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TABLES

10.0 TRAFFIC AND TRANSPORT

10.1 Introduction

10.1.1 This chapter of the Environmental Statement (ES) addresses the potential effects of the Proposed Development on traffic and transport. The assessment considers:

- the present-day and future baseline conditions during construction and at opening;
- the effects of construction traffic on the local road network including strategic road network (SRN) as a result of the Proposed Development;
- the effects of operational traffic (including maintenance) on the local road network as a result of the Proposed Development; and
- the potential effects of the eventual decommissioning of the Proposed Development.

10.1.2 The assessment of cumulative traffic and transport effects associated with the Proposed Development and other committed developments in the vicinity are described in **Appendix 10A**: Transport Assessment (ES Volume II - **Application Document Ref. 6.3**) and in **Chapter 19**: Cumulative and Combined Effects (ES Volume I - **Application Document Ref. 6.2**).

10.2 Legislation, Planning Policy and Guidance

Planning Policy Context

National Planning Policy

10.2.1 The Overarching National Policy Statement (NPS) for Energy ('EN-1') was published in 2011 (Department for Energy and Climate Change (DECC), 2011a). Section 5.13 outlines the planning policy for traffic and transport, including guidance on traffic and transport assessment as part of the Environmental Impact Assessment (EIA). The most relevant paragraphs for this chapter are paragraphs 5.13.2 to 5.13.4 which state:

"The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in Section 2.2 of this NPS.

If a project is likely to have significant transport implications, the applicant's ES (see Section 4.2) should include a transport assessment, using the NATA/ WebTAG139 methodology stipulated in Department for Transport guidance, or any successor to such methodology. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation.

Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts."
Paragraph 5.13.2 - 5.13.4

10.2.2 In terms of decision making, Section 5.13 of the NPS states that the Infrastructure Planning Commission (now Secretary of State) should ensure that the applicant has sought to mitigate the impacts on the surrounding road infrastructure that may occur as a result of a new energy nationally significant infrastructure project. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should consider requirements to mitigate the adverse impacts on transport networks arising from the development and could include:

- demand management measures;
- waterborne or rail transport, where cost effective; and
- attaching requirements to a development consent order where there is likely to be substantial HGV traffic.

10.2.3 Section 2.2 of the NPS for Fossil Fuel Electricity Generating Infrastructure ('EN-2') (DECC, 2011b) outlines the planning policy for traffic and transport, specifically in respect of fossil fuel generating stations such as the Proposed Development, focussing on accessibility issues.

10.2.4 Table 10.1 provides a summary of relevant NPS advice regarding traffic and transport, including signposting to where matters are considered in this chapter.

Table 10.1: Summary of relevant NPS advice regarding traffic and transport

Summary of NPS	Consideration within the Chapter
NPS EN-1	
Paragraph 5.13.3 states: *"If a project is likely to have significant transport implications, the applicant's ES should include a transport assessment, using the NATA/WebTAG139 methodology stipulated in Department for Transport guidance, or any successor to such methodology. Applicants should consult the Highways Agency and Highways*	See **Appendix 10A**: Transport Assessment (ES Volume II – **Application Document Ref. 6.3**)

Summary of NPS	Consideration within the Chapter
NPS EN-1	
Authorities as appropriate on the assessment and mitigation."	
Paragraph 5.13.4 states: "*Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts."*	See **Appendix 10A**: Transport Assessment (ES Volume II – **Application Document Ref. 6.3**)
Paragraph 5.13.6 outlines the requirement to provide mitigation measures for any transport impacts associated with the project, including during the construction phase.	See **Appendix 10A**: Transport Assessment (ES Volume II – **Application Document Ref. 6.3**)

Marine Planning Policy

10.2.5 Marine Policy Statement (Department for Environment, Food and Rural Affairs, 2011) in paragraph 3.4.7 considers the importance of safe navigation of ships and minimising negative impacts on shipping activity, as well as the need to afford protection to the areas used by high intensities of traffic (paragraph 3.4.2).

10.2.6 The East Inshore and East Offshore Marine Plans (Department for Environment, Food and Rural Affairs, 2014) establishes the plan led system for the marine area in which the riverine parts of the Proposed Development Site are located. Section 3 comprises the plan policies which include Policy PS2 which states:

"Proposals that require static sea surface infrastructure that encroaches upon important navigation routes (see figure 18) should not be authorised unless there are exceptional circumstances. Proposals should:

a) be compatible with the need to maintain space for safe navigation, avoiding adverse economic impact
b) anticipate and provide for future safe navigational requirements where evidence and/or stakeholder input allows and
c) account for impacts upon navigation in-combination with other existing and proposed activities." Paragraph 356

10.2.7 Consideration of the effects on shipping and navigation is provided in the Navigation Risk Assessment (NRA) within **Appendix 12C** (ES Volume II – **Application Document Ref. 6.3**).

National Planning Policy Framework

10.2.8 The revised National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, (MHCLG) 2019) sets out the Government's planning policies for England. While the NPPF does not set specific policies for NSIP, its policies may be of relevance to decision making.

10.2.9 In determining planning applications, paragraph 109 states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

10.2.10 Paragraph 111 states that all developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

Local Development Plan Policy

10.2.11 The statutory development plan for the area currently comprises the following documents:

- North Lincolnshire Core Strategy (North Lincolnshire Council, 2011a) - adopted June 2011;
- Employment and Land Allocations (North Lincolnshire Council, 2017) - adopted March 2016; and
- Saved Policies of the North Lincolnshire Local Plan (Local Development Frameworks Government Office for Yorkshire and The Humber, 2007) - adopted May 2003, saved September 2007.

10.2.12 It is considered that these documents may be 'important and relevant' as defined by EN-1. The following Core Strategy Policy is considered relevant to the Proposed Development.

10.2.13 Core Strategy Policy CS18 promotes sustainable resource use and supports development that reduces the need to travel.

10.2.14 Core Strategy Policy CS25 explains that the council will support and promote a sustainable transport system in North Lincolnshire that offers a choice of transport modes and reduces the need to travel through spatial planning and design and by utilising a range of demand and network management tools.

10.2.15 Saved policies of the North Lincolnshire Local Plan that are relevant to the Proposed Development include:

- T2 – Access to Development which states that larger developments should be served adequately by:
  - i) being readily accessible by a choice of transport modes; and
  - ii) existing public transport services and infrastructure; or
  - iii) additions or extensions to such services linked directly to the development; and
  - iv) the existing highway network;
- T5 - Green Travel Plans which states that organisations that attract a large number of visitors will be encouraged to draw up Green Travel Plans;
- T14 - The North Lincolnshire Strategic Road Network (NLSRN) which notes traffic will be concentrated onto the NLSRN roads where its main purpose is to carry traffic of more than local significance and that developments, which compromise the function of the NLSRN in traffic and safety terms, will not be permitted;
- T15 – Highway Improvements which states that where new highway infrastructure is being developed, or is included as an element of a development proposal, the design of the highway should take into account safety and environmental factors;
- T23 - Water Freight which aims to ensure transfer of bulk goods from sea to inland makes optimum use of railways, rivers, canals and pipelines/conveyor belts where appropriate;
- Policy T24 – Road Freight which states that the environmental impact of moving freight by road will be reduced by:
  - concentrating lorries onto the North Lincolnshire Strategic Road Network; and
  - banning heavy goods vehicles from sensitive areas; and
  - encouraging the development of rail freight facilities; and
  - encouraging the use of the waterways'.

10.2.16 North Lincolnshire Local Transport Plan 2011 – 2026 also sets out a programme for a wide range of improvements to local transport over the period 2011 to 2026. The objectives of the plan include:

- facilitating economic growth by targeting transport improvements in key development areas and along key strategic network corridors;
- reducing transport related carbon dioxide emissions and protect and enhance the natural and built environment through sustainable transport solutions;
- improving transport safety and security relating to death or injury from transport, in order to contribute to safer and stronger communities;
- providing equal opportunities through improvements in accessibility to key local hubs and services by sustainable modes of transport;

- enhancing people's health and wellbeing through the promotion of healthy modes of travel; and
- providing a high quality integrated transport system that contributes towards long term sustainable regeneration.

Other Guidance

Planning Practice Guidance

10.2.17 Planning Practice Guidance titled 'Travel plans, transport assessments and statements in decision taking' published in March 2014 (MHCLG, 2014) has been used to inform this assessment.

Guidelines for Environmental Assessment of Road Traffic

10.2.18 The Guidelines for the Environmental Assessment of Road Traffic (GEART) published in 1993 by the Institute of Environmental Assessment (IEA) (IEA, 1993) provide a basis for a comprehensive and consistent approach to the appraisal of traffic and transport impacts. Extensive reference has been made to these Guidelines throughout the preparation of this chapter.

Department for Transport Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development

10.2.19 Circular 02/2013 published in September 2013 by the Department for Transport sets out the way in which Highways England will engage with the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the strategic road network. This guidance has been used to inform **Appendix 10A**: Transport Assessment (ES Volume II - **Application Document Ref. 6.3**) which accompanies this chapter.

The Strategic Road Network: Planning for the Future

10.2.20 The Strategic Road Network: Planning for the Future 'A guide to working with Highways England on Planning Matters' published by Highways England in September 2015 offers advice and information regarding the information it expects to see within a planning proposal. This guidance has been used to inform **Appendix 10A**: Transport Assessment (ES Volume II - **Application Document Ref. 6.3**) which accompanies this chapter.

Water Preferred Policy Guidelines for the Movement of Abnormal Indivisible Loads

10.2.21 The 'Water preferred policy guidelines for the movement of abnormal indivisible loads,' published in 2012 by Highways England sets out guidance recognising that where practical, economic and environmentally desirable, the largest abnormal loads should be moved by inland and/ or coastal water to reduce the impact caused by moving these loads by road. This guidance

document provides details of the water preferred policy for the movement of abnormal loads and guidance to help those wishing to move an abnormal load determine whether their load should be moved by water or road.

10.3 Assessment Methodology

Consultation

10.3.1 The consultation undertaken with statutory consultees to inform this chapter, including a summary of comments raised *via* the formal Scoping Opinion (**Appendix 1B** (ES Volume II - **Application Document Ref. 6.3**)) and in response to the formal consultation and other pre-application engagement is summarised in Table 10.2.

Table 10.2: Consultation Responses

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
Secretary of State	June 2020 (Scoping Opinion)	No estimate of operational traffic volumes is provided, but a detailed assessment of this matter is proposed to be scoped out subject to agreement with the relevant highways authorities on the scope of the Transport Assessment. The Inspectorate is content for this matter to be scoped out of the ES.	The level of operational traffic has been quantified within the Transport Assessment (refer to **Appendix 10A** in ES Volume II - **Application Document Ref. 6.3**). The impacts of operational traffic have not been assessed in this chapter, as agreed through a Transport Scoping Report submitted to relevant stakeholders and additional technical engagement during Stage 2 consultation.
		The Scoping Report does not explain the reasoning in support of the chosen study area. The ES should provide a clear justification as to why the study area chosen is sufficient to address the extent of the likely impacts resulting from the Proposed Development. The Applicant should make effort to agree the study areas with relevant consultation bodies including, NELC and Highways England. If agreement is reached with either body, evidence should be included in the ES.	To define the study area, a network of road links has been identified and then tested against Rules 1 and 2 of the GEART guidelines. Details are provided in Section 10.3 of this chapter. The study area for assessment has been agreed with Highways England and NLC through consultation on the TA Scoping Report and technical engagement during Stage 2 consultation.
		The ES should assess impacts resulting from the routing of construction vehicles via the access route from the A18. The assessment	Details are provided within the Transport Assessment (see **Appendix 10A** in ES Volume II - **Application Document Ref.**

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		should address issues relating to the capacity of the bridge crossings at Stainforth and Keadby canal and the Scunthorpe to Doncaster passenger rail line where significant effects are likely to occur.	**6.3**). The bridge referred to is a privately owned and purpose built bridge (North Pilfrey Bridge) with axle load limit of 16.5t and NR asset number DOW/26AA that has been used for the construction of Keadby Windfarm and more recently, Keadby 2 Power Station and no capacity issues have been identified. The use of North Pilfrey Bridge in terms of vehicle types is unlikely to be materially different to the existing uses that are authorised by existing easements. **Application Document Ref. 3.1**: Book of Reference provides further information. This is the proposed principal vehicular access to the Proposed Development Site during construction and operational phases. This will not be used for larger AIL given its loading limits and because the Applicant is prioritising the use of waterborne freight using the Waterborne Transport Offloading Area. The intended usage is described in this chapter and in the Framework Construction Traffic

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			Management Plan (CTMP), conformity with which is to be secured via a requirement in the draft DCO (**Application Document Ref. 2.1**). For these reasons, no significant effects in relation to the capacity of North Pilfrey Bridge are predicted to occur.
North Lincolnshire Council	June 2020 (Scoping Opinion)	All construction traffic should access the site via the A18, not the B1392.	This is noted and agreed as the transport route to the Proposed Development Site throughout the ES.
Doncaster Metropolitan Borough Council	August 2020 (TA Scoping Opinion)	The approach contained within the Transport Scoping Note is acceptable.	This is noted.
Highways England	August 2020 (TA Scoping Opinion)	It is considered that AECOM will need to consider the AIL routing implications for M180 Junction 2 within the documentation prepared as part of the DCO application to enable Highways England to take a view on the implications at the SRN.	A number of AIL will need to be brought into the Proposed Development Site over the construction period for the Proposed Development. It is expected that the larger abnormal loads will be delivered by barge along the River Trent to the Waterborne Transport Offloading Area at Railway Wharf and transported into the Proposed Development Site via the additional Abnormal Indivisible Loads (AIL) Haul Route within the Proposed

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			Development Site (refer to **Figure 3.3** (ES Volume III - **Application Document Ref. 6.4**)). It is expected that the smaller abnormal loads will be transported by road from Immingham Dock via the M180 to Junction 2, leaving the westbound off-slip and travelling north on the A161 then east on the A18 or continuing north on the A161 to Ealand and then via New Trent Street and Bonnyhale Road. Detailed consideration will be given to the AIL route during detailed design once final details of the size, number and origin of loads is known. During construction, the Applicant will implement a Construction Traffic and Routing Management Plan to manage construction traffic including AIL. It is proposed that this will be secured by a Requirement of the draft DCO (**Application Document Ref. 2.1**) with the plan agreed by Highways England and NLC as local highway authority.
		Request for the timings of deliveries throughout the week and the shift patterns that the permanent staff are likely to be working on to	This is noted. Details provided within the Transport Assessment (see **Appendix 10A** in ES Volume II - **Application**

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		ensure that a robust assessment of the operational element of the proposed development can be undertaken	**Document Ref. 6.3**). The impacts of operational traffic have not been assessed in this chapter, as agreed through Scoping and technical engagement during Stage 2 consultation.
		The distribution and route assignment appear to be an appropriate distribution given the location of the development and the surrounding area	This is noted.
		No reference is made to the use of count data on the SRN, which leads CH2M to the conclusion that the SRN will not be assessed as within the DCO application. As such, justification will be required from AECOM as to why this is the case.	A review of Highways England's Webtris database (https://webtris.highwaysengland.co.uk/#) provides count data on the M180 to the west of Junction 2. Count data extracted for August 2018 shows the average two-way weekday traffic flow to be 44,883 vehicles. At the peak of construction of the Proposed Development, an additional 598 two-way vehicles per day are expected on the M180 to the west of Junction 2. This represents a very low percentage daily increase in traffic the M180 (equating to 1.3% of total traffic). This temporary effect of construction traffic would occur during the peak 2 months of a 36 month build programme for the main works phase (following an

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			initial 6 months early works phase for Mabey Bridge replacement and the A18 junction upgrades); it is therefore considered that no further assessment of effects on the SRN is necessary and this has now been agreed with Highways England via their advisors CH2M Hill (January 2021).
		The transport documentation prepared as part of the DCO application should be compliant with DfT Circular 02/2013	A future year assessment scenario of 2031 (ten years after the submission of the application - expected in Q2 2021) has been assessed to take into account the anticipated worst-case peak of construction traffic forecast at the latest start date in the available construction programme, considering a consent with a 7 year duration. The appointed contractor will be required to prepare a Construction Traffic Management Plan (CTMP) and Construction Workers' Travel Plan (CWTP) and this will be secured by a Requirement of the draft DCO (**Application Document Ref.2.1**). These plans will be in accordance with the Framework CTMP (**Application**

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			Document Ref. 7.2) and CWTP (**Application Document Ref.7.3**. The TA (**Appendix 10A** in ES Volume II - **Application Document Ref. 6.3**) is therefore compliant with Circular 02/2013.
		It is considered by CH2M that AECOM should liaise with the local authority on such matters and providing a list of committed developments is agreed with them, the CH2M would support this	This is noted and has been completed. The list of agreed committed developments is provided in **Appendix 10A**: Transport Assessment (ES Volume II – **Application Document Ref. 6.3**).
North Lincolnshire Council	September 2020 (TA Scoping Opinion)	The proposed approach to the TA is acceptable.	This is noted.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	Highways England consider that in the absence of up-to-date traffic count data being available, the use of existing flows from 2015 and 2017 to establish a baseline is considered acceptable.	This is noted.
Highways England	December 2020 (Transport Assessment – review as part of Stage II	Having reviewed the growth factors, Highways England consider them acceptable for use to establish a base year and future year for assessment.	This is noted.

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
	consultation / PEI Report)		
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	Highways England has reviewed the accident data provided by AECOM and agrees with the conclusions drawn by AECOM. As such, it is not considered that there is an existing accident problem on the SRN within the study area.	This is noted.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	The TA states that the profile of construction workforce over the construction period has been developed based on the indicative construction programme and through discussion with the applicant. It is considered by Highways England that a first principles approach to the trip generation of the construction element is the most robust approach and is welcomed.	This is noted.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	The TA states that the existing AIL routes are established and proven route options and are considered suitable for the transportation purposes required. Due cognisance is paid to AECOM's comments at scoping which stated that detailed consideration would be given to this issue at detailed design stage, with Highways England being explicitly consulted.	Detailed consideration will be given to the AIL route during detailed design once final details of the size, number and origin of loads are known. During construction, the Applicant will implement a Construction Traffic and Routing Management Plan to manage construction traffic including AIL. It is proposed that this will be secured by a

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		This approach is welcomed and accepted by Highways England.	Requirement of the draft DCO (**Application Document Ref. 2.1**) with the plan agreed by Highways England and the local highway authority.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	It is considered by Highways England that decommissioning is considered at the time and not at this stage in the lifespan of the development proposals, given the number of unknown variables.	This is noted.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	It is stated that the distribution of workforce traffic to the network has been based on a gravity model and the populations of towns and cities within a 45 minute drive time of the site. Highways England welcomes the clarity of the information provided within Table 17 of the Transport Assessment as this resonates with the understanding that whilst construction workforces can be transient, it is a reasonable assumption that they lodge within a similar density to the local population.	This is noted.
Highways England	December 2020 (Transport Assessment – review as part of	It is stated that a Framework CTMP will be prepared to accompany the DCO Application and the preparation of a CTMP in accordance with that Framework, would be a requirement of	The SRN has been including in the Framework CTMP (**Application Document Ref. 7.2**).

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
	Stage II consultation / PEI Report)	the draft DCO. It is considered by CH2M that this approach is the most appropriate to managing construction movements and recommends that Highways England reviews the CTMP in due course to ensure it is sufficient and fit for the purpose of managing the consequence at the SRN. It is considered by CH2M that the SRN should be included within the CTMP given that it is stated that M180 Junction 2 is to be used within the routing of construction vehicles.	
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	The TA lists the committed developments that would need to be incorporated into the future baseline and future year assessment. It is considered by Highways England that North Lincolnshire Council is best placed to advise on the suitability of the sites provided for inclusion for assessment purposes.	Noted and has been completed. The list of agreed committed developments is provided in **Appendix 10A**: Transport Assessment (ES Volume II – **Application Document Ref. 6.3**).
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	It is noted that no SRN links have been used to derive the peak hours on the SRN within the study area.	Link flows for the M180 to the east and west of M180 Jct 2 have been extracted from Webtris to establish the peak hour on the SRN. This identifies the peak hours to be 07:00 – 08:00 and 16:00 – 17:00. The impact of construction traffic on the M180 during the peak hours is very low with a maximum increase of

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			3.6% predicted on the M180 to the west of Junction 2 during the AM peak hour. Based on the temporary nature of the construction traffic effects (e.g. peak construction traffic only occurs for 2 months of the 36 month build programme for the main works phase following completion of the 6 month programme for Mabey Bridge replacement/ A18 junction works), it is considered that no further assessment of the SRN is necessary.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	Only the site access junction has been modelled within the Junction Impact Assessment section of the TA. It is not clear why other junctions within the study area have not been modelled, or at least numbers presented to demonstrate why they do not have to be modelled for assessment purposes. It is noted by CH2M that during the scoping discussions that the impact at the SRN is considered to be low, but it is considered by CH2M that this information needs to be provided for completeness, and transparency. As such, CH2M are not able to ascertain the impact of the development proposals at the SRN.	The impact of construction traffic on the M180 during the peak hours is very low, with a maximum increase of 3.6% predicted on the M180 to the west of Junction 2 during the AM peak hour. Peak levels of construction traffic are predicted to occur for 2 months of the 36 month build programme for the main works phase following completion of the 6 month programme for Mabey Bridge replacement/ A18 junction works) – outside of this period, construction traffic effects will be significantly reduced. Consequently, it is considered that no

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			further detailed assessment of the SRN is necessary.
Highways England	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	It is stated that a Framework Construction Worker Travel Plan [CWTP] will be prepared as part of the DCO Application; and the appointed contractor will be required to prepare the final CWTP in accordance with this Framework CWTP. This approach is welcomed by CH2M.	Please refer to the Framework CWTP (**Application Document Ref. 7.3**).
Doncaster Metropolitan Borough Council	December 2020 (Transport Assessment – review as part of Stage II consultation / PEI Report)	A development of this type will submit an Environmental Impact Assessment (EIA) which will contain a Chapter on Transport, this will assess the impact, if any, of the proposal on the highway network within our local area. Any comments will be made on receipt of the EIA.	This is noted.
Canal & River Trust	January 2021 (Stage II Consultation / PEI Report)	<u>Offloading area next to the River Trent</u> The proximity of the proposed offloading area to the access point for the Stainforth & Keadby canal at Keadby Lock could result in an obstruction to the entrance point of the canal. The Trust request further information from the applicant to ensure that this part of the proposal does not result in a hazard for navigational safety at the entrance to the canal at Keadby or the need for unscheduled closure of the canal.	The deemed Marine Licence (DML) included in the draft DCO (**Application Document Ref. 2.1**) includes a number of draft conditions agreed with the MMO that are designed to provide a range of navigation stakeholders with the opportunity to be involved in the discharge of post-consent, pre-construction conditions. As such, the Canal and River Trust would therefore be

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		The Trust state that they understand that materials will be transported long distance, it may be difficult to organise set closure times for the canal and believe that measures to allow for night time off-loading could be considered to give the applicant more flexibility to allow for offloading during night hours when the canal is not in heavy use. <u>Freight</u> The Trust welcome the consideration given to the use of waterborne freight and consider that the use of waterways for transport of materials is a form of sustainable transport, which can reduce greenhouse emissions and congestion on the local highway network. The use of the canal to transport heavy equipment is discussed in paragraphs 6.57-6.59 of the scoping report but is not discussed in the PIER. The Trust would be willing to discuss options with the developer on the use of the canal, should this be required. The Trust note that construction traffic utilising the access route would likely be similar to the weight of traffic involved in phase 2. For clarity,	consulted at that time to ensure the sizes and loading times of vessels do not result in a hazard for navigational safety at the entrance to the Stainforth and Keadby Canal. As has happened on Keadby 2 Power Station, the Applicant would notify and work closely with the Canal and River Trust and harbour authority to minimise restrictions on use of Keadby Lock during lifting operations. Further information relating to navigational safety is presented in **Appendix 12C**: Navigational Risk Assessment (ES Volume II – **Application Document Ref. 6.3**). The Applicant proposes to use waterborne freight during construction for the largest AIL movements and has included provision within the Order Limits for transportation of AIL. Detailed consideration will be given to the maximum weight of vehicles during detailed design once final details of the

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		and to allow assurances to be made that the bridge structure (and associated canal) can handle the loading and vibrations of construction traffic for phase 3, the Trust advise that information is provided upon the maximum weight of vehicle involved in both phases.	size, number and origin of loads are known. During construction, the Applicant will implement a Construction Traffic and Routing Management Plan to manage construction traffic including AIL, secured by a Requirement of the draft DCO (**Application Document Ref. 2.1**) with the plan agreed by Highways England and the local highway authority. Please refer to the Framework CTMP (**Application Document Ref No. 7.2**) which sets out the bridge capacity of North Pilfrey Bridge. Any loads exceeding the bridge capacity would be brought into site via the alternative AIL routes or would be constructed on-site.
Highways England	January 2021 (Stage II Consultation / PEI Report)	It is not considered in regard to operational traffic that the number of staff related to the operational phase of the development proposals will have a severe impact at the SRN. It is recommended that the issue regarding not been able to ascertain the impact of the development proposals at the SRN is revisited when the Final TA / DCO application is submitted, as that will allow Highways England	As set out in Section 4.5 of the TA (**Appendix 10A** in ES Volume II - **Application Document Ref. 6.3**), up to circa 50 permanent operational roles would be created. Assuming that all staff arrive in their own vehicle as a worst case, this equates to 50 vehicle arrivals and 50 vehicle departures per day. On this basis, a detailed assessment of the operational phase of the proposed development is not considered necessary

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		to take a definitive view on the impact of the construction phase at the SRN. Outstanding Highways England requirements include: • Highways England would like to have sight of a Framework Construction Traffic Management Plan • Highways England would like to have sight of a Framework Construction Worker Travel Plan • Although no significant issues are foreseen based upon the information provided so far, a final view will be undertaken on the impact of the construction phase at the Strategic Road Network when the final Transport Assessment is produced.	as the vehicle numbers generated would be considerably lower than the DMRB screening threshold for a more detailed assessment (e.g. >200 vehicles per day). This is noted and a copy of the documents were provided to Highways England for review prior to submission of the Application. Highways England confirmed in May 2021 that they have no outstanding issues in relation to the documents submitted including **Appendix 10A**: Transport Assessment; **Application Document Ref. 7.2**: Construction Traffic Management Plan; **and Application Document Ref. 7.3**: Construction Workers' Travel Plan.
North Lincolnshire Council (NLC) Highways Authority	January 2021 (Stage II Consultation / PEI Report)	NLC is supportive of all construction traffic using the perpendicular and skew access from the A18 and would prefer the number of AIL to be limited along the A161 and Bonnyhale Road with the main access to be the skewed bridge	The comments on access are noted. The number of AIL using the A161 and Bonnyhale Road will be controlled via the CTMP, secured as a requirement of the draft DCO (**Application Document Ref. 2.1**).

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		off the A18. NLC is supportive of proposals to transport AIL by water as much as possible. NLC is pleased to see that Chapel Lane will only be used for emergency access and would want movements along here to be kept to a minimum. It would be useful to know the anticipated working hours/shift patters for construction workers and what it is based on.	Noted. Core construction working hours are 07:00 – 19:00 Monday to Friday and 08:00 – 13:00 (if required) on Saturday. The arrival and departure profile of construction workers as set out in Table 16 of the TA (**Appendix 10A** in ES Volume II - **Application Document Ref. 6.3**) shows the majority of workers arriving at site between 06:00 and 08:00 and departing the site between 18:00 and 20:00. This is based on the profile used for Eggborough CCGT Power Station which gained DCO consent in September 2018 and West Burton C Power Station which gained DCO consent in October 2020. The comments are noted – **Application Document Ref. 4.14** provides the location and general arrangement plans

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		Any security gatehouses should be set sufficiently far back from the A18 access, to allow vehicles to queue (if required) on the access road, rather than on the A18.	for the proposed gatehouse north of the A18. An area adjacent to the gatehouse will be set aside for traffic arriving at the Site so that there will be no queuing onto the public highway.
		A CTMP and CWTP will be required.	Please refer to the Framework CTMP (**Application Document Ref No. 7.2**) and Framework CWTP (**Application Document Ref. 7.3**).
		It is noted by NLC that the proposal is for operational traffic to use the A18 access, rather than the existing main access on the B1392. However, it is not clear what the reason for this is and whether this will apply solely to operational traffic associated with Keadby 3, or all operational site traffic; clarification on this point would be appreciated.	The reason for operational traffic using the A18 access rather than the existing main access on the B1392 is to reduce the number vehicles associated with the power station travelling through Keadby village, in part in response to community feedback during our Stage 2 (statutory) pre application consultation.
		No details have been provided on why junction improvements are required at the existing perpendicular junction to facilitate operational traffic using the A18 access. The information provided in the TA suggest a total of 50 operational staff, consisting of a day and night shift and also office workers, not all of these will	It is proposed that all operational traffic for the Proposed Development will utilise the A18 access. Based on journey to work census data for MSOA North Lincolnshire 006 (E02002754) in which the Proposed Development Site is

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
		travel from the east. It is therefore unlikely that there will be a significant number of vehicle movements during peak hours, which may warrant a ghost island. Any amended junction would need to be designed in accordance with DMRB. There is some doubt as to whether there is sufficient carriageway width to achieve this. NLC would also want a stage 1 and 2 Road Safety Audit carried out on the design.	located, it is estimated that approximately 40% of operational staff traffic will arrive and depart to and from the east. Providing a right-turn lane would prevent vehicles that are waiting on the A18 to turn right into the site from inhibiting the A18 westbound straight on flow whilst also improving road safety by providing a degree of shelter for right turning traffic from the westbound straight ahead flow. As the junction improvement would take place at the start of construction (refer to **Chapter 5**: Construction Programme and Management (ES Volume I – **Application Document Ref. 6.2**)) construction traffic using the improved A18 junction will also benefit from this road safety improvement. General arrangement plans for the proposed junction improvements are provided as **Application Document Ref. 4.6**. It is noted that a Stage 1 and 2 Road Safety Audit is required. A stage 1 RSA has been prepared, the findings shared with NLC and is submitted as **Appendix 10B** (ES Volume II – **Application Document Ref. 6.3**).

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
Network Rail	January 2021 (Stage II Consultation / PEI Report)	In order to ensure that the scheme does not impact on operational railway safety, the developer must liaise closely with Network Rail Asset Protection to ensure that the haulage routes into the site are appropriate and the design and construction of the new power station will not have an adverse impact on railway operations. It is assumed that a condition of the Order would be that detailed specifications of the proposed scheme and traffic management plans are to be provided and agreed in writing before development can commence. Whilst it is unlikely the Chapel Lane bridge and level crossing would be affected by the development, Network Rail nevertheless seek assurance on this point given the potential impact to operational railway safety should these assets be used in conjunction with this development. . .	Please refer to the Framework CTMP (**Application Document Ref No. 7.2**) which sets out the bridge capacity of the privately owned and purpose built North Pilfrey Bridge and the A161 Crowle Bridge (owned and maintained by North Lincolnshire Council) both of which cross the railway. The Framework CTMP (**Application Document Ref. 7.2**) includes an AIL strategy which recognises that any loads exceeding the capacity of North Pilfrey Bridge would be brought into site via the Waterborne Transport Offloading Area at Railway Wharf or alternatively, be constructed on-site. It is confirmed that Chapel Lane bridge and the level crossing will not be utilised by the Proposed Development construction or operational traffic and this will be secured via routeing proposals in the final CTMP. The nearest part of the Proposed Development (the Canal Water Abstraction Option) would be constructed

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			at least 25m north of the level crossing beyond South Soak Drain. Access during construction of this work would be via land to the north that is owned by the Applicant. As such, Network Rail assets will be unaffected by the Proposed Development.
Public Health England	January 2021 (Stage II Consultation / PEI Report)	**Chapter 10**: Traffic and Transport makes no specific assessment to impacts on road safety for vulnerable road users (cyclists and walkers), despite a number of the road traffic collisions within **Appendix 10A** crash data involving vulnerable road users. The traffic and transport chapter must assess and report on potential impacts to vulnerable road users. <u>Construction Impacts</u> Further clarity required regarding the choice of peak construction year (2031), details regarding the consideration of cumulative impacts and how these change with time.	Further detail on accidents involving vulnerable road users is provided in Section 10.4 of this chapter. The peak of construction year 2031 has been assessed to take into account the anticipated worst-case peak of construction traffic forecast at the latest start date in the available construction programme, considering a consent with a 7 year duration. This assessment year also complies with DfT Circular 02/2013 which requires a future year assessment scenario ten years after the submission of the application. Details regarding the

Consultee or Organisation	Date and nature of consultation	Summary of Response	How comments have been addressed in this Chapter
			committed developments that have been considered as part of the assessment are provided in the Transport Assessment (see **Appendix 10A** in ES Volume II - **Application Document Ref. 6.3**).
		In view of the proximity of residential properties to the water connection, discharge corridors, abnormal indivisible load route and permanent emergency access via Chapel Road; it is recommended that further details are included in each of the chapters regarding the nature of these and any potential impacts from the construction, operational and decommissioning phases.	As set out in the Transport Assessment (see **Appendix 10A** in ES Volume II - **Application Document Ref. 6.3**) the majority of AIL deliveries will arrive via the Waterborne Transport Offloading Facility at Railway Wharf or via the SRN, accessing the Proposed Development Site from M180 Junction 2 via the A161 and A18 therefore avoiding residential properties. Use of the alternative AIL route from Ealand village via Bonnyhale Road that was consented as part of the Keadby 2 application would be minimised and used only where no alternative AIL route is feasible.

Summary of Key Changes to Chapter 10 since Publication of the Preliminary Environmental Information (PEI) Report and PEI Report Addendum

10.3.2 The PEI Report was published for statutory consultation in November 2020, allowing consultees the opportunity to provide informed comment on the Proposed Development, the assessment process and preliminary findings through a consultation process, prior to the finalisation of this ES. A PEI Report Addendum was subsequently published in March 2021 following minor changes that were made to the indicative Order Limits since the formal Stage 2 consultation.

10.3.3 The key changes relevant to this chapter since the PEI Report and PEI Report Addendum were published are summarised in Table 10.3 below.

Table 10.3: Summary of key changes to chapter since publication of the PEI Report and accompanying addendum

Summary of change since PEI Report and addendum	Reason for change	Summary of change to chapter text in the ES
A Framework CTMP (**Application Document Ref. 7.2**) has been drafted with specific wording included to ensure that should waterborne freight be utilised, the Canal and River Trust would be consulted at that time to ensure the sizes and loading times of vessels do not result in a hazard for navigational safety at the entrance to the Stainforth and Keadby Canal.	To address comments raised by the Canal and River Trust.	Text has been updated in Section 3 of the Framework CTMP (**Application Document Ref. 7.2**).
An additional appendix outlining the assessment methodology and results of a Stage 1 Road Safety Audit has been produced to accompany this chapter and is referenced herein.	To address comments raised by North Lincolnshire Council	**Appendix 10B**: Stage 1 Road Safety Audit (ES Volume II – **Application Document Ref. 6.3**) has been produced to reflect this change.

Overview

10.3.4 The environmental impact of the traffic predicted to be generated by the Proposed Development has been assessed with reference to the GEART (IEA, 1993) and other guidance as detailed in Section 10.2. In accordance with guidance, issues including severance, driver delay, pedestrian amenity and delay, accidents and safety associated with the Proposed Development have been investigated and are reported below.

10.3.5 Any likely significant environmental effects relating to air quality and noise and vibration generated by traffic associated with the Proposed Development are considered in the relevant chapters of this ES (i.e. **Chapter 8**: Air Quality and **Chapter 9**: Noise and Vibration (ES Volume I – **Application Document Ref. 6.2**)).

Extent of Study Area

10.3.6 The study area for this assessment has been defined by reference to the GEART (IEA, 1993). The guidelines set out two rules as follows:

- Rule 1 – include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGV is predicted to increase by more than 30%); and
- Rule 2 – include any other specifically sensitive areas where the traffic flow (or HGV component) are predicted to increase by more than 10%.

10.3.7 To define the study area, a network of road links has been identified and then tested against Rules 1 and 2. The road links that have been considered in determining if the above rules are satisfied, and which form the study area, are listed below and shown on **Plate 10-1** below (reproduced from **Appendix 10A**: Transport Assessment (ES Volume II - **Application Document Ref. 6.3**)) i.e.:

- A18 (west of construction site access to Keadby 2 Power Station);
- A161 (between M180 Jct 2 and the A18);
- A18 Station Road (immediately to the west of King George V Bridge); and
- A18 High Levels Bank (east of Tudworth Roundabout).

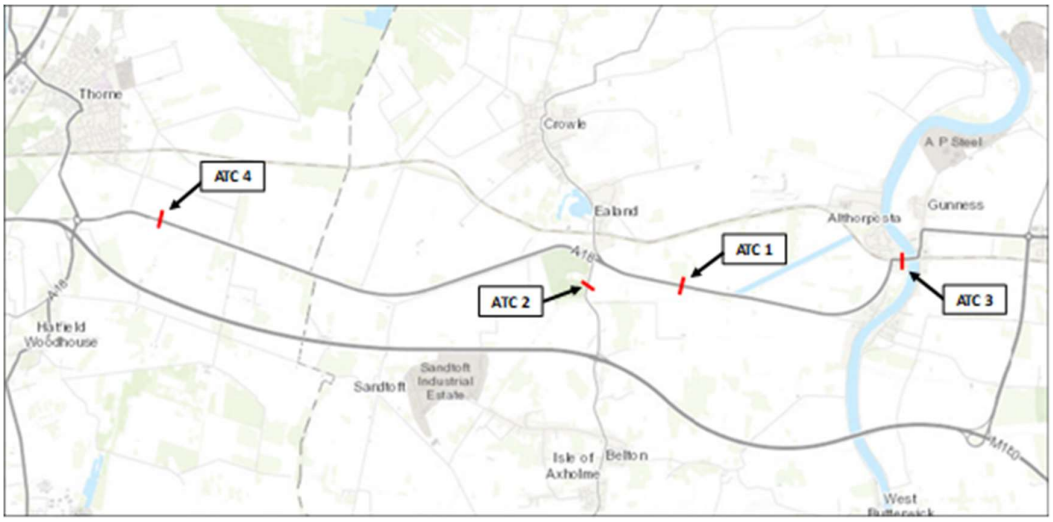

Plate 10.1: Highway Links within Study Area

Sensitivity of Receptors

10.3.8 The sensitivity of a road, or the immediate area through which it passes, can be defined by the type of user groups who may use it. Vulnerable users may include elderly residents and children. It is also necessary to consider footpath and cycle route networks that cross the roads within the study area.

10.3.9 A desktop exercise has been undertaken to classify the sensitivity of the routes within the study area. The classification of the link sensitivity is based on professional judgement. For example, if the route passes a school, care home or similar it would have a higher sensitivity due to the presence of vulnerable users. Similarly, if the route went through the middle of a town or village, it would have a higher sensitivity than if there was limited frontage development in the study corridor. Table 10.4 below identifies the links, the assigned sensitivity rating and the justification:

Table 10.4: Sensitivity of Receptors

Link No.	Link Description	Link Sensitivity	Rationale
1	A18 (west of construction site entrance to Keadby 2 Power Station)	Very Low	The A18 between the construction site entrance and the A161 passes through open country. It is a single carriageway road and is subject to the 60mph national speed limit for single carriageway roads. There are no pedestrian footways or

Link No.	Link Description	Link Sensitivity	Rationale
			frontage development along the road.
2	A161 (between the A18 and M180 Jct 2)	Very Low	The A161 is a single carriageway road passing through open country and is subject to the 60mph national speed limit. No footways are provided on either side of the carriageway. Frontage development is limited to a garden nursery and farm outbuildings.
3	A18 Station Road (west of King George V Bridge)	Low	The A18 Station Road is a single carriageway road and is subject to a 30mph speed limit. The road is suburban in nature with footways provided on either side of the carriageway.
4	A18 High Levels Bank (east of Tudworth Roundabout)	Very Low	The A18 between the junction with the A161 and Tudworth Roundabout passes through open country. It is a single carriageway road and is subject to the 60 mph speed limit for single carriageway roads. There are no pedestrian footways with little frontage development along the road.

10.3.10 Traffic impacts on the M180 have not been assessed due to development traffic representing a very low percentage of total traffic on the M180, which does not trigger the rule threshold guidelines.

10.3.11 No Proposed Development construction or operational traffic is proposed to use the existing Keadby 1 Power Station access through the village of Keadby, so no road links in the village are included as receptors.

Assessment Methods

10.3.12 The assessment methodology adopted in this chapter, as contained in the GEART (IEA, 1993), is recognised as the industry standard methodology for the assessment of traffic and highway impacts. 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.

10.3.13 **Chapter 5**: Construction Programme and Management (ES Volume I – **Application Document Ref. 6.2**) provides details on the proposed construction programme for the Proposed Development. On this basis, the following assessment scenarios have been considered:

- construction phase (subject to the necessary consents being granted and an investment decision being made, construction of the Proposed Development could potentially start as early as Quarter 4 (Q4) 2022, however, given background traffic growth, a worst-case for assessment purposes is a scenario where construction commences later in the programme. 2029 has therefore been assumed as the year for commencement of construction in this chapter, with a peak of construction in 2031);
- opening year (for the purposes of assessment in this chapter, 2033); and
- decommissioning (it is envisaged that the Proposed Development would have an operational life of circa 25 years. Taking into account the assessed opening year, decommissioning activities within this chapter are assumed to commence after 2058).

10.3.14 The following environmental effects are susceptible to changes as a result of the Proposed Development.

- **Severance:** Severance occurs in a community when a major artery separates people from places and other people. Severance occurs from difficulty of crossing a road or where the road itself creates a physical barrier. Severance can be caused to pedestrians or motorists. The GEART (IEA, 1993) suggest that changes in total traffic flow of 30%, 60% and 90% result in slight, moderate and substantial changes in severance respectively.
- **Pedestrian Amenity:** Pedestrian amenity is broadly defined as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition, pavement width and separation between vehicles and pedestrians. The impact manifests itself in fear and intimidation, exposure to noise and vehicle emissions. The GEART (IEA, 1993) suggest that a doubling or halving of total traffic flow or the HGV composition could lead to perceptible negative or positive impacts upon pedestrian amenity.

- **Fear and Intimidation:** The volume of traffic and its HGV composition are the factors that contribute to fear and intimidation. In the absence of thresholds set out in the GEART (IEA, 1993), this ES considers that changes in total traffic flow of 30%, 60% and 90% are considered to result in slight, moderate or substantial impacts.
- **Highway Safety:** Highway safety is assessed by the frequency and severity of injury accidents that are attended by the police and recorded in official accident statistics. Intensification of use or changes in the composition of traffic has the potential to have an effect on collision rates. The examination of recent collision statistics on routes within the study area will highlight any hotspots that need further examination.
- **Driver Delay:** The use of industry standard junction capacity modelling programs provides a methodology to quantify junction delay. Driver delay is only likely to be significant where the existing study area highway network is at or close to capacity.
- **Hazardous Loads:** Assessed based on the estimated number and composition of such loads. Where the number of movements is considered to be significant, a risk analysis should be undertaken to illustrate the potential for an accident to happen and the likely effect of such an event.

Significance Criteria

10.3.15 Using the information set out above, the magnitude of traffic impacts is defined in Table 10.5.

Table 10.5: Sensitivity of Receptors

Type of Impact	Magnitude of Impact			
	Very Low	Low	Medium	High
Severance	Change in total traffic flow of <30%	Change in total traffic flow of 30% to 60%	Change in total traffic flow of 60% to 90%	Change in total traffic flow of >90%
Pedestrian Amenity	Change in traffic flow (or HGV Component) <50%	Change in traffic flow (or HGV Component) of 51% to 100%	Change in traffic flow (or HGV Component) of 101% to 150%	Change in traffic flow (or HGV Component) of >151%
Fear and Intimidation	Change in total traffic flow of <30%	Change in total traffic flow of 30% to 60%	Change in total traffic flow of 60% to 90%	Change in total traffic flow of >90%

Type of Impact	Magnitude of Impact			
	Very Low	Low	Medium	High
Highway Safety	Magnitude of impact derived using professional judgment informed by the frequency and severity of collisions within the study area and the forecast increase in traffic.			
Driver Delay	Magnitude of impact derived using professional judgment informed by the increase in vehicle delay and whether a junction is at, or close to capacity.			
Hazardous Loads	Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous load occurring.			

10.3.16 By combining the receptor sensitivity with the magnitude of impact using the assessment matrix shown in Table 10.6, traffic effects are classified as negligible, minor, moderate or major (adverse or beneficial).

Table 10.6: Classification of Effects

Type of Impact	Sensitivity / Importance of Receptor			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

10.3.17 Only moderate and major effects are considered to be significant for the purposes of the EIA Regulations; minor and negligible effects are 'not significant'.

Sources of Information / Data

10.3.18 As set out in detail in **Appendix 10A**: Transport Assessment (ES Volume II - **Application Document Ref. 6.3**), a series of 7-day automatic traffic counts (ATC) were undertaken at the following locations to provide a baseline for comparison on the road links:

- Link 1: A18 (west of construction site entrance to Keadby 2 Power Station);
- Link 2: A161;
- Link 3: A18 Station Road (west of King George V Bridge); and
- Link 4: A18 High Levels Bank (east of Tudworth Roundabout).

10.3.19 Counts on Links 1 and 2 were undertaken between Wednesday 8th November and Tuesday 14th November 2017. The count on Link 3 was undertaken between Wednesday 13th May and Tuesday 19th May 2015. The count on Link 4 was undertaken in 2018 and obtained from Department for Transport Road Traffic Statistics website (roadtraffic.dft.gov.uk).

10.3.20 Although counts on Links 1, 2 and 3 are 3 years or older, due to the Covid 19 pandemic, it has been agreed with NLC Highways during scoping that these are the best representative data available for the purposes of this assessment.

10.3.21 In addition to the ATC counts, the impact of the Proposed Development has been examined at the junction of the A18 and the construction site access for the overall network morning (AM) and evening (PM) peak hours using the Link 1 count data.

Use of Rochdale Envelope

10.3.22 The maximum and minimum parameters adopted for building sizes within the Rochdale Envelope defined for the Proposed Development in **Chapter 4**: The Proposed Development (ES Volume I – **Application Document Ref. 6.2**) do not have any material impact on vehicle numbers accessing the Proposed PCC Site and therefore are not considered further in this assessment.

10.3.23 The construction assessment has been based on the worst-case assumption of activities not commencing until 2029, assuming that consent is granted in 2022 and is valid for up to seven years. Consequently, the results presented in this assessment are representative of earlier assessment years and the overall effect of the Proposed Development may be less than that presented, as background traffic is expected to increase year on year. Use of the Rochdale Envelope therefore does not change the conclusions of the impact assessment and does not result in any additional significant traffic effects being identified. It is considered that a worst-case scenario has been assessed in line with the Rochdale Envelope approach.

10.4 Baseline Conditions

Existing Baseline

Site Location

10.4.1 The Proposed PCC Site is located within the wider Keadby Power Station site, approximately 4.1km to the west of the town of Scunthorpe. The village of Keadby is the nearest settlement which lies immediately adjacent to the Proposed Development Site boundary and approximately 1km east of the Proposed PCC Site at its closest point (refer to **Figure 3.2** (ES Volume III – **Application Document Ref. 6.4**)).

10.4.2 Access to the Proposed Development Site during both construction and operation will be via the existing access roads off the A18. Perpendicular and skewed construction access points off the A18, built for construction vehicles during construction of Keadby Wind Farm and currently used by construction vehicles associated with the Keadby 2 Power Station, would be used to access the Proposed Development Site.

10.4.3 A Temporary Traffic Regulation Order (TTRO) is currently in place for the A18 in the vicinity of the Keadby 2 Power Station construction site entrance to reduce the speed limit to 40mph.

10.4.4 The skewed access was constructed to carry oversized turbine blades into the Keadby Wind Farm site. The angle of the skewed bridge means that any oversized loads are forced to travel to and from the west. The skewed access would be used, where required, to transport certain oversized AIL into the Proposed Development Site during construction.

10.4.5 Alternative abnormal loads access is also proposed via a barge offloading point (Waterborne Transport Offloading Area) at Keadby Wharf on the River Trent and alternatively, by road via Ealand and Bonnyhale Road.

10.4.6 The perpendicular access road crosses Hatfield Waste Drain over a private bridge (Mabey Bridge). The access road continues for circa 1km north towards the Stainforth and Keadby Canal, crossing the canal and existing Scunthorpe to Doncaster passenger railway line on the North Pilfrey Bridge (Network Rail asset number DOW/26AA at 17m 0550yds). The bridge was constructed in 2012 and has been used by construction vehicles during the construction of Keadby 2 Power Station. The access road then links to Bonnyhale Road and onwards towards the Proposed PCC Site along existing private access roads.

10.4.7 The A18 continues westwards from the Proposed Development Site access to form a gyratory junction with the A161. The A161 is a single-carriageway link following a north-south alignment between J2 of the M180 and the A18 to the north. This section of the A161 is subject to the National Speed Limit and is rural in nature, with no footways provided on either side of the carriageway. The M180 Junction 2 is a grade separated junction with priority arrangements from the off-slip roads.

10.4.8 The A18 continues to the west to join the M180 Junction 1 via the Tudworth roundabout.

10.4.9 To the east of the access to the Proposed Development Site, the A18 continues in an easterly direction where it meets the B1392. The A18 is subject to the National Speed Limit which reduces to a 40mph speed limit as the road bends towards the north and bypasses Althorpe. The speed limit reduces further to 30mph on the approach to the B1392.

10.4.10 The existing main site access to Keadby Power Station is taken from the B1392, named Station Road, although this would not be used for access to the Proposed Development Site during construction or operation of the Proposed Development. This two lane single carriageway links the A18 at Keadby to the A161 at Eastoft. The road is subject to a 30mph speed limit within the village and to a distance of approximately 400m north of Keadby Power Station entrance, beyond which the National Speed Limit applies. Adjacent to the existing Keadby Power Station site entrance, it is approximately 5.5m in width. Footways are provided within the village and the road is street lit.

10.4.11 The B1392 joins the A18 at a priority junction on the southern edge of Keadby, near Althorpe station. Left and right turning lanes are provided from the B1392, while a right turning lane from the A18 is also provided.

10.4.12 The A18 crosses the River Trent to the east of the junction with the B1392, via the King George V bridge. This bridge has footway on its northern side which is provided on a separate structure. There is a bend in the carriageway at the eastern end of the bridge before the road turns to the north. The speed limit increases from 30mph to 40mph near its junction with the B1216 Station Road. The A18 continues through the village of Gunness, and then continues east towards Scunthorpe, with the speed limit increasing to the National Speed Limit at the eastern edge of the village.

10.4.13 The A18 meets the M181 and A1077 at the Frodingham Grange roundabout junction on the western edge of Scunthorpe, before continuing into the town.

10.4.14 Chapel Lane runs to the east of the Proposed PCC Site, from the B1392, and provides access to the rear entrance to Keadby 1 and Keadby 2 Power Station. This route will not be used by construction traffic or construction staff during construction of the Proposed Development, nor by operational staff accessing the Site during normal operations. However, Chapel Lane will provide a connection to the proposed Emergency Vehicle Access which would only be utilised as a secondary point of access and egress for emergency vehicles and/ or pedestrians in the event of an emergency to and from the north of the Proposed PCC site over a new private bridge. Chapel Lane is a single carriageway, which is subject to a 30mph speed limit in the residential area to the east and the National Speed Limit in the rural section to the west and south. In the residential area, the carriageway is approximately 5.8m wide, and on-street parking occurs along the northern side, which results in width for just one vehicle to pass at a time. In the rural section of the road approaching the Proposed PCC Site, the width ranges between approximately 4.8m and 6.3m.

Existing Baseline Traffic Flows

10.4.15 The following highway links form the agreed highway network of interest for this assessment:

- A18 to the west of the Proposed Development Site access/ existing access for Keadby 2 Power Station construction vehicles;
- A161 between the A18 and the M180 Jct 2;
- A18 Station Road to the west of King George V Bridge; and
- A18 High Levels Bank (east of Tudworth Roundabout).

10.4.16 Baseline 24 hour annual average daily traffic (AADT) two-way link flows in 2020 for the agreed study area have been derived by applying Tempro growth factors for the area in which the Proposed Development is located (MSOA 006 within North Lincolnshire District) and are provided in Table 10.7.

Table 10.7: 2020 Baseline Traffic Flows (24-hour AADT)

Link	Link Description	Total Vehicles	Total HGVs
1	A18 (west of the Proposed Development Site access / existing access for Keadby 2 Power Station construction vehicles)	8,132	707
2	A161 (between the A18 and the M180 Jct 2)	5,622	704
3	A18 Station Road (to the west of King George V Bridge)	14,896	962
4	A18 High Levels Bank (east of Tudworth Roundabout)	6,693	920

Baseline Accident Record

10.4.17 Personal Injury Accident (PIA) data has been obtained from the Crashmap website for the five year period 2015 to 2019 for the study area, which includes the A18 from its junction with Tudworth Roundabout to its junction with Frodingham Grange Roundabout and the A161 to its junction with the M180. The study area also includes Junctions 1 and 2 of the M180 including slip roads.

10.4.18 There has been a total of 83 collisions within the analysed data for the study period which covers a distance of approximately 13 miles. Of these, the majority (63) were recorded as 'slight' in severity, with 20 recorded as 'serious'. The year-on-year trend for overall PIA occurrence is also relatively consistent. Table 10.8 summarises the accidents that have occurred over the specific period.

Table 10.8: Summary of Recorded Accidents (2015 – 2019)

Location	Accident Severity				
	Slight	Serious	Fatal	Total	HGV Involved
Frodingham Grange Roundabout	16	7	0	23	3
A18 (between Tudworth Roundabout & A18 / A161 Junction)	7	4	0	11	4
A18 (between A18 / B1392 and Frodingham Grange Roundabout)	5	4	0	9	2
Tudworth Roundabout	7	1	0	8	1
A18 / A161 Junction	8	0	0	8	1
M180 Junction 2 (including slip roads)	6	1	0	7	3
A18 (between A18 / A161 and A18 / B1392)	5	2	0	7	0
M180 Junction 1 (including slip roads)	3	1	0	4	1
A18 / B1216 Junction	4	0	0	4	0
A161 (between M180 Junction 2 and A18)	3	0	0	3	0

10.4.19 Only one accident of slight severity occurred in close proximity to the A18/ construction site access and involved two cars. This accident occurred in May 2016 before the start of construction of Keadby 2 Power Station and therefore the accident is not connected with this junction.

10.4.20 There were seven accidents that occurred within the study area over the five year study period involving a pedal cyclist of which five were of slight severity and two of serious severity. Of the five slight severity accidents, two occurred at the A18/ A161 junction in 2016 and 2017 and involved a rear-end shunt between a car and cyclist. It should be noted that improvements to the junction were undertaken in 2019 comprising junction priority changes. Of the remaining slight severity accidents, one occurred on the A18 south of the B1392 in 2018 and involved a car passing a cyclist on its offside though there

was no impact, one occurred on the A18 Station Road south of the B1216 in 2017 and involved a car turning left and colliding with a cyclist and one occurred at the A18/ B1216 junction in 2018 involving a car turning right at the junction and colliding with a pedal cyclist.

10.4.21 Of the two serious severity accidents, one occurred on the A18 Doncaster Road in 2016 and involved a car rear-ending a cyclist. The other accident occurred at the Frodingham Grange Roundabout in 2018 and involved a cyclist rear-ending a car that was waiting to proceed.

10.4.22 There was one accident that occurred within the study area over the five year study period involving a pedestrian. The accident of serious severity occurred in 2017 at the Frodingham Grange Roundabout and involved a pedestrian crossing the carriageway and colliding with a car.

10.4.23 In summary, the cause of the majority of accidents within the study area was driver error due to lack of awareness or loss of control as opposed to any deficiencies on the road links or design of the junctions.

Future Baseline

10.4.24 It is currently anticipated that (subject to the necessary consents being granted and an investment decision being made), the earliest date that construction work would commence is around Q4 2022.

10.4.25 The Applicant would appoint one or more EPC contractors for the construction of the CCGT and CCP (**Work No 1**). Additional contractors are likely to be appointed to undertake the proposed minor highway works (**Work No. 8A**). An early works phase, including the A18 carriageway improvements and Mabey Bridge replacement, would be undertaken over a circa 6 month period before the main works phase. Construction activities for the main works phase are expected to be completed within approximately three years, followed by commissioning.

10.4.26 As the Development Consent Order (DCO) could be valid for seven years after receipt and could be started at any time, it is necessary to derive a realistic worst-case future assessment year.

10.4.27 Baseline traffic flows on the road network are projected to increase year on year. For the purposes of this assessment and to represent a realistic worst-case scenario, a 42-month build programme, with the early works phase (A18 carriageway improvements and Mabey Bridge replacement) starting in Q2 2029 and ending in Q4 2029; and the main construction works on the Proposed PCC site starting in Q4 2029 and ending in Q4 2032 is assumed.

10.4.28 Future year baseline traffic flows for the assessment year of 2031 for the peak of construction have been derived by applying the national standard programme Trip End Model Presentation Program (TEMPRO) to derive traffic

growth factors, as indicated in Table 10.9. These growth factors have been taken into account when comparing the baseline and future traffic scenarios.

Table 10.9: TEMPRO traffic growth factors (average day)

YEAR	GROWTH FACTOR
2020 - 3031	1.1287

10.4.29 Future year baseline scenarios are not detailed for 2033 (opening) due to the very low traffic flows generated by the operation of the Proposed Development. Therefore, a quantitative assessment of operational traffic has not been necessary, as the vehicle numbers generated would be considerably lower than those that would be experienced during the construction period.

10.4.30 During an outage, it could be expected that up to 200 additional staff could be on-site on any one day. However, outages are expected to occur infrequently (once every 2-5 years) and are short-lived (approximately 3 months). Therefore, it is considered that the effects of operational traffic during these maintenance periods would be negligible as the vehicle numbers generated would be considerably lower than those that would be experienced during construction and are assessed herein. A detailed assessment of the operational (including maintenance) phase of the development is not required within the Transport Assessment and this approach has been agreed with regulatory stakeholders.

10.4.31 Future year baseline traffic flows for the assessment year of 2031 peak of construction are presented in Table 10.10.

Table 10.10: 2031 Baseline Traffic Flows (24-hour AADT)

Link	Link Description	Total Vehicles	Total HGVs
1	A18 (west of the Proposed Development Site access/ existing construction site access for Keadby 2 Power Station)	9,179	798
2	A161 (between the A18 and the M180 Jct 2)	6,346	795
3	A18 Station Road (to the west of King George V Bridge)	16,813	1,086
4	A18 High Levels Bank (east of Tudworth Roundabout)	7,554	1,038

10.4.32 The assessment has had regard to the traffic generated by 'committed' developments, in accordance with the methodology for assessing potential cumulative effects with other schemes, as detailed in **Chapter 19:** Cumulative

and Combined Effects (ES Volume I - **Application Document Ref. 6.2**); as follows:

- PA/2017/1513 – erection of 27 residential dwellings, Land off A18, Althorpe;
- PA/2017/464 – erection of 14 residential dwellings, Old Railway Sidings, Althorpe;
- PA/2017/824 – erection of 29 dwellings, Seven Lakes Industrial Estate, Ealand;
- PA/2019/568 – erection of 29 dwellings, Silver Street, Winteringham;
- PA/2019/943 – erection of 14 dwellings, Eastcroft, Crowle;
- PA/2019/1088 – erection of 88 dwellings, land West of Turslane Drive, Scunthorpe;
- PA/2019/1607 – erection of 88 dwellings, land south of Silica Lodge Garden Centre, Scunthorpe;
- PA/2019/1107 – erection of 122 dwellings, land west of Dulin Drive, Scunthorpe;
- PA/2019/1807 – erection of 11 Industrial Units, Hebden Road, Scunthorpe;
- PA/2019/1904[1] – erection of 30 dwellings, Althorpe;
- PA/2020/211 – erection of 12 dwellings, Bottesford Road, Scunthorpe;
- PA/2020/362 – erection of 15 lodges and 3 glamping pods, Poles Bank, Wroot;
- PA/2020/660 – mixed use development, land off Jack Brownsword Way, Scunthorpe;
- PA/2020/1207[2] – erection of 110 dwellings, land west of Greengarth, Yaddlethorpe;
- PA/2020/1333 – erection of 144 dwellings, land off Burringham Road, Scunthorpe; and
- PA/2020/1417 – erection of 10 dwellings, Westgate Road, Belton.

10.4.33 Vehicle movements associated with these committed developments would not generate any significant levels of traffic through the study area, resulting in a negligible impact on the local highway network. As such, any

[1] Application refused by traffic generation included for worst-case assessment

[2] Application refused by traffic generation included for worst-case assessment

development traffic associated with them would be incorporated within background growth applied to the 2020 baseline flows.

10.4.34 It is noted that the Planning Inspectorate has requested that the Applicant consider the effects associated with the Little Crow Solar Park NSIP located approximately 10km to the south-east of the Proposed Development. This has been undertaken, although on the basis of available information, this NSIP does not give rise to levels of traffic that require consideration in the Transport Assessment. Further information on this, together with other NSIP (North Lincolnshire Green Energy Park) is provided in **Appendix 10A**: Transport Assessment (ES Volume II – **Application Document Ref. 6.3**) and Chapter 19: Cumulative and Combined Effects (**Application Document Ref. 6.2**).

10.5 Development Design and Impact Avoidance

Construction

10.5.1 Traffic movements will be controlled during the Proposed Development construction phase in order to minimise potential impacts on the surrounding road network, namely construction HGV arriving or departing the Proposed Development Site would travel to/ from the west via the A18, A161 and onwards to the M180 Junction 2.

10.5.2 As with the construction of Keadby 2 Power Station, a TTRO is likely to be proposed by the appointed contractor(s) to reduce speed on the A18 in the vicinity of the Proposed Development access from the A18 during the construction phase. It is proposed that this will be secured at the appropriate time, prior to construction works, with North Lincolnshire Council as highway authority.

10.5.3 In addition to the above, the Applicant would implement a range of good practice mitigation measures during the construction phase to minimise traffic impacts upon local highways, including:

- implementation of the CWTP which includes measures and procedures to encourage construction workers to adopt modes of transport which reduce reliance on single occupancy private car use. A Framework CWTP is included in the DCO Application as **Application Document Ref. 7.3**;
- liaison with the appointed contractor for the potential to implement construction worker minibuses and car sharing options (considered as part of the CWTP);
- implementation of the CTMP to include measures to control the routing and impact of HGV on the local road network during construction. A routing plan is provided within the Framework CTMP (**Application Document Ref. 7.2**), which HGV drivers would be required to adhere to. The CTMP would be secured by a Requirement of the draft DCO (**Application Document Ref. 2.1**); and

- during the commissioning (and operational) phase, working with suppliers to ensure that all relevant materials (including chemicals) bought to the Proposed Development Site that are classified as hazardous are transported in compliance with applicable regulations including the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG Regs) (as amended). This will include, for example:
  - consignments being marked with the familiar "Emergency Action Codes"; and
  - including a telephone number for advice in the event of an emergency.

Operation

10.5.4 Once the Proposed Development is operational, up to circa 50 permanent operational roles would be created who will work shifts. Due to the very low traffic flows this would generate, and the proposed use of the new operational access off the A18, rather than via the existing Keadby Power Station entrance, no additional impact avoidance measures are proposed.

10.5.5 Chemicals and wastes transported to/ from the Proposed Development Site, where they are deemed to be hazardous, will be transported in fit for purpose vehicles and will comply with existing legal and regulatory duties. Regulation of hazardous loads is currently via the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) (United Nations, 2019). ADR sets out the requirements for the classification, packaging, labelling, and certification of dangerous goods. It also includes specific vehicle and tank requirements and other operational requirements. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 apply ADR in Great Britain.

10.5.6 As described in paragraph 10.4.30, given the circa 200 additional staff that could be on-site on any one day during an outage which may occur infrequently (once every 2-5 years) and be short-lived (approximately 3 months), no additional impact avoidance measures are considered necessary as both the HGV and staff vehicle numbers would be considerably lower than during construction.

Decommissioning

10.5.7 Decommissioning would be expected to require some traffic movements associated with the removal (and recycling, as appropriate) of material arising from demolition and potentially the import of materials for land restoration and re-instatement. To minimise the impacts of decommissioning upon local highways, it is anticipated that controls on traffic management would be secured via the Decommissioning Environmental Management Plan (DEMP) that would be prepared prior to demolition activities commencing. It is envisaged that the DEMP would control the routing and impact of HGV. The

DEMP is secured by a requirement of the draft DCO (**Application Document Ref. 2.1**).

10.6 Likely Impacts and Effects

Construction

10.6.1 Access to and from the Proposed Development Site for all construction workers would be via the existing construction site entrance for Keadby 2 Power Station, located off the A18. Prior to the main construction works commencing, an Early Preparation Works phase including the widening of the A18 to incorporate a right-turn lane into the site and the replacement of Mabey Bridge will be completed. (refer to **Chapter 5**: Construction Programme and Management (ES Volume I - **Application Document Ref. 6.2**).

10.6.2 It is currently anticipated that (subject to the necessary consents being granted and an investment decision being made), the earliest date that construction work would commence is around Q4 2022 lasting 42 months (comprising 6 months Early Preparation Works and a 36 month main construction build). For the purposes of assessment, the latest construction start date of Q4 2029 has been considered for the main works phase, which it is anticipated would be preceded by an Early Preparation Works phase at the A18/ Mabey Bridge replacement (Q2 – Q4 2029). This provides a 'realistic' worst-case scenario for traffic assessment purposes.

10.6.3 It is expected that the construction workforce could peak at circa 1,300 workers per day in months 26 - 27 (i.e. Q3 2031). A profile of the anticipated daily workforce each month through the construction period is provided in **Appendix 10A**: Transport Assessment (ES Volume II - **Application Document Ref. 6.3**).

10.6.4 Core construction working hours for the Proposed Development would be 07:00 to 19:00 Monday to Friday (except bank holidays) and 08:00 to 13:00 on Saturday. However, it is likely that some construction activities may need to be undertaken outside of these core working hours.

10.6.5 Where on-site works are to be conducted outside the core hours, they would comply with any restrictions agreed with the local planning authority, in particular regarding control of noise and traffic in accordance with the relevant requirements which would be secured by the draft DCO (**Application Document Ref. 2.1**). Any such works will be minimised and will be carefully managed to reduce effects on local people.

10.6.6 HGV deliveries would not be undertaken outside of core working hours, unless agreed with the local planning authority on a case by case basis.

10.6.7 Based on the methodology contained within Section 4.3 of the TA (**Appendix 10A** (ES Volume II - **Application Document Ref. 6.3**)), the weekday construction worker shift is likely to generate approximately 558 vehicular trips

(one-way) during the AM arrival and PM departure periods at the peak of construction.

10.6.8 HGV delivering construction materials would access the Proposed Development Site from the existing Keadby 2 construction site entrance located off the A18, with all HGVs arriving and departing to/ from the west via the A18, A161 and onwards to the M180 Junction 2. The volume of HGV associated with construction of the Proposed Development on the network is predicted to be at its maximum of 624 daily two-way HGV movements (312 in and 312 out) during the initial Site Enabling and Preparation phase of construction following Mabey Bridge replacement works and A18 junction improvement works. This is associated with the potential cut and fill of the top layer of ground within the Proposed PCC Site to improve the geotechnical condition of the ground. The import and export of material will occur over a two month period during Months 7 and 8 of the construction programme. During the remainder of the construction period HGV movements will vary with 120 daily two-way HGV movements (60 in and 60 out) from month 24 to month 35 of construction, 60 daily two-way HGV movements (30 in and 30 out) from months 9 to 23 and months 36 to 42 of construction and 10 daily two-way HGV movements (5 in and 5 out) from months 1 to 6 of construction.

10.6.9 Combining construction workforce vehicle movements with construction HGV movements over the entire construction programme shows the overall peak to occur in Months 26 and 27 when 1,236 two-way vehicle movements are anticipated (1,116 two-way car/ van movements and 120 two-way HGV movements per day).

10.6.10 A number of AIL movements are expected to be required during the construction programme associated with the delivery of large items of plant and equipment. The exact number and size/ weight is not known at this stage and is based on specific construction methodologies and will be confirmed at the detailed design stage, although estimated numbers and the duration of AIL deliveries have been made in **Chapter 5**: Construction Programme and Management (**Application Document Ref. 6.2**). However, it is expected that the proposed construction methodology will favour modularisation with preassembly off-site supplemented by on-site construction.

10.6.11 It is anticipated that delivery of AIL to the Proposed Development Site will use the same routes as those currently being used for the delivery of AIL associated with the construction of Keadby 2 Power Station. It is expected that the largest abnormal loads will be received at the Port of Immingham and barged down the River Trent to the Waterborne Transport Offloading Area at Keadby Railway Wharf, which is included within the Order Limits (refer to **Figure 3.3** (ES Volume III - **Application Document Ref. 6.4**)). The components will then be transported to the Proposed Development Site crossing the B1392 onto the temporary haul road that runs to the east of PD Port Services. Traffic management in the form of Stop/ Go signs will be used

to halt traffic along the B1392 in order to allow the abnormal loads to cross the B1392.

10.6.12 The smaller abnormal loads are expected to be transported by road from Immingham Dock via the M180 to Junction 2 and then from the A161 to the A18, entering the Proposed Development Site either via the existing construction access road off the A18 and passing over North Pilfrey Bridge, or utilising Bonnyhale Road via Ealand; both these routes were used for the delivery of abnormal loads into the Keadby 2 construction project.

10.6.13 All three AIL routes are therefore already established route options and are considered suitable for the transportation purposes required.

10.6.14 Table 10.11 summarises the expected profile of construction phase peak traffic levels (refer to **Appendix 10A** (ES Volume II - **Application Document Ref. 6.3**) for further details).

Table 10.11: Daily Construction Vehicle Profile (Peak Month of Construction)

Hour Beginning	Construction Worker Vehicles (Plant)		Plant Construction HGV	
	Arrival	Departure	Arrival	Departure
06:00	167	0	0	0
07:00	307	0	5	5
08:00	56	0	5	5
09:00	28	0	5	5
10:00	0	0	5	5
11:00	0	0	5	5
12:00	0	0	5	5
13:00	0	0	5	5
14:00	0	0	5	5
15:00	0	0	5	5
16:00	0	56	5	5
17:00	0	84	5	5
18:00	0	390	5	5
19:00	0	28	0	0
Total	**558**	**558**	**60**	**60**

10.6.15 Based on the vehicle assignment contained within **Appendix 10A** (ES Volume II - **Application Document Ref. 6.3**), Table 10.12 summarises the likely changes in link flows within the study area for the assessment year 2031, peak of construction. HGV traffic has been assigned to the most direct route to the strategic road network which is the M180 Junction 2 via the A18 and the A161.

10.6.16 HGV routes to and from the Proposed Development Site are shown in **Plate 10.2** below.

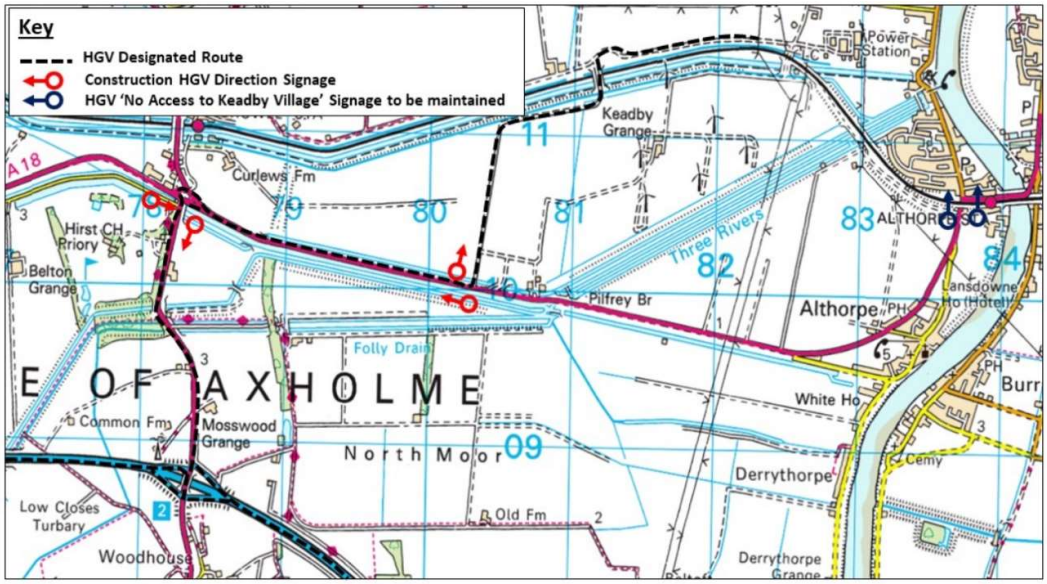

Plate 10.2: HGV Designated Route Plan (Proposed Development Construction)

10.6.17 The construction workers assignment has been based on the geographic split of population within a 45 minute drive-time of the Proposed Development Site.

Table 10.12: 2031 Base + Peak of Construction Daily Two-Way Traffic Flows

Link No.	Link Description	Baseline Flow		Construction Traffic		Percentage Increase	
		Total veh.	Total HGV	Total veh.	Total HGV	Total veh.	Total HGV
1	A18 (west of the construction site access for Keadby 2)	9,179	798	901	120	9.8%	15.0%

Link No.	Link Description	Baseline Flow		Construction Traffic		Percentage Increase	
		Total veh.	Total HGV	Total veh.	Total HGV	Total veh.	Total HGV
2	A161 (between the A18 and the M180 Jct 2)	6,346	795	734	120	11.6%	15.1%
3	A18 Station Road (to the west of King George V Bridge)	16,813	1,086	335	0	2.0%	0.0%
4	A18 High Levels Bank (east of Tudworth Roundabout)	7,554	1,038	168	0	2.2%	0.0%

10.6.18 The additional traffic due to the Proposed Development construction activities will result in some increases in traffic flows including HGV on the observed roads leading to the Proposed Development.

10.6.19 In accordance with GEART, only those sensitive links that show a greater than 10% increase in total traffic flows (or HGV component) or, for all other links, a greater than 30% increase in total traffic or the HGV component are considered when assessing the traffic impacts upon receptors. The assessment has been completed using the matrix provided in Table 10.6 to assess the transportation effects associated with construction traffic at the peak of construction.

Severance

10.6.20 The predicted change in total traffic associated with Proposed Development construction activities is considerably less than 30% on each link road (very low impact). Therefore, the severance effect would be negligible (**not significant**).

Pedestrian Amenity

10.6.21 The change in total traffic (or HGV component) is considerably less than 50% on each link road (very low impact). Therefore, the effect for pedestrian amenity would be negligible (**not significant**).

Fear and Intimidation

10.6.22 The change in total traffic is considerably less than 30% on each link road (very low impact). Therefore, the effect on fear and intimidation would be negligible (**not significant**).

Highway Safety

10.6.23 Accident data for the most recent five years has been acquired for the study area and is summarised in Section 10.4. The statistics provide information on the location and severity of each PIA. Given that the level of increase in traffic flow resulting from the Proposed Development on road links is negligible, the effect on highway safety is considered negligible (**not significant**).

Driver Delay

10.6.24 The performance of a junction is judged by the ratio of flow to capacity (RFC). As a general guide, a junction operating below a threshold of 0.85 is considered to operate within its design capacity. Junction modelling has been undertaken at the A18/ construction site access (the results of which are provided in the **Appendix 10A** (ES Volume II - **Application Document Ref. 6.3**) for the AM and PM peak hours (07:00 – 08:00 and 16:00 – 17:00). This demonstrates that the junction would operate within its design capacity at the peak of construction (Q3 2031). Junction modelling, therefore, indicates that the driver delay effect of the Proposed Development would be negligible (**not significant**).

Strategic Road Network

10.6.25 The impact of construction traffic on the M180 during the peak hours is very low, with a maximum increase of 3.6% predicted on the M180 to the west of Junction 2 during the AM peak hour. Peak levels of construction traffic are predicted to occur for 2 months of the 42 month build programme – outside of this period, construction traffic effects will be significantly reduced. Consequently, it is considered that the effect on the SRN would be **not significant**.

Overview

10.6.26 In summary, the effects of Proposed Development construction traffic on all road links and junctions within the study area are considered to be negligible adverse, (**not significant**).

Opening and Operation

10.6.27 Once operational, up to circa 50 permanent operational roles would be created. It is anticipated that staff would work a similar shift pattern to existing Keadby Power Station staff, likely working a two shift system 07:00 – 19:00 and 19:00 – 07:00. Administrative staff are anticipated to work an office-hour

pattern between 08:30 and 18:00. Conservatively assuming a car occupancy of one, this could equate to an additional circa 50 cars accessing the Proposed Development Site per day (100 vehicle movements).

10.6.28 There would also be additional HGV traffic generated by deliveries associated with operations and maintenance plant/ equipment.

10.6.29 Fuel (natural gas) would be delivered by pipeline therefore, there would be no vehicular movements associated directly with the transport of gas to the Proposed Development Site.

10.6.30 With regard to the delivery and removal of hazardous loads associated with the CCP Plant, the GEART (IEA, 1993) notes that some developments may involve the transportation of dangerous or hazardous loads by road and that, where this is likely to occur, an ES should clearly outline the estimated number and composition of such loads. Where the number of movements is considered to be significant, a risk analysis is required to illustrate the potential for an accident to happen and the likely effect of such an event.

10.6.31 The full details for the expected hazardous substances and related quantities to be delivered and removed from the Proposed Development Site during the operational phase are not yet known but preliminary information has been compiled and it is estimated that there would be circa 1 HGV per day delivering chemicals and up to 5 HGV per day coming to remove waste (mainly acid wash effluent if this design option is selected). On this basis the number of movements is not considered to be significant against the assessment screening criteria and based on the baseline road traffic volumes on the primary route to Proposed Development Site and therefore no further assessment is required. Legal compliance measures are outlined in Section 10.5 to ensure the appropriate carriage of hazardous goods to and from the Proposed Development Site.

10.6.32 Routine maintenance will be undertaken annually with major overhauls occurring approximately once every two to five years depending on the nature of plant operations in that period. These maintenance activities will require around 200 additional contractors to work on the Proposed Development Site. Therefore, it is considered that the effects of operational traffic would be negligible.

10.6.33 Due to the very low traffic flows which would result once the Proposed Development is operational (for the purposes of this assessment, assumed to be 2033), the vehicle numbers generated would be considerably lower than experienced during the construction period. The overall effects during operation are therefore considered to be negligible adverse (**not significant**).

Decommissioning

10.6.34 The activities involved in the decommissioning process for the Proposed Development are not yet known in detail, as it has a design life of 25 years

and an operational life that could extend longer than that. There would be expected to be some traffic movements associated with the removal (and recycling, as appropriate) of material arising from decommissioning and potentially the import of materials for land restoration and re-instatement. However, vehicle numbers are not expected to be higher than those experienced during the construction period.

10.6.35 Current baseline data collected for the purposes of this assessment would not be valid at the year of decommissioning (i.e. for the purposes of this assessment after circa 2058). However, as it is unlikely that baseline traffic figures on local roads would reduce appreciably over the next 25 years, it is considered that the percentage increase in traffic due to decommissioning would be negligible and that overall, the effects of decommissioning traffic would be no greater than that of construction traffic. Effects are therefore assessed as likely to be **not significant**.

10.7 Mitigation, Monitoring and Enhancement Measures

10.7.1 No additional mitigation measures or enhancement measures other than those set out in Section 10.5 are considered necessary. However, the Contractor will review options for the use of waterborne transport when sourcing construction materials.

10.8 Limitations or Difficulties

10.8.1 Detailed construction information is not yet available as the construction contractor has not yet been appointed. Therefore, this assessment draws upon the experience and assessments undertaken for other similar projects. It is considered that the assumptions made have resulted in the assessment being robust.

10.9 Summary of Likely Significant Residual Effects

10.9.1 The additional traffic due to Proposed Development construction activities would result in small, temporary increases of traffic flows, including HGV, on the roads leading to the Proposed Development Site. In line with the significance criteria presented herein and in the **Appendix 10A** (ES Volume II - **Application Document Ref. 6.3**), the effects of construction traffic on all road sections and junctions are anticipated to be negligible and thus **not significant**. Notwithstanding this, a number of traffic management measures would be implemented during the Proposed Development construction phase to minimise traffic impacts upon the local road network (refer to Section 10.5).

10.9.2 The generation of traffic during Proposed Development operation would be minimal when compared to the construction phase. Therefore, Proposed Development operational phase traffic effects are also considered to be negligible and thus **not significant**.

10.9.3 The generation of traffic during the decommissioning phase is expected to involve traffic movements associated with the removal (and recycling, as appropriate) of material arising from demolition and potentially the import of materials for land restoration and re-instatement. However, the effects of decommissioning traffic would be no greater than that of the construction traffic and are, therefore, anticipated to be negligible and thus **not significant**. Notwithstanding, a DEMP would be implemented during the decommissioning phase to control the impact and routing of HGV.

10.10 References

Department for Energy and Climate Change (2011) *National Policy Statement for Energy (EN-1)*. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf

Department for Energy and Climate Change (2011) National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2).

Department for Transport Circular 02/2013 (2013) *The Strategic Road Network and the Delivery of Sustainable Development*. Available online: https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development

Department for Environment, Food & Rural Affairs (2011), *UK Marine Policy Statement, March 2011.* Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf

Department for Environment, Food & Rural Affairs (2014), The East Inshore and East Offshore Marine Plans. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf

Highways England (2012) *Water preferred policy guidelines for the movement of abnormal loads.* Available online: https://www.gov.uk/government/publications/movement-of-abnormal-loads-by-water

Highways England (2015) *The Strategic Road Network: Planning for the Future – A Guide to Working with Highways England on Planning Matters.* Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/461023/N150227_-_Highways_England_Planning_Document_FINAL-lo.pdf

Institution of Environmental Management and Assessments (IEMA) (1993) *Guidelines for the Environmental Assessment of Road Traffic*.

Local Development Frameworks Government Office for Yorkshire and The Humber (2007). *Saved Policies of the North Lincolnshire Local Plan.* Available online: http://www.planning.northlincs.gov.uk/planningreports/localplan/savedpolicies/direction.pdf

Planning Practice Guidance Ministry of Housing, Communities and Local Government (2014) *Travel Plans, Transport Assessment and Statements in Decision-taking.* Available online: https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

Department for Ministry of Housing, Communities and Local Government (2019) *National Planning Policy Framework*. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

North Lincolnshire Council (2003) North Lincolnshire Local Plan – Adopted 2003

North Lincolnshire Council (2011) *North Lincolnshire Local Transport Plan 2011 – 2026.* Available online: https://www.northlincs.gov.uk/transport-and-streets/local-transport-plan-2011-2026/

North Lincolnshire Council (2011a) *North Lincolnshire Core Strategy - adopted June 2011.* Available online: http://www.planning.northlincs.gov.uk/planningreports/corestratergy/adopteddpd/FullCoreStrategy.pdf

North Lincolnshire Council (2017) Employment and Land Allocations - adopted March 2016

United Nations (2019) Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)