

**Tillbridge Solar Project
EN010142**

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Environmental Statement
Chapter 16: Transport and Access
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16. Transport and Access

16.1 Introduction

- 16.1.1 This chapter of the Environmental Statement (ES) presents the findings of an assessment of the likely significant effects on Transport and Access as a result of the Tillbridge Solar Project (hereafter referred to as 'the Scheme'). For more details about the Scheme, refer to **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1].
- 16.1.2 This chapter identifies and proposes measures to address the potential impacts and likely significant effects of the Scheme on Transport and Access, during the construction, operation, and decommissioning phases of The Scheme. The chapter assesses the Scheme based on a worst-case scenario in regard to the information available at the time of writing.
- 16.1.3 This chapter is supported by the following appendices [EN010142/APP/6.2]:
- a. **Appendix 16-1: Traffic and Transport Legislation, Policy and Guidance;** and
 - b. **Appendix 16-2: Transport Assessment (TA).**
- 16.1.4 This chapter is supported by the following figures [EN010142/APP/6.3]:
- a. **Figure 16-1: Transport and Access Study Area;**
 - b. **Figure 16-2: Site Access Plan – Principal Site and Cable Route Corridor;**
 - c. **Figure 16-3: Proposed Heavy Goods Vehicle (HGV) Routes – Principal Site and Cable Route Corridor;**
 - d. **Figure 16-4: Local Highway Network;**
 - e. **Figure 16-5: Local Public Rights of Way (PRoW) Network;**
 - f. **Figure 16-6: Traffic Survey Locations;**
 - g. **Figure 16-7: Personal Injury Collision (PIC) Study Area;**
 - h. **Figure 16-8: Selected Bus Stops and Routes Closest to the Scheme;**
Figure 16-9: Local Railway Stations; and
 - i. **Figure 16-10: Abnormal Indivisible Load (AIL) Routes – Principal Site and Cable Route Corridor.**
- 16.1.5 Furthermore, this chapter is supported by a Framework Construction Traffic Management Plan (Framework CTMP) [EN010142/APP/7.11] and a **Framework PRoW Management Plan** submitted alongside this Development Consent Order (DCO) application [EN010142/APP/7.16].

16.2 Legislation and Planning Policy

- 16.2.1 **Appendix 16-1: Traffic and Transport Legislation and Policy** of this ES [EN010142/APP/6.2] identifies the legislation, policy and guidance of

relevance to the assessment of likely significant transport and access effects of the Scheme.

16.3 Assessment Assumptions and Limitations

- 16.3.1 This assessment is based on baseline data and Scheme design information as outlined in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1]. As agreed through scoping with the local planning authorities, the assessment is based on the construction phase only due to the limited number of trips expected to be associated with the operational phase and the fact that the decommissioning phase is considered to be too far into the future to be able to accurately predict traffic flows or network/junction layouts etc.
- 16.3.2 **Appendix 16-2: Transport Assessment** of this ES [EN010142/APP/6.2] has also been prepared as part of the DCO submission and forms part of the ES.
- 16.3.3 This chapter has been informed by the consultation responses to the Environmental Impact Assessment (EIA) Scoping Opinion presented in **Table 16-5 (Appendix 1-2** of this ES [EN010142/APP/6.2]) and to the Statutory Consultation (refer to **Table 16-7**) as well as two Transport Scoping Meetings which were held with the local highway authorities and associated Transport Scoping Notes which are included within **Appendix 16-2: Transport Assessment** of this ES [EN010142/APP/6.2].
- 16.3.4 The transport and access Study Area proposed as part of this assessment, seen in **Figure 16-1: Transport and Access Study Area** of this ES [EN010142/APP/6.3], has been determined by the Applicant's understanding of the road network and where the likely impacts will be. The Study Area was formally agreed with Lincolnshire County Council and Nottinghamshire County Council during consultation on 19 January 2023.
- 16.3.5 At the peak of construction, which will be around 3 to 6 months after the start of construction, the Principal Site will accommodate a maximum of 1,225 construction staff per day. On average there would be approximately 800 staff per day.
- 16.3.6 The Cable Route Corridor will require a maximum of 170 staff per day across the route. Four groups of 30 construction staff will travel to/ from any one of site accesses/ cable contractor compounds per day and two groups of 25 construction staff will travel to/ from any one of the Cable Route Corridor compounds per day.
- 16.3.7 The construction staff associated with the on-site substations (located within the Principal Site) will travel to Principal Site Access 1 on the A631 Harpswell Lane and Principal Site Access 4 on the B1398 Middle Street (see **Figure 16-2: Site Access Plan – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3]). All construction staff will travel to/ from the Principal Site or Cable Route Corridor accesses on weekdays between 06:00-07:00 and 19:00-20:00 for the 12-hour working day between 07:00-19:00. An internal shuttle bus service is anticipated to be utilised to transport construction staff within the various Principal Site working areas. All staff

arriving/ departing in one hour provides a worst-case assessment of the forecast vehicle trip generation of construction staff vehicles on the local highway network.

- 16.3.8 To reduce the number of vehicular trips on the surrounding highway network, an external shuttle service is anticipated to be utilised to transport staff to/ from local residential areas and the Principal Site. Currently it is expected each shuttle service vehicle will accommodate up to 50 construction staff. In addition, an internal shuttle service (expected to be smaller in size compared to the external shuttle service vehicle) is assumed to be implemented to transport staff around the Principal Site utilising the existing tracks. The precise routes to be utilised along existing internal tracks will be formalised during the detailed design stage, as set out in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1]. Construction staff associated with the Cable Route Corridor are expected to travel in private vehicles with an average occupancy of 1.3 staff per vehicle, to reduce the number of vehicular trips on the surrounding highway network.
- 16.3.9 In addition to the construction staff traffic, there is expected to be an average of 65-70 HGVs (130-140 two-way movements) and 30-35 Light Goods Vehicles (LGV) (60-70 two-way movements) per day associated with the Principal Site over the construction period and a daily peak of 120 HGVs (240 two-way movements) and 60 LGVs (120 two-way movements). The HGVs and LGVs are expected to use the three Principal Site accesses located on the A631 Harpswell Lane and the access on the B1398 Middle Street. The HGV and LGV routes are expected to primarily follow the A631, B1398 and A15, as identified in **Figure 16-3: Proposed HGV Routes – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3].
- 16.3.10 In relation to the Cable Route Corridor, in addition to the construction staff, there is expected to be an average of 186 HGVs per day over the construction period and a daily peak of 272 HGVs. The HGVs are expected to use all the Cable Route Corridor accesses (except those on Torksey Ferry Road) and are expected to primarily follow routes along the A15, A631, A1500, A156, A57, B1241, Fillingham Lane, Kexby Lane, Cow Lane, Laneham Road and Cottam Road, as identified in **Figure 16-3: Proposed HGV Routes – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3].
- 16.3.11 In support of this assessment, a **Framework CTMP [EN010142/APP/7.11]** has been produced which includes a section on construction staff travel patterns and measures to encourage travel by alternative modes to single occupancy vehicle. A standalone Travel Plan is therefore not expected to be required at this stage of the Scheme, and a combined document has been prepared in support of this assessment. Typically, a Travel Plan also applies to the operational phase of a development, however, given the low level of operational staff forecast (10-12 staff on-site daily), it is proposed to exclude assessment of the operational phase (as agreed to be scoped out as per the Scoping Opinion feedback ID 3.10.1, reference paragraph 16.52 in **Appendix 1-2** of this ES [EN010142/APP/6.2]).
- 16.3.12 During operation, where there is a need for replacement or maintenance of infrastructure within the Principal Site the measures proposed for

construction will be adopted. The **Framework Operational Environmental Management Plan (OEMP) [EN010142/APP/7.9]** includes a requirement for the Applicant to submit a planned maintenance schedule for the year ahead to the relevant planning authorities, excluding unforeseen emergencies that require replacement or maintenance throughout the year.

- 16.3.13 The proposed working hours of the construction staff on weekdays are 07:00-19:00. The arrival and departure of construction staff via the local highway network will occur outside of the traditional network peak hours and will make use of the residual capacity of the local highway network between 06:00-07:00 and 19:00-20:00. Therefore, as a low level of trips is likely to be generated within the traditional morning and evening network peak hours, a network peak hour assessment has not been undertaken.
- 16.3.14 At this stage, it is proposed that the main construction phase for the Scheme will be a minimum of approximately 24-months between late 2025 and 2027, with the construction peak expected to take place in 2026. It should be noted, whilst there is potential for the construction programme of the Scheme to extend beyond the proposed construction timescales, the approach taken in this assessment presents a reasonable worst-case assessment, based on the assessment of a rapid construction period that will result in the generation of the highest number of daily trips on the local highway network. Should the construction period be longer, the impacts would be extended in duration but at a lower intensity than assessed in this chapter and therefore would not result in a higher level of significance of effects.
- 16.3.15 It should be noted that it is considered that the conclusions set out within this ES would not change if the start of construction is delayed by up to five years. For example, other cumulative schemes (solar and non-solar) may be completed by the time the Scheme construction begins, which would increase the trips on the local road network in the future baseline. As the assessment criteria are based on a percentage change of vehicle numbers, a higher baseline flow would reduce the proportional impact that the Scheme has on the road network. Consequently, this would reduce or maintain the levels of effect which are presented within this chapter. As a result, it is considered that assessment of 2026 reflects a worst-case approach, and the conclusions would remain valid if the commencement of the construction phase was delayed. As noted above, the likely impact of the Scheme is forecast to occur during the construction period due to construction staff travelling to/ from the Scheme. This is set to occur during periods of lower traffic flows (06:00-07:00 and 19:00-20:00) on the network and as a result the percentage changes identified are higher than would be made against the morning and evening highway network peak hour traffic flows.
- 16.3.16 Although the Scheme is located close to a number of small villages/ settlements including Harpswell, Glentworth, Fillingham and Willingham by Stow, there is not expected to be a significant proportion of trips to the Scheme from these villages during any of the proposed phases (construction, operation, or decommissioning). Whilst some staff may originate from larger settlements nearby (e.g. Gainsborough and Lincoln), walking, cycling and public transport are not expected to constitute a

significant proportion of trips to the Principal Site or Cable Route Corridor due to the limited number of appropriate walking and cycling routes and public transport connections suiting the proposed working hours.

- 16.3.17 The potential to utilise forms of transportation other than road to transport materials to the Scheme, such as by rail and water, has been considered.
- 16.3.18 The potential to utilise the railway for deliveries during the construction phase has been considered and excluded on the basis that, whilst the existing Cottam Power Station is served by a rail station, it is understood that this section of track is no longer in use. Discussions have been held with Network Rail who confirmed that the disused section of track still remains in their ownership. Network Rail advised that the cost to reinstate the line and ensure it is safe for use would outweigh any associated benefits. The discussions with Network Rail also included the approach for the Cable Route Corridor construction across the live railway line to the east of the A156. It is anticipated that this will be by trenchless methods and a draft Basic Asset Protection Agreement (BAPA) has been provided to commence the process.
- 16.3.19 The potential to utilise the River Trent for freight was considered but ultimately ruled out for the following reasons:
- a. Berthing locations suitable for offloading equipment/ materials are primarily located to the north of the River Trent Estuary and therefore offer no benefit to traffic reduction;
 - b. The use of river transport for the Cable Route Corridor would offer limited benefit as vehicle trips will be split across multiple access points including those to the east of the River Trent (in Lincolnshire) and those to the west of the River Trent (in Nottinghamshire);
 - c. The weight of the equipment being transported (including abnormal loads, such as cable drums) is better suited to the highway network;
 - d. There is no suitable offloading dock on the eastern side of the River Trent and even if a suitable dock was constructed, links from the river to the main road network are not suitable for abnormal loads;
 - e. The offloading dock at Cottam Power Station (on the western side of the River Trent) does not constitute a viable option for the transportation of heavy loads, such as cable drums, as Torksey Ferry Road is not suitable for HGVs. Abnormal loads for the Cable Route Corridor within Nottinghamshire will be required to follow a specific route to/ from the A57; and
 - f. The offloading dock at Cottam Power Station would offer limited benefit for deliveries destined for the Principal Site and the Cable Route Corridor within Lincolnshire (to the east of the River Trent), as the equipment/ materials would still ultimately need to be transported via HGVs on the highway network utilising bridging points back across the river.
- 16.3.20 The assessment therefore does not rely upon any materials being transported to the Scheme via rail and water and relies entirely upon the highway network. The HGV routing plan shown in **Figure 16-3: Proposed**

HGV Routes – Principal Site and Cable Route Corridor of this ES [EN010142/APP/6.3] shows that local roads and villages will be avoided where possible and the **Framework CTMP [EN010142/APP/7.11]** outlines mitigation to avoid and/ or reduce impacts relating to the construction traffic, including delivery of materials during the construction phase.

16.3.21 Further details relating to the assumptions that have been adopted in support of the assessment work e.g. relating to site access points, working hours, trip attraction, trip distribution and trip assignment are discussed in Section 16.4, Section 16.6 and also within the **TA (Appendix 16-2)** of this ES [EN010142/APP/6.2].

16.4 Assessment Methodology

Study Area

- 16.4.1 The Study Area includes extents of the highway network shown in **Figure 16-4: Local Highway Network** of this ES [EN010142/APP/6.3] and the PRow networks shown in **Figure 16-5: Local Public Rights of Way (PRow) Network** of this ES [EN010142/APP/6.3] which, based on professional judgement and experience of other solar farm DCO submissions, are considered to be potentially at risk from possible direct and indirect impacts arising from the Scheme.
- 16.4.2 The areas surrounding the Principal Site comprise several small rural villages, including Harpswell and Glentworth approximately 500m and 1km to the east of the Order limits respectively, and Springthorpe and Heapham approximately 500m and 1.5km to the west of the Order limits respectively.
- 16.4.3 The A631 (High Street/ Harpswell Lane) and B1398 (Middle Street) run along the northern and eastern boundaries of the Principal Site respectively and the A15 (Ermine Street) also runs parallel to the eastern boundary of the Principal Site. Several minor roads cross the Principal Site, including School Lane, Northlands Road, Common Lane, Kexby Road and Willingham Road.
- 16.4.4 The Principal Site is expected to have four points of access, three located along the A631 Harpswell Lane and one located on the B1398 Middle Street as shown in **Figure 16-2: Site Access Plan – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3]. In addition there will be two internal accesses and emergency accesses within the Principal Site, further details are included in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1].
- 16.4.5 The Cable Route Corridor is expected to run in a southwest direction from the Principal Site to the Point of Connection at the National Grid Cottam Substation. The Cable Route Corridor will require 24 additional site accesses along its route in addition to those at the Principal Site.
- 16.4.6 An overview of the Scheme Order limits, including the Cable Route Corridor, is shown in **Figure 16-1: Transport and Access Study Area** of this ES [EN010142/APP/6.3]. Further description of the Cable Route Corridor is set out in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1].

- 16.4.7 Due to the nature of the Scheme, consideration is given to a number of locations within the surrounding highway network which could potentially be impacted due to an increase in traffic as a result of the Scheme, including both the network within the vicinity of the Principal Site as well as the Cable Route Corridor, as identified below:
- a. A631/B1398 Middle Street Roundabout;
 - b. A631/A15 Roundabout;
 - c. A631;
 - d. A15;
 - e. B1398 Middle Street;
 - f. A1500 (Till Bridge Lane);
 - g. B1241 (Willingham Road);
 - h. A156;
 - i. Pilham Lane;
 - j. School Lane;
 - k. Springthorpe Road;
 - l. Common Lane;
 - m. Kexby Road;
 - n. Willingham Road;
 - o. Headstead Bank;
 - p. Cow Pasture Lane;
 - q. Cottam Road/Outgang Lane; and
 - r. Torksey Ferry Road.
- 16.4.8 The Study Area related to the Principal Site and the Cable Route Corridor was subject to discussion and agreement with Lincolnshire County Council and Nottinghamshire County Council, as the LHAs. This Study Area has been used for the assessment of the PIC data for the extent of the Scheme.
- 16.4.9 Given the relatively large distance of the Scheme from the strategic motorway and trunk road network managed by National Highways (approximately 20km, to the M180 to the north and A46 to the south of the Principal Site), and the fact there are multiple routes between the Scheme and the Strategic Road Network (SRN) over which traffic could disperse, professional judgement and experience of other solar farm projects has determined that the Scheme is not likely to result in significant effects on the SRN. Given the relatively large distance of the Scheme from nearby Ports, such as Immingham in the north and Felixstowe in the south, it has been concluded that the Scheme is not likely to result in significant effects on Ports.
- 16.4.10 A summary of National Highways' response within the EIA Scoping Opinion Report and Statutory Consultation is provided as part of this chapter in **Table 16-5** and **Table 16-7**.

16.4.11 The Study Area proposed as part of this ES has been determined by the Applicant's understanding of the local highway network and where the impacts are likely to occur. No additional junctions or parts of the network have been requested for inclusion by the LHAs.

Sources of Information

16.4.12 To inform the assessment of the Scheme, information has been collected from a number of sources including:

- a. Traffic surveys carried out for the surrounding highway network in July 2022 as identified within **Figure 16-6: Traffic Survey Locations** of this ES [EN010142/APP/6.3] (see Section 4 of the TA (**Appendix 16-2** of this ES [EN010142/APP/6.2]) for further information).
- b. Traffic growth has been identified using National Road Traffic Forecast (NRTF) growth factors, with National Transport Model (NTM) adjustments applied within the Trip Ends Model Program (TEMPro) utilising National Trip Ends Model (NTEM) Core Scenario v8.0 (see Section 8 of the TA (**Appendix 16-2** of this ES [EN010142/APP/6.2]) for further information).
- c. Local travel and network information from various sources including Lincolnshire County Council (Ref. 16-1), Nottinghamshire County Council (Ref. 16-2) and local rail and bus operators.
- d. PIC data from the relevant LHAs (Lincolnshire and Nottinghamshire) for the highway network in the vicinity of the Principal Site and the Cable Route Corridor as identified within **Figure 16-7: Personal Injury Collision (PIC) Study Area** of this ES [EN010142/APP/6.3]. This Study Area has been agreed with Lincolnshire and Nottinghamshire County Councils.
- e. Ordnance Survey (OS) mapping and topographical survey (where available) to provide geographical representation of the areas in the vicinity of the Scheme.
- f. Population data within a 45km radius, approximately a 60-minute drive from the Principal Site has been identified from the Office for National Statistics (ONS), (2021) Mid-Year Population Estimates 2020 (Ref. 16-4) at Middle Layer Super Output Area (MSOA) level to identify the likely locations of residence of the construction staff. **Chapter 14: Socio-Economics and Land Use** of this ES [EN010142/APP/6.1] identifies the most suitable locations for temporary accommodation required to house non-local staff.
- g. Route planning software was used to determine the most direct and functional routes to the site accesses for the Principal Site and Cable Route Corridor.

Traffic Survey Data

16.4.13 Traffic flows have been obtained from traffic surveys, including Automatic Traffic Counts (ATCs) and Manual Classified Counts (MCCs), which were carried out between 10 – 19 July 2022 (avoiding school holidays to ensure a

representative period) within the Study Area. The traffic count locations were agreed with the LHAs during consultation on 19 January 2023. The locations of the traffic surveys undertaken in July 2022 are listed below (those prefixed with an 'A' relate to the ATCs and those prefixed with an 'M' relate to the MCCs) and shown in **Figure 16-6: Traffic Survey Locations** of this ES [EN010142/APP/6.3]:

- a. A1: A631 (West of School Lane);
- b. A2: A631 (West of minor access south);
- c. A3: A631 (West of minor access south);
- d. A4: A631 (West of B1398 Middle Street);
- e. A5: B1398 Middle Street (North of A631);
- f. A6: A631 (East of B1398 Middle Street);
- g. A7: B1398 Middle Street (South of A631);
- h. A8: A631 (West of A15);
- i. A9: A15 (North of A631);
- j. A10: A631 (East of A15);
- k. A11: A15 (South of A631);
- l. A12: Kexby Road (East of Northlands Road);
- m. A13: Common Lane (South of A631);
- n. A14: School Lane (South of A631);
- o. A15: Common Lane (East of Heapham);
- p. A16: Cow Lane (East of Upton);
- q. A17: Glentworth Road (East of Kexby);
- r. A18: Fillingham Lane (East of South Lane);
- s. A19: High Street (East of B1241);
- t. A20: Gainsborough Road (North of High Street);
- u. A21: Marton Road (South of High Street);
- v. A22: B1241 (South of Cot Garth Lane);
- w. A23: B1241 (North of Fleets Road);
- x. A24: A1500 Tillbridge Road (West of Thorpe Lane);
- y. A25: Saxilby Road (South of Queensway);
- z. A26: A1500 Stow Park Road (East of Adams Way);
- aa. A27: A156 High Street (South of Willingham Road);
- bb. A28: A156 High Street (South of Wapping Lane);
- cc. A29: B1241 Kexby Lane (East of Upton Road);
- dd. A30: Cottam Road (East of Westbrecks Lane) (located in Nottinghamshire);

- ee. A31: Headstead Bank (South of Broad Lane) (located in Nottinghamshire);
- ff. M1: A631/B1398 Middle Street roundabout;
- gg. M2: A15/A631 roundabout;
- hh. M3: A1500 Marton Road/Tillbridge Road/B1241 High Street/Saxilby Road staggered junction (Sturton by Stow);
- ii. M4: Gainsborough Road/Marton Road/High Street T-junction (Willingham by Stow);
- jj. M5: A156/A1500 Stow Park Road/Littleborough Lane staggered junction (Marton); and
- kk. M6: Cottam Road/Power Station Access (located in Nottinghamshire).

PIC Data

16.4.14 PIC data has been analysed within this chapter with the Study Area identified in **Figure 16-7: Personal Injury Collision (PIC) Study Area** of this ES [EN010142/APP/6.3] which includes parts of the highway network situated within Lincolnshire and Nottinghamshire around the Scheme. The PIC Study Area includes the main vehicle routes that are expected to be utilised to/ from the Scheme, including the Principal Site and the Cable Route Corridor.

16.4.15 The Study Area includes parts of the highway network within Lincolnshire which provide access to/ from Corringham and Harpswell to the north, Upton and Kexby to the west, Willingham by Stow and Fillingham to the south and Glentworth to the east. The Study Area also includes part of the network within Nottinghamshire, surrounding Cottam Power Station and the Cable Route Corridor.

Proposed Access Arrangements

16.4.16 The proposed accesses for the Principal Site are as follows, and are also shown in **Figure 16-2: Site Access Plan – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3]:

- a. Principal Site Access 1 – A631 Harpswell Lane/ School Lane T-junction;
- b. Principal Site Access 2 – A631 Harpswell Lane/ Harpswell Low Farm access (T-Junction);
- c. Principal Site Access 3 – A631 Harpswell Lane/ Harpswell Grange access (T-junction); and
- d. Principal Site Access 4 – B1398 Middle Street / Field access (T-Junction; located between Coachroad Hill and Harpswell).
- e. Additional four internal accesses and two emergency accesses:
 - i. Internal Access 1 – Access off School Lane;
 - ii. Internal Access 2 – Access off School Lane;
 - iii. Internal Access 3 – Access off Common Lane;
 - iv. Internal Access 4 – Access off Common Lane;

- v. Emergency Access 1 - Access off Common Lane; and
- vi. Emergency Access 2 – Access off Common Lane.

16.4.17 All Principal Site accesses used during the construction phase will remain open for operational access. During the operational phase, activity on-site will be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing (including battery maintenance), replacement of any components that fail, and monitoring to ensure the continued effective operation of the Scheme. The majority of routine visits during the operational phase will be via vans and four-wheel drive vehicles. If larger vehicles are required, they are expected to utilise the existing site accesses from the A631.

16.4.18 For the Cable Route Corridor 24 site accesses are proposed, in addition to Principal Site accesses 1, 2 and 4 above (as well as the additional four internal access points and two emergency access points). The additional 24 site accesses are as follows, and are also shown in **Figure 16-2: Site Access Plan – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3]:

- a. Cable Route Corridor Site Access 1 (via existing entrance into EDF Cottam Power Station off Torksey Ferry Road);
- b. Cable Route Corridor Site Access 1B (via Shortley's Road, south of Torksey Ferry Road);
- c. Cable Route Corridor Site Access 2 (via Torksey Ferry Road to the north);
- d. Cable Route Corridor Site Access 3 (via Cottam Road to the south);
- e. Cable Route Corridor Site Access 4 (via Cottam Road to the north);
- f. Cable Route Corridor Site Access 5A (via Headstead Bank to the west);
- g. Cable Route Corridor Site Access 5B (via Headstead Bank to the east);
- h. Cable Route Corridor Site Access 6 (via High Street to the west);
- i. Cable Route Corridor Site Access 7 (via High Street to the west);
- j. Cable Route Corridor Site Access 8 (via High Street to the east);
- k. Cable Route Corridor Access 9 (via A1500 Stow Park Road to the south);
- l. Cable Route Corridor Access 10 (via A1500 Stow Park Road);
- m. Cable Route Corridor Access 11 (via A1500 Till Bridge Lane);
- n. Cable Route Corridor Access 12A (via A1500 Till Bridge Lane);
- o. Cable Route Corridor Access 12B (via Stow Park Road / Existing farm access track);
- p. Cable Route Corridor Access 12C (via Wooden Lane to access Cable Route Corridor to the west);
- q. Cable Route Corridor Access 12D (via Wooden Lane to access Cable Route Corridor to the east);

- r. Cable Route Corridor Access 13 (via B1241 Normanby Road to the west);
- s. Cable Route Corridor Access 14 (via B1241 Normanby Road to the east);
- t. Cable Route Corridor Access 15 (via South Lane);
- u. Cable Route Corridor Access 16 (via South Lane);
- v. Cable Route Corridor Access 16B (via Fillingham Lane);
- w. Cable Route Corridor Access 17 (via Willingham Road); and
- x. Cable Route Corridor Access 18 (via Cow Lane).

16.4.19 It should be noted that HGVs will not utilise the Torksey Ferry Road via Rampton. HGVs will utilise the haul road via Cable Route Corridor Site Access 3 (Cottam Road) to travel to the Cable Contractor Compound and eastern extents of Torksey Ferry Road in order to reduce the impact on Rampton.

16.4.20 The Principal Site accesses will be retained during the operational phase, although these will be gated to prevent any unauthorised access during the lifetime of the Scheme, and it is expected these will be used very infrequently. Aside from the access to the Substation (CRC Access 1), the Cable Route Corridor access points will be reinstated upon completion of the construction works.

Programme and Working Hours

16.4.21 The following assumptions have been adopted to provide a robust assessment of the Scheme:

- a. The assessment has been based on the shortest expected construction programme of 24-months, which provides a worst-case in terms of monthly (and therefore daily) construction vehicle trips relating to construction staff, LGVs and HGVs;
- b. The proposed working hours for the construction phase of the Scheme are between 07:00-19:00 Monday to Friday, 07:00-13:00 on Saturdays with no Sunday or Bank Holiday working;
- c. As such, staff arrivals are expected between 06:00-07:00 and staff departures are expected between 19:00-20:00 (Monday to Friday); and
- d. HGV and LGV movements have been distributed evenly across an eight-hour window, arriving and departing between 08:30-16:30 in order to avoid the actual highway network peak hours of 07:30-08:30 and 16:30-17:30. This is based on professional judgement and experience on other Solar Farm projects. This approach is considered reasonable to provide a robust forecast of the hourly HGVs and LGVs throughout the day.

Construction Traffic Flows

Principal Site

16.4.22 For the purposes of this assessment and based on the information provided in support of the application, the peak daily number of HGVs, LGVs and construction staff required for the Principal Site are identified below. It should be noted that the forecast numbers below include consideration of daily variation and peak daily movements to provide a robust assessment:

- a. 120 HGV deliveries (240 movements per day);
- b. 60 LGV deliveries (120 movements per day); and
- c. 1,225 construction staff, with the forecast number of staff vehicles identified below.

16.4.23 Based on information provided by the Project team and as agreed with the respective LHAs, during the construction peak, it is anticipated that 575 construction staff (47%) would be transferred to/ from the Principal Site by shuttle service (each with capacity for 50 staff) to/ from temporary accommodation and residential centres in the vicinity of the Scheme, considered likely to be Kingston Upon Hull (north), Scunthorpe (north), Doncaster (north-west), Grimsby (north-east), Gainsborough (west), Retford (west), Worksop (west), Lincoln (south) and Newark on Trent (south).

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[EN010142/APP/6.1] provides a detailed assessment of the impact on temporary accommodation (for non-local staff) where higher proportions of staff are likely to be based. Areas with the greatest concentration of staff will be targeted to maximise the number of staff being transferred by shuttle service. The exact pick-up/ drop-off locations of construction staff will be confirmed once known prior to the beginning of construction. All shuttle services will be required to travel to/ from one of the site accesses at the Principal Site on the A631 Harpswell Lane or B1398 Middle Street.

16.4.24 It is assumed that during the construction peak, 650 construction staff (53%) would travel by private vehicle with an average occupancy of 1.3 staff per vehicle, resulting in 500 construction staff vehicles (1,000 daily movements) and 150 car passengers. This approach was agreed with the LHAs during consultation on 19 January 2023 and is based on previous large scale Solar Farm/ Energy Park experience and professional judgement. In accordance with the peak parking demand identified in the **TA (Appendix 16-2)** of this ES **[EN010142/APP/6.2]**, the number of car parking spaces across the Principal Site is expected to be capped at 500 spaces for construction staff. Utilisation at each car park will be monitored and the potential to introduce additional parking during the peak construction period will be explored to ensure that parking does not occur outside of the Order limits. Car sharing will however be promoted through the **Framework CTMP [EN010142/APP/7.11]** to help reduce the number of construction staff vehicles travelling to/ from the Scheme.

16.4.25 The following has been included as part of this assessment regarding the peak number of construction staff, LGVs and HGVs across the four site accesses for the Principal Site:

- a. Principal Site Access 1 – A631 Harpswell Lane / School Lane T-junction: 157 construction staff vehicles 18 LGVs and 36 HGVs (forecast daily distribution split, 30% of construction workers and HGVs);
- b. Principal Site Access 2 – A631 Harpswell Lane / Unnamed road leading to Harpswell Low Farm T-Junction: 96 construction staff vehicles, 12 LGVs and 24 HGVs (forecast daily distribution split, 20% of construction workers and HGVs);
- c. Principal Site Access 3 – A631 Harpswell Lane / Unnamed road leading to Harpswell Grange T-junction: 96 construction staff vehicles, 12 LGVs and 24 HGVs (forecast daily distribution split, 20% of construction workers and HGVs); and,
- d. Principal Site Access 4 – B1398 Middle Street / Unnamed road T-Junction (located between Coachroad Hill and Harpswell): 151 construction staff vehicles, 18 LGVs and 36 HGVs (forecast daily distribution split, 30% of construction workers and HGVs).

16.4.26 Parking areas within the on-site compounds will provide capacity based on the above forecast distribution of HGVs, LGVs and construction staff vehicles and staff will be allocated to these parking areas accordingly.

16.4.27 Further information regarding the distribution and assignment of the Principal Site construction staff vehicle, LGV and HGV movements on the local highway network is provided within Section 6 of the TA (**Appendix 16-2** of this ES [EN010142/APP/6.2]).

Cable Route Corridor

16.4.28 For the purposes of this assessment and based on the information provided in support of the application, the peak daily number of HGVs and construction staff required for the Cable Route Corridor are identified below:

- a. 272 HGV deliveries (544 movements per day); and
- b. 170 construction staff with the forecast number of staff vehicles identified below.

16.4.29 The following has been included as part of this assessment regarding the peak number of construction staff and HGVs across the Site accesses for the Cable Route Corridor:

- a. Four groups of 30 construction staff will travel to/ from any one of the Site accesses/ cable contractor compounds per day and two groups of 25 construction staff will travel to/ from any one of the trenchless crossing sites per day. This equates to a total of 170 construction staff for the Cable Route Corridor and trenchless crossing works. An average vehicle occupancy of 1.3 staff per vehicle has been adopted for all construction staff trips, meaning at peak there will be a total of 131 cars/LGVs associated with the 170 construction workers (262 two-way vehicle movements). These would be distributed across any of the Cable Route Corridor and trenchless crossing site compounds.
- b. In line with the 12-hour working day for the Principal Site, the Cable Route Corridor construction staff are expected to arrive between 06:00-

07:00 and depart between 19:00-20:00, therefore avoiding the traditional highway network peak hours.

- c. At peak, there will be up to 65 HGVs travelling to/ from each of the 4 Site accesses/ cable contractor compounds per day and up to seven HGVs travelling to/ from each of the two trenchless crossing sites per day. This equates to a total peak of 272 HGVs (544 two-way vehicle movements) for the Cable Route Corridor and trenchless crossing works combined.
- d. In line with the eight-hour HGV delivery window for the Principal Site, the HGVs associated with the construction of the Cable Route Corridor are expected to be staggered across the working day between 08:30-16:30, thereby avoiding the actual highway network peak hours of 07:30-08:30 and 16:30-17:30.
- e. It is not expected that any additional LGVs will be required for the construction of the Cable Route Corridor.

16.4.30 Parking areas within the Cable Route Corridor compounds will provide sufficient capacity based on the above forecast construction staff vehicles and staff will be allocated to these parking areas accordingly.

16.4.31 Utilisation at each car park will be monitored and the potential to introduce additional parking during the peak construction period will be explored to ensure that parking does not occur outside of the Order limits. Car sharing will however be promoted through the **Framework CTMP [EN010142/APP/7.11]** to help reduce the number of construction staff vehicles travelling to/ from the Scheme.

16.4.32 Further information regarding the distribution and assignment of the Cable Route Corridor construction staff vehicle and HGV movements on the local highway network is provided within Section 6 of the **TA (Appendix 16-2 of this ES [EN010142/APP/6.2])**.

Operational Traffic Flows

16.4.33 During the operational phase, routine activity on-site will be minimal and will be restricted principally to vegetation management, equipment maintenance and servicing (including battery maintenance), replacement of any components that fail, and monitoring to ensure the continued effective operation of the Scheme.

16.4.34 This activity is expected to generate a low level of vehicle trips during the operational phase. As a reasonable worst-case, there will be 10-12 staff on-site daily which as a worst-case scenario would generate up to 12 vehicles (24 movements) per day. In addition, there is forecast to be an average of five visits per week (one trip per day) from four-wheel drive vehicles, HGVs or transit vans for maintenance.

16.4.35 Solar panels typically have a lifespan of 40 years and may therefore need to be replaced during the operational life of the Scheme. Even in the instance that full panel replacement is required, this would be programmed in stages over a longer period than the construction phase (when the panels will be rapidly installed), in order to maximise the number of panels which are kept 'live' at any given time and avoid compromising the electricity generating

capacity of the Principal Site. The replacement of Battery Energy Storage Systems (BESS) will also be undertaken on the same basis. The **Framework OEMP** submitted alongside the DCO application **[EN010142/APP/7.9]** provides that every 12 months from the date of final commissioning, the Applicant will submit a planned maintenance schedule for the year ahead to the relevant planning authorities (excluding unforeseen emergencies that require maintenance throughout the year).

16.4.36 Full replacement of solar panels is expected to generate up to a maximum of 40 HGVs (or 80 two-way HGV movements) per day, and up to 75 staff car trips (150 two-way movements) per day. It is not anticipated that any AILs will be required. This is considerably lower than the level of vehicle trips generated during the peak construction phase, equating to approximately 10% of both the HGV/coach and car/LGV movements generated during peak construction of the Principal Site and Cable Route Corridor.

16.4.37 Therefore, due to the relatively low level of trips likely to be generated, an assessment of the operational phase has been excluded from this ES (as per the Scoping Opinion feedback ID 3.10.1, reference paragraph 16.52 in **Appendix 1-2** of this ES **[EN010142/APP/6.2]**). Further details of the operational phase transport arrangements are set out within the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**) and **OEMP[EN010142/APP/7.9]**.

16.4.38 It should be noted that this ES and the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**) consider the operational scenario on the same basis as the above, in line with the EIA scoping discussions held with the LHAs (**Appendix 1-2** of this ES **[EN010142/APP/6.2]**).

16.4.39 In terms of operational access, all Principal Site Accesses will be retained and the 24 additional Cable Route Corridor Accesses used during the construction phase will be reinstated aside from the Substation Access. The Principal Site Accesses will be gated to prevent any unauthorised access during the lifetime of the Scheme and it is expected that these will be used infrequently.

Decommissioning Traffic Flows

16.4.40 The approach to decommissioning traffic flows meets the requirements of ID 3.8.3 of the EIA Scoping Opinion (**Appendix 1-2** of this ES **[EN010142/APP/6.2]**) which states the following “*The Inspectorate accepts that a full assessment of traffic impacts may not be possible at the current time, however, the ES should provide commentary on the likely transport impacts of the decommissioning process in light of comments in section 3.10 of this Opinion regarding component refurbishment, where possible*”, as well as ID 3.8.10 which states “*there is a potential need for substantial removal of panel waste prior to the end of the stated operational period that should be addressed within the ES and/ or Framework DEMP.*”

16.4.41 For the purposes of the EIA, the decommissioning assessment year is assumed to be no earlier than 2088 (at least 60 years from opening) which will be addressed through a **Framework DEMP [EN010142/APP/7.10]**. The decommissioning period is expected to be similar in duration and nature to

the construction phase, albeit with fewer vehicle trips over a slightly shorter duration. In addition, this scenario is considered to be too far into the future to be able to accurately predict traffic flows or road/ junction layouts at that time. It is therefore considered reasonable to assume that the impacts will be the same as, or not greater than, the construction phase. This may overestimate the actual impacts slightly, but it is considered broadly accurate.

Assessment Scenarios

- 16.4.42 The nature of the proposal is such that the greatest impact is likely to occur during the construction and decommissioning phases. The peak construction year for the purpose of the EIA is anticipated to be 2026; this assumes commencement of construction in 2025, with completion in 2027. This assumes that the Scheme is built out in the shortest period achievable, which is the worst-case scenario from a traffic generation point of view due to the trip numbers being compressed into a shorter timeframe. This would therefore also be the worst-case in terms of effects on drivers, pedestrians and cyclists.
- 16.4.43 In order to ensure the EIA and the assessment presented in this ES are robust in considering the likely significant effects of the Scheme, appropriate assessment scenarios and years have been identified and are discussed below. The scenarios considered appropriate for assessment are:
- Baseline Year (2022) – AM development peak hour (06:00-07:00), PM development peak hour (19:00-20:00) and daily traffic flows (including total vehicles and total HGVs) for the year DCO registered (i.e. 2022); and
 - Peak Construction Year (2026) With and Without Development – AM development peak hour (06:00-07:00), PM development peak hour (19:00-20:00) and daily traffic flows (including total vehicles and total HGVs).
- 16.4.44 As the arrival and departure of construction staff via the local highway network will occur outside of the traditional network peak hours and will make use of the residual capacity of the local highway network, a network peak hour assessment has been excluded.
- 16.4.45 A weekday assessment (Monday to Friday) has been carried out to provide a worst-case assessment of the peak construction phase based on the above. A Saturday assessment has been excluded given that both baseline traffic flows and construction traffic flows would be lower than weekday traffic flows i.e. the network will have more capacity to accommodate construction traffic at this time.
- 16.4.46 The assessment also considers the impact of partial or full road closures that may be required in some locations in order to complete works listed in Schedule 1 of the **draft DCO [EN010142/APP/3.1]**. These partial or full road closures are listed in **Table 16-23**.
- 16.4.47 The baseline reporting sets out the existing conditions within the Study Area against which the construction impacts have then been assessed.

- 16.4.48 For the purposes of the EIA, the decommissioning assessment year is considered not to be earlier than 2088 (60 years from opening). This year is not considered in the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**) in terms of the highway impact assessment or junction assessments as it is considered too far into the future to be able to accurately predict traffic flows or network/ junction layouts etc.
- 16.4.49 The operational phase is not included within the assessment due to the minimal number of permanent staff expected on a daily basis for routine maintenance. In addition to staff trips, it is anticipated that there could be an average of five visits per week (one trip per day) with four-wheel drive vehicles, HGVs or transit vans for maintenance purposes.
- 16.4.50 If full panel and BESS replacement is required at some point during the lifetime of the Scheme, activity would be considerably less intensive than during construction, and is anticipated to generate approximately 10% of the daily HGV/coach and car/LGV movements estimated to be generated during peak construction of the Principal Site and Cable Route Corridor.
- 16.4.51 Therefore, the vehicle movements during the operational phase are not considered to have a material impact on the local highway network.
- 16.4.52 As set out in Section 16.3, it is not considered that the conclusions of this ES would change in the instance that the start of construction is delayed. For example, other cumulative schemes (solar and non-solar) may have been completed by the time the Scheme construction begins, which would increase the trips on the local road network in the future baseline. As the assessment criteria are based on a percentage change of vehicle numbers, a higher baseline flow would reduce the proportional impact that the Scheme has on the road network. This would therefore reduce or maintain the levels of effect presented in this Chapter.

Assessment Criteria

- 16.4.53 The Scheme has the potential to generate impacts due to the following, during the construction and decommissioning phases:
- a. Increase in HGV and LGV movements (with the potential to increase severance and congestion, as well as fear & intimidation to pedestrians and cyclists);
 - b. Abnormal Indivisible Loads (AILs) (with the potential to create disruption to the surrounding highway network unless carefully managed by, for example, Police escort and coordination with the LHA);
 - c. Travel to and from the Scheme by construction staff (with the potential to increase congestion and driver delay);
 - d. Increase in delay to vehicles, pedestrians, cyclists and equestrians due to an increase in vehicle movements, as well as a reduction in pedestrian/ cycle amenity;
 - e. Change in route connections and amenity for pedestrians, cyclists and equestrians due to the Scheme (potential PRow and/ or road diversions during the construction phase); and

- f. Impacts on operational road or rail safety due to glint and glare impacts, and/ or rail assets such as bridges and level crossings due to HGV movements. The glint and glare assessment is provided in **Appendix 17-2** of this ES [EN010142/APP/6.2] and a summary of the conclusion is also provided within the TA in **Appendix 16-2** of this ES [EN010142/APP/6.2].

16.4.54 Consideration has also been given to those users of local facilities which could be impacted by the Scheme. For example, PRow have been reviewed to determine whether they will need to be temporarily diverted to provide safe access for members of the public during construction. See the **Framework PRow Management Plan** submitted alongside the DCO application [EN010142/APP/7.16] for further details relating to this.

16.4.55 The assessment of the Scheme has been undertaken in accordance with the 2023 update of the Institute of Environmental Management and Assessment (IEMA) guidance (Ref. 16-5) for assessing the environmental impacts arising from changes in traffic and movement. The guidelines outline the issues and the respective changes in volume and composition of traffic regarded as necessary before each issue results in traffic and transport impacts.

16.4.56 The following criteria have been considered in this assessment:

- a. Severance of communities;
- b. Road vehicle driver and passenger delay;
- c. Non-motorised user delay;
- d. Non-motorised user amenity;
- e. Fear and intimidation on and by road users;
- f. Road user and pedestrian safety; and
- g. Hazardous/large loads.

16.4.57 The IEMA guidelines set out two rules in identifying potential links for analysis:

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

16.4.58 Based on this, links will be assessed where traffic flows are expected to increase by 30% or more during the peak hours of the peak construction phase (2026). Links have not been assessed where there is expected to be a less than 30% increase in traffic flows as a result of the Scheme, unless any specifically sensitive areas are identified as set out in Rule 2 above.

16.4.59 Based on the comments received in the EIA scoping opinion and from Statutory Consultation (**Appendix 1-2** of this ES [EN010142/APP/6.2]), the predicted percentage change from the baseline condition is identified, with a comment provided to justify the assignment of a very slight magnitude of change in these circumstances. Where there are expected to be fewer than 30 additional vehicle trips per hour during each of the development peak

hours as a result of the Scheme, a very slight magnitude of change has been assigned, irrespective of the proportional increase in traffic flow, reflecting a general threshold of impact.

16.4.60 The significance of effect has been determined through consideration of two elements; the sensitivity of the receptor and the magnitude of impact, which are discussed below.

Sensitivity of Receptors

16.4.61 The impacts of **Driver Delay** will be assessed at junction level. The sensitivity of these receptors is expressed in terms of Ratio of Flow to Capacity (RFC) or Degree of Saturation (DoS). All construction staff are expected to travel to/ from the Principal Site or Cable Route Corridor accesses between 06:00-07:00 and 19:00-20:00 for the 12-hour working day between 07:00-19:00. All staff arriving/ departing in one hour provides a worst-case assessment of the forecast vehicle trip generation of construction staff vehicles on the local highway network. The worst-case development peak hours therefore occur between 06:00-07:00 (AM development peak hour), when construction staff arrive at the Scheme, and 19:00-20:00 (PM development peak) when construction staff leave the Scheme. The Scheme has been assessed with reference to the baseline traffic flows on the surrounding highway network at these times.

16.4.62 As set out within the **EIA Scoping Report (Appendix 1-1** of this ES **[EN010142/APP/6.2]**), the thresholds for sensitivity of junctions have been defined as:

- a. **Low Sensitivity:** RFC / DoS below 90%;
- b. **Medium Sensitivity:** RFC / DoS between 90% and 95%; and
- c. **High Sensitivity:** RFC / DoS above 95%.

16.4.63 As mentioned above, the assessment of driver delay will not be carried out for any parts of the network where detailed junction capacity analysis is not required as part of the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**), as agreed with the local highway authorities.

16.4.64 In terms of **Severance** (including from partial or full road closures), **Pedestrian Delay** (incorporating delay to all non-motorised users), **Non-motorised User Amenity and Fear and Intimidation**, the road links within a reasonable walking/ cycling distance of the Principal Site and Cable Route Corridor will be used as receptors, as well as any road links which are expected to provide a main vehicular route to/ from the Principal Site/ Cable Route Corridor accesses and contain pedestrian/ cycle facilities.

16.4.65 In terms of **Road Safety**, the impacts of the Scheme will be assessed based on the findings of the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**), in terms of whether any accident clusters or patterns have been identified across the Study Area. This analysis will be included in the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**) and undertaken to highlight if there are any existing safety issues on the local highway network which may be exacerbated by the Scheme and in consideration with Rule 2 outlined above

which identifies specifically sensitive areas such as accident black spots to be assessed where traffic flows increase by 10% or more.

16.4.66 For the construction impacts, the sensitivity of pedestrian routes and cyclist routes are based on a qualitative assessment of the 2022 baseline scenario, taking into consideration the importance and attractiveness of the routes and the destinations served. The thresholds have been defined based on professional judgement and experience of other Solar Farm DCO submissions and are as follows:

- a. **Very Low Sensitivity:** Rural road with no pedestrian/cycle facilities provided;
- b. **Low Sensitivity:** Strategic vehicular route in a rural setting with pedestrian/cycle facilities;
- c. **Medium Sensitivity:** Main vehicular route with pedestrian/ cycle facilities provided in built up area; and
- d. **High Sensitivity:** Lightly trafficked route provided in town/village centre setting e.g. including residential streets.

16.4.67 Using the methodology outlined above, the highway and Non-Motorised User (NMU) sensitivity for the links being assessed is presented in **Table 16-19** below.

Magnitude of Impact

16.4.68 The overall effect will be determined by measuring the magnitude of the impact following implementation of embedded and additional mitigation measures (where applicable) against criteria including the type and sensitivity of the receptor and the type of impact. Effects are defined as beneficial or adverse, with effects further defined using the following classifications:

- a. **Very Slight** – very little change approximating to a no change situation;
- b. **Slight** – slight, very short, or highly localised impact of no significant consequence;
- c. **Moderate** – limited impact (by extent, duration or magnitude) which may be considered significant; and
- d. **Substantial** – considerable impact (by extent, duration or magnitude) of more than local significance, or in breach of recognised acceptability, legislation, policy or standards.

16.4.69 Irrespective of the proportional increase in traffic flows, an increase of fewer than 30 additional vehicle trips per hour during each of the development peak hours (equivalent to one additional vehicle every two minutes) is to be categorised as a very slight magnitude of impact. This threshold has been determined based on common practice and previous experience with DCO and solar farm projects, as it is considered that an increase of less than one vehicle every two minutes would not result in any significant effects. It is also considered likely that this could lead to over representation of significance of effects when presented against a lower traffic flow baseline outside of the network peak hours, as the construction staff are expected to arrive and

depart outside of the network peak hours. However, following the Planning Inspectorates comments within the **EIA Scoping Opinion (Appendix 1-2** of this ES [EN010142/APP/6.2]), the proportional increase in traffic flows based on the existing baseline traffic flows for the highway network will be identified and commentary is provided regarding the reclassification to a very slight magnitude of impact, where relevant.

16.4.70 The IEMA guidelines (Ref. 16-5) state that the magnitude of each impact should be determined as the predicted deviation from the baseline conditions. This will be completed for the construction phases only, on the assumption that the decommissioning phase will be no worse than the construction phase and the operational phase would have nominal impacts. As set out within the **EIA Scoping Report (Appendix 1-1** of this ES [EN010142/APP/6.2]).

16.4.71 IEMA (Ref. 16-5) sets out a number of criteria by which the magnitude of impact can be measured. These are outlined below. Where specific thresholds for measuring impacts are unavailable, impacts will be measured qualitatively.

16.4.72 **Severance** is defined in the IEMA (Ref. 16-5) as the “*perceived division that can occur within a community when it becomes separated by major transport infrastructure*”. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure. Severance can also be caused by a full closure of a highway, leading to a requirement for road users to take alternative routes to their destinations. Factors that need to be considered in determining whether severance is likely to be an important issue include road width, traffic flow and composition, traffic speeds, the availability of crossing facilities and the number of movements that are likely to cross the affected route. Different groups in a community may be more affected by severance than others. IEMA guidelines suggest that 30%, 60% and 90% changes in traffic flows will result in slight, moderate and substantial changes in severance, respectively. However, very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic. The AM and PM development peak hour traffic flows will be used to inform the assessment of Severance.

16.4.73 **Driver Delay** is typically measured in terms of change in delay per vehicle (in seconds) from the baseline situation. This criterion is considered to be applicable to all modes of transport using the public highway, namely cars, motorcycles, pedal cycles and buses. No junction capacity assessments were deemed to be required by the local highway authorities, this impact is expected to be negligible for all junctions within the Study Area (which is consistent with the approach set out within the Preliminary Environmental Information Report (PEI Report) in the absence of any junction modelling within the TA). A high-level review of the forecast proportional increases in traffic flows at junctions has been carried out to support the expectation that no adverse impacts are envisaged in terms of additional delay to road users across the highway network.

16.4.74 Pedestrian Delay (incorporating delay to all non-motorised users) and severance are closely related effects. Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads or traverse on footways of PRow. In general, increases in traffic levels are likely to lead to greater increases in pedestrian delay. Delays will also depend on the general level of pedestrian activity and visibility. IEMA guidelines (Ref. 16-5) suggest that professional judgement should be used to determine whether pedestrian delay constitutes a significant effect. To be consistent with the severance assessment, the 30%, 60% and 90% change in the AM and PM development peak hour traffic flows is proposed to be applied which will result in a slight, moderate and substantial change in pedestrian delay respectively. Changes less than 30% are categorised as very slight.

16.4.75 Non-motorised User Amenity is broadly defined as “the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/ separation from traffic”. The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled. To be consistent with the pedestrian delay and the severance assessment, the 30%, 60% and 90% change in the AM and PM development peak hour traffic flows is proposed to be applied which will result in a slight, moderate and substantial change, with changes less than 30% categorised as very slight.

16.4.76 Fear and Intimidation is dependent on the total volume of traffic, the HGV composition, the speed these vehicles are passing and the proximity of traffic to people or the lack of protection caused by factors such as narrow pavement widths. The guidelines outline thresholds to define the degree of hazard to pedestrians based on average 18-hour traffic flow, 18-hour heavy goods vehicle flow and average speed over an 18-hour day in miles/hour. Special consideration should be given to areas where there are likely to be particular problems, such as high-speed sections of road, locations of turning points and accesses and the lack of protection created by factors such as narrow pavement median. The movement of hazardous/ large loads will also heighten people’s perception of fear and intimidation. The guidelines provide a weighting system to approximate the likelihood of pedestrian fear and intimidation and a scoring system to approximate the level of fear and intimidation. These are shown in **Table 16-1** and **Table 16-2** below.

Table 16-1 Fear and Intimidation Degree of Hazard

Average traffic flow over 18-hour day - all vehicles/hour 2-way	Total 18-hour heavy vehicle flow	Average vehicle speed (mph)	Degree of hazard score
(a)	(b)	(c)	
+1800	+3,000	>40	30
1,200-1,800	2,000-3,000	30-40	20
600-1,200	1,00-2,000	20-30	10
<600	<1,000	<20	0

Table 16-2 Levels of Fear and Intimidation

Level of fear and intimidation	Total hazard score (a) + (b) + (c)
Extreme	71+
Great	41-70
Moderate	21-40
Small	0-20

16.4.77 The magnitude of impact criteria is shown in **Table 16-3** below with reference to the changes in the level of fear and intimidation from baseline conditions.

Table 16-3 Fear and Intimidation Magnitude of Impact

Magnitude of Impact	Change in step/traffic flows (AADT) from baseline conditions
High (Substantial)	Two step changes in level
Medium (Moderate)	One step change in level, but with <ul style="list-style-type: none"> • >400 veh increase in average 18hr AV two-way all vehicle flow; and/or • >500 HV increase in total 18hr HV flow
Low (Slight)	One step change in level, but with <ul style="list-style-type: none"> • <400 veh increase in average 18hr AV two-way all vehicle flow; and/or • <500 HV increase in total 18hr HV flow
Negligible (Very Slight)	No change in step changes

16.4.78 In terms of magnitude of change with respect to severance, pedestrian delay and non-motorised user amenity across PRow receptors, which are not affected by changes in traffic flows but may be impacted during the construction phase, the following magnitude of change has been applied:

- a. Very Low: Up to one temporary localised diversion around the Cable Route Corridor/ construction route crossing points and/ or one proposed management, and no PRow closure without diversion;
- b. Low: One temporary localised diversion around the Cable Route Corridor/ construction route crossing points and/ or up to two proposed managements, and short-term closures of any PRow without a diversion for up to and including one month;
- c. Medium: Two temporary localised diversions around the Cable Route Corridor/ construction route crossing points and/or two or more proposed managements, and medium-term closures of any PRow without a diversion for 1-3 months (i.e. equivalent to a season); and
- d. High: Three or more temporary localised diversions around the Cable Route Corridor/ construction route crossing points and/ or three or more proposed managements. Longer-term closures of any PRow without a diversion for more than 3 months (i.e. greater than a season).

16.4.79 An assessment of **Road Safety** has been carried out by examination of PIC data for the most recent five-year period available. This ES chapter includes an overview of the PIC data for the highway network in the vicinity of the Principal Site and the Cable Route Corridor within both Lincolnshire and Nottinghamshire (see **Figure 16-7: Personal Injury Collision (PIC) Study Area** of this ES [EN010142/APP/6.3]). The **TA (Appendix 16-2** of this ES [EN010142/APP/6.2]) provides a review of the PIC data for the impacted sections of the highway network in the vicinity of the Scheme within the Study Area, highlighting any potential existing safety issues on the local highway network which may be exacerbated by the Scheme. The outcome of the assessment is presented in detail as part of the **TA (Appendix 16-2** of this ES [EN010142/APP/6.2]). To provide consistency with severance, pedestrian delay and non-motorised user amenity criteria, it is proposed that a 30%, 60% and 90% change in the AM and PM development peak hour traffic flows would result in a slight, moderate and substantial change respectively, with change less than 30% categorised as very slight, which is line with the other criteria thresholds.

16.4.80 With regard to **Hazardous/ Large Loads**, IEMA (Ref. 16-5) indicates that the assessment needs to clearly outline the estimated number and composition of dangerous or hazardous loads to be transported by road. Where the number of movements is considered to be significant, the assessment should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event. The Scheme will include a limited number of deliveries to the Principal Site which would be regarded as 'hazardous loads' for the delivery of lithium-ion batteries and transformer oil. Whilst there will be a requirement for abnormal loads, a Police escort will be arranged to assist with traffic control. Analysis of the road network within the Study Area indicates that there are no particular features, such as a significant vertical drop immediately beyond the

carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected on the general highway network. The **Framework CTMP** submitted alongside the DCO application **[EN010142/APP/7.11]** and this chapter include details of measures that will be employed to ensure the safe vehicular transport of components to and from the Scheme.

16.4.81 In view of the above, it is concluded that the impacts of Hazardous/ Large Loads do not warrant further consideration and will not be assessed beyond an estimation of the likely number and composition of loads required and the measures which will be implemented to safely transport components to and from the Principal Site or Cable Route Corridor. On the basis of the above, further assessment of Hazardous/ Large Loads are **scoped out**. This is as set out within the **EIA Scoping Report (Appendix 1-1** of this ES **[EN010142/APP/6.2]**), which under ID 3.10.3 the Planning Inspectorate has expressed the view that significant effects are not likely to occur, due to the nature and characteristics of the Scheme.

Significance of Impact

16.4.82 In order to determine the effect on specific receptors, both the sensitivity of receptors and the magnitude of impact, as outlined above, are considered.

16.4.83 **Table 16-4** identifies the matrix that will be used to determine the effect category.

16.4.84 Potential effects are therefore considered to be major, moderate, minor or negligible. Following the classification of an effect, a clear statement is then made as to whether that effect would be “significant” or “not significant”. As a general rule, major and moderate effects are considered to be significant, whilst minor and negligible effects are considered not to be significant.

16.4.85 However, professional judgment will also be applied where necessary, including taking account of whether the effect is permanent or temporary and whether the classified sensitivity/ magnitude meets the qualitative definition, both in terms of over- or under-statement. This is particularly important on links where there is a low baseline level of traffic, as small increases in traffic would result in a high percentage impact, meaning significance could be over-stated, which relates to the reference made above to the magnitude of impact of a change of less than 30 vehicles per hour (equivalent to one vehicle every two minutes).

Table 16-4: Matrix for Determining Effect Category

Sensitivity of Receptor	Magnitude of Potential Change/Impact			
	Substantial	Moderate	Slight	Very Slight
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

16.5 Stakeholder Engagement

16.5.1 A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate in 2022 as part of the EIA Scoping Process. Consultation responses in relation to Transport and Access, to date, are presented in **Table 16-5** below. **Table 16-5** includes responses from Nottinghamshire County Council, Bassetlaw District Council, Lincolnshire County Council, West Lindsey District Council and Network Rail and includes the comments made in relation to Transport and Access.

Table 16-5: Planning Inspectorate Scoping Opinion

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
Planning Inspectorate (ID 3.10.1)	<p>Operational transport effects Anticipated traffic generated includes 10-12 permanent staff on-site daily and infrequent four-wheel drive vehicles, vans, and HGV movements associated with the repair and replacement of on-site infrastructure. The Inspectorate has considered the characteristics of the operational phase of the Proposed Development and based on the low levels of anticipated traffic generation is content that this matter can be scoped out. The ES description of development should clearly set out the operational vehicle types and numbers to justify this position.</p>	Operational transport effects remain scoped out.	Operational vehicle types and numbers are set out in Section 16.4 of this Chapter and Section 5 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]) .
Planning Inspectorate (ID 3.10.2)	<p>Decommissioning Transport effects The Inspectorate is content that any potential impacts during decommissioning are not likely to be greater than the construction phase. On this basis the Inspectorate is content that a standalone assessment for the decommissioning phase is not required. However, where significant effects are likely to occur during the decommissioning phase these should be clearly reported within the ES.</p>	A separate decommissioning assessment has not been undertaken.	See Section 16.8 of this Chapter.
Planning Inspectorate (ID 3.10.3)	<p>Hazardous and dangerous Loads The Inspectorate has considered the nature and characteristics of the Proposed Development and agrees that significant effects are not likely to occur.</p>	The assessment of hazardous and dangerous loads has been scoped out of the ES.	N/A.

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
	<p>On the basis that the number and composition of any hazardous loads and any safety measures would be described within the ES, an assessment of impacts associated with the transport of hazardous loads can be scoped out of the ES.</p>		
<p>Planning Inspectorate (ID 3.10.4)</p>	<p>Travel Plan The Inspectorate is content that a standalone Travel Plan is not required and that the travel patterns associated with the construction workforce can be appropriately described within the Framework CTMP.</p>	<p>A standalone Travel Plan has been scoped out.</p>	<p>See the Framework CTMP submitted alongside the DCO application [EN010142/APP/7.11]</p>
<p>Planning Inspectorate (ID 3.10.5)</p>	<p>Abnormal Loads The Inspectorate recommends the consideration of water-borne or rail transportation over road transport in line with the Overarching National Policy Statement for Energy (EN-1). The Applicant’s attention is drawn to the consultation response from the Canal and River Trust (Appendix 2 of this Opinion) in this regard.</p>	<p>The potential to utilise forms of transportation other than road has been considered. It has been concluded that water-borne or rail transportation would not be viable for the Scheme, given the local context of existing rail assets and water-transport options on the River Trent. Further, in order to be robust and provide a worst-case assessment, it has been assumed all travel will be by road.</p> <p>The number and type of ALLs required during the construction phase has been assessed and their management outlined.</p>	<p>See Section 16.3 of this Chapter, Section 5 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]), the Framework CTMP [EN010142/APP/7.11] submitted alongside the DCO application.</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
Planning Inspectorate (ID 3.10.6)	<p>Consultation with National Highways</p> <p>For the avoidance of doubt, the Inspectorate is of the opinion that there is potential for the Proposed Development to impact on the SRN through increased traffic during the construction and decommissioning phases and as such National Highways should be consulted. The Inspectorate refers the Applicant to National Highways' response to the scoping consultation (Appendix 2 of this Opinion).</p>	National Highways' response to the scoping consultation has been addressed below.	See Section 16.3 of this Chapter and Section 5 of the TA (Appendix 16-2) of this ES [EN010142/APP/6.2] .
Planning Inspectorate (ID 3.10.7)	<p>Personal Injury Collision (PIC) data</p> <p>The Scoping Report states that further assessment of parts of the highway network may be required when the cable route is confirmed. Figure 16.6 shows the PIC Study Area of the Principal Site however does not show the Study Area for the Cable Route Corridor. It is unclear when confirmation of the cable route will occur and how this relates to the timeline for the production of the ES. The ES should ensure that the assessment is supported by a robust baseline. Where there is flexibility within the project design a worst-case scenario should be assessed.</p>	The PIC Study Area analysed in this Chapter and the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]), covers the extent of the Scheme, including the Principal Site and Cable Route Corridor.	See Section 16.4 of this Chapter and Section 4 of the TA (Appendix 16-2) of this ES [EN010142/APP/6.2] .
Planning Inspectorate (ID 3.10.8)	<p>Magnitude of impact</p> <p>The Inspectorate is of the opinion that the assessment should use a proportional increase in traffic flows based on the existing baseline traffic flows for the highway network. In the absence of the baseline data, it is currently unknown what level of change the increase of 30 additional vehicles represents. The</p>	The predicted deviation from the baseline condition is identified, alongside comments to justify the assignment of very low magnitude of change where this has been applied, taking into consideration the vehicle types and receptor sensitivity.	See Section 16.4 and Section 16.8 of this Chapter.

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
	<p>Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Assessment of Road Traffic (GEART) (1993) (as referenced in paragraph 16.79 of the Scoping Report) states that the magnitude of impacts should be determined as a predicted deviation from the baseline condition.</p> <p>Furthermore, the types of vehicles are not specified within the 30 additional vehicle increase identified in paragraph 16.78 and therefore it is unknown whether HGV movements are captured in these absolute levels. The GEART states that HGV movement estimates should be provided separately.</p>	<p>The assessment has been carried out on the basis that both additional total vehicles and HGV are set out separately, and on the basis that the total vehicles includes HGV traffic.</p>	
<p>Planning Inspectorate (ID 3.10.9)</p>	<p>Cumulative Impacts</p> <p>The ES should assess the cumulative impact of construction traffic on the SRN associated with other nearby solar developments as well as committed developments and highway improvement schemes.</p>	<p>The cumulative impact of construction traffic associated with the Scheme and other solar/ committed developments on the local highway and SRN has been assessed.</p>	<p>See Chapter 18: Cumulative Effects and Interactions of this ES [EN010142/APP/6.1].</p>
<p>Nottinghamshire County Council</p>	<p>Nottinghamshire County Council expect that the DCO submission is <i>“supported by a Transport Assessment prepared in accordance with Planning Practice Guidance with a chapter specifically dealing with the cable routing corridor in Nottinghamshire and would also expect the proposed Construction Environmental Management Plan to include the cable route corridor. The opportunity to share cabling infrastructure with the other DCO solar schemes in the area should be explored.”</i></p>	<p>National Planning Practice Guidance has been consulted and the Cable Route Corridor within Nottinghamshire has been considered within this Chapter and its supporting documents.</p>	<p>Reference to the Cable Route Corridor within Nottinghamshire is made throughout the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]) and Framework CTMP submitted alongside the DCO</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
			<p>application [EN010142/APP/7.11]</p> <p>See Chapter 18: Cumulative Effects of this ES [EN010142/APP/6.1] for detail on the potential to share cabling infrastructure with the other solar schemes in the area.</p>
Bassetlaw District Council	<p>Refer to the response from Nottinghamshire County Council (detailed above) and state the following: <i>“it is difficult to comment in more detail until the specific details of the cable routing are known.”</i></p>	<p>A transport assessment of the construction of the Cable Route Corridor is included within this Chapter.</p>	<p>Section 16.8 of this Chapter provides an assessment of the Cable Route Corridor.</p>
Nottinghamshire Fire and Rescue	<p>The Fire and Rescue Service expect the transport strategy to minimise the impact of increased traffic movements during the construction phase and prevent an increase in the number of potential road traffic incidents. They state that <i>“any development should not negatively impact on the Service’s ability to respond to an incident in the local area.”</i></p>	<p>Collision data has been reviewed in detail within the TA (Appendix 16-2) of this ES [EN010142/APP/6.2] and the impact of the development on accidents and safety in the local area has been outlined within this Chapter.</p>	<p>See Section 16.8 of this Chapter and Section 4 of the TA (Appendix 16-2) of this ES [EN010142/APP/6.2].</p>
Lincolnshire County Council	<p>Lincolnshire County Council state that Section 16 (Transport and Access) of the Scoping Report <i>“proposes the correct methodology for assessment of impacts related to transport and access.”</i></p>	<p>The updated IEMA guidance for assessing the environmental impacts arising from changes in traffic and</p>	<p>See Section 16.4 and Section 16.8 of this Chapter.</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
West Lindsey District Council	West Lindsey District Council states since they are not the Local Highway Authority, they therefore defer any response to Lincolnshire County Council.	movement has been used within this Chapter.	Refer to response from Lincolnshire County Council (row above).
Canal and River Trust	The Canal and River Trust state that <i>“the use of the River Trent should be included within the Transport and Access chapter of the Environmental Statement, so as to ensure that every possibility to reduce the impact on the highway network is considered.”</i>	The potential to utilise forms of transportation other than road, such as water, has been considered. This has concluded that it is unlikely water-borne or rail transportation would be viable for the Scheme, given the local context of existing rail assets and water-transport options on the River Trent. Further, in order to be robust and provide a worst-case assessment, it has been assumed all transport will be by road.	See Section 16.3 of this Chapter.
Network Rail	Network Rail identify that the Environmental Statement should <i>“include a Transport Assessment to identify any HGV traffic/haulage routes associated with the construction and operation of the site that may utilise railway assets such as bridges and level crossings during the construction and operation of the site.”</i>	An HGV routing strategy has been outlined within the TA (Appendix 16-2) of this ES [EN010142/APP/6.2] .	See Section 16.3 of this Chapter and Section 5 of the TA (Appendix 16-2) of this ES [EN010142/APP/6.2] .
National Highways	National Highways stated the following: <i>“Consequently, we have no comments regarding site access or boundary matters.”</i>	Details relating to the peak trip attraction, distribution and assignment of construction staff vehicles and forecast peak number of HGVs have	See Section 16.3 of this Chapter and Section 5 of the TA (Appendix 16-2) of this

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
	<p>In addition, National Highways outlined that information would be required on the number of HGVs that will be travelling on the SRN, route and time of day they will likely be arriving and leaving, the provision of the trip generation and assignment of HGVs and staff trips.</p> <p>Also identified in National Highways' response is <i>“a separate Travel Plan should also be produced setting out how staff trips by private vehicle will be minimised as far as possible.”</i></p>	<p>been included in this Chapter and within the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]).</p> <p>A Framework CTMP [EN010142/APP/7.11] submitted alongside the DCO application has been produced which identifies measures on how staff trips will be minimised as far as possible.</p>	<p>ES [EN010142/APP/6.2]).</p> <p>See the Framework CTMP submitted alongside the DCO application [EN010142/APP/7.11]</p>

16.5.2 Details in relation to consultation/ engagement held with the local highway and planning authorities to date are set out below (**Table 16-6**).

Table 16-6: Engagement Undertaken

Consultee	Summary of Main Matters Raised	How Have the Matters Been Addressed?	Location of Response
Consultation with Lincolnshire and Nottinghamshire County Councils on 19 January 2023	<ul style="list-style-type: none"> Request for the inclusion of vehicle swept path analysis and visibility splays for all Site Accesses; Request for Stage 1 Road Safety Audits (RSAs) for Site Accesses that will be newly developed or significantly changed; Consideration of HGV distribution from the west via Gainsborough; Potential to provide new permissive paths throughout the Scheme; If another DCO Solar Scheme in the area gets consent, it should be treated as committed in the assessment; Requirement to investigate the details of the collisions outside Principal Site Access 3; and Need for the Framework CTMP to include a clear approach on shuttle services and car parking caps. 	<ul style="list-style-type: none"> Swept path analysis and visibility splays for all Principal Site and Cable Route Corridor accesses are provided; Stage 1 RSAs will be undertaken post-submission; Justification for the adopted HGV routing strategy has been detailed; Permissive paths will be provided throughout the Principal Site during the operational phase of the Scheme; A cumulative impact assessment with other solar/ committed developments has been undertaken; The collision rate at Principal Site Access 3 has been analysed in detail; and The Framework CTMP [EN010142/APP/7.11] outlines the shuttle service and car park management proposals. 	<ul style="list-style-type: none"> See the Framework CTMP [EN010142/APP/7.11]; See Section 6 of the Framework CTMP [EN010142/APP/7.11]; See Section 5 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]); See Chapter 3: Scheme Description of this ES [EN010142/APP.6.1]; See Chapter 18: Cumulative Effects of this ES [EN010142/APP/6.1]; See Section 4 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]); See Section 4 and 5 of the Framework CTMP [EN010142/APP/7.11].

16.5.3 Details in relation to the main matters raised by consultees through the Statutory Consultation are set out as follows. No additional comments were received during the targeted consultation.

Table 16-7 Main matters raised by consultees through the Statutory Consultation

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
National Highways	<p>The principal interest of National Highways is to safeguard the M180 (approximately 16km north of the Site), the A46 trunk road (approximately 18km south of the Site) and the A1 trunk road (approximately 24km to the west of the Site). National Highways did not raise any concerns relating to the following and have no further comments to make at this time:</p> <ul style="list-style-type: none"> • Site access or boundary matters; • Traffic impacts on the SRN once the site is operational; and • Traffic impacts on the SRN during the construction phase. 	Comments noted, however no response required.	No response required.
Springthorpe Parish Council	<p>Springthorpe Parish Council raised the following concerns:</p> <ul style="list-style-type: none"> • Concern about the use of Hill Road and School Lane (single track lane with no passing places) through Springthorpe village for construction traffic; • Worsening road conditions as a result of the construction traffic expected; • Single track sections of road to be widened to include footways for pedestrian use; • Road maintenance and repair to be prioritised throughout the lifetime of the Scheme; 	<p>The peak number of daily two-way vehicle movements (comprising local construction staff only) utilising Springthorpe Road is 4. No HGVs are proposed to be routed via Springthorpe Road. This low number of vehicle trips is therefore not expected to have a significant impact on the road.</p> <p>Highway condition surveys will be undertaken before, during and after the construction to identify any impacts which are as a result of the development that</p>	<p>See Section 8 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]).</p> <p>See the Framework CTMP [EN010142APP/7.11].</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
		<p>need to be remediated. Where the pre-condition survey identifies that measures should be put in place to protect and maintain the road surface, the LHAs will be consulted.</p> <p>Any existing footways at proposed passing bays will be re-provided.</p>	<p>See the TTM Plan [EN010142/APP/2.5].</p>
	<p>Speed limit reductions through villages to reduce risk of pedestrian injury.</p>	<p>Temporary Traffic Management (TTM) Plans have been prepared in support of the DCO submission to demonstrate how construction traffic will be safely managed. A Framework CTMP [EN010142/APP/7.11] submitted alongside the DCO application prepared, detailing the management and mitigation measures to be put in place during the construction phase. An HGV routing plan figure has been produced, detailing the key routes to be utilised by HGVs during the construction phase.</p>	<p>See Figure 16-3: Proposed HGV Routes – Principal Site and Cable Route Corridor of this ES [EN010142/APP/6.3].</p>
<p>Canal and River Trust</p>	<p>The Canal and River Trust advised that the River Trent be included within the Transport and Access Chapter of the ES to help minimise the need to utilise the highway network for transporting Abnormal Indivisible Loads (AILs).</p>	<p>Potential use of the River Trent has been discussed in detail within this ES chapter and has been excluded as an option due to a lack of suitable jetty facilities in the vicinity of the Scheme.</p>	<p>See Section 16.3 of this ES chapter.</p>
<p>West Lindsey District Council</p>	<p>West Lindsey District Council stated that the potential for construction traffic to coincide with other NSIP</p>	<p>This ES includes a detailed cumulative assessment of other schemes in the</p>	<p>See Chapter 18: Cumulative Effects and Interactions of this</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
Nottinghamshire County Council	<p>projects, notably Cottam Solar, is likely and must be fully assessed.</p>	<p>area, including a review of other relevant Solar DCO schemes in the area.</p>	<p>ES [EN010142/APP/6.1].</p>
	<p>Nottinghamshire County Council questioned why the use of rail and river has been ruled out of the assessment and stated the following:</p> <ul style="list-style-type: none"> • “It is understood that the Cottam Power Station railway track is no longer in use but why could it not now be used for transportation?”; and • “Are there any nearby jetties on the River Trent and what are their deficiencies in terms of their use for the movement of materials?” 	<p>Potential use of the disused Cottam Power Station railway line has been discussed in detail within this ES chapter and has been excluded as an option due to the costs involved as confirmed by Network Rail.</p>	<p>See Section 16.3 of this ES chapter.</p> <p>See Section 5 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]).</p>
	<p>Nottinghamshire County Council also raised the following concerns:</p> <ul style="list-style-type: none"> • The Cable Route Corridor accesses and construction traffic distribution routes must be made suitable for the level of construction traffic expected; • Combining construction accesses with the nearby West Burton, Cottam and Gate Burton Solar projects is the Council’s preference, subject to the cumulative effects being addressed; 	<p>Potential use of the River Trent has been discussed in detail within this ES chapter and has been excluded as an option due to a lack of suitable jetty facilities or feasible points in the vicinity where one might be built or be effective in logistical terms.</p>	<p>See Sections 4, 5 and 6 of the Framework CTMP [EN010142/APP/7.11]</p> <p>See the TTM Plan [EN010142/APP/2.5].</p>
<p>Nottinghamshire County Council also raised the following concerns:</p> <ul style="list-style-type: none"> • The Cable Route Corridor accesses and construction traffic distribution routes must be made suitable for the level of construction traffic expected; • Combining construction accesses with the nearby West Burton, Cottam and Gate Burton Solar projects is the Council’s preference, subject to the cumulative effects being addressed; 	<p>The TA (Appendix 16-2 of this ES [EN010142/APP/6.2]) and Framework CTMP [EN010142/APP/7.11] include a detailed description of the Cable Route Corridor access strategy, including proposed vehicle routing and an assessment of the suitability of each access to accommodate the level of required vehicle activity.</p>	<p>See Chapter 18: Cumulative Effects of this ES [EN010142/APP/6.1].</p> <p>See Appendix C of the Framework CTMP [EN010142/APP/7.11].</p>	

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
	<ul style="list-style-type: none"> • The Scheme will share parts of the Cable Route Corridor with the West Burton, Cottam and Gate Burton Solar projects and therefore cumulative effects may be material. Simultaneous works should be considered to ease co-ordination; • Construction traffic impact of works associated with the Cable Route Corridor on single track roads which are incapable of accommodating two-way traffic; • Swept path analysis of AILs and reference to the transportation of Cable Drums should be included; • How will the visibility 'y' distance be established at the Cable Route Corridor accesses; • The Traffic Management and Monitoring System (TMMS) should relate to the whole Scheme, not just the Principal Site; and • Potential need for carriageway widening on the routes to the Cable Route Corridor accesses. 	<p>Cable Route Corridor access points have been rationalised to coincide with other solar schemes as far as possible; discussions are ongoing regarding possible shared use and preparation of a joint CTMP. The ES includes a detailed cumulative assessment of other schemes in the area, including a scenario where construction coincides with other solar farm projects. This is set out within Chapter 18: Cumulative Effects of this ES [EN010142/APP/6.1]</p> <p>The Framework CTMP will include details of the routing strategy, design and access matters relating from the Proposed Development. This includes the Principal Site and Cable Route Corridor.</p> <p>A TTM Plan [EN010142/APP/2.5] has been prepared in support of the DCO submission to demonstrate how construction traffic will be safely managed.</p> <p>A detailed assessment of the abnormal vehicles required by the Scheme, including vehicle routing and swept path analysis is provided within Appendix C</p>	

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
		<p>(AIL Management Plan) of the Framework CTMP [EN010142/APP/7.11].</p> <p>The TMMS will apply to the Cable Route Corridor, as well as the Principal Site.</p>	
Bassetlaw District Council	<p>With respect to transport and access, Bassetlaw District Council did not raise any comments in addition to those already raised by Nottinghamshire County Council.</p>	<p>Comment noted, however no response required.</p>	<p>No response required.</p>
Ingham Parish Council	<p>Ingham Parish Council raised concern regarding the local road network which is deemed to be incapable of withstanding constant HGV use.</p>	<p>Highway condition surveys will be undertaken before, during and after the construction to identify any impacts which are as a result of the development that need to be remediated. Where the pre-condition survey identifies that measures should be put in place to protect and maintain the road surface, the LHAs will be consulted.</p> <p>HGV deliveries will be staggered across the day (avoiding the network peak hours where possible) and are not expected to result in a significant increase in traffic along the local network. The assessment of the traffic impact on the local highway network is presented in this ES chapter.</p>	<p>See Section 6 of the Framework CTMP [EN010142/APP/7.11]</p> <p>See Section 6 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]).</p> <p>See Section 16.9 of this ES chapter.</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
Glentworth Parish Council	Glentworth Parish Council raised concern regarding the local road network which is deemed to be incapable of withstanding constant HGV use.	HGVs (excluding abnormal loads) will travel to the four Principal Site accesses via the A15, A631 and B1398. The sections of these roads proposed to be utilised do not include any weight or height restrictions and are therefore suitable for HGVs.	See Section 6 of the TA (Appendix 16-2) of this ES [EN010142/APP/6.2] .
		The HGV routing strategy for the Cable Route Corridor access points also avoids any roads unsuitable for HGVs (where possible).	See Figure 16-3: Proposed HGV Routes – Principal Site and Cable Route Corridor of this ES [EN010142/APP/6.3] .
		An AIL Management Plan has been produced (refer to Appendix C of the Framework CTMP [EN010124/APP/7.11] submitted alongside the DCO application, detailing how the abnormal load trips will be managed and escorted along the network to the relevant locations for the Principal Site and the Cable Route Corridor.	See Appendix C (AIL Management Plan) of the Framework CTMP submitted alongside the DCO application [EN010124/APP/7.11] .
Lincolnshire County Council	Lincolnshire County Council stated that the principles set out in the PEIR documents “ <i>appear acceptable with regard to traffic generation, construction routing and staff travel planning.</i> ” The Council also stated that the preliminary cumulative assessment of the Scheme “ <i>shows an acceptable level of impact on the highway network.</i> ”	Additional PRoW within the vicinity of the Order limits have been added to the PRoW Figure included within this ES chapter. The assessment does however only include the PRoW that fall within the Order limits and are therefore potentially affected by the Scheme.	See Figure 16-5: Local Public Rights of Way (ProW) Network of this ES [EN010142/APP/6.3] .

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
Via East Midlands	<p>The Council did however raise one comment in relation to Figure 15-3 Local PRow Network, stating that the limited network shown could be misleading and PRow in the wider area should also be displayed.</p> <p>Via East Midlands expressed concerns relating to the PRow within Nottinghamshire which are likely to be affected by the Cable Route Corridor and stated that Temporary Traffic Regulation Orders (TTROs) may be required if PRow are to be temporarily closed.</p>	<p>This ES chapter considers the potential impacts of the Scheme on the PRow throughout Nottinghamshire and Lincolnshire. Any mitigations/ disruptions and diversions (where required) are identified within the Framework CTMP [EN010142/APP/7.11] and the Framework PRow Management Plan [EN010142/APP/7.16]. It should be noted that no PRow is expected to be closed (temporarily or permanently) as a result of the Scheme.</p>	<p>See Section 7 of the Framework CTMP [EN010142/APP/7.11]</p> <p>See the Framework PRow Management Plan [EN010142/APP/7.16]</p>
British Horse Society	<p>The British Horse Society raised the following concerns:</p> <ul style="list-style-type: none"> • The section of the Principal Site identified for environment and enhancement purposes should provide dedicated or permissive bridleways or byways for use by all vulnerable road users; • Lack of additional public access proposed for all vulnerable road users, not just pedestrians; • Protection of the existing bridleway and byway network during the construction phase and the lifetime of the Scheme; 	<p>New permissive paths, which will benefit all vulnerable road users, are to be provided throughout the Principal Site during the operational phase of the Scheme.</p> <p>There will be no PRow closures as a result of the Scheme and an Framework PRow Management Plan [EN010142/APP/7.16] has been prepared in support of the DCO submission to demonstrate how PRow will be managed safely during the</p>	<p>See the Framework PRow Management Plan [EN010142/APP/7.16]</p> <p>See Section 16.9 of this ES chapter.</p> <p>See Chapter 3: Scheme Description of this ES [EN010142/APP/6.1].</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
	<ul style="list-style-type: none"> • Minor and unclassified roads in the area to be encompassed by the Scheme are essential for equestrians, particularly the grass verges; • In the absence of traffic calming measures, additional HGV traffic will reduce the safety of the highway network for vulnerable road users; and • Definitive Map Modification Order (DMMO) 680 (claimed restricted byway from Glentworth Road to Fillingham Lane) is located outside of the Order limits but would link to the network within the Order limits. 	<p>construction, operation, maintenance and decommissioning phases. Mitigation will not otherwise exceed the effects of the proposals.</p> <p>It is recognised that the minor routes are essential to the development and these will be retained subject to diversions where these are proposed.</p> <p>In addition, this ES chapter includes an assessment of the potential construction impacts on PRow in terms of severance of communities, non-motorised user delay, non-motorised amenity and fear and intimidation on and by road users.</p> <p>The Scheme is not expected to cause deterioration of any existing PRow within the vicinity of the Order limits. Any impact on PRow caused as a direct result of the construction phase will be temporary and alternative facilities will be provided to facilitate the works. No impacts to PRow are expected in the operational or decommissioning phase.</p> <p>HGVs during the construction phase will be expected to follow the proposed HGV</p>	<p>See Section 6 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]).</p> <p>See Section 6 of the Framework CTMP [EN010142/APP/7.11]</p> <p>See the TTM Plan [EN010142/APP/2.5].</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
		<p>routes and trips will be staggered across the working day within an eight-hour window. Any mitigation (where required) will be identified within the Framework CTMP [EN010142/APP/7.11] and the Framework PRow Management Plan [EN010142/APP/7.16]. A TTM Plan [EN010142/APP/2.5] has also been prepared in support of the DCO submission to demonstrate how construction traffic will be safely managed.</p>	
Network Rail	<p>Network Rail note that the Scheme includes development adjacent to railway infrastructure with connections through railway property. Key concerns raised are as follows:</p> <ul style="list-style-type: none"> • Management of construction works around the operational railway; • Routing of construction traffic should consider railway assets such as bridges with low clearance/ weight restrictions and railway level crossings; • Construction and maintenance should be carried out without adversely affecting the safety of, or encroaching upon Network Rail’s adjacent land; and • Engagement will be required in relation to Rail Asset Protection, Easement and all other relevant legal and commercial agreements. 	<p>A TTM Plan [EN010142/APP/2.5] has been prepared in support of the DCO submission to demonstrate how construction traffic will be safely managed.</p> <p>The routing of construction vehicles associated with the Scheme will avoid bridges (with low clearance/ weight restrictions) and railway level crossings where possible.</p> <p>An AIL Management Plan (refer to Appendix C of the Framework CTMP [EN010142/APP/7.11]) has been produced detailing how the abnormal</p>	<p>See the TTM Plan [EN010142/APP/2.5].</p> <p>See Section 6 of the TA (Appendix 16-2 of this ES [EN010142/APP/6.2]).</p> <p>See Appendix C (AIL Management Plan of the Framework CTMP [EN010142/APP/7.11])</p> <p>See Figure 16-3: Proposed HGV Routes – Principal Site and</p>

Consultee	Summary of Main Matter Raised	How Has the Matter Been Addressed?	Location of Response
		load trips will be managed and escorted along the network to the relevant locations for the Principal Site and the Cable Route Corridor. Designated HGV and AIL route plans highlight the roads which will be utilised by the Scheme during the construction phase.	Cable Route Corridor and Figure 16-10 Abnormal Load Routes – Principal Site and Cable Route Corridor of this ES [EN010142/APP/6.3].

16.6 Baseline Conditions

Existing Baseline (2022)

- 16.6.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Transport and Access relating to the highway network, including baseline traffic flows and PIC data.
- 16.6.2 The baseline year of 2022 is the year that the DCO application was registered with the Planning Inspectorate, and is when surveys were undertaken. The use of an earlier baseline year provides a robust approach, as this accentuates the magnitude of change in flows in percentage terms owing to the Scheme more than would be the case if the baseline traffic flows were higher.

Highway Network

- 16.6.3 The strategic and local highway network is discussed below and shown in **Figure 16-4: Local Highway Network** of this ES [EN010142/APP/6.3].
- 16.6.4 The A631 is a single-carriageway road which links with the A15 in the east and the A638 past Gainsborough in the west. To the west the A631 provides a connection to the A159 and the A156 which are both routes through Gainsborough to the north and south respectively.
- 16.6.5 The A15 is a key route located to the east of the Principal Site running in a north to south direction. To the north the A15 provides a connection to the M180 and the A46 to the south. The A15 provides a key route to/ from Lincoln to the south of the Principal Site.
- 16.6.6 The A57 is a single carriageway road which links the A1(M) to the A46 to the west of Lincoln. The A57 is classified by the DfT as part of the SRN and provides access to the A15 from the south. The A57 also provides access to Laneham Road, which joins with Rampton Road and provides access to Cottam Road from the west.

Principal Site

- 16.6.7 The A631 is a key route that runs along the northern boundary of the Principal Site in an east-west direction. Three access points into the Principal Site are proposed along the A631. The road does not contain footways or street lighting provision within the vicinity of the Principal Site and is rural in character.
- 16.6.8 The B1398 Middle Street is a local route that runs along the eastern extent of the Principal Site. A small section of the Scheme fronts the B1398 between the villages of Harpswell and Glentworth and includes an existing farm track access road into the Principal Site. The B1398 connects with the A631 to the north and the A1500 (Till Bridge Lane) to the south. The B1398 provides connections to local villages including Harpswell, Glentworth and

Fillingham. The road does not contain footways or street lighting provision within the vicinity of the Principal Site and is rural in character.

- 16.6.9 The A1500 (Till Bridge Lane) is located to the south of the Principal Site and runs in an east-west direction through Sturton by Stow and connects to the A156 to the west and the A15 in the east. The A1500 also runs within the vicinity of the Cable Route Corridor. The Cable Route Corridor will cross the A1500 Stow Park Road between Marton and Sturton by Stow.
- 16.6.10 The B1241 (Willingham Road) runs in a north-south direction along the western extent of the Principal Site through Normanby by Stow, Willingham by Stow, Kexby and Upton. It is known by several different names including Gainsborough Road, Stow Road, Normanby Road, Sturton Road and High Street. It connects to Kexby Lane and Fillingham Lane. Where the B1241 runs through a number of villages the speed limit is 30mph and outside these areas the national speed limit applies.
- 16.6.11 Common Lane is a narrow rural road which runs in an east-west direction towards Heapham to the west and Harpswell to the east. Common Lane is located within the Principal Site, providing access to the A631 in the east and the B1241 in the west.
- 16.6.12 Kexby Road is a narrow rural road which runs in an east-west direction towards Upton to the west and Glentworth to the east. Kexby Road is located within the Principal Site, providing access to the B1398 (Middle Street).
- 16.6.13 Willingham Road is a narrow rural road which runs in an east-west direction towards Willingham by Stow to the west and Fillingham to the east. Willingham Road is located within the Principal Site.
- 16.6.14 All of the above routes are single carriageway roads with a single lane in each direction. Speed limits on the routes vary from 30mph to 40mph, where they pass through residential areas, up to the national speed limit (60mph) outside towns/ villages.
- 16.6.15 Within the Study Area there are a number of other local roads which run through, alongside, or in close proximity to the Principal Site. These include:
- a. Springthorpe Road/ Hill Road is a single carriageway road with one lane in each direction but no road markings. It runs north-south through Springthorpe in close proximity (500m) to the north-western border of the Principal Site and provides a link to the A631 in the north and the B1241 in the south; and
 - b. High Street/ Willingham Road runs from the B1398 (Middle Street) through Fillingham village. The road has a single lane in each direction but no road markings and narrows to a single-track road. The road runs east-west across the south of the Site, providing access to the B1398 in the east and Willingham by Stow in the west.

Cable Route Corridor

- 16.6.16 The Cable Route Corridor is runs in a south-westerly direction from the Principal Site to connect with National Grid Cottam Substation. The Cable

Route Corridor will cross Cow Lane, Glentworth Road and Fillingham Lane which are all narrow rural single lane roads within the vicinity of the Principal Site. From east to west the Cable Route Corridor will cross the B1241 (Normandy Road), the A1500 (Stow Park Road) and the A156 (High Street), which are single carriageway roads with a single lane in each direction, as well as the railway line running between Gainsborough and Lincoln. Cow Lane (to the east of Upton), Fillingham Lane (to the east of Willingham by Stow), South Lane (to the east of Willingham by Stow) and Stow Park Road (off the A1500) have been included within the Order limits for the Cable Route Corridor. These narrow rural single lane roads will be used to provide access, rather than areas within which cabling will be laid. These sections of road have been included within the Order limits in order to facilitate improvement works to allow vehicles to use these links.

- 16.6.17 Within Nottinghamshire, the Cable Route Corridor will cross agricultural land, the disused railway track to the north of Cottam, the River Trent, Town Street/ Headstead Bank, Cottam Road/ Outgang Lane and Torksey Ferry Road, before reaching the Point of Connection at Cottam Power Station.
- 16.6.18 Cottam Road and Outgang Lane are located in Nottinghamshire to the north of the existing Cottam Power Station and run in an east-west direction providing access to Cottam Power Station and on to Cottam. The Cable Route Corridor will cross Cottam Road/ Outgang Lane as it will run north-south across the road to the west of Cottam Power Station into the adjoining fields.
- 16.6.19 Town Street/ Headstead Bank to the northeast of Cottam runs in a north-south direction and is included within the Cable Route Corridor Order limits. The Cable Route Corridor will run east-west across Headstead Bank. Similarly, the Cable Route crosses Broad Lane and the disused railway track to the north of Cottam. Both Headstead Bank and Broad Lane are narrow, minor, very low trafficked single-track roads with no pedestrian facilities/ street lighting, etc.
- 16.6.20 Rampton Road is a single carriageway road which connects to Cottam Road and Green Lane at a junction in the north and to Laneham Road to the south. Laneham Road connects to Rampton Road in the north and A57 in the south. Both of the roads are subject to the national speed limit (60mph) and do not feature footways or street lighting, which is in keeping with their rural character.
- 16.6.21 Within Lincolnshire, the Cable Route Corridor will cross the A156 High Street in an east-west direction to the south of Marton. The A156 High Street/ Gainsborough Road is a single carriageway road connecting with the A57 to the west of Saxilby in the south and with the A631/ A159 in Gainsborough to the north. The road is subject to the national speed limit (60mph) and does not include pedestrian footways or street lighting provision for the majority of its length, which is in keeping with its rural character. In the vicinity of Marton, the A156 High Street is restricted to a 30mph speed limit, and some pedestrian footways and street lighting provision is made in the urban area.
- 16.6.22 Along the A1500 Stow Park Road, the Cable Route Corridor will cross the road in a north-south direction to the east of Marton. In the vicinity of Marton

to the west and Sturton by Stow to the east, the A1500 is subject to a 30mph speed limit; in the more rural sections it is subject to the national speed limit in keeping with its rural character.

16.6.23 The Cable Route Corridor is expected to cross the B1241 rural single carriageway at Normanby by Stow in an east-west direction. The road is subject to the national speed limit (60mph) along its rural stretches (outside villages) and does not include street lighting on these sections. A footway on the eastern side of the carriageway is however provided.

16.6.24 All of the above routes are single carriageway roads with a single lane in each direction. Speed limits on the routes vary from 30mph to 40mph, where they pass through residential areas, up to the national speed limit (60mph) in rural areas.

16.6.25 In order to provide access, the Cable Route Corridor Order limits include Cow Lane (to the east of Upton), Fillingham Lane (to the east of Willingham by Stow), South Lane (to the east of Willingham by Stow) and Stow Park Road (off the A1500) (to the south of Cottam Power Station). These are all narrow rural single lane roads subject to the national speed limit (60mph). These sections of road will be used to provide access, rather than being part of the Cable Route Corridor itself. These sections of road have been included within the Order limits in order to facilitate improvement works to allow vehicles to use these links.

Baseline Traffic Flows

16.6.26 The following time periods have been reviewed to inform the assessment, based on the construction working hours of 07:00-19:00:

- a. 06:00-07:00 – construction staff AM peak hour;
- b. 19:00-20:00 – construction staff PM peak hour; and
- c. Daily (24 hours).

16.6.27 A summary of the baseline traffic data within the Study Area is set out in **Table 16-8** and **Table 16-9** below which identifies the total vehicles, total HGVs and HGV percentage, based on the traffic surveys carried out between 10 – 19 July 2022, with the data provided in Annex B of the **TA (Appendix 16-2** of this ES [**EN010142/APP/6.2**])

Table 16-8: Baseline Traffic Survey data (2022) – Average Weekday – Total Vehicles – Links (Two-way Link Flows)

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)			Daily (24 Hours)		
Ref	Link	Total	HGVs*	HGVS%**	Total	HGVs*	HGVS%**	Total	HGVs*	HGVS%**
ATC1	A631, West of School Lane	268	33	12%	245	12	5%	7,502	825	11%
ATC2	A631, West of Minor Access South	231	29	13%	218	10	5%	6,472	713	11%
ATC3	A631, West of Minor Access South	241	26	11%	218	13	6%	6,527	719	11%
ATC4	A631, West of B1398 Middle Street	228	30	13%	212	14	7%	6,417	749	12%
ATC5	B1398 Middle Street, North of A631	148	14	10%	139	6	4%	3,395	360	11%
ATC6	A631, East of B1398 Middle Street	241	34	14%	257	14	5%	6,581	731	11%
ATC7	B1398 Middle Street, South of A631	130	8	6%	95	2	3%	3,072	219	7%
ATC8	A631, West of A15	222	39	18%	196	12	6%	5,357	700	13%
ATC9	A15, North of A631	665	181	27%	438	75	17%	13,236	3,221	24%
ATC10	A631, East of A15	226	37	16%	193	10	5%	5,669	685	12%
ATC11	A15, South of A631	760	159	21%	450	65	14%	14,682	2,877	20%
ATC12	Kexby Road, East of Northlands Road	7	1	9%	10	1	10%	191	19	10%
ATC13	Common Lane, South of A631	4	0	11%	4	1	21%	88	13	15%
ATC14	School Lane, South of A631	0	0	0%	1	0	14%	43	4	8%

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)			Daily (24 Hours)		
Ref	Link	Total	HGVs*	HGVS%**	Total	HGVs*	HGVS%**	Total	HGVs*	HGVS%**
ATC15	Common Lane, East of Heapham	2	0	0%	3	1	29%	103	19	19%
ATC16	Cow Lane, East of Upton	1	0	17%	5	0	0%	89	8	9%
ATC17	Glentworth Road, East of Kexby	3	0	0%	5	0	0%	83	5	6%
ATC18	Fillingham Lane, East of South Lane	6	1	14%	8	1	8%	169	18	11%
ATC19	High Street, East of B1241	55	8	15%	111	6	6%	2,592	233	9%
ATC20	Gainsborough Road, North of High Street	65	4	6%	115	4	3%	2,826	195	7%
ATC21	Marton Road, South of High Street	11	0	0%	24	0	1%	382	25	6%
ATC22	B1241, South of Cot Garth Lane	62	5	7%	110	3	3%	2,524	177	7%
ATC23	B1241, North of Fleets Road	90	6	7%	145	4	3%	3,424	194	6%
ATC24	A1500 Tillbridge Road, West of Thorpe Lane	202	13	7%	178	6	3%	5,080	380	7%
ATC25	Saxilby Road, South of Queensway	99	7	7%	145	7	5%	3,699	253	7%
ATC26	A1500 Stow Park Road, East of Adams Way	167	8	5%	140	8	5%	4,115	302	7%

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)			Daily (24 Hours)		
Ref	Link	Total	HGVs*	HGVS%**	Total	HGVs*	HGVS%**	Total	HGVs*	HGVS%**
ATC27	A156 High Street, South of Willingham Road	379	36	9%	287	15	5%	8,379	725	9%
ATC28	A156 High Street, South of Wapping Lane	247	27	11%	186	8	4%	5,825	544	9%
ATC29	B1241 Kexby Lane, East of Upton Road	17	2	12%	32	1	2%	728	41	6%
ATC30	Cottam Road, East of Westbrecks Lane (located in Nottinghamshire)	95	5	5%	34	1	2%	1,082	106	10%
ATC31	Headstead Bank, South of Broad Lane (located in Nottinghamshire)	4	0	6%	7	1	12%	175	26	15%

**Total vehicles and HGVs are rounded to the nearest whole number. **HGVS% is based on raw average weekday data.*

Table 16-9: Baseline Traffic Survey Data (2022) – Average Weekday – Total Vehicles - Junctions (Two-Way Traffic Flows on all Approaches)

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)		
Ref	Link	Total*	HGVs*	HGVs %**	Total*	HGVs*	HGVs %**
MCC1	A631/B1398 Middle Street Roundabout	384	48	13%	334	11	3%
MCC2	A15/A631 Roundabout	913	263	29%	609	92	15%
MCC3	A1500 Marton Road/Tillbridge Road/B1241 High Street/Saxilby Road staggered junction (Sturton by Stow)	292	13	4%	364	6	2%
MCC4	Gainsborough Road/Marton Road/High Street T-junction (Willingham by Stow)	72	3	4%	145	5	3%
MCC5	A156/A1500 Stow Park Road/Littleborough Lane staggered junction (Marton)	418	31	7%	368	15	4%
MCC6	Cottam Road/Power Station Access (located in Nottinghamshire)	103	6	6%	35	0	0%

**Total vehicles and HGVs are rounded to the nearest whole number.*

***HGV% is based on raw average weekday data.*

Collision Data Review

16.6.28 This section provides a high-level review of PIC data obtained from LHAs for the highway network in the vicinity of the Scheme. A more detailed review of the PIC data is provided within the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**).

16.6.29 The PIC data covers the most recent five-year period available:

- a. Lincolnshire: 01/10/2017 to 30/09/2022 (five years); and
- b. Nottinghamshire: 01/08/2017 to 31/07/2022 (five years).

16.6.30 A total of 127 collisions (87 slight, 34 serious and 6 fatal) have occurred within the Study Area, for the most recent five-year period. A summary of these collisions by location and severity is set out in **Table 16-10** below (areas with five or more collisions have been highlighted in bold).

Table 16-10: Summary of Lincolnshire and Nottinghamshire County Council’s PIC Record

Location	Number of Collisions			
	Slight	Serious	Fatal	Total
Pilham Lane (circa 2.9km west of site access one)	2	3	0	5
A631 Harpswell Lane – area surrounding site access one (circa 1.7km between East Lane and Templefield Lane)	5	0	0	5
A631 Harpswell Lane – area surrounding site access two (circa 1km between Templefield Lane and the first set of S bends)	1	0	0	1
A631 Harpswell Lane – area surrounding site access three (circa 100m of Grange Farm access road)	3	0	0	3
A631 Link – circa 2.5km between site access three and the A631/ B1398 Middle Street roundabout	4	1	0	5
A631 Link – circa 2km between Gibson Road junction and A631/ A15 roundabout	2	1	0	3
A15 Link – circa 1.5km between A631/ A15 roundabout and Normanby Cliff Road	3	0	1	4
A15 Link – circa 10.2km between Normanby Cliff Road and the A15/ A1500 roundabout	14	2	2	18
A1500 Link – circa 8.5km between the A15/ A1500 roundabout and the A1500/ B1241 Sturton by Stow junction	4	1	0	5

Location	Number of Collisions			
	Slight	Serious	Fatal	Total
A1500 Link – circa 5.3km between the A1500/ B1241 Sturton by Stow junction and the A156/ A1500 junction	2	0	0	2
A156 Link – circa 3km between the A156/ A1500 junction and the A156/ Station Road junction in Torksey	3	0	0	3
A156 Link – circa 5km between the A156/ A1500 junction and the A156/ B1241 Willingham Road junction in Lea	5	1	1	7
B1241 Link – circa 600m between the A156/ B1241 Willingham Road junction and The Grove cul-de-sac	2	0	0	2
B1241 Link – approximately 4.8km between Willingham by Stow and the B1241/ A1500 Sturton by Stow junction	2	1	0	3
Minor roads within the vicinity of the Scheme (east of Lea)	5	3	0	8
Ingham Road Link – circa 6.7km between B1241 Sturton Road junction and Lincoln Road junction	2	1	0	3
B1398 Middle Street Link – circa 4.4 km between A1500 junction and Cammeringham Hill junction	2	2	0	4
B1398 Middle Street Link – circa 5 km between Church Hill junction (Ingham) and St George’s Hill junction (Glentworth)	3	2	0	5
Junctions (Lincolnshire)				
A631/ B1398 Middle Street Roundabout – area surrounding site access four (circa 550m between the roundabout and site access four)	1	2	0	3

Location	Number of Collisions			
	Slight	Serious	Fatal	Total
A631/ A15 Roundabout - including the access junction to the BP Petrol Station	4	3	0	7
A15/ A1500 Roundabout	2	2	0	4
A1500/ B1398 Middle Street Junction	3	1	0	4
A1500/ B1241 Sturton by Stow Junction	4	1	0	5
A156/ A1500 Marton Junction	1	1	0	2
A156/ B1241 Willingham Road Junction	4	0	0	4
B1398 Middle Street/ Ingham Lane Junction	1	3	0	4
Links (Nottinghamshire)				
Westbrecks Lane Link – circa 1.2 km between Broad Lane (north) and Cottam Road (south)	0	1	0	1
Leverton Road Link – circa 500 m between Beckingham Lane (north) and Town Street (south)	1	0	0	1
Cocking Lane Link – circa 650 m between Town Street (north) and Laneham Road (south)	1	0	0	1
Retford Road Link – circa 1.6 km between Laneham Road (west) and Main Street (east)	1	1	0	2
Junctions (Nottinghamshire)				
Town Street/ Leverton Road Junction	0	1	0	1

Location	Number of Collisions			
	Slight	Serious	Fatal	Total
Laneham Road/ Cocking Lane Junction	0	0	1	1
Laneham Road/ Retford Road Junction	0	0	1	1

16.6.31 As per the summary table above, a more detailed reviewed of the PIC data is included within Section 4 of the **TA (Appendix 16-2 of this ES [EN010142/APP/6.2])** which includes reference to potential collision clusters within the Study Area.

16.6.32 One collision cluster was identified at the A1500/ B1241 Sturton by Stow junction, where five collisions occurred over the five-year study period equating to one collision per year. This junction has therefore been assigned a **Medium** level of sensitivity in terms of road safety (others assigned a **Low** level of sensitivity) and the assessment of likely impacts and effects is discussed further in Section 16.8 of this Chapter.

16.6.33 Other collisions within the summary table are not classified as clusters, as they are not concentrated in one particular location within the area considered or the types of collision were not consistent..

Walking Facilities

Principal Site

16.6.34 Due to the location of the Principal Site in rural Lincolnshire, there is limited footway provision in the surrounding area. Footways are limited to parts of the A631 with the following:

- a. Along the northern boundary of the Principal Site, a narrow footway is provided along the northern side of the A631 from Pilham Lane through Corringham, where the footway widens, until the junction with Springthorpe Lane (approximately 850m).
- b. A footway is provided along the south side of the A631 through Corringham, ending at the Beckett Arms bus stop. Just after the Caravan Park homes off the northern side of the A631, a footway is provided until the sign for Harpswell, where provision changes to the southern side of the carriageway until the junction with Common Lane (approximately 500m).
- c. To the west of the Principal Site, the junction between the A631 and Springthorpe Road provides access to Springthorpe where approximately 450m of footway fronts onto residential properties on the eastern side of the carriageway, providing access to the Church and New Inn bus stops in Springthorpe.
- d. To the east of the Principal Site, the junction between the A631 and Common Lane provides access to Harpswell where approximately 150 m of footway is provided on the eastern side of the carriageway fronting onto residential properties and providing access to St Chad's Church.
- e. To the east of the Principal Site, the junction between the B1398 (Middle Street) and Hanover Hill provides access to Glentworth where approximately 650m of footway is provided along the northern side of the carriageway until it becomes a narrow single lane track after the village. The footway widens when fronting residential properties through Glentworth.

- f. To the east of the Principal Site along the B1398 (Middle Street), approximately 600m of narrow unkept footways varying between the eastern and western sides of the road exist between the junction with Hanover Hill providing access into Glentworth and residential buildings to the south. The footway widens on the eastern side of the carriageway when fronting the residential properties. Approximately 400m of narrow footway is also provided on the eastern side of the carriageway located north of the junction with the B1398 and Ingham Lane.
- g. To the east of the Principal Site, the junction between the B1398 (Middle Street) and High Street provides access to Fillingham where approximately 1km of footway is provided along the northern side of the road until it becomes a narrow single lane track after the village.

16.6.35 There is one PRow and one claimed PRow located within the Principal Site, as discussed below and shown in **Figure 16-5: Local Public Rights of Way (PRow) Network** of this ES [EN010142/APP/6.3]:

- a. **Claimed Glentworth and Harpswell Public Bridleway 1209** – this is a claimed bridleway which is assumed to become a definitive route in due course. It will run through the eastern extent of the Principal Site, running in a north westerly direction for approximately 535m from Northlands Road in Glentworth to Hermitage Farm in Harpswell. It will link within PRow Harp/92/1 to the north and PRow Gltw/90/1 to the south.
- b. **PRow Gltw/85/1** – a bridleway which runs for approximately 515m within the southern extent of the Principal Site running in a north-south direction between Kexby Road in the north and joining with PRow Fill/85/1 to the south along the Principal Site southern boundary. It should be noted that **PRow Gltw/85/1** is located within an area of the Principal Site designated as a potential area of ecological enhancement, therefore, it is not expected that any works related to the construction of the Scheme will have an impact on the PRow.

16.6.36 There are two additional PRow located in the vicinity of the Principal Site, located outside of the Order limits, either connecting to PRow within the Order limits or within circa. 200m of the Order limits. These PRow will not be affected as a result of the scheme and as such, have not been considered further within this chapter.

- a. PRow Fill/85/1; and
- b. PRow Hems/19/2.

Cable Route Corridor

16.6.37 As above, due to the rural location of the Cable Route Corridor, there is limited footway provision in the surrounding area. Footways are limited to the northern side of Cottam Road and the western side of Town Street both near and through the village of Cottam, as well as both sides of Torksey Ferry Road within the village of Rampton.

16.6.38 All PRow and claimed PRow which could be potentially impacted by the proposed cable works within the Cable Route Corridor (both in Lincolnshire and Nottinghamshire) are shown in **Figure 16-5: Local Public Rights of**

Way (PRoW) Network of this ES [EN010142/APP/6.3]. These include the below (listed in a north-south direction):

- a. **Claimed PRoW Kexby and Willingham DMMO 680** – a restricted byway which runs within the northern extent of the Cable Route Corridor (within Lincolnshire), running in a north-south direction for approximately 1km between Glentworth Road in the north and Fillingham Lane in the south, to the east of Willingham-by-Stow.
- b. **Claimed PRoW DMMO 591** – a byway open to all traffic which runs through the central extent of the Cable Route Corridor (within Lincolnshire), running in a north-south direction for approximately 1.5km between Marton Road in the north and Stow Park Road in the south along a field track. The PRoW runs along the same route as PRoW Stow/70/1, although for a longer distance and is intersected by claimed PRoW DMMO 683 which runs in a northwest-southeast direction to the west of Stow.
- c. **Claimed PRoW DMMO 683** – a footpath which runs within the central extent of the Cable Route Corridor (within Lincolnshire), running in a northwest-southeast direction for approximately 2.5km between Marton Road in the northwest and Church Road in the southeast where it branches off into two routes, west of Stow. The footpath is intersected by claimed PRoW DMMO 591 which runs in a north-south direction to the west of Stow.
- d. **PRoW Mton/68/1** – a footpath which runs through the western extents of the Cable Route Corridor (within Lincolnshire), running in an east-west direction for approximately 800m between A156 High Street in the west and A1500 Stow Park Road in the east, east of Marton.
- e. **PRoW Mton/66/4** – a footpath which runs through the western extents of the Cable Route Corridor (within Lincolnshire), running in a north-south direction for approximately 550m to the east of the River Trent and linking with PRoW Bram/66/1 in the south and PRoW Mton/823/1 in the north.
- f. **PRoW Bram/66/1** – a footpath which runs through the western extent of the Cable Route Corridor (within Lincolnshire), running in a north-south direction for approximately 200m and in an east-west direction for approximately 400m to the east of the River Trent and linking with PRoW Mton/66/4 in the north.
- g. **PRoW Cottam FP1** – a footpath which runs through the western extent of the Cable Route Corridor (within Nottinghamshire), running in a north-south direction for approximately 900m along the western bank of the River Trent and linking with PRoW Cottam FP3 in the north and PRoW Treswell FP7 in the south.
- h. **PRoW Cottam FP3** – a footpath which runs in the vicinity of the western extent of the Cable Route Corridor (within Nottinghamshire), running in an east-west direction for approximately 1km between Headstead Bank and the River Trent and linking with PRoW Cottam FP1 in the east.
- i. **PRoW Cottam RB4** – a restricted byway which runs through the western extent of the Cable Route Corridor (within Nottinghamshire), running in a

north-south direction for approximately 1.1km between Broad Lane in the north and Cottam Road in the south, linking with PRoW Cottam RB6 in the middle.

- j. **PRoW South Leverton BOAT16** – a byway open to all traffic which runs through the western extent of the Cable Route Corridor (within Nottinghamshire), running in a north-south direction for approximately 1.1km along Cow Pasture Lane to the north-west of Cottam Power Station, between Broad Lane in the north and Cottam Road in the south.
- k. **PRoW Rampton FP5** – a footpath which runs through the southwestern extent of the Cable Route Corridor (within Nottinghamshire), running in a north-south direction for approximately 800m to the west of Cottam Power Station, through the fields to the north of Torksey Ferry Road and linking with PRoW Treswell FP4 to the south of Rampton Thorns.
- l. **PRoW Rampton FP6** – a footpath which runs through the southwestern extent of the Cable Route Corridor (within Nottinghamshire), running in a north-south direction for approximately 500m, north of Torksey Ferry Road to the west of Cottam Power Station and linking with PRoW Treswell FP5 in the north and PRoW Rampton BOAT13 in the south.
- m. **PRoW Rampton BOAT13** – a byway open to all traffic which runs through the southern extent of the Cable Route Corridor (within Nottinghamshire), running in an east-west direction for approximately 2.6km along the southern border of Cottam Power Station along Torksey Ferry Road and linking with PRoW Rampton BW8 and FP7 in the east and PRoW Rampton BOAT12, FP20 and FP6 in the west.
- n. **PRoW Rampton FP20** – a footpath which runs within the vicinity of the southern extent of the Cable Route Corridor (within Nottinghamshire), running in a north-south direction for approximately 380m along Nightleys Road and linking with PRoW Rampton BOAT13 in the north along Torksey Ferry Road and PRoW Rampton FP9 in the south.
- o. **PRoW Rampton BOAT12** – a byway open to all traffic which runs within the vicinity of the southern extent of the Cable Route Corridor (within Nottinghamshire), running in a north-south direction for approximately 600m along Shortleys Road and linking with PRoW Rampton BOAT13 along Torksey Ferry Road in the north and PRoW Rampton FP9 in the south.

16.6.39 There are nine additional PRoW located in the vicinity of the Cable Route Corridor, located outside of the Order limits, either connecting to PRoW within the Order limits or within circa. 200m of the Order limits. These PRoW will not be affected as a result of the Scheme and as such, have not been considered further within this chapter.

- a. PRoW Wlgm/538/1;
- b. PRoW Stow/70/1;
- c. PRoW Stow/71/2;
- d. PRoW Mton/69/1;
- e. PRoW Cottam RB6;

- f. PRow Treswell BW18;
- g. PRow Treswell FP5;
- h. PRow Treswell FP4; and
- i. PRow Rampton FP7.

16.6.40 An assessment of the construction phase impact on the PRow within the Order limits is presented in Section 16.8 of this chapter.

Cycling Facilities

Principal Site

16.6.41 There are no on- or off-road dedicated/ marked cycling facilities within the immediate vicinity of the Principal Site and whilst relatively fast vehicle speeds and high traffic flows on the A631 and A15 may deter cyclists, the B1241 (Willingham Road) to the west of the Site, the B1398 (Middle Street) to the east of the Site and the smaller roads within the Scheme Order limits itself are likely to be attractive to leisure cycling.

16.6.42 The nearest National Cycle Network route (between Harby and Lincoln) is located approximately 25km to the south of the Principal Site. There is also a narrow footway/ cycle path on the eastern side of the A15 running for approximately 5.1km between RAF Scampton and Lincoln, to the south of the Principal Site.

16.6.43 The Principal Site could potentially be accessed by cyclists from Corringham, Hemswell and Springthorpe as all are located within an approximate 3-4km cycle distance (10 minutes' cycle) of one of the proposed accesses along the A631.

Cable Route Corridor

16.6.44 There are no on or off-road dedicated/ marked cycling facilities within the immediate vicinity of the Cable Route Corridor. The eastern extent of the Cable Route Corridor connects to the Principal Site and therefore as previously mentioned above, the relatively fast vehicle speeds and high traffic flows on the A631 and A15 may deter cyclists within the vicinity of the Cable Route Corridor in Lincolnshire.

16.6.45 There are a number of minor roads within the western extents of the Cable Route Corridor in Nottinghamshire which are likely to be attractive to leisure cyclists, including Cottam Road which is relatively lightly trafficked. Additionally, this area could potentially be accessed by cyclists from Coates, South Leverton, Rampton and Treswell, all within a 2.5km cycle distance.

16.6.46 Approximately 2.6km (circa nine minutes' cycle) to the west of Cottam Power Station, which is within the Cable Route Corridor Order limits, the National Byway (a leisure cycling route covering parts of England, Scotland and Wales) runs in a north-south direction through Gainsborough and Treswell. The route includes some off-carriageway facilities.

Equestrian Facilities

Principal Site

- 16.6.47 There are two formal equestrian facilities (i.e. bridleways) within the Principal Site as mentioned earlier in this section. Some of the roads within and surrounding the Principal Site are generally lightly trafficked and therefore it is considered that they could be used by equestrians on this basis.
- 16.6.48 There are several equestrian facilities in the local area, including Laughton Wood Equestrian Centre which is located approximately 11km (circa 12 minutes' drive) from the Principal Site to the north of Gainsborough. There are also two liverys located to the south of the Principal Site in the villages of Ingleby and South Carlton approximately 16km and 25km from the Principal Site respectively.

Cable Route Corridor

- 16.6.49 There are several formal equestrian facilities in the western part of the Cable Route Corridor within Nottinghamshire, including Bridleways, Restricted Byways and Byways Open to All Traffic (BOAT). These are listed above. There are also a number of narrow single-track roads to the north of Cottam near to Headstead Bank which appear to be very lightly trafficked and therefore may be appealing to equestrians.

Public Transport Facilities

- 16.6.50 A summary of the local bus and rail facilities in the vicinity of the Scheme is provided below. The frequency of the bus and rail services within the likely arrival and departure hours of the construction staff, and the likelihood of rail as a potential travel mode for construction staff, will be discussed further within the **TA (Appendix 16-2 of this ES [EN010142/APP/6.2])**. The selected bus stops closest to the Scheme and local railway stations are discussed below and the locations identified in **Figure 16-8: Selected Bus Stops and Routes Closest to the Scheme** and **Figure 16-9: Local Railway Stations** of this ES [EN010142/APP/6.3].

Bus

Principal Site

- 16.6.51 Bus services 100, 103, 106 and 354 serve the Principal Site and are in close proximity to the Cable Route Corridor within Lincolnshire. Bus stops are located on the A631, B1398 (Middle Street) and B1241 (Willingham Road) which are in close proximity to the Scheme Order limits. The bus stops closest to the Principal Site access points are listed in **Table 16-11** below with key information regarding service frequency provided.

**Table 16-11: Bus Services Within the Vicinity of the Principal Site
 (within Lincolnshire)**

Bus Service	Bus Stop	Route	Service Frequency
100	Kexby House (B1241 Kexby Lane)	Scunthorpe/ Gainsborough to Lincoln	Approximately an hourly service between 10:00- 16:00 (Mon-Sat excluding Sun)
103	Post Office (A631 Hemswell) St George's Hill (B1398 Middle Street - Glentworth) Hannover Hill (B1398 Middle Street - Glentworth)	Scunthorpe to Lincoln	Approximately a service every 2 hours between 10:00-16:00 (Mon-Sat excluding Sun)
106	Beckett Arms PH (A631 Corringham) New Inn (Hill Road)	Gainsborough to Lincoln (via Springthorpe)	One daily service in each direction (Mon-Sat excluding Sun)
354	Yawthorpe Lane End (A613 Harpswell Lane) Harpwell Grange (A631 Harpswell Lane) Hill Top Lodge (B1398 Middle Street/ A631 Roundabout) St George's Hill (B1398 Middle Street - Glentworth) Church Street (Kexby Road) <i>(The Stagecoach website (Ref. 16-6) confirms that all stops are in operation)</i>	Gainsborough Queen Elizabeth School to Lincoln (via Corringham)	One daily service in each direction (School Days Only)

Cable Route Corridor

16.6.52 In addition to the bus routes identified above, bus service 190 (bus stops on Cottam Lane) serve the western extent of the Cable Route Corridor within Nottinghamshire. The service frequency is provided in **Table 16-12** below.

Table 16-12: Bus Services Within the Vicinity of the Cable Route Corridor (within Nottinghamshire)

Bus Service	Bus Stop	Route	Service Frequency
190	Cottam Lane (Treswell)	Retford to Tuxford	The service is demand responsive through Nottsbus on Demand (Ref. 16-7).

16.6.53 There are a limited number of bus services before 07:00 and after 19:00. It is therefore considered unlikely that the bus services in the vicinity of the Scheme will provide a viable option for construction staff to travel to and from the Scheme given the proposed construction working hours of 07:00-19:00.

Rail

Principal Site

16.6.54 Gainsborough is located to the west of the Principal Site and has two railway stations, Gainsborough Central and Gainsborough Lea Road (located circa. 10km from the Principal Site). These stations could be used as locations to pick-up/ drop-off construction staff via a shuttle service.

Cable Route Corridor

16.6.55 Retford Station and Saxilby Station are located to the west and south of the Cable Route Corridor (circa 10km from the Cable Route Corridor). These stations could be used as locations to pick-up/ drop-off construction staff via a shuttle service.

16.6.56 **Table 16-13** lists the rail services operating from the stations within the vicinity of the Scheme, and more in-depth detail is presented within the TA.

Table 16-13: Rail Services Operating Within the Vicinity of the Scheme

Train Station	Route	Service Frequency
Gainsborough Central Station	Sheffield to Gainsborough to Lincoln/ Cleethorpes	One service in each direction only
Gainsborough Lea Road Station	Leeds/ Sheffield to Lincoln/ Cleethorpes	9 two-way AM services and 9 two-way PM services
	Peterborough to Doncaster	2 two-way AM services and 3 two-way PM services
Saxilby Station	Leeds/ Sheffield to Lincoln/ Cleethorpes	10 two-way AM services and 9 two-way PM services
	Peterborough to Doncaster	2 two-way AM services and 4 two-way PM services
Retford Station (Nottinghamshire)	Leeds/ Sheffield to Lincoln/ Cleethorpes	11 two-way AM services and 5 two-way PM services
	London Kings Cross to Edinburgh/ York/ Leeds	4 two-way AM services and 4 two-way PM services
	London Kings Cross to Hull/ Beverley	3 two-way AM services and 2 two-way PM services

16.6.57 There are a limited number of rail services before 07:00 and after 19:00. It is therefore considered unlikely that the existing rail services in the vicinity of the Scheme will provide a viable option for construction staff to travel to and from the Scheme during the construction working hours of 07:00-19:00. However, the stations have the potential to be used as pick up or drop off locations for staff living in nearby accommodation. In terms of potentially utilising the railway for deliveries during the construction phase, whilst the existing Cottam Power Station is served by a rail station, it is understood that this station and section of track is no longer in use. Ongoing discussions with Network Rail confirmed that the railway line has been closed for some time, signalling equipment was removed following the closure and regular track maintenance has not been undertaken. In the opinion of Network Rail, the cost to reinstate the line and ensure it is safe for use would outweigh any associated benefits.

Future Baseline (2026)

16.6.58 In the absence of the Scheme, traffic flows on the surrounding highway network would be expected to increase as a result of housing and employment growth. Therefore, projected background traffic growth has been applied to the traffic flows derived from the traffic surveys (July 2022) to represent conditions during the future baseline for the construction peak assessment year of 2026.

16.6.59 Projected background traffic growth has been applied to the surveyed traffic flows to represent conditions during the future construction peak assessment year of 2026. With respect to the future baseline for the decommissioning

phase, the timescale is such that it is not possible to provide a realistic forecast for future traffic flows.

16.6.60 Traffic growth to 2026 for the construction peak assessment year has been calculated using National Transport Model (NTM) adjustments applied within the Trip Ends Model Program (TEMPro). This utilised National Trip Ends Model (NTEM) Core Scenario v8.0 to reflect local factors in Bassetlaw (Bassetlaw factors were greater than those calculated for West Lindsey) and to determine the forecast increases in future baseline car driver trips during each weekday peak period. This represents the latest dataset available, covering the period up to 2051.

16.6.61 A summary of the TEMPro growth factors are set out in **Table 16-14**.

Table 16-14: TEMPro Traffic Growth Factors

Growth Period	Road Type	Traffic Growth Factors (Bassetlaw)		
		AM Peak	PM Peak	Average Weekday
2022 to 2026 (Construction)	All Roads	1.024	1.023	1.024

16.6.62 Growth factors for 'All Roads' as presented above have been applied to the 2022 baseline traffic flows.

16.6.63 Applying the TEMPro traffic growth factors above to the 2022 baseline traffic flows, the anticipated future baseline flows for 2026 on the surrounding highway network are set out in **Table 16-15** and **Table 16-16** below.

Table 16-15: Future Baseline Traffic (2026) – Two-way Link Flows

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)			Daily (24 Hours)		
Ref	Link	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**
ATC1	A631, West of School Lane	274	34	12%	251	12	5%	7,685	845	11%
ATC2	A631, West of Minor Access South	236	30	13%	223	11	5%	6,630	731	11%
ATC3	A631, West of Minor Access South	247	27	11%	223	13	6%	6,687	736	11%
ATC4	A631, West of B1398 Middle Street	234	31	13%	217	14	7%	6,574	767	12%
ATC5	B1398 Middle Street, North of A631	152	15	10%	142	6	4%	3,478	368	11%
ATC6	A631, East of B1398 Middle Street	247	34	14%	263	14	5%	6,742	749	11%
ATC7	B1398 Middle Street, South of A631	133	8	6%	98	2	3%	3,147	225	7%
ATC8	A631, West of A15	227	40	18%	200	12	6%	5,488	718	13%
ATC9	A15, North of Spital Lane	681	185	27%	448	77	17%	13,559	3,300	24%
ATC1 0	A631, East of A15	231	38	16%	197	10	5%	5,807	702	12%
ATC1 1	A15, South of A631	778	163	21%	460	66	14%	15,040	2,948	20%
ATC1 2	Kexby Road, East of Northlands Road	7	1	9%	10	1	10%	196	19	10%
ATC1 3	Common Lane, South of A631	4	0	11%	4	1	21%	90	14	15%
ATC1 4	School Lane, South of A631	0	0	0%	1	0	14%	44	4	8%
ATC1 5	Common Lane, East of Heapham	2	0	0%	3	1	29%	106	20	19%

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)			Daily (24 Hours)		
Ref	Link	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**
ATC1 6	Cow Lane, East of Upton	1	0	17%	5	0	0%	91	9	9%
ATC1 7	Glentworth Road, East of Kexby	3	0	0%	5	0	0%	85	5	6%
ATC1 8	Fillingham Lane, East of South Lane	6	1	14%	8	1	8%	173	18	11%
ATC1 9	High Street, East of B1241	56	8	15%	113	6	6%	2,655	238	9%
ATC2 0	Gainsborough Road, North of High Street	67	4	6%	118	4	3%	2,895	200	7%
ATC2 1	Marton Road, South of High Street	11	0	0%	25	0	1%	392	25	6%
ATC2 2	B1241, South of Cot Garth Lane	63	5	7%	113	3	3%	2,585	181	7%
ATC2 3	B1241, North of Fleets Road	92	7	7%	148	4	3%	3,508	199	6%
ATC2 4	A1500 Tillbridge Road, West of Thorpe Lane	207	14	7%	182	6	3%	5,205	390	7%
ATC2 5	Saxilby Road, South of Queensway	101	7	7%	148	7	5%	3,790	259	7%
ATC2 6	A1500 Stow Park Road, East of Adams Way	171	9	5%	143	8	5%	4,216	309	7%
ATC2 7	A156 High Street, South of Willingham Road	388	36	9%	294	16	5%	8,584	743	9%

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)			Daily (24 Hours)		
Ref	Link	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**
ATC2 8	A156 High Street, South of Wapping Lane	253	27	11%	190	8	4%	5,967	557	9%
ATC2 9	B1241 Kexby Lane, East of Upton Road	17	2	12%	33	1	2%	745	42	6%
ATC3 0	Cottam Road, East of Westbrecks Lane (located in Nottinghamshire)	97	5	5%	35	1	2%	1,109	109	10%
ATC3 1	Headstead Bank, South of Broad Lane (located in Nottinghamshire)	4	0	6%	7	1	12%	179	26	15%

*Total vehicles and HGVs are rounded to the nearest whole number.

**HGV% is based on raw average weekday data.

Table 16-16: Future Baseline Traffic Flows (2026) - Junctions (two-way traffic flow movements across all approaches at the junction)

Location		AM Dev Peak (06:00-07:00)			PM Dev Peak (19:00-20:00)		
Ref	Link	Total*	HGVs*	% HGVs**	Total*	HGVs*	% HGVs**
MCC1	A631/B1398 Middle Street Roundabout	393	49	13%	342	11	3%
MCC2	A15/A631 Roundabout	935	269	29%	623	94	15%
MCC3	A1500 Marton Road/Tillbridge Road/B1241 High Street/Saxilby Road staggered junction (Sturton by Stow)	299	13	4%	372	6	2%
MCC4	Gainsborough Road/Marton Road/High Street T-junction (Willingham by Stow)	74	3	4%	148	5	3%
MCC5	A156/A1500 Stow Park Road/Littleborough Lane staggered junction (Marton)	428	32	7%	376	15	4%
MCC6	Cottam Road/Power Station Access T-Junction (located in Nottinghamshire)	105	6	6%	36	0	0%

*Total vehicles and HGVs are rounded to the nearest whole number.

**HGV% is based on raw average weekday data.

16.6.64 The consideration of cumulative effects as a result of committed developments is set out within **Chapter 18: Cumulative Effects and Interactions** of this ES [EN010142/APP/6.1].

16.7 Embedded Design Mitigation

16.7.1 This section contains the mitigation measures relevant to this chapter that are already incorporated into the Scheme design, as described in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1]. Embedded mitigation measures form an integral, committed and deliverable part of the Scheme design or comprise standard construction practices. They form part of the **Framework CTMP** [EN010142/APP/7.11] and are assumed to be implemented. They are therefore factored into the determination of significant effects.

Construction and Decommissioning

16.7.2 The Scheme will minimise construction and decommissioning impacts through the following measures:

- a. Implementation of a **Framework CTMP** [EN010142/APP/7.11] and **Framework Construction Environmental Management Plan (CEMP)** [EN010142/APP/7.8] during the construction phase, as well as a **Framework Decommissioning Environmental Management Plan (DEMP)** [EN010142/APP/7.10] during the decommissioning phase, which will be secured as part of the DCO to detail the measures required to mitigate construction-related and decommissioning-related effects;
- b. Providing suitable points of access, designed with adequate visibility, for construction vehicles to accommodate swept paths. Supporting improvements (e.g. local carriageway widening and vegetation clearance) to take place within the highway boundary and/ or Order limits if required. Drawings showing the proposed access points, visibility splays and swept paths are held within the **Framework CTMP** [EN010142/APP/7.11];
- c. Utilising the existing access arrangements for Cottam Power Station to access the National Grid Cottam Substation via Torksey Ferry Road;
- d. Providing a haul road to facilitate the construction of the Cable Route Corridor;
- e. Delivering an internal shuttle service, which utilises internal routes through the Principal Site, to allow construction staff to access all areas via the four Principal Site accesses;
- f. Working hours of 07:00-19:00 resulting in construction staff travelling to/ from the Scheme outside of the network peak hours, which makes use of the spare capacity on the highway network outside of the peak times;
- g. Implementing an external shuttle service to transfer staff to/ from nearby catchment areas to reduce vehicle trips on the surrounding highway network. At this stage it is expected that shuttle services will follow the same distribution as the construction staff vehicle trips, as outlined in Section 6 of the **TA (Appendix 16-2** of this ES [EN010142/APP/6.2]);

- h. Providing sufficient, but capped, on-site car parking within four of the five Principal Site compounds to accommodate the expected peak parking demand of construction staff within the Principal Site. During the construction phase, staff car parking spaces will be capped at 500, with 150 spaces provided within Principal Site Access 1 and 4 and 100 spaces provided within Principal Site Access 2 and 3;
- i. Encouraging construction staff to car share to reduce single occupancy car trips, by promoting the benefits of car sharing such as reduced fuel costs and by providing dedicated parking spaces for those car sharing within the compounds. A Car Share Scheme will be implemented to match potential sharers and to help staff identify any colleagues who could potentially be collected along their route to/ from the Site;
- j. Providing 12 cycle parking spaces (1% of the peak construction staff) within the Principal Site to encourage construction staff to travel by bicycle where viable. There is no specific cycle parking standard for the land use of the Scheme but based on professional judgement and the location of the Scheme in a rural setting, we believe this to be an appropriate number of spaces. Depending on the compound design during the construction phase of the Scheme, there may be an opportunity to provide more;
- k. Restricting HGV, and LGV movements and abnormal loads to certain routes, as outlined in **Figure 16-3: Proposed HGV Routes – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3] and **Figure 16-10: Abnormal Load Routes – Principal Site and Cable Route Corridor** of this ES [EN010142/APP/6.3];
- l. Restricting HGV and LGV movements throughout the day to an eight-hour window between 08:30-16:30, to avoid increasing traffic levels on the surrounding highway network during the peak hours;
- m. Implementing a Delivery Management System (DMS) to control the bookings of HGV and LGV deliveries from the start of the construction period. This will be used to regulate the arrival times of HGVs and LGVs via timed delivery slots, as well as to monitor compliance of HGV and LGV routing;
- n. Implementing a monitoring system to record HGVs and LGVs travelling to and from the Scheme, to record any non-compliance with the agreed routing plan/ delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes are followed;
- o. Developing a communications strategy including regular meetings with sub-contractors to review and address any issues associated with travel to/ from the Scheme, as well as to relay information including any restrictions and requirements which should be followed;
- p. Carrying out road condition surveys pre-construction, during construction and post-construction, to identify any defects on highway assets/ verges that have arisen during the construction phase of the Scheme for re-instatement. The proposed locations of the road condition surveys are identified within the **Framework CTMP [EN010142/APP/7.11]**;

- q. Implementing TTM where required during the period when the Cables are installed crossing the highway to connect National Grid Cottam Substation with the Principal Site. TTM will be included within the DCO submission. Further details with respect to TTM arrangements and timeframes for installing the cables and crossing the highway are set out within the **Framework CTMP [EN010142/APP/7.11]** and **Traffic Regulation Measures Plan [EN010142/APP/2.5]**.
- r. Positioning of suitably qualified banksmen at the proposed accesses for the Principal Site and Cable Route Corridor, to allow all vehicle arrivals and departures to be safely controlled during the construction period.
- s. Should emergency access be required, the four site accesses located across the Principal Site and the 24 additional Site accesses along the Cable Route Corridor can be utilised. Two additional emergency accesses are proposed at the Principal Site off Common Lane.
- t. Maintaining access to/ along PRow, or otherwise providing temporary PRow diversion routes where necessary to avoid any PRow closures or potential conflicts with the Scheme (i.e. for the two PRows within the Principal Site and those PRow impacted throughout the Cable Route Corridor), where possible. Any diversion routes would be agreed with the LHAs prior to construction;
- u. Providing sufficient protection/ separation between existing PRow and construction routes where necessary;
- v. Managing areas where the proposed construction route crosses any existing PRow (where these are unable to be diverted) or local access roads, by maximising visibility between construction vehicles and other users (e.g. pedestrians and other vulnerable road users), implementing traffic management (e.g. advanced signage to advise other users of the works) and providing manned controls at each crossing point (i.e. marshals/ banksmen). The default priority will be for construction traffic to give-way to other road users;
- w. In terms of construction compounds, the substation contractor compounds (located within the Principal Site) will be accessed via Principal Site Access 1 on the A631 and Access 4 on the B1398 Middle Street. There are expected to be eight additional cable contractor compounds located across the Scheme and these will be accessed via Principal Site Access 1, Principal Site Access 4, Cable Route Corridor Access 18 (via Cow Lane), Cable Route Corridor Access 17 (via Fillingham Lane), Cable Route Corridor Access 14 (via the B1241 Normanby Road), Cable Route Corridor Access 9 (via the A1500 Stow Park Road), Cable Route Corridor Access 4 (via Cottam Road) and Cable Route Corridor Access 3 (via Cottam Road);
- x. Overseeing the management of AILs travelling to and from the Scheme. A specialised haulage service is anticipated to be employed to allow AILs to transport components with the necessary escort, permits and traffic management, with the contractor consulting with the relevant highway authorities to ensure the correct permits are obtained. The police will also be given advanced notification under the Road Vehicle Authorisation of Special Types Order 2003 (Ref. 16.8). AILs are

expected to be required to transport the transformers to the Principal Site for the two on-site substations and to transport cable drums to/ from the Cable Route Corridor via seven different accesses;

- y. Implementing local off-site highway improvements to accommodate AILs travelling to the Principal Site and Cable Route Corridor (e.g. pavement protection, temporary removal of street furniture and vegetation clearance including overhanging trees and lifting overhead cables), if required. Such improvements are outlined in the AIL Management Plan (refer to Appendix C of the **Framework CTMP** submitted alongside the DCO application [EN010142/APP/7.11]); and
 - z. The opportunity to combine mitigation (including some of the above measures) for the West Burton Solar Project, Cottam Solar Project and Gate Burton Solar Energy Park (see **Chapter 18: Cumulative Effects and Interactions** of this ES [EN010142/APP/6.1] and the **Joint Report on the Interrelationships with other Nationally Significant Infrastructure Projects** submitted alongside the DCO application [EN010142/APP/7.6].) will be explored in order to reduce cumulative impacts during the construction phase. This could include sharing the shuttle services to transport construction staff to/ from multiple sites, sharing construction compounds to consolidate trips or sharing the access points to install and maintain the Cable Route Corridor. Final details will be set out within the Detailed CTMP once further details in relation to the other Solar Farm schemes are known.
- 16.7.3 As above, the above measures will be secured as part of the DCO in line with the **Framework CTMP** [EN010142/APP/7.11] and **Framework CEMP** [EN010142/APP/7.8] during the construction phase, as well as the **Framework DEMP** [EN010142/APP/7.10] during the decommissioning phase, as part of the detailed versions of these documents to be finalised post-consent.

Operation

- 16.7.4 The Scheme minimises operational impacts through the following measures:
- a. Providing suitable access points for operational vehicles, these will remain the same as the four construction access points into the Principal Site. This will allow operational vehicles to access all areas of the Principal Site via the proposed access points during the operational phase;
 - b. Maintaining access to all existing PRow within the Scheme, with no diversions or closures (any PRow temporarily diverted during the construction phase will be reinstated during the operational phase); and
 - c. Controlling areas where the internal maintenance routes cross any existing PRow or local access roads (such as providing gates), permitting only operational traffic to utilise these internal routes within the Principal Site. Operational traffic should give-way to other users (pedestrians and vulnerable road users) when utilising the crossing points. Visibility will be maximised between operational vehicles and other users, with warning signage provided if required.

16.7.5 The above measures will be secured as part of DCO in line with the **Framework OEMP [EN010142/APP/7.9]**.

Monitoring

16.7.6 The following monitoring will be carried out during the construction and decommissioning phases of the Scheme and secured as part of DCO in line with the **Framework CTMP [EN010142/APP/7.11]**, **Framework CEMP [EN010142/APP/7.8]**, as the basis for detailed CTMP(s) when this is prepared in due course:

- a. HGVs and LGVs will be monitored to ensure drivers are adhering to the agreed routing plan shown in **Figure 16-3: Proposed HGV Routes – Principal Site and Cable Route Corridor** of this ES **[EN010142/APP/6.1]**;
- b. Road safety will be monitored within the Scheme including at any PRow crossing points, temporary PRow diversion points and crossing points on the local highway network; and
- c. TTM will be monitored as and when it is required.

16.8 Assessment of Likely Impacts and Effects

16.8.1 The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed in Section 16.7 above. The potential for the Scheme to generate effects has been assessed using the methodology as detailed in Section 16.4 of this Chapter. Please see paragraphs 16.8.10 and 16.8.11 below for further details of the potential impacts. Further details of road and PRow receptors are set out under each assessment where relevant e.g. paragraph 16.8.14 for Severance, Pedestrian Delay, Non-motorised User Amenity and Fear and Intimidation.

Construction (2025 to 2027) and Decommissioning (assumed to be 2088)

Overview

16.8.2 The full methodology for calculating the forecast number of construction staff vehicles, LGVs and HGVs is set out within the **TA (Appendix 16-2** of this ES **[EN010142/APP/6.2]**). This includes the trip attraction, trip distribution and trip assignment of vehicles onto the local highway network which has been used to identify the likely impact and effects of the Scheme.

16.8.3 Temporary partial or full road closures may be required in some locations to complete the highway works. Any partial or full road closures are expected to be for a short duration to minimise impacts on the local highway network. The impact of traffic management, and the subsequent change due to the provision of new accesses, on driver and passenger delay and severance is also considered in the assessment.

Highway Impact Assessment

- 16.8.4 **Table 16-17** below displays the forecast increases in vehicle movements during the forecast weekday development peak hours and across the day (24 hours), both in terms of actual increases and percentage increases. The 2026 base year flows represent the two-way traffic flows on the links and on the approaches to the junctions.
- 16.8.5 **Table 16-18** displays the existing baseline (2022) overall highway network peak across the Study Area and compares this to the total trips forecast to occur during the AM and PM development peak hours. The highway network peak hours analysed are specific to each junction, for example the peak hour identified at ATC 1 is 16:30-17:30 and the peak hour identified at ATC 5 is 07:30-08:30.
- 16.8.6 It should be noted that the assessment considers trips associated with both the Principal Site and the Cable Route Corridor.

Table 16-17: 2026 Construction Traffic Impact – Link and Junction Flows

Location		AM Development Peak Hour (06:00-07:00)				PM Development Peak Hour (19:00-20:00)				Daily (24 Hours)			
Ref	Link	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change
ATC1	A631, West of School Lane	274	338	611	123%	251	338	588	134%	7,685	740	8,425	10%
ATC2	A631, West of Minor Access South	236	190	426	80%	223	190	413	85%	6,630	609	7,240	9%
ATC3	A631, West of Minor Access South	247	292	539	118%	223	292	515	131%	6,687	966	7,652	14%
ATC4	A631, West of B1398 Middle Street	234	393	627	168%	217	393	610	181%	6,574	1,193	7,767	18%
ATC5	B1398 Middle Street, North of A631	152	67	219	44%	142	67	209	47%	3,478	134	3,613	4%
ATC6	A631, East of B1398 Middle Street	247	244	491	99%	263	244	507	93%	6,742	1,059	7,801	16%
ATC7	B1398 Middle Street, South of A631	133	167	300	125%	98	167	265	171%	3,147	499	3,646	16%
ATC8	A631, West of A15	227	244	470	107%	200	244	444	122%	5,488	1,059	6,546	19%
ATC9	A15, North of A631	681	116	797	17%	448	116	564	26%	13,559	550	14,109	4%
ATC10	A631, East of A15	231	80	312	35%	197	80	278	41%	5,807	161	5,968	3%
ATC11	A15, South of A631	778	74	852	10%	460	74	535	16%	15,040	402	15,442	3%

Location		AM Development Peak Hour (06:00-07:00)				PM Development Peak Hour (19:00-20:00)				Daily (24 Hours)			
Ref	Link	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change
ATC12	Kexby Road, East of Northlands Road	7	0	7	0%	10	0	10	0%	196	0	196	0%
ATC13	Common Lane, South of A631	4	0	4	0%	4	0	4	0%	90	0	90	0%
ATC14	School Lane, South of A631	0	0	0	0%	1	0	1	0%	44	0	44	0%
ATC15	Common Lane, East of Heapham	2	0	2	0%	3	0	3	0%	106	0	106	0%
ATC16	Cow Lane, East of Upton	1	23	24	1,879%	5	23	28	434%	91	175	267	192%
ATC17	Glentworth Road, East of Kexby	3	0	3	0%	5	0	5	0%	85	0	85	0%
ATC18	Fillingham Lane, East of South Lane	6	42	48	738%	8	42	50	530%	173	486	659	280%
ATC19	High Street, East of B1241	56	42	99	75%	113	42	155	37%	2,655	486	3,141	18%
ATC20	Gainsborough Road, North of High Street	67	0	67	0%	118	0	118	0%	2,895	0	2,895	0%
ATC21	Marton Road, South of High Street	11	0	11	0%	25	0	25	0%	392	0	392	0%
ATC22	B1241, South of Cot Garth Lane	63	42	106	67%	113	42	155	37%	2,585	486	3,071	19%

Location		AM Development Peak Hour (06:00-07:00)				PM Development Peak Hour (19:00-20:00)				Daily (24 Hours)			
Ref	Link	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change
ATC23	B1241, North of Fleets Road	92	85	177	92%	148	85	233	57%	3,508	714	4,222	20%
ATC24	A1500 Tillbridge Road, West of Thorpe Lane	207	94	301	46%	182	94	276	52%	5,205	732	5,937	14%
ATC25	Saxilby Road, South of Queensway	101	0	101	0%	148	0	148	0%	3,790	0	3,790	0%
ATC26	A1500 Stow Park Road, East of Adams Way	171	143	314	83%	143	143	286	100%	4,216	830	5,045	20%
ATC27	A156 High Street, South of Willingham Road	388	159	547	41%	294	158	452	54%	8,584	382	8,965	4%
ATC28	A156 High Street, South of Wapping Lane	253	78	331	31%	190	77	267	41%	5,967	574	6,541	10%
ATC29	B1241 Kexby Lane, East of Upton Road	17	23	40	134%	33	23	56	71%	745	175	921	23%
ATC30	Cottam Road, East of Westbrecks Lane (located in Nottinghamshire)	97	85	182	88%	35	85	120	244%	1,109	714	1,823	64%

Location		AM Development Peak Hour (06:00-07:00)				PM Development Peak Hour (19:00-20:00)				Daily (24 Hours)			
Ref	Link	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change
ATC31	Headstead Bank, South of Broad Lane (located in Nottinghamshire)	4	38	42	1,044%	7	38	45	553%	179	363	542	202%
MCC1	A631/B1398 Middle Street Roundabout	393	457	850	116%	342	457	798	134%	-	-	-	-
MCC2	A15/A631 Roundabout	935	244	1,178	26%	623	244	866	39%	-	-	-	-
MCC3	A1500 Marton Road/Tillbridge Road/B1241 High Street/Saxilby Road staggered junction (Sturton by Stow)	299	143	442	48%	372	143	515	38%	-	-	-	-
MCC4	Gainsborough Road/Marton Road/High Street T- junction (Willingham by Stow)	74	0	74	0%	148	0	148	0%	-	-	-	-
MCC5	A156/A1500 Stow Park Road/Littleborough Lane staggered junction (Marton)	428	171	599	40%	376	170	547	45%	-	-	-	-

Location		AM Development Peak Hour (06:00-07:00)				PM Development Peak Hour (19:00-20:00)				Daily (24 Hours)			
Ref	Link	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change	Base	Dev	Base + Dev	% Change
MCC6	Cottam Road/Power Station Access (located in Nottinghamshire)	105	38	144	36%	36	38	74	107%	-	-	-	-

Table 16-18: 2022 Overall Highway Network Peak and 2026 Development Peak Hour Comparison – Link and Junction Flows

Location		AM Development Peak Hour (06:00-07:00)	PM Development Peak Hour (19:00-20:00)	Existing Baseline Highway Network Peak Hour (2022)	Difference Between Development Peak Hours and Highway Network Peak	
Ref	Link	Base + Dev Total Trips	Base + Dev Total Trips	Overall Highway Network Peak Total Trips	AM Difference	PM Difference
ATC1	A631, West of School Lane	611	588	661	-50	-73
ATC2	A631, West of Minor Access South	426	413	573	-147	-160
ATC3	A631, West of Minor Access South	539	515	577	-38	-62
ATC4	A631, West of B1398 Middle Street	627	610	570	56	40
ATC5	B1398 Middle Street, North of A631	219	209	339	-120	-130
ATC6	A631, East of B1398 Middle Street	491	507	599	-108	-92
ATC7	B1398 Middle Street, South of A631	300	265	322	-21	-57
ATC8	A631, West of A15	470	444	474	-3	-30
ATC9	A15, North of A631	797	564	1,007	-210	-442
ATC10	A631, East of A15	312	278	504	-192	-226
ATC11	A15, South of A631	852	535	1,168	-316	-634
ATC12	Kexby Road, East of Northlands Road	7	10	20	-13	-10

Location		AM Development Peak Hour (06:00-07:00)	PM Development Peak Hour (19:00-20:00)	Existing Baseline Highway Network Peak Hour (2022)	Difference Between Development Peak Hours and Highway Network Peak	
Ref	Link	Base + Dev Total Trips	Base + Dev Total Trips	Overall Highway Network Peak Total Trips	AM Difference	PM Difference
ATC13	Common Lane, South of A631	4	4	10	-6	-6
ATC14	School Lane, South of A631	0	1	5	-5	-4
ATC15	Common Lane, East of Heapham	2	3	13	-12	-10
ATC16	Cow Lane, East of Upton	24	28	11	13	17
ATC17	Glentworth Road, East of Kexby	3	5	9	-5	-3
ATC18	Fillingham Lane, East of South Lane	48	50	16	32	34
ATC19	High Street, East of B1241	99	155	266	-167	-110
ATC20	Gainsborough Road, North of High Street	67	118	265	-198	-147
ATC21	Marton Road, South of High Street	11	25	38	-27	-14
ATC22	B1241, South of Cot Garth Lane	106	155	236	-131	-81
ATC23	B1241, North of Fleets Road	177	233	347	-170	-114
ATC24	A1500 Tillbridge Road, West of Thorpe Lane	301	276	513	-212	-237

Location		AM Development Peak Hour (06:00-07:00)	PM Development Peak Hour (19:00-20:00)	Existing Baseline Highway Network Peak Hour (2022)	Difference Between Development Peak Hours and Highway Network Peak	
Ref	Link	Base + Dev Total Trips	Base + Dev Total Trips	Overall Highway Network Peak Total Trips	AM Difference	PM Difference
ATC25	Saxilby Road, South of Queensway	101	148	352	-251	-204
ATC26	A1500 Stow Park Road, East of Adams Way	314	286	404	-90	-118
ATC27	A156 High Street, South of Willingham Road	547	452	845	-298	-393
ATC28	A156 High Street, South of Wapping Lane	331	267	532	-201	-264
ATC29	B1241 Kexby Lane, East of Upton Road	40	56	61	-21	-6
ATC30	Cottam Road, East of Westbrecks Lane (located in Nottinghamshire)	182	120	188	-6	-68
ATC31	Headstead Bank, South of Broad Lane (located in Nottinghamshire)	42	45	18	24	28
MCC1	A631/B1398 Middle Street Roundabout	850	798	1,082	-232	-284
MCC2	A15/A631 Roundabout	1,178	866	1,759	-581	-893
MCC3	A1500 Marton Road/Tillbridge Road/B1241 High Street/Saxilby Road	442	515	1,092	-650	-577

Location		AM Development Peak Hour (06:00-07:00)	PM Development Peak Hour (19:00-20:00)	Existing Baseline Highway Network Peak Hour (2022)	Difference Between Development Peak Hours and Highway Network Peak	
Ref	Link	Base + Dev Total Trips	Base + Dev Total Trips	Overall Highway Network Peak Total Trips	AM Difference	PM Difference
	staggered junction (Sturton by Stow)					
MCC4	Gainsborough Road/Marton Road/High Street T-junction (Willingham by Stow)	74	148	320	-246	-172
MCC5	A156/A1500 Stow Park Road/Littleborough Lane staggered junction (Marton)	599	547	1,199	-600	-652
MCC6	Cottam Road/Power Station Access (located in Nottinghamshire)	144	74	330	-186	-256

16.8.7 The results shown in **Table 16-17** and **Table 16-18** indicate that the following parts of the network are anticipated to experience increases in hourly traffic flows of at least 30 additional vehicles and a change of at least 10% compared to baseline flows during the development peak hours.

16.8.8 Thresholds of a change of 10%, 30%, 60% and 90% have been adopted for consistency with assessment criteria:

- a. ATC1, ATC2, ATC3, ATC4, ATC6, ATC8 and ATC10 – A631 Harpswell Lane:
 - i. 1,780 additional two-way vehicle trips are expected to utilise the A631 during each of the AM and PM development peak hours.
 - ii. In the AM peak, the increase from the future baseline traffic flows ranges from 35%-168% and in the PM peak it ranges from 41%-181%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows at all the ATC sites except ATC4 (west of the B1398), where there are 56 AM and 40 PM trips in excess of the existing baseline highway network peak hour flow.
 - iv. The future baseline flows with development traffic at ATC4 do however remain below the greatest highway network peak hour flow recorded on the A631 (661 trips at ATC1).
 - v. Therefore, the Scheme is not anticipated to generate traffic flows above the overall highway capacity on this part of the network during the AM and PM development peak hours.
- b. ATC5 and ATC7 – B1398 Middle Street, north and south of A631:
 - i. 234 additional two-way vehicle trips are expected to utilise the B1398 Middle Street north/ south during each of the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows ranges from 44%-125% and in the PM peak it ranges from 47%-171%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- c. ATC9 and ATC11 – A15, North of Spital Lane and South of A631:
 - i. 190 additional two-way vehicle trips are expected to utilise the A15 north/ south during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows ranges from 10%-17% and in the PM peak it ranges from 16%-26%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.

- iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- d. ATC16 – Cow Lane, East of Common Lane:
- i. 23 additional two-way vehicle trips are expected to utilise Cow Lane during both the AM and PM development peak hours.
 - ii. Although this increase is less than 30 vehicles, the percentage change is greater than 10% (1,879% in the AM peak and 434% in the PM peak). Such large percentage changes are caused by low baseline flows recorded on this link (one trip in the AM peak and five trips in the PM peak).
 - iii. Whilst the AM and PM future baseline flows with development traffic are slightly greater than the existing baseline highway network peak hour flows recorded on Cow Lane (13 excess trips in the AM and 17 excess trips in the PM), this link will only be utilised during the construction of the Cable Route Corridor in the vicinity of Cow Lane and therefore the increase in traffic will only occur for a short period during the peak construction phase.
 - vi. In addition, fewer than 30 additional two-way vehicle trips during both the AM and PM development peak hours is considered not to be significant, as an increase of less than one vehicle every two minutes would be unlikely to cause any significant impacts.
- e. ATC18 – Fillingham Lane, East of Farm Track:
- i. 42 additional two-way vehicle trips are expected to utilise Fillingham Lane during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 738% and in the PM peak it is 530%. Such large percentage changes are caused by low baseline flows recorded on this link (six trips in the AM peak and eight trips in the PM peak).
 - iii. Whilst the AM and PM future baseline flows with development traffic are slightly greater than the existing baseline highway network peak hour flows recorded on Fillingham Lane (32 excess trips in the AM and 34 excess trips in the PM), this link will only be utilised during the construction of the Cable Route Corridor in the vicinity of Fillingham Lane and therefore, the increase in traffic will only occur for a short period during the peak construction phase.
- f. ATC19 – High Street, West of B1241:
- i. 42 additional two-way vehicle trips are expected to utilise High Street during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 75% and in the PM peak, the increase is 37%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.

- iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- g. ATC22 and ATC23 – B1241, South of Cot Garth Lane and North of Fleets Road:
- i. 127 additional two-way vehicle trips are expected to utilise the B1241 during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows ranges from 67%-92% and in the PM peak it ranges from 37%-57%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- h. ATC24 and ATC26 – A1500, Tillbridge Road and Stow Park Road:
- i. 237 additional two-way vehicle trips are expected to utilise the A1500 during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows ranges from 46%-83% and in the PM peak it ranges from 52%-100%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- i. ATC27 and ATC28 – A156 High Street, South of Willingham Road and South of Wapping Lane:
- i. 237 additional two-way vehicle trips are expected to utilise the A156 during each of the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows ranges from 31%-41% and in the PM peak it ranges from 41%-54%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- j. ATC29 – Kexby Lane, east of Upton Road:
- i. 23 additional two-way vehicle trips are expected to utilise Kexby Lane during both the AM and PM development peak hours.
 - ii. Although this increase is less than 30 vehicles, the percentage change is greater than 10% (134% in the AM peak and 71% in the PM peak). Such large percentage changes are caused by low

- baseline flows recorded on this link (17 trips in the AM peak and 33 trips in the PM peak).
- iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
 - v. In addition, fewer than 30 additional two-way vehicle trips during both the AM and PM development peak hours is considered not to be significant, as an increase of less than one vehicle every two minutes would be unlikely to cause any significant impacts.
- k. ATC30 – Cottam Road, East of Westbrecks Lane:
- i. 85 additional two-way vehicle trips are expected to utilise Cottam Road during each of the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 88% and in the PM peak, the increase is 244%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- l. ATC31 – Headstead Bank, South of Broad Lane:
- i. 38 additional two-way vehicle trips are expected to utilise Headstead Bank during each of the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 1,044% and in the PM peak, the increase is 553%. Such large percentage changes are caused by low baseline flows recorded on this link (four trips in the AM peak and seven trips in the PM peak).
 - iii. Whilst the AM and PM future baseline flows with development traffic are slightly greater than the existing baseline highway network peak hour flows recorded on Headstead Bank (24 excess trips in the AM and 28 excess trips in the PM), this link will only be utilised during the construction of the Cable Route Corridor in the vicinity of Headstead Bank and therefore, the increase in traffic will only occur for a short period during the peak construction phase.
- m. MCC1 – A631/ B1398 Roundabout:
- i. 457 additional two-way vehicle trips are expected to utilise the A631/ B1398 Middle Street roundabout during both the AM and PM development peak hours.
 - ii. Traffic flows increase by 116% in the AM peak and 134% in the PM peak, but this still equates to 232 fewer two-way trips in the AM and 284 fewer two-way trips in the PM than are recorded at

- the roundabout during the existing baseline highway network peak hour.
- iii. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the PM development peak hour.
- n. MCC2 – A15/ A631 Roundabout:
- i. 244 additional two-way vehicle trips are expected to utilise the A631/ A15 roundabout during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 26% and in the PM peak, the increase is 39%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- o. MCC3 – A1500 Marton Road/ Tillbridge Road/ B1241 High Street/ Saxilby Road Staggered Junction:
- i. 143 additional two-way vehicle trips are expected to utilise the A1500/ B1241 junction during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 48% and in the PM peak, the increase is 38%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- p. MCC5 – A156/ Stow Park Road/ A1500 Littleborough Lane Staggered Junction:
- i. 171 additional two-way vehicle trips are expected to utilise the A156/ A1500 junction during both the AM and PM development peak hours.
 - ii. In the AM peak, the increase from future baseline traffic flows is 40% and in the PM peak, the increase is 45%.
 - iii. Both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows.
 - iv. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.
- q. MCC6 – Cottam Road/ Power Station Access:
- i. 38 additional two-way vehicle trips are expected to utilise the Cottam Road/ Power Station Access junction during both the AM and PM development peak hours.

- ii. Traffic flows increase by 36% in the AM peak and 107% in the PM peak, but this still equates to 186 fewer two-way trips in the AM and 256 fewer two-way trips in the PM than are recorded at the junction during the existing baseline highway network peak hour.
- iii. Therefore, the Scheme is not anticipated to generate traffic flows above the highway capacity on this part of the network during the AM and PM development peak hours.

16.8.9 The above analysis demonstrates that additional traffic movements resulting from the Scheme are within the overall capacity of the highway network and consequently, junction modelling is not deemed to be required.

16.8.10 Following the above, the anticipated impacts for each of the assessment criteria is set out below.

16.8.11 Impacts on road link receptors during construction of the Scheme could include:

- a. Severance;
- b. Driver delay;
- c. Pedestrian delay (incorporating delay to all non-motorised users);
- d. Non-motorised user amenity;
- e. Fear and intimidation; and
- f. Road safety.

Driver Delay

16.8.12 As demonstrated in **Table 16-17** the following links and junctions are expected to experience a greater than 10% increase in traffic flows during both the AM and PM development peak hours as a result of construction traffic associated with the Scheme:

- a. ATC1 – A631, West of School Lane;
- b. ATC2 – A631, West of Minor Access South;
- c. ATC3 – A631, West of Minor Access South;
- d. ATC4 – A631, West of B1398 Middle Street;
- e. ATC5 – B1398 Middle Street, North of A631;
- f. ATC6 – A631, East of B1398 Middle Street;
- g. ATC7 – B1398 Middle Street, South of A631;
- h. ATC8 – A631, West of A15;
- i. ATC9 – A15, North of Spital Lane;
- j. ATC10 – A631, East of A15;
- k. ATC11 – A15, South of A631 (greater than 10% increase in the PM only);
- l. ATC16 – Cow Lane, East of Common Lane;
- m. ATC18 – Fillingham Lane, East of Farm Track;

- n. ATC19 – High Street, West of B1241;
- o. ATC22 – B1241, South of Cot Garth Lane;
- p. ATC23 – B1241, North of Fleets Road;
- q. ATC24 – A1500 Tillbridge Road, West of Thorpe Lane;
- r. ATC26 – A1500 Stow Park Road, East of Adams Way;
- s. ATC27 – A156 High Street, South of Willingham Road;
- t. ATC28 – A156 High Street, South of Wapping Lane;
- u. MCC1 – A631/ B1398 Roundabout;
- v. MCC2 – A15/ A631 Roundabout;
- w. MCC3 – A1500 Marton Road/ Tillbridge Road/ B1241 High Street/ Saxilby Road Staggered Junction;
- x. MCC5 – A156/ Stow Park Road/ A1500/ Littleborough Lane Staggered Junction; and
- y. MCC6 – Cottam Road/ Power Station Access Junction.

16.8.13 However, **Table 16-18** demonstrates that with development traffic included, the total two-way vehicle trips at all ATC sites (except ATC4, ATC16, ATC18 and ATC31) will remain below the existing baseline flows without development traffic during the highway network peak hour, when the peak traffic is expected. At ATC4, the future baseline flows with development traffic included do however remain below the greatest highway network peak hour flow recorded on the A631 and at ATC16, ATC18 and ATC31, the increase in traffic above the existing baseline highway network peak hour flows will only occur for a short period during the peak construction phase. The remaining links and junctions within the Study Area are anticipated to experience a less than 10% increase in traffic flows during all periods. Additional traffic movements as a result of the Scheme are therefore considered within the overall capacity of the highway network. Based on the consultation with Lincolnshire County Council and Nottinghamshire County Council, it has been agreed there will be no need to undertake junction modelling and a subsequent driver delay assessment in this Chapter.

Severance, Pedestrian Delay, Non-motorised User Amenity and Fear and Intimidation

16.8.14 As a reasonable worst-case scenario during the eight-hours HGV and LGV delivery window, it is forecast that there will be a peak of up to 120 HGVs and 60 LGVs travelling to/ from the Principal Site per day, representing 240 daily two-way HGV movements and 120 daily two-way LGV movements. It is forecast that there will be a peak of up to 272 HGVs travelling to/ from any four Cable Route Corridor accesses and any two trenchless crossing sites per day, representing 544 daily two-way HGV movements.

16.8.15 In addition, during the peak construction period, there will be up to 500 construction staff vehicles and 14 shuttle bus services associated with staff for the Principal Site per day, representing 1,028 two-way daily vehicle movements. This excludes internal shuttle services used to transport

construction workers around the Principal Site utilising existing internal tracks. It is forecast that there will be a peak of up to 131 construction staff vehicles travelling to/ from any four Cable Route Corridor compounds and any two trenchless crossing sites per day, representing 262 daily two-way vehicle movements.

- 16.8.16 All road link receptors which were included in the ATC surveys have been examined for the assessment of severance, pedestrian delay, non-motorised user amenity and fear and intimidation as well as any PRow located within the Order limits.

Table 16-19: Highway Receptor Sensitivity (Severance, Pedestrian Delay and Non-motorised User Amenity)

ATC Ref/ Order limits	Receptor	Sensitivity	Justification
A631 (Harpwell Lane)			
ATC1	A631, West of School Lane	Low	Rural setting with limited pedestrian/ cycle facilities
ATC2	A631, West of Minor Access South		
ATC3	A631, West of Minor Access South		
ATC4	A631, West of B1398 Middle Street		
ATC6	A631, East of B1398 Middle Street		
ATC8	A631, West of A15		
ATC10	A631, East of A15		
B1398 Middle Street (Hemswell Roundabout)			
ATC5	B1398 Middle Street, North of A631	Low	Rural setting with limited pedestrian/ cycle facilities
ATC7	B1398 Middle Street, South of A631		
A15 (Caenby Corner Roundabout)			
ATC9	A15, North of A631	Low	Rural setting with limited pedestrian/ cycle facilities
ATC11	A15, South of A631		
School Lane (leading to Principal Site Access 1)			
ATC14	School Lane, South of A631	Very Low	Rural setting with no pedestrian/ cycle facilities
Common Lane (within Principal Site)			
ATC13	Common Lane, South of A631		Rural setting with no pedestrian/ cycle facilities

ATC Ref/ Order limits	Receptor	Sensitivity	Justification
ATC15	Common Lane, East of Heapham Cow Lane (off B1241)	Very Low	Rural setting with no pedestrian/ cycle facilities
ATC16	Cow Lane, East of Upton Kexby Road (within Principal Site)		
ATC12	Kexby Road, East of Northlands Road	Very Low	Rural setting with no pedestrian/ cycle facilities
ATC17	Glentworth Road, East of Kexby		
ATC29	B1241 Kexby Lane, East of Upton Road Fillingham Lane		
ATC18	Fillingham Lane, East of South Lane	Very Low	Rural setting with no pedestrian/ cycle facilities
ATC19	High Street, East of B1241 B1241 (south of Kexby)		
ATC20	Gainsborough Road, North of High Street		
ATC22	B1241, South of Cot Garth Lane		
ATC23	B1241, North of Fleets Road	Medium	Main vehicular route in built-up area with pedestrian/ cycle facilities
ATC25	Saxilby Road, South of Queensway		
	Marton Road (Willingham by Stow)	Low	Rural setting with limited pedestrian/ cycle facilities
ATC21	Marton Road, South of High Street		
	A1500 (east of Saxilby Road)	Low	Rural setting with limited pedestrian/ cycle facilities
ATC24	A1500 Tillbridge Road, West of Thorpe Lane		

ATC Ref/ Order limits	Receptor	Sensitivity	Justification
A1500 Stow Park Road			
ATC26	A1500 Stow Park Road, East of Adams Way	Very Low	Rural setting with no pedestrian/ cycle facilities
A156 (north of Marton)			
ATC27	A156 High Street, South of Willingham Road	Low	Rural setting with limited pedestrian/ cycle facilities
A156 (south of Marton)			
ATC28	A156 High Street, South of Wapping Lane	Low	Rural setting with limited pedestrian/ cycle facilities
Cottam Road			
ATC30	Cottam Road, East of Westbrecks Lane (located in Nottinghamshire)	Very Low	Rural setting with no pedestrian/ cycle facilities
Headstead Bank			
ATC31	Headstead Bank, South of Broad Lane (located in Nottinghamshire)	Low	Rural setting with limited pedestrian/ cycle facilities

16.8.17 With respect to severance, pedestrian delay and non-motorised user amenity, the thresholds of 30%, 60% and 90% increases in traffic flows are applied to result in slight, moderate and substantial magnitudes of change respectively. Based on the initial construction traffic impact assessment, there is expected to be less than a 30% increase in traffic flows across several road link receptors within the Study Area, except for the following:

- a. ATC1, ATC3, ATC4, ATC6 and ATC8 – A631, Harpswell Lane:
 - i. Between +99% to +168% increase during AM development peak hour (1,510 additional trips resulting from construction staff traffic).
 - ii. Between +93% to +181% increase during PM development peak hour (1,510 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial, this is assessed to result in a **Moderate Adverse (significant) effect**.
 - iv. Although the traffic flows increase by over 90% in both the AM and PM peaks, **Table 16-18** shows that both the AM and PM future baseline flows with development traffic remain below the existing baseline highway network peak hour flows at all the ATC sites except ATC4 (west of the B1398), where there are 56 AM and 40 PM trips in excess of the existing baseline highway network peak hour flow. The future baseline flows with development traffic at ATC4 do however remain below the greatest highway network peak hour flow recorded on the A631.
 - v. The Scheme is therefore not anticipated to generate traffic flows above the existing baseline highway capacity on this part of the network during the AM and PM development peak hours. In addition, **Table 16-17** demonstrates that the daily (24 hour) increase in traffic flows resulting from construction staff is negligible and ranges from a 10% to 19% increase.
 - vi. Considering the embedded mitigation within the Scheme, in particular making use of the spare capacity on the highway outside of the network peak hour, it is deemed reasonable to reduce the magnitude of change from Substantial to Moderate resulting in a **Minor Adverse (not significant) effect**. This effect is forecast for a short-term temporary period during the peak construction phase.
- b. ATC2 and ATC10 – A631, Harpswell Lane:
 - i. Between +35% to +80% increase during AM development peak hour (270 additional trips resulting from construction staff).
 - ii. Between +41% to +85% increase during PM development peak hour (270 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Moderate (ATC2) or Slight (ATC10), this is assessed to result in a **Minor Adverse (not significant) effect**.

- c. ATC5 – B1398 Middle Street, North of A631:
- i. +44% increase during AM development peak hour (67 additional trips resulting from construction staff traffic).
 - ii. +47% increase during PM development peak hour (67 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Slight, this is assessed to result in a **Minor Adverse (not significant) effect**.
- d. ATC7 – B1398 Middle Street, South of A631:
- i. +125% increase during AM development peak hour (167 additional trips resulting from construction staff traffic).
 - ii. +171% increase during PM development peak hour (167 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial, this is assessed to result in a **Moderate Adverse (significant) effect**.
 - iv. Although the traffic flows increase by over 100% in both the AM and PM peaks, **Table 16-18** shows that this represents 21 fewer two-way trips in the AM and 57 fewer two-way trips in the PM development peak hours than are recorded during the existing baseline highway network peak hour. The Scheme is therefore not anticipated to generate traffic flows above the existing baseline highway capacity on this part of the network during the AM and PM development peak hours. In addition, **Table 16-17** demonstrates that the daily (24 hour) increase in traffic flows resulting from construction staff is Very Slight at 16%.
 - v. Considering the embedded mitigation within the Scheme, in particular making use of the spare capacity on the highway outside of the network peak hour, it is deemed reasonable to reduce the magnitude of change from Substantial to Moderate resulting in a **Minor Adverse (not significant) effect**. This effect is forecast for a short-term temporary period during the peak construction phase.
- e. ATC16 – Cow Lane, East of Common Lane:
- i. +1879% increase during the AM development peak hour (23 additional trips resulting from construction staff traffic).
 - ii. +434% increase during the PM development peak hour (23 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Very Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial, this is assessed to result in a **Minor Adverse (not significant) effect**.
- f. ATC18 – Fillingham Lane, East of Farm Track:
- i. +738% increase during the AM development peak hour (42 additional trips resulting from construction staff traffic).

- ii. +530% increase during the PM development peak hour (42 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Very Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial, this is assessed to result in a **Minor Adverse (not significant) effect**.
- g. ATC19 – High Street, West of B1241:
- i. +75% increase during the AM development peak hour (42 additional trips resulting from construction staff traffic).
 - ii. +37% increase during the PM development peak hour (42 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Very Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Moderate (AM) or Slight (PM), this is assessed to result in a **Negligible (not significant) effect**.
- h. ATC22 – B1241, South of Cot Garth Lane:
- i. +67% increase during the AM development peak hour (42 additional trips resulting from construction staff traffic).
 - ii. +37% increase during the PM development peak hour (42 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Medium (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Moderate (AM) or Slight (PM), this is assessed to result in a **Moderate Adverse (significant) effect** in the AM peak and a **Minor Adverse (not significant) effect** in the PM peak.
 - iv. **Table 16-18** shows that the increase in traffic flows on this link represent 131 fewer two-way trips in the AM development peak hour than are recorded during the existing baseline highway network peak hour. The Scheme is therefore not anticipated to generate traffic flows above the existing baseline highway capacity on this part of the network during the AM development peak hour. In addition, **Table 16-17** demonstrates that the daily (24 hour) increase in traffic flows resulting from construction staff is Very Slight at 19%.
 - v. Considering the embedded mitigation within the Scheme, in particular making use of the spare capacity on the highway outside of the network peak hour, it is deemed reasonable to reduce the magnitude of change from Moderate to Slight resulting in a **Minor Adverse (not significant) effect**. This effect is forecast for a short-term temporary period during the peak construction phase.
- i. ATC23 – B1241, North of Fleets Road:
- i. +92% increase during the AM development peak hour (85 additional trips resulting from construction staff traffic).
 - ii. +57% increase during the PM development peak hour (85 additional trips resulting from construction staff traffic).

- iii. On the basis of the above, as the sensitivity of the receptor is classified as Medium (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial (AM) or Slight (PM), this is assessed to result in a **Major Adverse (significant) effect** in the AM peak and a **Minor Adverse (not significant) effect** in the PM peak.
 - iv. Although a Major Adverse effect occurs in the AM peak, **Table 16-18** shows that the increase in traffic flows on this link represent 170 fewer two-way trips in the AM development peak hour than are recorded during the existing baseline highway network peak hour. The Scheme is therefore not anticipated to generate traffic flows above the existing baseline highway capacity on this part of the network during the AM development peak hour. In addition, **Table 16-17** demonstrates that the daily (24 hour) increase in traffic flows resulting from construction staff is Very Slight at 20%.
 - v. It should also be noted that this link will only be utilised during the construction of the Cable Route Corridor in the vicinity of the B1241 and therefore the increase in traffic will only occur for a short period during the construction phase. Considering the embedded mitigation within the Scheme, in particular making use of the spare capacity on the highway outside of the network peak hour, it is deemed reasonable to reduce the magnitude of change in the AM peak from Substantial to Moderate, resulting in a **Moderate Adverse (significant) effect** in the AM peak and a **Minor Adverse (not significant) effect** in the PM peak. The Moderate Adverse effect will not occur at the same time as all the other effects, and only if activity on the construction of the Cable Route Corridor is concentrated in that particular area with works being carried out at multiple Cable Route Corridor sites accessed via the B1241. Any overlap of such works would be for a very short period (several weeks).
- j. ATC24 – A1500 Tillbridge Road, West of Thorpe Lane:
- i. +46% increase during the AM development peak hour (94 additional trips resulting from construction staff traffic).
 - ii. +52% increase during the PM development peak hour (94 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Slight, this is assessed to result in a **Minor Adverse (not significant) effect**.
- k. ATC26 – A1500 Stow Park Road, East of Adams Way:
- i. +83% increase during the AM development peak hour (143 additional trips resulting from construction staff traffic).
 - ii. +100% increase during the PM development peak hour (143 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Very Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial (PM) or

Moderate (AM), this is assessed to result in a **Minor Adverse (not significant) effect** in the PM peak and a **Negligible (not significant) effect** in the AM peak.

- I. ATC27 and ATC28 – A156 High Street, South of Willingham Road and South of Wapping Lane:
 - i. Between +31% to +41% increase during the AM development peak hour (237 additional trips resulting from construction staff traffic).
 - ii. Between +41% to +54% increase during the PM development peak hour (237 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptors is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Slight, this is assessed to result in a **Minor Adverse (not significant) effect**.
- m. ATC29 – Kexby Lane, East of Upton Road:
 - i. +134% increase during the AM development peak hour (23 additional trips resulting from construction staff traffic).
 - ii. +71% increase during the PM development peak hour (23 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Very Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial (AM) or Moderate (PM), this is assessed to result in a **Minor Adverse (not significant) effect** in the AM peak and a **Negligible (not significant) effect** in the PM peak.
- n. ATC30 – Cottam Road, East of Westbrecks Lane:
 - i. +88% increase during the AM development peak hour (85 additional trips resulting from construction staff traffic).
 - ii. +244% increase during the PM development peak hour (85 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Very Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial (PM) or Moderate (AM), this is assessed to result in a **Minor Adverse (not significant) effect** in the PM peak and a **Negligible (not significant) effect** in the AM peak.
- o. ATC31 – Headstead Bank, South of Broad Lane:
 - i. +1044% increase during the AM development peak hour (38 additional trips resulting from construction staff traffic).
 - ii. +553% increase during the PM development peak hour (38 additional trips resulting from construction staff traffic).
 - iii. On the basis of the above, as the sensitivity of the receptor is classified as Low (as outlined in **Table 16-19** above) and the magnitude of change is considered to be Substantial, this is assessed to result in a **Moderate Adverse (significant) effect**.

- iv. Such large percentage changes are caused by low baseline flows recorded on this link (four trips in the AM peak and seven trips in the PM peak). Whilst the AM and PM future baseline flows with development traffic are slightly greater than the existing baseline highway network peak hour flows recorded on Headstead Bank (24 excess trips in the AM and 28 excess trips in the PM), this link will only be utilised during the construction of the Cable Route Corridor in the vicinity of Headstead Bank and therefore, the increase in traffic will only occur for a short period during the peak construction phase.
- iv. Considering the embedded mitigation within the Scheme, in particular making use of the spare capacity on the highway outside of the network peak hour, it is deemed reasonable to reduce the magnitude of change from Substantial to Moderate resulting in a **Minor Adverse (not significant) effect**. This effect is forecast for a short-term temporary period during the peak construction phase.

16.8.18 On the remaining road link receptors, the Scheme is expected to result in a Very Slight magnitude of change and a **Negligible (not significant) effect** in terms of severance, pedestrian delay and non-motorised user amenity during the construction phase.

16.8.19 The impact of severance, pedestrian delay and non-motorised user amenity on road link receptors has been assessed as **Moderate Adverse (significant)** (ATC23) **Minor Adverse (not significant)** (ATC1, ATC2, ATC3, ATC4, ATC5, ATC6, ATC7, ATC8, ATC10, ATC16, ATC18, ATC22, ATC24, ATC26, ATC27, ATC28, ATC29, ATC30 and ATC31) or **Negligible (not significant)** (all other receptors). It should be noted that significance of effect is forecast during the peak period of construction which is short-term and temporary and the effects will not all occur at the same time, only when activity on the construction of the Cable Route Corridor is concentrated in particular areas.

Table 16-20: Summary of Significance of Effect on the Highway receptors

ATC Ref.	Receptor	Sensitivity	AM Development Peak Hour (06:00-07:00)		PM Development Peak Hour (19:00-20:00)	
			Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect
A631 (Harpswell Lane)						
ATC1	A631, West of School Lane	Low Sensitivity	Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)
ATC2	A631, West of Minor Access South		Moderate Adverse	Minor Adverse (not significant)	Moderate Adverse	Minor Adverse (not significant)
ATC3	A631, West of Minor Access South		Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)
ATC4	A631, West of B1398 Middle Street		Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)
ATC6	A631, East of B1398 Middle Street		Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)
ATC8	A631, West of A15		Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)
ATC10	A631, East of A15		Minor Adverse	Minor Adverse (not significant)	Minor Adverse	Minor Adverse (not significant)

ATC Ref.	Receptor	Sensitivity	AM Development Peak Hour (06:00-07:00)		PM Development Peak Hour (19:00-20:00)	
			Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect
B1398 Middle Street (Hemswell Roundabout)						
ATC5	B1398 Middle Street, North of A631	Low Sensitivity	Minor Adverse	Minor Adverse (not significant)	Minor Adverse	Minor Adverse (not significant)
ATC7	B1398 Middle Street, South of A631		Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)
A15 (Caenby Corner Roundabout)						
ATC9	A15, North of A631	Low Sensitivity	Negligible	Negligible	Negligible	Negligible
ATC11	A15, South of A631		Negligible	Negligible	Negligible	Negligible
School Lane (leading to Principal Site Access 1)						
ATC14	School Lane, South of A631	Very Low Sensitivity	Negligible	Negligible	Negligible	Negligible
Common Lane (within Principal Site)						
ATC13	Common Lane, South of A631	Very Low Sensitivity	Negligible	Negligible	Negligible	Negligible
ATC15	Common Lane, East of Heapham		Negligible	Negligible	Negligible	Negligible
Cow Lane (off B1241)						

ATC Ref.	Receptor	Sensitivity	AM Development Peak Hour (06:00-07:00)		PM Development Peak Hour (19:00-20:00)		
			Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect	
ATC16	Cow Lane, East of Upton	Very Low Sensitivity	Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)	
Kexby Road (within Principal Site)							
ATC12	Kexby Road, East of Northlands Road		Negligible	Negligible	Negligible	Negligible	
ATC17	Glentworth Road, East of Kexby	Very Low Sensitivity	Negligible	Negligible	Negligible	Negligible	
ATC29	B1241 Kexby Lane, East of Upton Road		Major Adverse	Minor Adverse (not significant)	Moderate Adverse	Negligible	
Fillingham Lane							
ATC18	Fillingham Lane, East of South Lane	Very Low Sensitivity	Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)	
ATC19	High Street, East of B1241		Moderate Adverse	Negligible	Minor Adverse	Negligible	
B1241 (south of Kexby)							
ATC20	Gainsborough Road, North of High Street	Medium Sensitivity	Negligible	Negligible	Negligible	Negligible	
ATC22	B1241, South of Cot Garth Lane		Moderate Adverse	Minor Adverse (not significant)	Minor Adverse	Minor Adverse (not significant)	

ATC Ref.	Receptor	Sensitivity	AM Development Peak Hour (06:00-07:00)		PM Development Peak Hour (19:00-20:00)	
			Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect
ATC23	B1241, North of Fleets Road		Major Adverse	Moderate Adverse (significant)	Minor Adverse	Minor Adverse (not significant)
ATC25	Saxilby Road, South of Queensway		Negligible	Negligible	Negligible	Negligible
Marton Road (Willingham by Stow)						
ATC21	Marton Road, South of High Street	Low Sensitivity	Negligible	Negligible	Negligible	Negligible
A1500 (east of Saxilby Road)						
ATC24	A1500 Tillbridge Road, West of Thorpe Lane	Low Sensitivity	Minor Adverse	Minor Adverse (not significant)	Minor Adverse	Minor Adverse (not significant)
A1500 Stow Park Road						
ATC26	A1500 Stow Park Road, East of Adams Way	Very Low Sensitivity	Moderate Adverse	Negligible	Major Adverse	Minor Adverse (not significant)
A156 (north of Marton)						
ATC27	A156 High Street, South of Willingham Road	Low Sensitivity	Minor Adverse	Minor Adverse (not significant)	Minor Adverse	Minor Adverse (not significant)
A156 (south of Marton)						
ATC28	A156 High Street, South of Wapping Lane	Very Low Sensitivity	Minor Adverse	Minor Adverse (not significant)	Minor Adverse	Minor Adverse (not significant)

ATC Ref.	Receptor	Sensitivity	AM Development Peak Hour (06:00-07:00)		PM Development Peak Hour (19:00-20:00)	
			Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect
Cottam Road						
ATC30	Cottam Road, East of Westbrecks Lane (located in Nottinghamshire)	Very Low Sensitivity	Moderate Adverse	Negligible	Major Adverse	Minor Adverse (not significant)
Headstead Bank						
ATC31	Headstead Bank, South of Broad Lane (located in Nottinghamshire)	Low Sensitivity	Major Adverse	Minor Adverse (not significant)	Major Adverse	Minor Adverse (not significant)

Fear and Intimidation

- 16.8.20 The highway link receptors and receptor sensitivities have been determined using the same criteria as severance, pedestrian delay and non-motorised user amenity and are outlined in **Table 16-19** .
- 16.8.21 The magnitude of change with respect to fear and intimidation across the PRow receptors during the construction phase has been categorised the same as for severance, pedestrian delay and pedestrian and cyclist amenity above.
- 16.8.22 Fear and intimidation are dependent on the total volume of traffic, the HGV composition, the speed these vehicles are passing and the proximity of traffic to people, or the lack of protection caused by factors such as narrow pavement median. The approximate likelihood of pedestrian fear and intimidation occurring on each road link receptor has been based on average 18-hour traffic flow, 18-hour heavy vehicle flow and average speed over an 18-hour day in miles/ hour. A degree of hazard scoring system has then been applied to determine the level of fear and intimidation, classified as Extreme, Great, Moderate or Small. This methodology has been applied to both the 'without scheme' (2026 baseline) and 'with scheme' (2026 baseline plus construction traffic) scenarios to allow a step change in the level of fear and intimidation from baseline conditions to be calculated to determine the overall magnitude of impact.
- 16.8.23 **Table 16-21** outlines the level of fear and intimidation on each road link receptor in the 'without scheme' scenario and **Table 16-22** outlines the level of fear and intimidation on each road link receptor in the 'with scheme' scenario.

Table 16-21: Fear and Intimidation Results - 2026 Baseline 18hr Two-way Traffic Flows (Without Scheme Scenario)

Location		NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	
A631 (Harpwell Lane)											
ATC1	A631, West of School Lane	Low Sensitivity	7,478	30	804	0	60.2	30	60	Great	
ATC2	A631, East of Minor Access South		6,461	30	696	0	58.7	30	60	Great	
ATC3	A631, West of Minor Access South		6,514	30	703	0	56.5	30	60	Great	
ATC4	A631, West of B1398		6,409	30	732	0	53.1	30	60	Great	
ATC6	A631, East of B1398		6,571	30	713	0	49.1	30	60	Great	
ATC8	A631, Hanover Hill, West of Spital Lane		5,317	30	676	0	52.6	30	60	Great	
ATC10	A631, East of A15		5,665	30	666	0	53.0	30	60	Great	
B1398 (Hemswell roundabout)											
ATC5	B1398, North of A631		Low Sensitivity	3,393	30	351	0	63.5	30	60	Great
ATC7	B1398, South of A631		3,069	30	218	0	60.8	30	60	Great	
A15 (Caenby Corner roundabout)											

Location		NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation
ATC9	A15, North of Spital Lane	Low Sensitivity	12,688	30	2,969	20	50.5	30	80	Extreme
ATC11	A15, South of A631		14,012	30	2,656	20	53.0	30	80	Extreme
School Lane (leading to Principal Site Access 1)										
ATC14	School Lane, South of A631	Very Low Sensitivity	43	0	4	0	47.6	30	30	Moderate
Common Lane (within Principal Site)										
ATC13	Common Lane, South of A631	Very Low Sensitivity	89	0	14	0	36.8	20	20	Small
ATC15	Common Lane, West of A631		105	0	20	0	51.1	30	30	Moderate
Cow Lane (within Cable Route Corridor)										
ATC16	Cow Lane, East of Common Lane	Very Low Sensitivity	91	0	9	0	50.3	30	30	Moderate
Kexby Road (within Principal Site)										
ATC12	Kexby Road, East of Northlands Road	Very Low Sensitivity	192	0	19	0	43.8	30	30	Moderate

Location	NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation
ATC17	Glentworth Road, East of High Street	84	0	5	0	47.1	30	30	Moderate
AC29	Kexby Lane, East of Upton Road	737	10	41	0	55.5	30	40	Moderate
Fillingham Lane (within Cable Route Corridor)									
ATC18	Fillingham Lane, East of Farm Track	172	0	18	0	44.6	30	30	Moderate
ATC19	High Street, West of B1241								
B1241 (south of Kexby)									
ATC20	Gainsborough Road, North of High Street	2,866	30	197	0	46.7	30	60	Great
ATC22	B1241, South of Cot Garth Lane	2,564	30	178	0	61.4	30	60	Great
ATC23	B1241, North of Fleets Road								
ATC25	Saxilby Road, South of Queensway	3,718	30	254	0	36.9	20	50	Great

Location		NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation
Marton Road (Willingham by Stow)										
ATC21	Marton Road, South of High Street	Low Sensitivity	387	0	25	0	29.8	10	10	Small
A1500 (east of Saxilby Road)										
ATC24	Tillbridge Road, West of Thorpe Lane	Low Sensitivity	5,088	30	377	0	61.3	30	60	Great
A1500 Stow Park Road										
ATC26	Stow Park Road, East of Adams Way	Very Low Sensitivity	4,107	30	296	0	60.8	30	60	Great
A156 (north of Marton)										
ATC27	High Street, South of Willingham Road	Low Sensitivity	8,263	30	701	0	43.2	30	60	Great
A156 (south of Marton)										
ATC28	High Street, South of Wapping Lane	Low Sensitivity	5,737	30	525	0	50.8	30	60	Great
Cottam Road										

Location	NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	
ATC30	Cottam Road, East of Westbrecks Lane	Very Low Sensitivity	1,080	10	106	0	63.3	30	40	Moderate
Headstead Bank										
ATC31	Headstead Bank, South of Broad Lane	Low Sensitivity	175	0	26	0	36.4	20	20	Small

Table 16-22: Fear and Intimidation Results - 2026 Baseline + Construction Traffic 18hr Two-way Traffic Flows (With Scheme Scenario)

Location		NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	Magnitude of Impact
A631 (Harpwell Lane)											
ATC1	A631, West of School Lane		8,217	30	869	0	60	30	60	Great	Negligible
ATC2	A631, East of Minor Access South		7,070	30	962	0	59	30	60	Great	Negligible
ATC3	A631, West of Minor Access South		7,480	30	1,145	10	56	30	70	Great	Negligible
ATC4	A631, West of B1398	Low Sensitivity	7,602	30	1,223	10	53	30	70	Great	Negligible
ATC6	A631, East of B1398		7,629	30	1,405	10	49	30	70	Great	Negligible
ATC8	A631, Hanover Hill, West of Spital Lane		6,375	30	1,368	10	53	30	70	Great	Negligible

Location	NMU Link	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	Magnitude of Impact
ATC10	A631, East of A15	5,826	30	666	0	53	30	60	Great	Negligible
B1398 (Hemswell roundabout)										
ATC5	B1398, North of A631	3,527	30	351	0	63	30	60	Great	Negligible
ATC7	B1398, South of A631	3,568	30	419	0	61	30	60	Great	Negligible
A15 (Caenby Corner roundabout)										
ATC9	A15, North of Spital Lane	13,238	30	3,347	30	50	30	90	Extreme	Negligible
ATC11	A15, South of A631	14,414	30	2,970	20	53	30	80	Extreme	Negligible
School Lane (leading to Principal Site Access 1)										
ATC14	School Lane, South of A631	43	0	76	0	48	30	30	Moderate	Negligible
Common Lane (within Principal Site)										

Location	NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	Magnitude of Impact
ATC13	Common Lane, South of A631	89	0	14	0	37	20	20	Small	Negligible
	Very Low Sensitivity									
ATC15	Common Lane, West of A631	105	0	20	0	51	30	30	Moderate	Negligible
Cow Lane (within Cable Route Corridor)										
ATC16	Cow Lane, East of Common Lane	266	0	138	0	50	30	30	Moderate	Negligible
Kexby Road (within Principal Site)										
ATC12	Kexby Road, East of Northlands Road	192	0	19	0	44	30	30	Moderate	Negligible
	Very Low Sensitivity									
ATC17	Glentworth Road, East of High Street	84	0	5	0	47	30	30	Moderate	Negligible

Location	NMU Link	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	Magnitude of Impact
AC29	Kexby Lane, East of Upton Road	912	10	170	0	56	30	40	Moderate	Negligible
Fillingham Lane (within Cable Route Corridor)										
ATC18	Fillingham Lane, East of Farm Track	658	10	419	0	45	30	40	Moderate	Negligible
ATC19	High Street, West of B1241	3,117	30	636	0	34	20	50	Great	Negligible
B1241 (south of Kexby)										
ATC20	Gainsborough Road, North of High Street	2,866	30	197	0	47	30	60	Great	Negligible
ATC22	B1241, South of Cot Garth Lane	3,050	30	579	0	61	30	60	Great	Negligible
ATC23	B1241, North of Fleets Road	4,171	30	739	0	33	20	50	Great	Negligible

Location	NMU Link Sensitivity	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	Magnitude of Impact	
ATC25	Saxilby Road, South of Queensway	3,718	30	254	0	37	20	50	Great	Negligible	
Marton Road (Willingham by Stow)											
ATC21	Marton Road, South of High Street	Low Sensitivity	387	0	25	0	30	10	10	Small	Negligible
A1500 (east of Saxilby Road)											
ATC24	Tillbridge Road, West of Thorpe Lane	Low Sensitivity	5,820	30	921	0	61	30	60	Great	Negligible
A1500 Stow Park Road											
ATC26	Stow Park Road, East of Adams Way	Very Low Sensitivity	4,937	30	840	0	61	30	60	Great	Negligible
A156 (north of Marton)											
ATC27	High Street, South of	Low Sensitivity	8,645	30	766	0	43	30	60	Great	Negligible

Location	NMU Link	Average traffic flows (all vehicles)	Degree of Hazard Score	Total Traffic Flows (HGVs)	Degree of Hazard Score	Average Vehicle Speed (mph)	Degree of Hazard Score	Total Hazard Score	Level of Fear and Intimidation	Magnitude of Impact	
Willingham Road											
A156 (south of Marton)											
ATC28	High Street, South of Wapping Lane	Low Sensitivity	6,311	30	943	0	51	30	60	Great	Negligible
Cottam Road											
ATC30	Cottam Road, East of Westbrecks Lane	Very Low Sensitivity	1,794	20	650	0	63	30	50	Great	Medium
Headstead Bank											
ATC31	Headstead Bank, South of Broad Lane	Low Sensitivity	538	0	312	0	36	20	20	Small	Negligible

- 16.8.24 **Table 16-22** demonstrates that there is no change in the level of fear and intimidation on any road link receptor in the 'with scheme' scenario compared to the 'without scheme' scenario except for Cottam Road (ATC30). The magnitude of impact on ATC30 is Medium because there is one step change in level (Moderate to Great) with a greater than 400 vehicle increase in average 18hr two-way all vehicle traffic flows and a greater than 500 vehicle increase in total 18hr HGV traffic flows.
- 16.8.25 Although the level of fear and intimidation on Cottam Road is Medium, this link will only be utilised during the construction of the Cable Route Corridor in the vicinity of Cottam and Headstead Bank and therefore, the increase in HGVs will only occur for a short period during the peak construction phase. It should also be noted that the number of HGVs utilising Cottam Road is high because in order to protect the village of Rampton, all the HGVs which would have utilised Torksey Ferry Road (which is also classified as unsuitable for HGVs) have been distributed along this road.
- 16.8.26 The Scheme is expected to result in a Very Slight magnitude of change and a **Negligible (not significant) effect** in terms of fear and intimidation on highway link receptors during the construction phase.

Road Safety

- 16.8.27 An assessment of road safety has been carried out as part of the TA for the PIC Study Area shown in **Figure 16-7: Personal Injury Collision (PIC) Study Area** of this ES [EN010142/APP/6.3].
- 16.8.28 A total of 10 locations were identified as potential collision clusters, where five or more collisions occurred over the five-year study period, equating to more than one collision per year.
- 16.8.29 A total of five collisions, four slight and one serious, were recorded in the vicinity of the A1500/ B1241 Sturton by Stow junction during the five-year study period, equivalent to one collision per year. All five collisions occurred at similar locations and as such, this part of the network has been assigned a Medium level of sensitivity in terms of road safety.
- 16.8.30 At the remaining nine junctions or links where five or more collisions occurred, the detailed review within Section 4 of the **TA (Appendix 16-2)** of this ES [EN010142/APP/6.2] indicates that due to the collisions occurring in different locations and having different contributory factors, no additional cluster locations or patterns, other than the A1500/ B1241 Sturton by Stow Junction, were identified. As such, these parts of the network have been assigned a Low level of sensitivity.
- 16.8.31 For the remainder of the network within the Study Area, fewer than five collisions occurred at any junction or link between junctions within the five-year study period, equivalent to less than one collision per year. As such, the remainder of the network has been assigned a Negligible level of sensitivity in terms of road safety.
- 16.8.32 As identified in **Table 16-17**, there is forecast to be a total of 143 construction staff vehicle movements through the A1500/ B1241 Sturton by Stow junction in both the AM and PM development peak hours, equating to a 38%-48%

increase in traffic flows. Therefore, despite the Medium level of sensitivity assigned to this junction, the Scheme is expected to result in a Low magnitude of change and a **Minor Adverse (not significant) effect** in terms of road safety during the construction phase.

16.8.33 The impact of road safety on road link and junction receptors has been assessed as **Minor Adverse** and is considered to be **not significant**.

Temporary Traffic Management Impacts

16.8.34 Temporary partial or full road closures will be required in some locations to complete the works associated with the Scheme, including construction of new access points, improvements to existing accesses, highway improvements such as passing bays and installation of the cable where it crosses existing roads.

16.8.35 Any partial or full road closures are expected to be for a short duration to minimise impacts on the local highway network. Full closures would only be required where and when necessary on narrow roads where options for retaining public access through the use of two-way traffic signals is not feasible. In addition, wherever possible access for emergency vehicles, pedestrians and cyclists will be maintained during the temporary closures. Advance warning will be provided in line with local highway authority guidance and diversion routes will be put in place. No permanent road closures will be required. Management measures will be finalised and set out in the Detailed CTMPs.

16.8.36 Where a full closure is required, the works will be carefully planned to ensure that the durations of any closures are minimised, and any full closure will include consideration of the continued access of any local residents or commercial businesses that fall within the area of the closure. The exact duration of any partial or full closure would be secured as part of the Detailed CTMP.

16.8.37 Below is a summary of the anticipated type of closures and durations by location. The closure durations noted in the table below are the estimated worst case duration required for any unique identified work. The durations represent the anticipated length of time required to complete the associated works, but the actual road closures may not be required for the full length of time.

Table 16-23 Potential Road Closures

Street	Closure Type	Anticipated Maximum Duration
A631 Harpswell Lane	Partial	4-6 weeks
School Lane	Full	6-8 weeks
Roundabout of A631 Harpswell Lane and B1398 Middle Street	Partial	1-2 days
B1398 Middle Street	Partial	4-5 weeks

Street	Closure Type	Anticipated Maximum Duration
Common Lane	Full	3-4 weeks (numerous closures of similar or less will be required)
Cow Lane	Full	4 weeks (numerous closures of similar or less will be required)
Willingham Road	Full	4-6 weeks
Fillingham Lane	Full	4 weeks (numerous closures of similar or less will be required)
South Lane	Full	6 weeks
Normanby Road	Partial	6-8 weeks
Wood Lane	Full	6 weeks
Stow Park Road	Full or Partial	4-5 weeks (full) 8-10 weeks (partial)
A1500 Tillbridge Lane	Partial	4-5 weeks
A1500 Stow Park Road	Partial	4-5 weeks
A156 High Street	Partial	6-8 weeks
Headstead Bank & Town Street	Full or Partial	6 weeks (full), 10 weeks (partial)
Cottam Road	Partial	6-8 weeks
Torksey Ferry Road	Full	4 weeks (aligns to Gate Burton)
Nightleys Road	Partial	2-3 weeks
Shortleys Road	Full	8 weeks (associated with the junction of TfR and Shortleys Road which will include widening of access over the Seymour Drain)

Street	Closure Type	Anticipated Maximum Duration
A631 Harpswell Lane	Partial	4-6 weeks
School Lane	Full	6-8 weeks
Roundabout of A631 Harpswell Lane and B1398 Middle Street	Partial	1-2 days
B1398 Middle Street	Partial	4-5 weeks
Common Lane	Full	3-4 weeks (numerous closures of similar or less will be required)
Cow Lane	Full	4 weeks (numerous closures of similar or less will be required)
Willingham Road	Full	4-6 weeks
Fillingham Lane	Full	4 weeks (numerous closures of similar or less will be required)
South Lane	Full	6 weeks
Normanby Road	Partial	6-8 weeks
Wood Lane	Full	6 weeks
Stow Park Road	Full or Partial	4-5 weeks (full) 8-10 weeks (partial)
A1500 Tillbridge Lane	Partial	4-5 weeks
A1500 Stow Park Road	Partial	4-5 weeks
A156 High Street	Partial	6-8 weeks
Headstead Bank & Town Street	Full or Partial	6 weeks (full), 10 weeks (partial)
Cottam Road	Partial	6-8 weeks
Torksey Ferry Road	Full	4 weeks (aligns to Gate Burton)
Nightleys Road	Partial	2-3 weeks
Shortleys Road	Full	8 weeks (associated with the junction of TfR and Shortleys Road which will include widening of access over the Seymour Drain)

Street	Closure Type	Anticipated Maximum Duration
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16.8.38 Temporary full closures are only anticipated to be required on minor unclassified roads with relatively low traffic flows, and it is not expected that there would be multiple closures at the same time or in close proximity to each other, as provided within the **Framework CTMP [EN010142/APP/7.11]**. As both the partial and full temporary closures will be for very short periods within the construction phase and in all circumstances alternative routes will be provided, the effects on driver and passenger delay and severance are considered **not significant**.

PRoW Impact Assessment

16.8.39 Impacts on PRoW receptors during construction of the Scheme could include:

- a. Severance;
- b. Pedestrian delay (incorporating delay to all non-motorised users);
- c. Non-motorised user amenity (pedestrian and cyclist amenity); and
- d. Fear and intimidation.

16.8.40 Although there is one PRoW (Gltw/85/1) and one Claimed ProW (Glentworth and Harpswell Public Bridleway 1209) located within the Principal Site, it should be noted that these are located within an area designated for ecological and landscape mitigation (i.e. not land developed for solar PV panels). Therefore, it is not expected that any works relating to the construction of the Principal Site will impact the operation of the two PRoWs. Note that Claimed PRoW are assessed on the basis that they are of equal status to confirmed rights of way, given that rights emerge as time elapses. Therefore, where general statements or references are made below to PRoW, this is intended to refer to both existing and Claimed PRoW.

16.8.41 **Chapter 14: Socio-economics and Land Use** of this ES **[EN010142/APP/6.1]** concludes that construction of the Principal Site will have **no effect** on users of PRoW Gltw/85/1 and Claimed Glentworth and Harpswell Public Bridleway 1209 as no closures or diversions are expected (only management) and woodland screening measures are proposed to mitigate against any potential amenity impacts.

16.8.42 The following PRoW receptors (running from north to south) have been examined for the assessment of Severance, Pedestrian Delay, Non-motorised User Amenity. This is based on the agreed Study Area and the locations where the proposed construction routes will cross PRoW within the Order limits or where the Cable Route Corridor will require temporary PRoW diversions to accommodate the installation of cables or to ensure that these remain physically separated from the proposed construction routes (see the **Framework PRoW Management Plan [EN010142/APP/7.16]** submitted alongside the DCO application for further details):

Principal Site

- a. Claimed Glentworth and Harpswell Public Bridleway 1209 (claimed bridleway) (to be managed during the construction phase); and
- b. PRow Gltw/85/1 (bridleway) (to be managed during the construction phase).

Cable Route Corridor

- a. Claimed PRow Kexby and Willingham DMMO 680 (restricted byway) (to be temporarily stopped up and diverted as well managed (up to two locations) during the construction phase);
- b. Claimed PRow DMMO 591 (byway open to all traffic) (to be temporarily stopped up (up to two locations) and diverted as well managed (up to two locations) during the construction phase);
- c. Claimed PRow DMMO 683 (footway) (to be temporarily stopped up and diverted during the construction phase);
- d. PRow LL|Mton|68/1 (footway) (to be managed during the construction phase);
- e. PRow LL|Mton|66/4 (footway) (not expected to be impacted during the construction phase);
- f. PRow LL|Bram|66/1 (footway) (to be temporarily stopped up and diverted during the construction phase);
- g. PRow NT|Cottam|FP1 (footway) (to be managed during the construction phase);
- h. PRow NT|Cottam|FP3 (footway) (to be temporarily stopped up and diverted during the construction phase);
- i. PRow NT|Cottam|RB4 (restricted byway) (to be temporarily stopped up and diverted during the construction phase);
- j. PRow NT|SouthLeverton|BOAT16 (Byway open to all traffic) (to be temporarily stopped up and diverted during the construction phase);
- k. PRow NT|Rampton|FP5 (footway) (to be temporarily stopped up and diverted during the construction phase);
- l. PRow NT|Rampton|FP6 (footway) (to be temporarily stopped up and diverted during the construction phase);
- m. PRow NT|Rampton|BOAT13 (byway open to all traffic) (to be temporarily stopped up and diverted as well managed during the construction phase. Also to be closed without diversion for up to 4 weeks in construction phase);
- n. PRow NT|Rampton|FP20 (footway) (to be temporarily stopped up and diverted as well managed during the construction phase); and
- o. PRow NT|Rampton|BOAT12 (byway open to all traffic) (to be temporarily stopped up and diverted as well managed during the construction phase).

16.8.43 It should be noted that there will be no permanent PRow closures as a result of the Scheme and all PRow receptors within the Order limits will be physically separated from construction routes and works.

- 16.8.44 In cases where PRow will be temporary stopped up (for a short duration), routes will be re-provided with an alternative within close proximity of the original route. The exception to this the temporary closure of the circa. 1.7km section of PRow NT|Rampton|BOAT13, for a maximum period of four weeks. Prior to construction, the duration of the closure will be reviewed depending on existing road condition, construction sequencing, final design and weather conditions during the works, to reduce this as far as possible. A closure would be required where resurfacing work is being undertaken in areas of Torksey Ferry Road where there is no viable diversion possible. This would principally be in the area to the east of where the Seymour Drain passes underneath Torksey Ferry Road. Once the works necessitating temporary closure are completed, the PRow will be reinstated.
- 16.8.45 It is expected that for the PRow diversions, there will be a need to implement some forms of management, these could include: banksmen; crossing points along the Cable Route Corridor for required works; or the crossing of the haul road. Details related to each specific form of management of the PRow (if required), including duration, will be included within the Detailed CTMP.
- 16.8.46 Receptor sensitivity is outlined in **Table 16-23** below. The same receptor sensitivities have been adopted for the assessment of severance, pedestrian delay, non-motorised user amenity and fear and intimidation. A summary of the results is set out within **Table 16-24**.

Table 16-23: PRow Receptor Sensitivity (Severance, Pedestrian Delay and Non-motorised User Amenity)

PRow	Receptor	Sensitivity	Justification
PS	Claimed Glentworth and Harpswell Public Bridleway 1209	Low	Claimed Bridleway (limited pedestrian/ cycle/ horse riding facilities)
	PRow LL Gltw 85/1	Low	Bridleway (limited pedestrian/ cycle/ horse riding facilities)
Cable Route Corridor	Claimed PRow Kexby and Willingham DMMO 680	Low	Restricted Byway (field access)
	Claimed PRow DMMO 591	Medium	Byway Open to All Traffic (along Wooden Lane Track- field access)
	Claimed PRow DMMO 683	Very Low	Footpath (non-trafficked route)
	PRow LL Mton 68/1	Very Low	Footpath (non-trafficked route)
	PRow LL Mton 66/4	Very Low	Footpath (non-trafficked route)
	PRow LL Bram 66/1	Low	Footpath (gated field access)
	PRow NT Cottam FP1	Very Low	Footpath (non-trafficked route)
	PRow NT Cottam FP3	Low	Footpath (field access)
	PRow NT Cottam RB4	Low	Restricted Byway (field access)
	PRow NT SouthLeverton BOAT16	Medium	Byway Open to All Traffic (along Cow Pasture Lane)
	PRow NT Rampton FP5	Very Low	Footpath (non-trafficked route)
	PRow NT Rampton FP6	Very Low	Footpath (non-trafficked route)
	PRow NT Rampton BOAT13	Medium	Byway Open to All Traffic (along Torksey Ferry Road)
	PRow Rampton FP20	Very Low	Footpath (non-trafficked route)

PRoW	Receptor	Sensitivity	Justification
	PRoW Rampton BOAT12	Medium	Byway Open to All Traffic (along Torksey Ferry Road)

Table 16-24: Summary of Significance of Effect on the PRow receptors

Receptor	Sensitivity (Value)	Description of Impact	Magnitude of Impact	Significance of Effect
Claimed Glentworth and Harpswell Public Bridleway 1209	Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
PRow Gltw/85/1	Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
Claimed PRow Kexby and Willingham DMMO 680	Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Slight	Negligible
Claimed PRow DMMO 591	Medium	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
Claimed PRow DMMO 683	Very Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
PRow LL Mton 68/1	Very Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
PRow LL Mton 66/4	Very Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible

Receptor	Sensitivity (Value)	Description of Impact	Magnitude of Impact	Significance of Effect
PRoW LL Bram 66/1	Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
PRoW NT Cottam FP1	Very Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
PRoW NT Cottam FP3	Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity	Very Slight	Negligible
PRoW NT Cottam RB4	Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity/ Fear and Intimidation	Very Slight	Negligible
PRoW NT SouthLeverton BOAT16	Medium	Severance/ Pedestrian Delay/ Non-motorised User Amenity/ Fear and Intimidation	Very Low	Negligible
PRoW NT Rampton FP5	Very Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity/ Fear and Intimidation	Very Low	Negligible
PRoW NT Rampton FP6	Very Low	Severance/ Pedestrian Delay/ Non-motorised	Very Low	Negligible

Receptor	Sensitivity (Value)	Description of Impact	Magnitude of Impact	Significance of Effect
		User Amenity/ Fear and Intimidation		
PRoW NT Rampton BOAT13	Medium	Severance/ Pedestrian Delay/ Non-motorised User Amenity/ Fear and Intimidation	Low	Minor Adverse (not significant)
PRoW NT Rampton FP20	Very Low	Severance/ Pedestrian Delay/ Non-motorised User Amenity/ Fear and Intimidation	Low	Negligible
PRoW NT Rampton BOAT12	Medium	Severance/ Pedestrian Delay/ Non-motorised User Amenity/ Fear and Intimidation	Low	Minor Adverse (not significant)

16.8.47 The impact on PRow has been assessed as **Negligible** or **Minor Adverse** and is therefore considered to be **not significant** for all PRow.

Summary of Effects

16.8.48 Following the above assessment, one significant effect on transport and access across the construction phase has been identified as a result of the Scheme (a **moderate adverse (significant) effect** on severance/ pedestrian delay/ NMU amenity on the B1241 (ATC 23).

16.8.49 All other effects have been categorised as either **Minor Adverse** or **Negligible (not significant)**. It should be noted that the significant effect on the B1241 (ATC 23) is forecast during the peak period of construction which is short-term and temporary.

16.9 Additional Mitigation and Enhancements

Additional Mitigation

16.9.1 No additional mitigation measures are proposed for the construction phase in addition to the embedded design mitigation measures described in the preceding sections. Measures to address the significant effect on the highway are incorporated within the **Framework CTMP [EN010142/APP/7.11]**.

Enhancements

Construction and Decommissioning Phases

16.9.2 The following enhancement measures are proposed for the construction and decommissioning phases to provide added benefits post-submission:

- a. Conduct a Stage 1 Road Safety Audit (RSA) on the preliminary design of the access points and proposed highway improvements associated with the Scheme (to be secured as part of the **Framework CTMP [EN010142/APP/7.11]**). A Designer's Response will then be prepared so that any road safety concerns are addressed as part of the final design.

Operational Phase

- a. Two new permissive paths, which will benefit all vulnerable road users, are to be provided within the Principal Site during the operational phase of the Scheme. Further details of the exact routing of these permissive paths is provided in **Chapter 3: Scheme Description** of this ES **[EN010142/APP/6.1]** and set out within **Figure 3-1: Indicative Principal Site Layout Plan** of this ES **[EN010142/APP/6.3]**.

16.10 Residual Effects

16.10.1 Following the above assessment for the Principal Site and Cable Route Corridor, one significant residual effect has been identified during the construction phase as a result of the Scheme: severance/ pedestrian delay/ NMU amenity on the B1241 (ATC 23).

16.10.2 The effect on the B1241 would only occur for a short period if activity on the construction of the Cable Route Corridor is concentrated in that particular area with works being carried out at multiple Cable Route Corridor sites accessed via the B1241. Any overlap of such works would be for a very short period (several weeks, to be defined within the Detailed CTMP), and traffic flows (including construction traffic) would not exceed the existing network AM and PM peak hour flows, therefore showing a worst case scenario impact on the highway receptor.

16.11 Cumulative Effects

16.11.1 An assessment of cumulative effects is provided in **Chapter 18: Cumulative Effects and Interactions** of this ES [EN010142/APP/6.1].

16.12 References

- Ref. 16-1 Lincolnshire County Council (n.d.) Rights of Way; Electronic Working Copy Definitive Map. Available at: <https://www.lincolnshire.gov.uk/coast-countryside/public-rights-way/2> [Accessed 19 February 2024]
- Ref. 16-2 RowMaps (n.d.) Rights of Way Mapping England and Wales.
- Ref. 16-3 Construction Industry Training Board (CITB) (2019). Workforce Mobility and Skills in the UK Construction Sector 2018-2019 UK-wide.
- Ref. 16-4 ONS (2021) ONS Middle Super Output Area Mid-Year Population Estimates (2020). Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/middlesuperoutputareamidyearpopulationestimatesnationalstatistics> [Accessed 19 February 2024]
- Ref. 16-5 Institute of Environmental Management and Assessment (IEMA) Guidelines (2023) Environmental Assessment of Traffic and Movement. Lincoln: IEMA.
- Ref. 16-6 Stagecoach (n.d.) 354 Bus Route and Timetable: Lincoln to Gainsborough.
- Ref. 16-7 Nottinghamshire County Council (2022) Nottsbus On Demand. Available at: <https://www.nottinghamshire.gov.uk/transport/travel-notts/travelling-by-bus/nottsbusondemand> [Accessed 19 February 2024]
- Ref. 16-8 Road Vehicle (Authorisation of Special Types) Order 2003. www.legislation.gov.uk [Accessed 18 March 2023]