Overstone Leys, Northampton [6]		1405		1991				78
Overstone Green Daventry, Northamptonshire [7]		978		1385				54
Total Two-way vehicles	**3972**	**7744**	**5476**	**3376**	**24**	**871**	**24**	**132**

1 – Flows taken from the Transport Assessment associated with NW/24/00138/OUT
2 – Flows taken from the Transport Statement associated with NW/23/00360/FUL
3 – Flows taken from the Transport Assessment associated with WP/15/00727/OUT
4 – Flows taken from the Transport Assessment associated with KET/2018/0965
5 – Flows taken from the Transport Assessment associated with KET/2007/0694
6 – Flows taken from the Transport Assessment associated with DA/2013/0850
7 – Flows taken from the Trip Generation Technical Note in Appendix K of the Transport Assessment associated with DA/2020/0001.

13.13.10 **Table 13.** provides a future baseline assessment with consideration of cumulative schemes. The assessment year is 2029, which aligns with the end of the construction phase of Green Hill.

13.13.11 The assessment of cumulative effects is based on comparing the following scenarios:

- 2029 Future Year Baseline; and
- 2029 Future Year Baseline + Green Hill.

13.13.12 The 2029 Future Year Baseline is derived from applying TEMPro growth to the 2024 Baseline traffic flows alongside traffic generated by the committed cumulative developments. Due to the scale of the cumulative schemes referenced in **Table 13.~~18~~20**, it was not deemed appropriate to combine the committed traffic from these schemes to the TEMPro growth, as this would result in double counting of development traffic. Therefore, to assume a worst-case scenario, the highest future year traffic flow for each highway link between the cumulative schemes and the TEMPro growth to 2029 has been selected.

13.13.13 As the majority of the cumulative schemes are residential, there are very few or no HGV movements assessed within the Transport Assessments and therefore many of the cumulative schemes do not generate significant HGV growth on the network. Therefore, to assess the growth of HGVs between the baseline year (2024) and the future baseline (2029), the TEMPro growth factors applied to general traffic have also been applied to HGVs. These TEMPro growth factors can be seen in **Table 13.~~17~~19**.

13.13.14 A summary of the 2029 future baseline daily traffic flows with Green Hill traffic (Total Vehicles and HGVs) is provided in **Table 13.~~19~~21** alongside the percentage change in traffic when compared to the 2029 Future Baseline. ~~Further details are~~Table 13.21 provides a summary of the key links utilised by the Scheme, i.e. the links that will see the greatest volume of construction traffic. Full data covering all links within the assessed study area is provided in ~~the assessment tables included in~~Table 13A1.4 of **Appendix 13.1~~.~~ [APP-150].**

Table 13.~~19:~~.21: Percentage Change in Daily Traffic resulting from 2029 Cumulative Effects Assessment

Link	Road	2029 Base + Green Hill AADT Two-way Total Vehicles	% increase from 2029 Baseline	2029 Base + Green Hill AADT Two-way HGVs	% increase from 2029 Baseline
8	A43	28,273	0.41%	5,301	1.04%
9		26,864	0.75%	5,962	0.89%
12		27,158	0.80%	3,371	1.31%
29		28,150	0.75%	3,617	0.51%
17	A14	57,090	0.10%	12,636	0.28%
18		58,385	0.09%	11,626	0.30%

Link	Road	2029 Base + Green Hill AADT Two-way Total Vehicles	% increase from 2029 Baseline	2029 Base + Green Hill AADT Two-way HGVs	% increase from 2029 Baseline
19		79,923	0.06%	12,292	0.29%
20		93,363	0.12%	11,967	0.74%
21		86,643	0.14%	11,415	0.29%
22		70,623	0.01%	9,637	0.00%
30	**Sywell Road**	5,268	1.81%	601	0.00%
32		5,622	1.84%	767	0.00%
33		5,639	2.13%	777	1.25%
35		6,800	2.52%	585	8.14%
36		6,792	2.52%	806	5.78%
34	**Highfield Road**	1,220	18.78%	158	27.81%
37	**A509 (North of A45)**	27,959	0.45%	1,436	2.39%
38		20,585	0.62%	2,827	1.20%
39		21,705	0.95%	2,425	1.40%
40		26,481	0.78%	1,546	2.21%
41		25,237	0.82%	3,228	1.05%
42		34,936	0.68%	1,572	2.18%
43	**A4500**	10,750	0.11%	1,051	0.00%
49		7,563	0.05%	1,230	0.00%
50		9,200	0.04%	1,009	0.00%
53	**A45**	59,105	0.21%	2,854	1.78%
54		61,729	0.31%	3,414	0.94%
55		60,964	0.18%	3,911	0.83%
56		66,069	0.10%	4,226	0.76%
57		74,990	0.09%	4,380	0.73%
58		107,549	0.35%	6,163	0.82%
82		60,979	0.20%	3,922	1.12%
59	**A428**	18,769	0.43%	874	2.10%
60		5,939	1.38%	1,030	1.78%
61		7,516	1.87%	1,268	1.50%
62		7,397	0.27%	1,250	0.00%
63		14,233	0.61%	684	2.71%

Link	Road	2029 Base + Green Hill AADT Two-way Total Vehicles	% increase from 2029 Baseline	2029 Base + Green Hill AADT Two-way HGVs	% increase from 2029 Baseline
64	**A509 (South of A45)**	11,742	0.74%	1,722	1.06%
65		11,742	0.74%	1,722	1.06%
66		13,612	0.85%	1,960	0.93%
67		13,654	1.16%	1,960	0.93%
68		13,006	1.22%	1,721	1.06%
69		13,632	1.16%	2,557	0.71%
70	**Main Road**	5,809	0.00%	774	0.00%
73		1,633	0.00%	247	0.00%
74	**Station Road**	3,208	3.65%	455	7.14%
81	**London Road (Bozeat)**	1,584	4.73%	163	4.60%

In-combination effects

13.13.15 Transport receptors are identified in Chapter 25 **[APP-062]** and considered for in-combination effects with landscape and visual, socio-economics and other topics for in-combination effects.

13.14 Summary

13.14.1 **Table 13.142** sets out a summary of the transport and access environmental effects. No likely significant effects are reported for the transport and access receptors.

Table 13.14~~:~~2: Summary of Residual Effects for Transport and Access

Receptor	Description of Impact	Sensitivity of Receptors	Magnitude of Impact	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Additional Mitigation Measures	Residual Effect (with additional mitigation)
Construction Phase							
As highway link	Severance of communities	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Non-motorised user delay	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Non-motorised user amenity	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Fear and intimidation on and by road users	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Road vehicle driver and passenger delay	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. Worker Travel Plan	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Road user and pedestrian safety.	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Minor	None	Negligible to Minor (Not Significant)

Receptor	Description of Impact	Sensitivity of Receptors	Magnitude of Impact	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Additional Mitigation Measures	Residual Effect (with additional mitigation)
Operational Phase							
As highway link	Severance of communities	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Non-motorised user delay	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Non-motorised user amenity	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Fear and intimidation on and by road users	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Road vehicle driver and passenger delay	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. Worker Travel Plan	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Road user and pedestrian safety.	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
Decommissioning Phase							
	Severance of communities	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes	Negligible to Minor	None	Negligible to Minor (Not Significant)

Receptor	Description of Impact	Sensitivity of Receptors	Magnitude of Impact	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Additional Mitigation Measures	Residual Effect (with additional mitigation)
As highway link	Non-motorised user delay	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Non-motorised user amenity	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Fear and intimidation on and by road users	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Road vehicle driver and passenger delay	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. Worker Travel Plan	Negligible to Minor	None	Negligible to Minor (Not Significant)
	Road user and pedestrian safety.	Negligible, Low, Medium, High	Negligible	OCTMP measures and designated routes. PRoW management measures.	Negligible to Minor	None	Negligible to Minor (Not Significant)

References

Ref 13.1 Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (2023)

Ref 13.2 Department for Energy Security & Net Zero, National Policy Statement for Energy (EN-1), (2023)

Ref 13.3 Department for Energy Security & Net Zero, National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023)

Ref 13.4 Department for Levelling Up, Housing & Communities, National Planning Policy Framework, (2023)

Ref 13.5 North Northamptonshire Council, North Northamptonshire Joint Core Strategy 2011-2031, (2016)

Ref 13.6 West Northamptonshire Council, West Northamptonshire Joint Core Strategy Local Plan Part 1, (2014)

Ref 13.7 Milton Keynes City Council, Plan:MK 2016 – 2031, (2019)

Ref 13.8 Department for Transport, Strategic road network and the delivery of sustainable development, (2022)