



# Immingham Green Energy Terminal

TR030008

Volume 6

6.2 Environmental Statement

Chapter 23: Socio-economics

Planning Act 2008

Regulation 5(2)(a)

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

September 2023

# Infrastructure Planning

## Planning Act 2008

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

# Immingham Green Energy Terminal

## Development Consent Order 2023

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## 6.2 Environmental Statement

### Chapter 23: Socio-economics

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## 23 Socio-economics

### 23.1 Introduction

23.1.1 This chapter presents the findings of the assessment of the likely significant effects of the Project on socio-economics. This includes considering potential impacts on the following receptors:

- a. Employment and the local community;
- b. Users of recreational routes and Public Rights of Way (“PRoW”); and
- c. Private/public assets (including residential properties, development land, local businesses, community facilities).

23.1.2 This chapter interacts with the following chapters [TR030008/APP/6.2]:

- a. **Chapter 2: The Project**
- b. **Chapter 4: Legislative and Consenting Framework**
- c. **Chapter 7: Noise and Vibration**
- d. **Chapter 11: Traffic and Transport**
- e. **Chapter 13: Landscape and Visual Impact;**
- f. **Chapter 18: Water Use, Water Quality, Coastal Protection, Flood Risk & Drainage**
- g. **Chapter 21: Ground Conditions and Land Quality**
- h. **Chapter 22: Major Accidents and Disasters**
- i. **Chapter 24: Human Health and Wellbeing**
- j. **Chapter 25: Cumulative and In-Combination effects**

23.1.3 This chapter is supported by the following figures [TR030008/APP/6.3]:

- a. **Figure 23-1: Socio Economic Receptors within the Site Boundary**
- b. **Figure 23-2: Socio Economic Receptors within 500m of the Site Boundary**
- c. **Figure 23-3: Socio Economic Receptors within 5km of the Site Boundary**
- d. **Figure 23-4: Lower Super Output Area**
- e. **Figure 23-5: North East Lincolnshire Local Authority Area**
- f. **Figure 23-6: Access to the Sea Wall**

### 23.2 Consultation and Engagement

23.2.1 A scoping exercise was undertaken in August 2022 and the Scoping Report (**Appendix 1.A [TR030008/APP/6.4]**) records the findings of the exercise. This details the technical guidance, standards, best practice and criteria being applied in the assessment to identify and evaluate the likely significant effects of the

Project on socio-economics. A Scoping Opinion was adopted by the Secretary of State on 10 October 2022 (**Appendix 1.B [TR030008/APP/6.4]**).

- 23.2.2 Statutory Consultation took place between 9 January and 20 February 2023 in accordance with the *Planning Act 2008* (the “2008 Act”) (Ref. 23-33). The Applicant prepared a Preliminary Environmental Information Report (“PEI Report”), which was publicised at the consultation stage.
- 23.2.3 Through consideration of the responses to the first Statutory Consultation, the developing environmental assessments and through analysis of the ongoing design-development, a series of changes to the Project were identified. A second Statutory Consultation took place between 24 May and 20 July 2023 in accordance with the *2008 Act* and a PEI Report Addendum was publicised to support the consultation.
- 23.2.4 The consultation undertaken with statutory consultees to inform this chapter, including a summary of comments raised via the formal scoping opinion is shown in **Appendix 1.C [TR030008/APP/6.4]**. Comments made in response to the formal consultation and other pre-application engagement are summarised in **Table 23-1**. The full responses to consultation comments are included within the Summary of Consultation Responses document [**TR030008/APP/5.1**].

**Table 23-1 Consultation Summary Table (TR030008/APP/5.1):**

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
Scoping Report August 2022	Planning Inspectorate	<p><u>Analysis of tourism receptors:</u></p> <p>The Scoping Report seeks to scope out this matter as there are no tourism receptors in proximity to the Project, therefore it is unlikely there would be any impact experienced by tourists. Given the location of the development the absence of sensitive tourism receptors (other than the England Coast Path which is being assessed separately) the Inspectorate agrees that it is unlikely that significant effects on tourism would arise and this matter can be scoped out of the assessment on this basis.</p>	Noted.
		<p><u>Analysis of PRowS (during operational phase):</u></p> <p>Two PRowS are in proximity to the Project and it is proposed to scope this out of the assessment as user experience during operation would be as it is currently. The Inspectorate agrees that this matter can be scoped out on this basis.</p>	Noted.
		<p><u>Production of supporting Figures:</u></p> <p>The Scoping Report states that the ES would include a figure to denote the relevant study areas. This should include the relevant Lower Layer Super Output Areas (“LSOA<sup>1</sup>s”) and the Grimsby travel to work area (“TTWA”) in relation to the Project. Residential and business properties on Queens Road within the Project order limits should be clearly identified in any figures to help residents and businesses to identify likely impacts.</p>	Detailed figures to support this assessment have been produced ( <b>Figures 23-1, 23-2, 23-3 and 23-4, 23-5 and 23-6 [TR030008/APP/6.3]</b> ), identifying the relevant study areas as well as identifying the potentially affected receptors on Queens Road and along the coast. A full assessment of the potential impacts

<sup>1</sup> Lower Super Output Areas (LSOAs) areas are made up of groups of Output Areas, usually four or five. They comprise between 400 and 1,200 households and usually have a resident population between 1,000 and 3,000 persons. The 2021 Census reported 33,755 LSOAs in England (Ref. 23-23).

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
		<p><u>Consideration of Census data:</u></p> <p>The Applicant refers to 2011 Census data and the Inspectorate notes that the 2021 Census data is now made available through the Office for National Statistics. As the Development Consent Order (“DCO”) application will be submitted after the release of the 2021 Census data, this data should be used to inform the Socio-economic assessment.</p> <p><u>Consideration of local housing availability:</u></p> <p>The Scoping Report proposes to assess the impact of a changing influx of workers, however it does not explicitly refer to effects on housing availability and effects on social cohesion in this chapter. The Inspectorate notes these matters are referenced under the chapter on health and well-being (para 23.4.3 of the Scoping Report). The assessment in the Environmental Statement (“ES”) should consider if any likely significant effects would arise from the influx of construction workers on the local housing and rental market. This should cross-refer to the other relevant sections of the ES such as the assessment of health and well-being.</p>	<p>on all socio-economic receptors has been undertaken and reported in <b>Section 23.8</b>.</p> <p>2021 Census data has been reviewed and presented to provide an analytical review of the most recently available data at local, regional and national geographies (see <b>Section 23.6</b>). Census 2011 data is presented in a limited number of instances reflecting where Census 2021 data has yet to be published. In all these instances, such data has been included to provide context and is not directly used within the assessment of effects.</p> <p>An analysis of the baseline conditions (<b>Section 23.6</b>) and potential impacts during construction (<b>Section 23.8</b>) has considered the extent to which the local private rented sector can accommodate the influx of temporary construction workers within the local area. The impact of this additional workforce on primary healthcare has also been considered (<b>Section 23.8</b>). Impacts upon Social Cohesion in respect of the perception of risk and community severance have been assessed and are reported within</p>

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
			<b>Chapter 24: Human Health and Wellbeing [TR030008/APP/6.2].</b>
	Immingham Town Council	<p><u>Consideration of the impact on local Private Assets:</u></p> <p>Residents and businesses are rightly concerned about the potential Compulsory Purchase of their properties and land. Resulting in loss of jobs and homes. If they are not included, as some maps indicate they need to be informed to ease their minds. If they are included it seems unnecessary as there is so much other land on the development that consideration should be given to leaving them alone.</p>	An analysis of the potential impact on Private/public Assets has been provided within <b>Section 23.8</b> . This has included analysis of the impact upon residential properties, business premises, community facilities and development land during construction, operation and the decommissioning phases.
	UK Health Security Agency/Office for Health Improvement and Disparities	<p><u>Consideration of local housing availability:</u></p> <p>The scoping report does not identify the projected numbers of construction workers required for the scheme but does scope in potential social impacts from their presence. The presence of significant numbers of workers could foreseeably have an impact on the local availability of affordable housing, particularly that of short-term tenancies and affordable homes for certain communities. The cumulative impact assessment will need to consider this across the wider study area given the existing plans for Immingham and the number of other large schemes proposed within the region. Access to accommodation for residents with the least capacity to respond to change, for example, where there may be an overlap between construction workers seeking accommodation in the private rented sector, and people in receipt of housing benefit / low paid employment seeking the same lower-cost accommodation, should be considered. It should be noted the Housing Needs Assessment for North-East Lincolnshire Council (2019) identifies the private rented sector makes a significant contribution to meeting affordable housing needs. There are a number of infrastructure schemes proposed for the wider</p>	<p>An analysis of the baseline conditions presented in <b>Section 23.6</b> and potential impacts during construction in <b>Section 23.8</b> has considered the extent to which the local private rented sector can accommodate the influx of temporary construction workers within the local area. The impact of this additional workforce on primary healthcare has also been considered, see <b>Section 23.8</b>.</p> <p>Cumulative effects arising from construction employment generation and from the consequent changing influx of workers in respect of accommodation have been assessed and are presented in <b>Chapter 25:</b></p>

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
		<p>region, increasing the potential for non-home-based construction workers to be seeking accommodation.</p> <p><u>Consideration of the local impact of the construction workforce:</u></p> <p>The peak numbers of construction workers and non-home-based workers should be established and a proportionate assessment undertaken on the impacts for housing availability and affordability and impacts on any local services. Any cumulative impact assessment should consider the impact on demand for housing by construction workers and the likely numbers of non-home-based workers required across all schemes.</p>	<p><b>Cumulative and In-Combination Effects [TR030008/APP/6.2].</b></p> <p>An analysis of the baseline conditions (<b>Section 23.6</b>) and potential impacts during construction (<b>Section 23.8</b>) has considered the extent to which the local private rented sector can accommodate the influx of temporary construction workers within the local area. The impact of this additional workforce on primary healthcare provision has also been considered in <b>Section 23.8</b>.</p>
Statutory Consultation January 2022	Anglian Water	<p>Given the fortuitous timing of the WRMP and DWMP and supporting SEA, the project could consider the new baseline and future position up to 2050 in the project EIA including HRA and other assessments. The impact of curtailed water supply to domestic customers could also be assessed including consideration of the Socio-Economic effects of the use of water for the project in the context of growth and climate change as well as the potential impacts on communities and business.</p>	<p>The only requirement for potable supply would be for offices (including fire sprinkler systems), welfare facilities and site safety showers. A non-potable supply is required in connection with the operational processes of the hydrogen production facility including for cooling purposes as well as fire water for emergencies. Anglian Water has made a commercial offer to provide the total non-potable water supply requirements for the Project (Phases 1 – 6). The proposed supply would have been considered by Anglian Water as part of their Water Resources Management Planning</p>

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
			(WRMP24) process. Further details of the overall water use of the Project are set out in <b>Chapter 18: Water Use, Water Quality, Coastal Protection, Flood Risk &amp; Drainage [TR030008/APP/6.2]</b> . On that basis, there is likely to be no socio-economic effects on local communities and businesses.
	North East Lincolnshire Council	The development presents a significant investment into the port of Immingham. This will in turn secure numerous jobs in direct association with the maintenance and upkeep of the infrastructure. The development also ties in closely with the recent announcement of Humber Freeport Status and adds to the wider economic growth of the Humber Region. It is this growth that the NELLP is based upon and the principle of such development is therefore supported.	The Applicant appreciates the support and notes the response. <b>Section 23.8</b> of the Socio economics chapter assesses the employment opportunities available as a result of the construction and operation of the Project as well as Gross Value Added in the local economy as a result of direct and indirect employment opportunities.
	Local Residents	Supportive of the Project, but concern expressed that a hydrogen plant will reduce the value of nearby properties.  How many of these jobs will be given to the local people of Immingham?	As set out within <b>Section 23.6: Baseline Conditions</b> , a number of properties located within the Site are used wholly or partly for residential purposes, which is not considered compatible with the proposed hydrogen production facility. It is intended that these will be acquired through agreement (or powers of acquisition proposed to be included in the DCO if agreement cannot be

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
			<p>reached.) As set out in <b>Chapter 7: Noise and Vibration [TR030008/APP/6.2]</b>, there are properties which are located on the edge of the study area, approximately 460-500m away. Due to the separation distance between these receptors and the Site, it is predicted that worst case construction noise would result in short term, temporary, very low adverse impacts.</p> <p>If impact avoidance measures and additional noise specific mitigation measures are implemented, residual effects at these residential NSRs during operation is assessed in <b>Chapter 7: Noise and Vibration [TR030008/APP/6.2]</b> to be minor adverse (not significant).</p> <p>As also set out in <b>Chapter 13: Landscape and Visual Impact [TR030008/APP/6.2]</b> the Project has been designed, as far as possible, to avoid and minimise impacts and effects to landscape/seascape and visual receptors through the process of design development and by embedding mitigation measures into the design. As also explained in <b>Chapter 2: The Project [TR030008/APP/6.2]</b>, the area</p>

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
			<p>surrounding the Port is already industrial in nature, being dominated by chemical manufacturing, oil processing and power generation facilities and beyond this, the wider area is largely agricultural. Therefore, it is not anticipated that the Project will adversely affect local house prices.</p> <p>It is not yet known how many employment opportunities will be taken by local residents as these have not yet been recruited for. As set out in <b>Section 23.8</b>, on average across North East Lincolnshire, 30% of those working in the area, live outside of it. Therefore, if also applied to the Project, it is assumed that 70% of employment opportunities would remain within North East Lincolnshire.</p>
	<p>Local Resident (living within approx. 10km of the project)</p>	<p>Concern that the location is not suitable for the local people of Immingham and possibility of full time employment for locals. PEI Report mentions nothing of the effects to residents</p>	<p>As stated within <b>Section 23.8</b>, it is proposed that a wide variety of FTE roles will be created during construction and operation of the Project. Jobcentre Plus has also offered to support with employability and skills training to maximise the local community benefits of the Project. Properties wholly or partly used for residential purposes within</p>

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
			<p>the Site are intended to be acquired through agreement (or powers of acquisition proposed to be included in the DCO if agreement cannot be reached. As set out in <b>Chapter 7: Noise and Vibration [TR030008/APP/6.2]</b>, there are properties which are located on the edge of the study area, approximately 460-500m away. Due to the separation distance between these receptors and the Site, it is predicted that worst case construction noise would result in short term, temporary, very low adverse impacts.</p> <p>If impact avoidance measures and additional noise specific mitigation measures are implemented, residual effects at these residential NSRs during operation is assessed in <b>Chapter 7: Noise and Vibration [TR030008/APP/6.2]</b> to be minor adverse (not significant). Other impacts to residents have been assessed separately and are reported in the following chapters: <b>Chapter 6: Air Quality, Chapter 7: Noise and Vibration, Chapter 11: Traffic and Transport, Chapter 13: Landscape and Visual Impact and Chapter 22:</b></p>

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
			<b>Major Accidents and Disasters [TR030008/APP/6.2].</b>
	Local Resident (living within approx. 10km of the project)	Proposed West site is partially developed with road structure and drainage? Say 200 potential jobs for the facilities – did the developer get any council or government grants/support?  West Site illustration showing what appears to be a road in the foreground is misleading. Visitors questioned whether this was the A1173. Google shows it as a minor track accessing land off Queens Road. Is this information being used as part of safety review	As set out in <b>Section 23.8</b> of this assessment, it is anticipated that 134 direct FTE jobs will be created during the operation of the Project.  The Site includes a temporary construction area accessed from Laporte Road. The track was previously used to access a landfill site and is now proposed to be used to access the temporary construction area. See Section 2.4 of <b>Chapter 2: The Project [TR030008/APP/6.2]</b> for further information.
	Local Resident (living within approx. 10km of the project)	Development should prioritise skills training for locals so they can get the jobs on offer.	Noted. As stated within <b>Section 23.8</b> , it is proposed that a wide variety of FTE roles will be created during both construction and operation of the Project. Jobcentre Plus has also offered to support with employability and skills training to maximise the local community benefits of the Project.
	Local Resident (living within approx. 10km of the project)	The jobcentre can help with finding customers to be able to work on the new project by helping them gain the skills and licenses required	Noted.

Reference/Date	Consultee	Summary of Response	How comments have been addressed in this chapter
	Natural England	<p>Rights of Way, Access land, Coastal access, and National Trails</p> <p>Paragraphs 100 and 174 of the NPPF highlight the important of public rights of way and access. Development should consider potential impacts on access land, common land, rights of way and coastal access routes in the vicinity of the development. Consideration should also be given to the potential impacts on the any nearby National Trails. The National Trails website <a href="http://www.nationaltrail.co.uk">www.nationaltrail.co.uk</a> provides information including contact details for the National Trail Officer. Appropriate mitigation measures should be incorporated for any adverse impacts.</p>	<p>PRoW have been assessed from the health perspective within <b>Chapter 24: Human Health and Wellbeing [TR030008/APP/6.2]</b>. The impact on users of PRoWs has also been considered within this chapter, focusing on the impact of severance of existing routes and the resulting changes in journey lengths and times, and local travel patterns. This has been assessed within <b>Section 23.8</b> and <b>Chapter 22: Major Accidents and Disasters [TR030008/APP/6.2]</b>.</p>
<p>Statutory Consultation May 2023</p>	NHS Humber and North Yorkshire	<p>Thank you for the opportunity to consult on the proposed IGET development in Immingham and the materials you sent to that effect.</p> <p>This proposal has been considered by the senior management team of the ICB in North East Lincolnshire and we believe the development will make a significant contribution to the overall economic development in the Borough and aligns with our own strategic priorities for the area.</p>	<p>The comment from the NHS Humber and North Yorkshire is welcomed.</p>

23.2.5 The Planning Inspectorate’s Scoping Opinion (**Appendix 1.B [TR030008/APP/6.4]**) has confirmed the Applicant’s view that significant effects on Tourism and PRoW links (during the operational phase) are unlikely. Accordingly, these matters are scoped out of consideration in the assessment.

### 23.3 Legislation, Policy and Guidance

23.3.1 **Table 23-2** presents the key legislation, policy and guidance relevant to the socio-economic assessment and details how their requirements will be met, further details are provided within **Chapter 4: Legislation and Consenting Framework [TR030008/APP/6.2]**, with the **Table 23-2** setting out relevant legislation, policy and guidance to socio-economics.

**Table 23-2 Relevant legislation, policy and guidance regarding socio-economics**

Legislation/Policy/Guidance	Consideration within this ES chapter
<b>National Policy Statement for Ports (NPSfP)</b> (Ref. 23-3)	
<p>Paragraph 1.2.1 states that this NPS provides the framework for decisions on proposals for new port development and recognizes that ports have a vital role in the import and export of energy supplies. The NPS states that ensuring security of energy supplies through ports will be an important consideration and this infrastructure will need to be responsive both to changes in the types of energy supplies needed and changes in the geographical pattern of demand for fuel.</p> <p>Paragraph 3.1.7 highlights the role of ports in local, regional and national economics, through direct, indirect and induced employment opportunities. There are also associated economic benefits of ‘clustering’, whereby innovation is encouraged, new business opportunities created and increased productivity.</p> <p>Paragraph 3.3.6 states that the future development of ports support the fundamental aims of improving economic, social and environmental welfare through sustainable development and are key contributors to international and domestic trade.</p> <p>The benefits of port infrastructure are set out in Paragraph 4.2.3. This includes both economic, environmental and social benefits at a national level as well as locally, as a result of particular Projects. Longer benefits (such as job creation), costs of development</p>	<p>This NPSfP provides guidance on the relevant impacts to consider as part of the assessment. These themes have been reflected when considering the baseline analysis in <b>Section 23.6</b>, with an assessment in <b>Section 23.8</b> undertaken on the following receptors firstly during the construction phase:</p> <ul style="list-style-type: none"> <li>• Employment</li> <li>• Gross Value Added</li> <li>• Public Rights of Way</li> <li>• Private/public Assets: residential properties, business premises community facilities and development land</li> <li>• Impact of a changing influx of workers: private healthcare and accommodation</li> </ul> <p>As well as the following receptors during operation:</p> <ul style="list-style-type: none"> <li>• Net operational employment</li> <li>• Private/public Assets</li> <li>• Changing influx of workers: primary healthcare.</li> </ul> <p>This has also been taken into consideration within <b>Chapter 25: Cumulative and In-Combination Effects [TR030008/APP/6.2]</b></p>

Legislation/Policy/Guidance	Consideration within this ES chapter
<p>and any wider benefits to national, regional and local economies, the environment or society should be taken into consideration.</p> <p>Section 4.3 of the NPSfP sets out guidance for the consideration of economic impacts. This highlights the national benefits of port infrastructure associated with international trade, enhancing of gross national product, opportunities for foreign direct investment and tax revenues. This should be considered alongside the regional and local level advantages of regeneration, agglomeration benefits as well as employment and skills opportunities. The NPS sets out that these benefits may need to be quantified and demand on local public services should be considered, with sufficient weight given to positive impacts associated with economic development. Transport issues and associated mitigation are recognized as economic issues.</p> <p>Section 4.4 of the NPSfP sets out guidance for the consideration of commercial impacts. This sets out that Ports in England and Wales operate commercially and the impact of the development on other commercial operators will need to be considered. This should take into account proposed mitigation measures to limit increased traffic generation and objections should be considered alongside the benefits afforded to the future users of the development.</p> <p>Paragraph 5.14.3 states that in relation to socio-economics , it is stated that assessments should consider all relevant impacts including:</p> <ul style="list-style-type: none"> <li>• the creation of jobs and training opportunities;</li> <li>• the provision of additional local services and improvements to local infrastructure;</li> <li>• effects on tourism;</li> <li>• the impact of a changing influx of workers during the different construction phases, which could change the local population dynamics and alter demand for services and facilities (including community facilities and physical</li> </ul>	

Legislation/Policy/Guidance	Consideration within this ES chapter
<p>infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion, depending on how populations and service provision change as a result of the development; and</p> <ul style="list-style-type: none"> <li>• cumulative effects arising from granted development consent from projects in the same region and built over a similar timeframe.</li> </ul>	
<p><b>Draft Overarching National Policy Statement for Energy (EN-1) (Ref. 23-27)</b></p>	
<p>This Draft National Policy Statement (“NPS”) for Energy, whilst not the relevant NPS for determination of the Application pursuant to s104(2)(a) of the 2008 Act, it is potentially relevant to the consideration of the Application. Paragraph 5.13.5 states that engagement with relevant local authorities should be undertaken during early stages of project development and should describe the existing socio-economic conditions in the areas surrounding the proposed development and refer to how the development’s socio-economic impacts correlate with local planning policies. Paragraph 5.13.4 states that the applicant’s assessment should consider all relevant socio-economic impacts, which may include:</p> <ul style="list-style-type: none"> <li>• the creation of jobs and training opportunities, particularly the sustainability of the jobs created, including where they will help to develop the skills needed for the UK’s transition to Net Zero;</li> <li>• the contribution to the development of low-carbon industries at the local and regional level as well as nationally;</li> <li>• the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;</li> <li>• any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains;</li> <li>• effects on tourism</li> </ul>	<p>This Draft NPS provides guidance on the relevant impacts to consider as part of an assessment of socio-economic impacts for nationally significant infrastructure projects for energy infrastructure. These themes have been reflected when considering the baseline analysis in <b>Section 23.6</b>, with an assessment in <b>Section 23.8</b> undertaken on the following receptors firstly during the construction phase:</p> <ul style="list-style-type: none"> <li>• Employment;</li> <li>• Gross Value Added;</li> <li>• Public Rights of Way;</li> <li>• Private/public Assets: residential properties, business premises community facilities and development land; and</li> <li>• Impact of a changing influx of workers: private healthcare and accommodation</li> </ul> <p>As well as the following receptors during operation:</p> <ul style="list-style-type: none"> <li>• Net operational employment;</li> <li>• Private/public Assets; and</li> <li>• Changing influx of workers: primary healthcare.</li> </ul> <p>This has also been taken into consideration within <b>Chapter 22: Major Accidents and Disasters [TR030008/APP/6.2]</b> and <b>Chapter 25: Cumulative and In-Combination Effects [TR030008/APP/6.2]</b>.</p>

Legislation/Policy/Guidance	Consideration within this ES chapter
<ul style="list-style-type: none"> <li>• the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development</li> <li>• effects on existing and proposed land uses near the project, by replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Effects on the existing use of the proposed site should be minimised, through the application of good design principles, including the layout of the project and protection of soils during construction.</li> <li>• impact on Public Rights of way, National Trails, and other rights of access to land. These are important recreational facilities for example for walkers, cyclists and horse riders and applicants should take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve or create new access. In considering revisions to an existing right of way, consideration should be given to the use, character, attractiveness, and convenience of the right of way.</li> <li>• impacts on accommodation supply, especially during construction and decommissioning phases.</li> </ul>	

Legislation/Policy/Guidance	Consideration within this ES chapter
<ul style="list-style-type: none"> <li>cumulative effects - if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.</li> </ul>	
<b>UK National Accounts, The Blue Book: 2022 (Ref. 23-31)</b>	
<p>The Blue Book presents a full set of economic national accounts for the UK. They record and describe economic activity in the UK and are used to support the formulation and monitoring of economic and social policies. Within the Blue Book, this incorporates supply and use tables (SUTs), which are used and prepared using all the available information on inputs, outputs, gross value added, income and expenditure.</p>	<p>The 2017 United Kingdom Input-Output Analytical Tables (“IOATs”) (Ref. 23-30) are consistent with the UK Blue Book and have been used to inform the multiplier assumptions, which in turn has calculated projected indirect employment as a result of the Project.</p> <p>The Input-Output Tables have been used to inform the methodology in <b>Section 23.4</b>, specifically with reference to calculating indirect employment.</p> <p>This has then subsequently informed <b>Section 23.8</b>, particularly the calculation of construction indirect employment, which then subsequently influenced the assessment related to Gross Value Added (“GVA”) during construction. The multiplier assumptions have also been applied in the calculation of indirect employment in the operational phase.</p>
<b>National Planning Policy Framework (“NPPF”) (Ref. 23-4)</b>	
<p>Paragraph 8 of the NPPF maintains the presumption in favour of sustainable development, which should be delivered in accordance with three main policy objective areas: economic, social and environmental. Paragraph 152 and 158 state that local planning authorities are encouraged to support the delivery of low carbon energy and associated infrastructure to increase the use of renewable and low carbon energy and help to move towards a low carbon economy.</p>	<p>Encouraging sustainable economic development has been considered throughout the Socio-economic assessment in <b>Section 23.8</b>, in particular with regards to economic growth in respect of GVA created during construction (refer to <b>Paragraph 23.8.22 to 23.8.25</b>).</p>
<b>National Planning Practice Guidance (“NPPG”) (Ref. 23-5)</b>	
<p>The NPPG accompanies the revised NPPF. This provides guidance on planning and the economy and considers the existing and potential future needs of the population in terms of economic development, jobs and employment opportunities. The NPPG does</p>	<p>Economic development, jobs and employment opportunities have been assessed in <b>Section 23.8</b>.</p>

Legislation/Policy/Guidance	Consideration within this ES chapter
<p>not contain specific policies for Nationally Significant Infrastructure Projects (“NSIPs”), however, it states that applications in relation to NSIPs are to be determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant NSIPs, as well as any other matters that are considered both important and relevant. The contents of this guidance are not materially relevant to the assessment of socio-economics and land use effects as the content does not influence the assessment of effects relevant to the Project.</p>	
<p><b>Homes and Communities Agency (“HCA”) Additionality Guidance (Ref. 23-1)</b></p>	
<p>The guidance sets out how to assess the additional impacts or additionality of local economic growth and housing interventions and includes benchmark assumptions on the scale of additionality factors, in other words, the net changes that are brought about over and above what would take place anyway.</p>	<p>This has been used to inform the methodology in <b>Section 23.4</b>, specifically with reference to calculating displacement and leakage (see <b>Table 23-5</b> for more detail).</p> <p>This has then informed <b>Section 23.8</b>, particularly the calculation of construction and operational employment, which then subsequently influences the assessments related to GVA during construction, as well as the impact of a changing influx of workers on primary healthcare and local accommodation capacity.</p>
<p><b>East Inshore Marine Plan (Ref. 23-29)</b></p>	
<p>In 2011, the Department for Environment, Food and Rural Affairs recommended a series of marine plans for the English Inshore and Offshore marine regions to the Marine Management Organization.</p> <p>The East Inshore Marine Plan (Marine Management Organisation, 2014) details policies which encourage developments to increase economic productivity and provide employment benefits. The Plan highlights that it is important that economic development is delivered sustainably and provides environmental and social benefits too.</p> <p>In this context, socio-economic factors are also referenced. The East Inshore Marine Plan has an objective to promote sustainable development of economically productive activities. This is supported by Policy EC1 which states that “Proposals that provide economic productivity benefits which are additional to Gross Value Added currently</p>	<p>This has been used to inform the methodology section and the relevant impacts to consider as part of the baseline analysis and assessment of potential impacts and effects during both construction and operation.</p>

Legislation/Policy/Guidance	Consideration within this ES chapter
generated by existing activities should be supported”.	
<b>North East Lincolnshire Local Plan</b> (Ref. 23-6)	
<p>The North East Lincolnshire Local Plan was adopted in 2018 and provides a planning framework to meet local development needs for the period 2013-2032, with a focus on ‘<i>creating opportunities for people</i>’. Policy 1 states that the intention is to create 8,800 new jobs between 2013-2032, focused around five key economic sectors, two of which are: ports and logistics, and renewable energy. Policy 7 sets out a number of employment sites of which, the Project falls within two site allocations: ELR001, a strategic proposed employment allocation site on Kings Road, which is 21.6ha in size and ELR025a, a site reserved for long term business expansion.</p>	<p>The Project will provide a number of construction/operational/decommissioning jobs within these relevant sectors, which has been assessed as well as the impact upon Development Land in <b>Section 23.8</b>.</p>
<b>North East Lincolnshire Economic Strategy</b> (Ref. 23-7)	
<p>Produced in 2021, this document recognised that ports and logistics as well as renewable energy are two key economic sectors in North East Lincolnshire. It recognised that the ports and logistics sector continues to be one of North East Lincolnshire’s largest employers and the development of the ports has helped to underpin the growth of the local economy. The ports of Immingham and Grimsby are stated to be a critical part of the supply chain for sustainable energy generation and other energy production. As well as this, renewable energy is another key economic sector in the region. It states that North East Lincolnshire forms part of the ‘Energy Estuary’ and investment in the renewables sector has attracted a range of inward investors and significant future development is planned. It also states that in 2020, the Humber submitted a joint bid for Freeport status, covering a 45km area, including Grimsby and Immingham (which was subsequently granted in March 2023). The key objectives of a Freeport are to attract investment, create high value jobs, promote research and development, innovation and clean technology and</p>	<p>The Project will create a number of employment opportunities within these key economic sectors, which is assessed in <b>Section 23.8</b>.</p>

Legislation/Policy/Guidance	Consideration within this ES chapter
practices, which is key for the future of the local economy.	
<b>North East Lincolnshire Economic Recovery Plan (Ref. 23-8)</b>	
<p>The Economic Recovery Plan outlines the short and long term plan to support local businesses, create employment opportunities and reshape our future economy, especially since the COVID-19 pandemic and the changes brought about by Brexit. Three roadmaps have been developed (Restore, Reshape and Replenish). One of the key aims of the strategy is to <i>‘ensure low carbon and green energy is our focus, grasping the opportunity to be nationally recognised as the place for leading edge of Offshore Wind Operations and Maintenance, Renewable Power Generation, Carbon Capture, Hydrogen and Biofuel production’</i>.</p>	<p>The Project will provide new port infrastructure which will foster the local authority’s aspiration to develop its energy sector locally. As part of this, the Project will facilitate growth of the local energy sector by creating a number of local employment opportunities and contributing gross value added (GVA<sup>2</sup>), which is assessed in <b>Section 23.8</b>.</p>
<b>Greater Lincolnshire Local Enterprise Partnership (“LEP”) Strategic Economic Plan (Ref. 23-9)</b>	
<p>The Strategic Economic Plan was produced in 2016 by Greater Lincolnshire LEP, consisting of the Unitary Authorities of North and North East Lincolnshire, the County of Lincolnshire and seven districts. One of the key priorities is listed as seeking to drive growth of the area’s defining and strongest sectors, one of which is the low carbon economy, with a particular focus on renewable energy, and, to grow specific opportunities identified as future defining features of the area, one of which is ports and logistics.</p>	<p>The Project will seek to develop the local energy, ports and logistics sectors, which is assessed in <b>Section 23.8</b>.</p>

<sup>2</sup> Gross Value Added (GVA) is the measure of the value of goods and services produced in an area, industry or sector of an economy.

## 23.4 Assessment Method

### Methodology

- 23.4.1 There is currently no industry-recognised guidance on methodology for undertaking assessments of socio-economic effects. The assessment follows best practice methodology from other assessments undertaken on comparable port infrastructure schemes.
- 23.4.2 The Project has the potential to result in a wide range of socio-economic effects from the construction stage, through operation and decommissioning, which differ in permanence. For the purposes of this assessment, due consideration is given to the Project in terms of effects on or arising from the following:
- Socio-economics (employment and GVA);
  - Recreational routes and ProW (for construction and decommissioning only);
  - Private/public assets (including residential properties, business premises, agricultural land and community facilities);
  - Development land; and
  - Influx of workers.
- 23.4.3 In the assessment of development land, planning applications are included if: they are within the relevant study area (500m from the Site) as described in **Table 23-11**; are either consented or pending approval; and are of relevance to the receptors in this socio-economic assessment.
- 23.4.4 Further details on the methodology for the socio-economics assessment of the Project are detailed below:
- An assessment of the likely scale, permanence and significance of effects associated with socio-economics, recreation, and private/public assets receptors; and
  - An assessment of the potential cumulative impacts with other schemes within the surrounding area. This has also been taken into consideration within **Chapter 25: Cumulative and In-Combination Effects [TR030008/APP/6.2]**.
- 23.4.5 The assessment of potential socio-economic impacts uses, where relevant, policy thresholds or standards and professional judgment to assess the scale and nature of the impacts of the Project against baseline conditions. For socio-economics, there is no generally accepted definition of what constitutes a significant (or not significant) socio-economic effect. Effects are generally categorised based upon the relationship between the scale (or magnitude) of impact and the sensitivity (or value) of the affected resource or receptor.

- 23.4.6 Duration of impact is also considered, with more weight given to reversible long-term or permanent changes than to temporary ones. Temporary impacts are considered to be those associated with the construction works. Long-term permanent impacts are generally those associated with the completed and operational development. For the purposes of this assessment, short term impacts are considered to be of one year or less, medium term impacts of one to four years and long-term impacts of five or more years.
- 23.4.7 As such, the socio-economic effects have been assessed on the basis of:
- Consideration of sensitivity to impact: specific values in terms of sensitivity are not attributed to socio-economic resources/receptors due to their diverse nature and scale; however, the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate).
  - Scale of impact: this entails consideration of the size of the impact on people or business in the context of the area in which effects will be experienced.
  - Scope for adjustment or mitigation: the socio-economic study is concerned in part with economies. These adjust themselves continually to changes in supply and demand, and the scope for the changes brought about by the Project to be accommodated by market adjustment therefore requires consideration.
- 23.4.8 The assessment aims to be objective and quantifies effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects are defined as follows:
- Beneficial classifications of effect: indicate an advantageous or beneficial effect on an area.
  - Negligible classifications of effect: indicate imperceptible effects on an area.
  - Adverse classifications of effect: indicate a disadvantageous or adverse effect on an area.
  - No effect classifications: indicate that there are no effects on an area.
- 23.4.9 Based on consideration of the above, where an effect is assessed as being beneficial or adverse, the scale of the effect has been assigned using the below criteria:
- Minor: a small number of receptors are beneficially or adversely affected. The effect will make a small measurable positive or negative difference on receptors at the relevant area(s) of effect.
  - Moderate: a noticeable number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect.
  - Major: all or a large number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect.

23.4.10 Those effects which are found to be moderate or major are considered to be 'significant' and those which are minor or negligible are 'not significant'.

### Economic Impact

23.4.11 The following criteria have been used to assess the effects on receptors in relation to employment and GVA which have been grouped together as economic impacts. **Table 23-3** Table 23-3 identifies the sensitivity criteria that have been used to inform the assessment of socio-economic receptors relating to employment and GVA in conjunction with the magnitude criteria set out in **Table 23-4** to establish the significance of identified effects.

**Table 23-3 Economic Sensitivity Criteria**

Sensitivity	Description
High	Businesses, workers or residents who have little or no capacity to experience impacts without incurring an economic loss or have capacity to experience an economic gain.
Medium	Businesses, workers or residents that have a moderate or average capacity to experience impacts without incurring a change in their economic well-being.
Low	Businesses, workers or residents that generally have adequate capacity to experience impacts without incurring a change in their economic well-being.
Negligible	Businesses, workers or residents that are unlikely to have their economic well-being affected.

23.4.12 **Table 23-4** identifies the magnitude of impact criteria which have been used to assess the socio-economic receptors relating to employment and GVA.

**Table 23-4 Economic Impact Magnitude Criteria**

Sensitivity	Description
High	An impact that is expected to have considerable adverse or beneficial socio-economics effects. Such impacts will typically affect large numbers of businesses, workers or residents.
Medium	An impact that will typically have a noticeable effect on a moderate number of businesses, workers or residents, and will lead to a small change to the study area's baseline socio-economic conditions.
Low	An impact that is expected to affect a small number of businesses, workers or residents; or an impact that may affect a larger number of receptors but does not materially alter the study area's baseline socio-economic conditions.
Negligible	An impact which has very little change from baseline conditions where the change is barely distinguishable, approximating to a 'no change' situation.

- 23.4.13 The economic impact of the Project is considered relative to the North East Lincolnshire Local Authority area, as shown in **Figure 23-5 [TR030008/APP/6.3]**. This is considered a reasonable area in light of the likely time which workers will spend commuting to the Project and therefore represents the principal labour market catchment area. **Table 23-5** provides details on the definitions of study areas such as this which apply in this chapter.
- 23.4.14 Additionality<sup>3</sup> has been calculated by considering the overall impact of job gains to the area, the level of leakage and the number of displaced jobs. These assumptions have been informed by the Homes and Communities Agency (“HCA”) Additionality Guidance (Ref. 23-1) and Origin and Destination Census data (Ref. 23-27). Indirect employment has been calculated utilising the ONS Sectoral Job Type I Multipliers (Ref. 23-30), such as supply chains and worker spending related jobs.
- 23.4.15 **Table 23-5** below outlines the values that have been applied to the construction, operation, and decommissioning phases in the additionality formula, enabling the tailored calculation of the net additional employment and economic impacts. Justifications for the values are summarised in the right-hand column of the table.

**Table 23-5 Calculation of employment generation assumptions**

Additionality Factor	Value	Justification
Leakage (% of jobs that benefit those residents outside the Project’s study area)	30% (Ref. 23-27)	Relating to employment from outside the study area – this is the proportion of jobs taken by people who live outside of the study area of North East Lincolnshire Local Authority Area, as described in Paragraph <b>23.8.10 to 23.8.11</b> .
Displacement (% of jobs that account for a reduction in related jobs in the Project’s study area)	25% (Ref. 23-1)	For the purpose of this assessment, a low level of displacement (25%) has been assumed, in line with the HCA Additionality Guidance (Ref. 23-1).
Multiplier (further economic activity associated with the additional local income, supplier purchase and longer-term development effects)	Various: see <b>Table 23-17</b> and <b>Paragraph 23.8.7</b>	The multiplier is a composite figure which is applied to direct job estimates to estimate indirect jobs demand. The sector categorisations covered include construction (generic), manufacture of industrial gases, and transport (by land and by water).

<sup>3</sup> Additionality is defined as “the extent to which activity takes place on all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention” (Ref. 23-1).

### Public Rights of Way (“PRoW”) Impact

23.4.16 The following criteria have been used to assess the effects on users of PRoW focussing on the impact of severance of existing routes and the resulting changes in journey lengths and times, and local travel patterns.

23.4.17 **Table 23-6** identifies the sensitivity criteria that have been used to inform the assessment of PRoW, in conjunction with the magnitude criteria set out in **Table 23-7** below, to establish the significance of the identified effects.

**Table 23-6 PRoW Sensitivity Criteria**

Sensitivity	Description
High	PRoW is of high importance with limited potential to substitute other route options for access to the wider network or community infrastructure.
Medium	PRoW is of medium importance with moderate potential to substitute other route options for access to the wider network or community infrastructure; or PRoW is of high importance with alternative routes available.
Low	PRoW is of low importance with alternative routes available; or PRoW is of very low importance with moderate potential to substitute other route options for access to the wider network or community infrastructure.
Negligible	PRoW is of very low importance with alternative routes available.

23.4.18 **Table 23-7** identifies the magnitude of impact criteria which have been used to assess the impacts on PRoW.

**Table 23-7 PRoW Magnitude Criteria**

Magnitude	Description
High	Substantial increase/decrease in journey length and/or travel patterns and increased/decreased opportunities for users to access the wider network and/or community infrastructure.
Medium	Noticeable increase/decrease in journey length and/or travel patterns and increased/decreased opportunities for users to access the wider network and/or community infrastructure.
Low	Slight increase/decrease in journey length and/or travel patterns and increased/decreased opportunities for users to access the wider network and/or community infrastructure.
Negligible	No increase or decrease in journey length and/or travel patterns and no increase or decrease in opportunities for users to access the wider network and/or community infrastructure.

**Private/public Assets (residential properties, business premises, community facilities) Development Land, and Changing Influx of Workers Impacts**

- 23.4.19 The following criteria have been used to assess the effects on private/public assets comprising residential properties, business premises, agricultural land, community facilities, development land, and effects on resources from the influx of workers i.e. access to housing/accommodation and primary healthcare.
- 23.4.20 **Table 23-8** identifies the sensitivity criteria that have been used to inform the assessment of effects relating to these, which in conjunction with the magnitude criteria set out below, establish the significance of the identified effects.

**Table 23-8 Private/public Assets, Development Land and Changing Influx of Workers Sensitivity Criteria**

Sensitivity	Description
High	Private/public asset, development land or resource is of high importance and rarity with limited potential for substitution or access to alternatives
Medium	Private/public asset, development land or resource is of medium importance and rarity with moderate potential for substitution or access to alternatives.
Low	Private/public asset, development land or resource is of low importance and rarity with alternatives available.
Negligible	Private/public asset, development land or resource is of very low importance and rarity with alternatives available.

- 23.4.21 The magnitude of change to private/public assets and development land is assessed by appraising the level of impact on the receptor and the permanence of change arising from the Project.

23.4.22 **Table 23-9** identifies the magnitude of impact criteria which have been used to assess the impacts on private/public assets and development land.

**Table 23-9 Private/public Assets, Development Land and Changing Influx of Workers Impact Magnitude Criteria**

Magnitude	Description
High	An impact that permanently affects the integrity and value of a private/public asset or development land or a resource or an impact that considerably enhances the value and quality of an amenity or land use.
Medium	An impact that negatively affects the value of a private/public asset or development land or a resource, but a recovery is possible with no permanent impacts; or an impact that improves key characteristics and features of the amenity or land use.
Low	An impact that negatively affects the value of a private/public asset or development land or a resource, but a recovery is expected in the short-term with no change to its integrity; or an impact that has some beneficial impact on the attributes of the asset or development land.
Negligible	An impact which is a very minor loss or benefit from baseline conditions where the change is barely distinguishable, approximating to a 'no change' situation.

### Significance Criteria

23.4.23 Socio-economic effects are a reflection of the relationship between the sensitivity of the affected receptor and the magnitude of the impact. The determination of significance is given in **Table 23-10**. Those effects which are found to be moderate or major are considered to be 'significant' (highlighted), and those which are minor or negligible are 'not significant'.

**Table 23-10 Impact Assessment and Significance**

Magnitude of Impact	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

### Limitations and Assumptions

23.4.24 The information presented in this assessment reflects that obtained and evaluated at the time of reporting and assessed within the context of the relevant study areas, as set out in **Table 23-11**.

- 23.4.25 The assessment of the significance of effects has been undertaken using a benchmark of current socio-economic baseline conditions prevailing at the Site and surrounding area, as far as is possible within the limitations of such a dataset.
- 23.4.26 Baseline data is subject to a time lag between collection and publication. As with any dataset, these conditions may be subject to change over time which may influence the findings of the assessment.
- 23.4.27 Baseline conditions reported in **Section 23.6** regarding population and labour force and the local economy are based on latest data available at the time of writing. The assessment of effects reported in **Section 23.8** is based on latest available data. Where conditions are likely to have been influenced by the effects of Covid-19 or other wider trends, explanatory commentary is provided.
- 23.4.28 Construction and operational employment figures have been based upon professional judgement through experience of assessments undertaken on schemes which are similar in scale, sector and location to the Project. As set out in **Table 23-15**, it is assumed that an average of 351 direct workers would be required across the construction period. This has been presented as an average over the 11 year construction period. The first of these phases is projected to last for 36 months (three years), with phases 2-6 projected to last for 24 months (two years). Phase 1 will have the highest employment numbers associated with it, as this is the only phase when the marine workforce will be required and will also be the peak of the landside employment workforce. Phases 2-6 will be landside only and is projected to require approximately half of the workforce numbers associated with Phase 1. Employment numbers have therefore been presented as an average number on Site over the course of the Project. For operational employment, it has been assumed for this ES, as indicated in **Chapter 2: The Project [TR030008/APP/6.2]**, that a base level of operation would require 120 workers on the landside. The marine terminal will operate 24 hours a day, seven days a week and 365 days a year (though with lower activity at night compared to the day). The terminal will have capacity to accommodate up to 292 vessel calls per year, and it is anticipated that up to 12 of these calls will be associated with the hydrogen processing facility. These vessel numbers have been assessed as a worst-case scenario, in terms of potential environmental effects, in the relevant topic chapters of this ES. Therefore, operational staff numbers for the terminal on the marine side are likely to be 14, with at least some staff working to shift systems. This therefore results in a total operational workforce of 134.
- 23.4.29 There is one PRow within the Site as shown on **Figure 23-2 [TR030008/APP/6.3]**. Public Bridleway 36, which runs north from Laporte Road to the Humber, along the east edge of the Long Strip woodland will be temporarily partially closed and diverted during the first phase of the construction phase of the Project as shown on the **Stopping Up and Restriction of Use of Streets and Public Rights of Way Plan [TR030008/APP/4.7]**.
- 23.4.30 Public Footpath 32 abuts the boundary of the Site, but is assumed not to be affected by the Project as the only relevant work in this area is the underground pipeline corridor which it is assumed would be constructed using Horizontal Directional Drilling. This PRow is also not in active use.

- 23.4.31 Impacts on PRoW during the operational period have not been assessed as it is assumed that Public Bridleway 36 would be reopened as referred to in **Table 23-1**.
- 23.4.32 Until the land use planning consultation zones are defined by the Health and Safety Executive (“HSE”) through consideration of the Hazardous Substances Consent application for the Project (submitted to NELC by Air Products in April 2023), it is assumed there would be implications for land use and development in the vicinity of the hydrogen production facility in terms of major hazard planning.
- 23.4.33 It is assumed that the residential use of the whole or part of certain properties on Queens Road within the Site Boundary would cease permanently before the operational phase commences (i.e. during construction). The residential use of these properties (totalling ten individual residential units) on the west side of Queens Road will cease, as residential use is not compatible with the operation of the hydrogen production facility on the West Site. Negotiations are ongoing with the owners for acquisition of the whole of these properties by agreement and acquisition powers are proposed to be included within the DCO.
- 23.4.34 Two of the above properties are only partly in residential use. The ground floor at 7-8 Queens Road is understood to be a vacant commercial premises and the ground floor at 18 Queens Road is understood to be used as storage by the owner. As stated above, the whole of these properties are proposed to be acquired during construction, given their part residential use. Despite one of these properties being vacant and the other being utilised for storage, the potential for future employment will also be lost, which is estimated to represent approximately ten gross jobs. This is an estimate of maximum existing employment lost to reflect a worst-case scenario.
- 23.4.35 It is considered that other businesses adjacent to the Site Boundary and within the vicinity, are compatible with the operation of the hydrogen processing facility and, save as explained above, will be able to continue to trade during construction, operation and decommissioning. Discussions with any likely affected landowners and occupiers in terms of any implications for the safety planning of their operations have taken place and will be ongoing.
- 23.4.36 As set out in **Chapter 11: Traffic and Transport [TR030008/APP/6.2]**, during construction, there would be some localised highway works to Kings Road, Queens Road and Laporte Road and any road closures would be managed and agreed with the Local Highway Authority with suitable diversion routes in place e.g. via Kiln Lane.
- 23.4.37 It is also assumed that while Public Bridleway 36 is temporarily diverted for construction of the Project, recreational sea anglers, including any clubs, will no longer have access along the sea front in the area shown on **Figure 23-6 [TR030008/APP/6.3]**. However once Public Bridleway 36 has re-opened on its original alignment, it is anticipated that access for the sea anglers will be possible along the sea front, up to the point where Public Bridleway 36 enters the Long Strip woodland (see **Figure 23-1 [TR030008/APP/6.3]**). Temporary closure of informal access through the southern part of the Long Strip woodland, south of Laporte Road would be required during the construction of the Project in order to limit the number of walkers crossing Laporte Road in close proximity to the

construction works in this area. In addition, the permanent removal of informal access would be required between the APT Jetty and the point at which Public Bridleway 36 meets the sea wall (see area shaded pink on **Figure 23-6 [TR030008/APP/6.3]**). This access would need to be removed permanently to enable construction and operation of the new terminal and continued informal access west of the proposed jetty would be incompatible with this. The closure of these informal accesses is shown on the **Stopping Up and Restriction of Use of Streets and Public Rights of Way Plan [TR030008/APP/4.7]**

- 23.4.38 Effects resulting from the changing influx of workers on primary healthcare facilities during the construction and operation phases have been considered within **Section 23.8** of this assessment. This ascertains whether current capacity at GP surgeries can accommodate demand arising from the workforce created as a result of the Project. It is recognised that employment numbers will peak during phase 1, both for the landside (792) and the marine side (220), totalling 1,012 workers. Peak employment numbers have been applied when assessing the impact of a changing influx of workers on local primary healthcare facilities as these are representative of the worst-case scenario.
- 23.4.39 Effects resulting from the changing influx of workers on local accommodation capacity have been estimated utilising two sources: the 2021 Census (Ref. 23-23) and the latest English Housing Survey (Ref. 23-24). The 2021 Census estimates the number of households within each of the local authority area, including the number of privately rented households. The English Housing Survey estimates the number of dwellings in a local authority area considered to be vacant. For North East Lincolnshire, the 2021 Census reported 22.4% of households to be privately rented and 3.9% of the total dwellings in the area to be vacant. The same tenure mix (i.e. 22.4%) has been applied the total number of vacant dwellings to estimate the supply of rented households in the study area. As set out in **paragraph 23.4.38**, during construction, this has been based on assumptions made around peak employment numbers (1,012), as a worst case scenario.
- 23.4.40 It is recognised that there is potential for a cumulative effect on construction labour force availability if the construction period coincides with the construction of other planning applications in the Yorkshire and Humber region, either those approved, pending determination or in preparation. A list of possible cumulative schemes is provided in **Chapter 25: Cumulative and In-Combination Effects [TR030008/APP/6.2]**.
- ## 23.5 Study area
- 23.5.1 The impacts of the Project are considered at varying spatial levels according to the nature of the effects considered. This approach is consistent with HCA Additivity Guidance (Ref. 23-1).
- 23.5.2 The potential economic impacts arising from the Project have been considered relative to the North East Lincolnshire Local Authority area. The Grimsby Travel to Work Area (“TTWA”) provides an alternative study area, which was considered, but this is derived from Census 2011 data (Ref. 23-27). More recent data on employment and related indicators are available at a local authority level,

including Census 2021 (Ref. 23-23) data. As such the North East Lincolnshire local authority area was selected as the appropriate study area for this assessment.

- 23.5.3 The assessment of effects on PRow considers those resources likely to be affected by closures and diversions of routes. The study area therefore includes PRow located in or within 500m of the Site.
- 23.5.4 The principal impacts on private/public assets are assessed on a geographical scale. Direct impacts on these relating to land take and access are assessed based on the Site and immediate vicinity. Impacts on these as a result of community severance are also assessed. Therefore, residential and business premises within the Site or within 500m of it and community facilities within 1.5km have been identified as being within the study area. For development land, applications within the Site or those within 500m of it have also been considered on the basis that these could be directly affected by the Project by land take, or indirectly in relation to access.
- 23.5.5 The effects associated with the influx of new workers associated with the Project, considers receptors such as capacity at local primary healthcare facilities (GP surgeries) and accommodation facilities. Those located within 5km of the Site have been considered in the assessment.
- 23.5.6 **Table 23-11** presents a summary of the different components of the socio-economics assessment, the geographical scale at which each component is assessed and the rationale for the area of geographical impact chosen.

**Table 23-11 Socio-economic impacts by geographical scale**

Impact	Geographical Area of Impact	Rationale for Impact Area
Employment generation during the construction phase, operational phase and decommissioning phase (direct and indirect impacts)	North East Lincolnshire Local Authority Area	Range of local centres included within the area and more current data available for this geography.
GVA during the construction phase		
PRow	The Site and the land within 500m of the Site.	Professional judgment and experience from other schemes in England, considering routes likely to be impacted by the Scheme.
Private/public assets – residential properties	Properties within the Site and those located within a 500m radius from the Site.	Professional judgement and location of sensitive receptors for impacts arising from the Project as informed by other assessments.

Impact	Geographical Area of Impact	Rationale for Impact Area
Private/public assets – business premises	Properties within the Site and those located within a 500m radius from the Site.	Professional judgement and location of sensitive receptors for impacts arising from the Project as informed by other assessments.
Private/public assets – community facilities	Community facilities within 1.5km from the Site have been assessed.	Professional judgement and location of sensitive receptors for impacts arising from the Project as informed by other assessments.
Private/public assets – Development Land	The Site and immediately adjacent land (within 500m)	Professional judgement and experience from other schemes in England.
Changing influx of workers – Primary Healthcare	A radius of 5km from the Site	Professional judgement and experience from other schemes in England.
Changing influx of workers- Accommodation	North East Lincolnshire Local Authority Area	Professional judgement and experience from other schemes in England.

## 23.6 Baseline Conditions

### Current Baseline

23.6.1 In order to assess the potential effects of the Project, the environmental conditions, resources and sensitive receptors that currently exist in the relevant study areas have been determined. These include:

- a. The existing Site and land use, including development land;
- b. Population and labour force;
- c. The local economy;
- d. PRoW;
- e. Residential properties;
- f. Business premises;
- g. Community facilities;
- h. Primary healthcare facilities (GP surgeries); and
- i. Accommodation facilities.

23.6.2 Potential effects arising from the Project are assessed relative to the baseline impact areas set out in **Table 23-11** and benchmarked against local, regional and

national standards where appropriate. Therefore, baseline conditions have been provided for these areas.

### **Existing Site and Land Use, including Development Land**

- 23.6.3 As set out in **Chapter 13: Landscape and Visual Impact [TR030008/APP/6.4]**, the Project is located within an area characterised as an industrial landscape type for the areas surrounding the Port. Beyond the industrial landscape, the wider area is largely agricultural. Part of the Site lies within the operational Port and has been in active use for port purposes since 1912 and is currently used for bulk cargo, steel sections and lorry and automotive storage.
- 23.6.4 The Project is located nearby to Immingham town centre, which lies approximately 1km west of the Site, and Grimsby town centre is located approximately 5km to the south east. The A1173 runs along the border of the west Site, which in turn connects to the A180, a dual carriageway.
- 23.6.5 The border of the East Site runs alongside Queens Road and partially Kings Road. Laporte Road also crosses the Site for approximately 250m. A number of residential and part residential properties located on the western side of Queens Road are included within the Site as listed in **Chapter 2: The Project [TR030008/APP/6.2]**. As noted above (**Paragraph 23.4.33**), it is anticipated that the residential use of 10 units on the west side of Queens Road will need to cease permanently as residential use is not compatible with the operation of the hydrogen production facility on the West Site. Discussions are ongoing to acquire these properties by agreement (and powers of acquisition are proposed to be included within the DCO).
- 23.6.6 As set out in **Paragraph 23.6.28**, two of the properties proposed to be acquired are part residential and part non-residential. The ground floor at 7-8 Queens Road is understood to be vacant and the ground floor at 18 Queens Road is understood to be used as storage by the owner. 23.6.5
- 23.6.7 There are also a number of other businesses located on Queens Road within the vicinity of the Site. It is considered that all of these businesses are compatible with the operation of the hydrogen production facility and will be able to continue to trade. Discussions with any likely affected landowners and occupiers in terms of any implications for the safety planning of their operations have taken place and will be ongoing.
- 23.6.8 There is one extant planning permission, granted for the West Site for industrial development (DM/1027/13/OUT), which has been subject to renewal applications and discharge of conditions applications (Ref. 23-9). This planning permission has been implemented by works associated with delivery of an access road, however, reserved matter approval has not been applied for in respect of the main development and subject to confirmation of the DCO, ABP do not intend to apply for such consent or build out the development which is authorised under this extant planning permission. Once the DCO is confirmed, ABP will be implementing the DCO and the hydrogen production facility will be delivered by Air Products on this land.

23.6.9 There are two employment site allocations included within the North East Lincolnshire 2018 Local Plan (Ref. 23-5) relating to land which falls within the Site. These are ELR001 (also an enterprise zone) which is located on the western side of the Site and ELR025a, located at the north of the Site. On the border of the Site is site allocation ELR027, which is also a proposed employment allocation and enterprise zone.

### Population

23.6.10 Within the North East Lincolnshire area, according to the latest Census data, the population reduced from 159,616 in 2011 to 156,900 in 2021 (or by 1.7%). This is in contrast to the increase of 3.7% recorded for the Yorkshire and the Humber and the 6.3% increase recorded for England and Wales during the same time period (Ref. 23-23).

### Employment

23.6.11 According to the Annual Population Survey (Ref. 23-12), the unemployment rate among working age residents in the study area in 2022 was 2.3%. This is lower than the rate recorded for Yorkshire and the Humber (3.5%) and for England (3.6%).

23.6.12 Residents of working age residing in the study area had an economic activity rate of 74.7%, which is lower than that recorded for Yorkshire and the Humber (77.3%) and for England (78.8%). This is shown in **Table 23-12**.

**Table 23-12 Economic Activity and Unemployment Rates**

Economic Indicator	Study area	Yorkshire and the Humber	England
Economic activity rate for residents aged 16-64	74.1%	77.3%	78.7%
Unemployment rate (for residents aged 16-64)	2.3%	2.8%	3.0%

Source: Office for National Statistics (2023), Annual Population Survey 2022 (Ref. 23-12)

### Qualifications and Occupational Profile

23.6.13 The latest Census data from 2021 (Ref. 23-23) shows that 21.6% of residents aged 16 years and over in North East Lincolnshire had a degree level qualification or higher (National Vocational Qualification (“NVQ”) Level 4+). This is notably lower than the rate recorded for Yorkshire and the Humber (29.5%) and for England (33.9%).

23.6.14 The proportion of residents aged 16 years and over in North East Lincolnshire with no qualifications (24.2%) is also considerably higher than recorded in Yorkshire and the Humber (20.6%) and for England and Wales (18.1%) (Ref. 23-12).

### Deprivation

- 23.6.15 Based on the 2019 Indices of Multiple Deprivation (“IMD”), North East Lincolnshire is the 66<sup>th</sup> most deprived out of 326 local authorities nationally (1<sup>st</sup> being the most deprived and 326<sup>th</sup> being the least deprived) (Ref. 23-13).
- 23.6.16 In all, 32 of the LSOAs within the borough are within the top 10% most deprived LSOAs in the country.

### Local Economy

- 23.6.17 In 2021, the workforce of North East Lincolnshire comprised of approximately 69,000 employees (Ref. 23-14). According to the most recent data on commuting patterns from the 2011 Census, a majority (70%) of the workforce in North East Lincolnshire also live in the area (Ref. 23-2).
- 23.6.18 **Table 23-13** presents a detailed breakdown of employment by broad industrial group in North East Lincolnshire, Yorkshire and the Humber and England and Wales. Based on the most recently available data published in the UK Business Register and Employment Survey (“BRES”) for 2021 (Ref. 23-14) on employment by group, the highest levels of employment are recorded in health (18.8%), manufacturing (15.9%) and transport and storage (10.1%).
- 23.6.19 Specific to this assessment, the construction sector contributes 3.6% of employment within North East Lincolnshire, consisting of 2,500 employees (Ref. 23-14). This is somewhat lower than the percentage it contributes of Yorkshire and the Humber region’s economy (4.8%) and England and Wales as a whole (4.6%).
- 23.6.20 In addition, the mining, quarrying and utilities broad industrial group (which includes employment from the generation of energy) comprises 1.0% of North Lincolnshire’s employees. This is broadly in-line with the Yorkshire and the Humber region (1.2%) and England and Wales proportions (1.1%).

**Table 23-13 Employee Jobs by Broad Industrial Group in 2021**

Sector	North East Lincolnshire (%)	Yorkshire and the Humber (%)	England and Wales (%)
Agriculture, forestry and fishing	0.1	0.6	0.6
Mining, quarrying and utilities	1.0	1.2	1.1
Manufacturing	15.9	7.6	11.7
Construction	3.6	4.8	4.6
Motor Trades	2.4	1.7	1.8
Wholesale	2.7	3.6	3.6
Retail	9.4	9.1	8.1

Sector	North East Lincolnshire (%)	Yorkshire and the Humber (%)	England and Wales (%)
Transport and Storage (including postal)	10.1	5.1	5.6
Accommodation and food services	7.2	7.5	7.1
Information and Communication	0.8	4.6	3.1
Financial and Insurance	0.9	3.6	2.7
Property	1.2	1.8	1.5
Professional, scientific and technical	4.3	9.1	6.4
Business, admin. And support services	6.2	8.9	8.9
Public administration and defense	2.0	4.4	4.7
Education	9.4	8.7	9.7
Health	18.8	13.4	14.8
Arts, Education, Recreation & other services	3.4	4.2	4.1

Source: Office for National Statistics (2022), UK Business Register and Employment Survey (BRES) (Ref. 23-14)

- 23.6.21 Information on overall GVA per head is only available for both North and North East Lincolnshire combined, which, in 2023, was £26,682. This is above the Yorkshire and Humber average of £24,330, though significantly lower when compared to England as a whole, where GVA per head is £31,138 (Ref. 23-15).
- 23.6.22 For GVA per head in the construction industry specifically, the latest data available is from 2017 and also only available for North and North East Lincolnshire combined. At this time, the sector contributed £460 million to the local economy and consisted of 8,250 workers. The GVA per worker within the construction sector in North and North East Lincolnshire is therefore estimated to be £55,757, based on the latest available data (Ref. 23-26).

### Public Rights of Way

- 23.6.23 The North East Lincolnshire Local Plan emphasises the importance of ensuring existing PRoW are kept open and minimal disruptions to PRoW are made during the construction process.
- 23.6.24 As described in the **Paragraph 23.6.3**, the Project is located within an area characterised as an industrial landscape type, but beyond this, the wider area is largely agricultural in nature.

- 23.6.25 There are two PRow located within, or adjacent to, the Site Boundary. These are Public Bridleway number 36 (part of England's Coast Path, connecting Laporte Road to Grimsby) and Public Footpath number 32 (connecting Queens Road to the Redwood Industrial Park) (Ref. 23-16).
- 23.6.26 Public Bridleway number 36 is used predominantly for recreational purposes and forms part of a wider network of PRow. Public Footpath 32 is not in active use and abuts the boundary of the Site.

### Residential Properties

- 23.6.27 The study area is mostly industrial and relatively sparsely populated with residential properties. The closest residential premises to the Project are located on the west side of Queens Road within the Site. This consists of a cluster of terraced properties, flats and a detached dwelling, totalling ten residential units. A large number of residential properties are also located approximately 460m to the west of the Site on the edge of the town of Immingham.

### Business Premises

- 23.6.28 As noted above, two properties included within the boundary of the Site on Queens Road are part residential and part commercial. The business premises include a vacant commercial unit on the ground floor of 7-8 Queens Road and the use of the ground floor of 18 Queens Road for storage. Despite one of these properties being vacant and the other being utilised for storage, the potential for future employment will be lost, and this is taken into consideration within the assessment, as shown in **Table 23-15**. It is estimated that these businesses could employ a maximum of ten members of staff.
- 23.6.29 There are also a number of other businesses within the vicinity, bordering the Site. A full list of these are included within **Chapter 2: The Project [TR030008/APP/6.2]**.
- 23.6.30 Further businesses are present surrounding Prince Edward and Prince Henry Drive, on the north-eastern side of Queens Road which includes Painting and Labour Services, Boyers Industrial Turning Services Ltd (engineers), Windsor Materials Handling (forklift truck rental business), Port Equipment Engineering Ltd (Engineers), Roxton Building Services (Builders), a laboratory, a takeaway business. These are outside of the Site.
- 23.6.31 To the south-east of the Site, there are industrial businesses which consist of Polynt Composites UK Ltd, a chemical plant and APT Immingham, an oil tank terminal, both on the border of the Site. PD Ports, a delivery company, is located approximately 70m away from the Site.
- 23.6.32 Land within the border control facility's boundary not inclusive of any buildings is partially included within the Site, in the section of the pipeline corridor. It is understood that this facility has recently been completed and may become operational in future. The border control facility will be retained during the construction and operational phase of the Project. Both Queens Road Power Station (located to the east of the West Site) and Kings Road Power Station (to the west) are situated outside the Site. Both power stations are operated by

Sembcorp. To the north-west of the Site, but outside the boundary, are several businesses located approximately 200m away, which consist of shipping businesses, trucking companies, and HGV driver training. There is also a large manufacturing business located on the border of the Site.

### **Agricultural Land**

- 23.6.33 Within the Site, north of Laporte Road the main proposed temporary construction area (Work no. 9) is currently utilised for agricultural purposes. This area is approximately 3ha and represents a small portion of the overall agricultural landholding. There is an area of land in the West Site (Work no. 7) previously used for agriculture which is no longer in use. This area of land already has extant planning permission for industrial development (DM/1027/13/OUT) and has been subject to renewal applications and discharge of conditions.

### **Community Facilities**

- 23.6.34 Recreational sea anglers, including groups, use an area within the Site for fishing activities as part of their wider use of Immingham Sea Wall, as shown in **Figure 23-6 [TR030008/APP/6.3]**. Currently, access to the area within the Site is via an informal access between the Associated Petroleum Terminal (“APT”) Jetty and the point at which Public Bridleway 36 meets the sea wall. Use is on an infrequent basis when conditions are suitable. The access between the APT Jetty to the north west of the Site and at the point at which the bridleway meets the sea wall would need to be removed permanently to enable construction and operation of the new terminal. Informal access through the southern part of the Long Strip woodland, south of Laporte Road, would also be stopped up temporarily during construction. There are a number of other fishing bays used by recreational sea anglers along Immingham Sea Wall to the east. It is understood that the area of the sea wall within the site provides some value to anglers that is not offered from other locations along the wall, though which locations offer beneficial conditions can vary depending on tidal conditions.
- 23.6.35 There are a number of community facilities located within 1.5km of the Site, which includes:
- a. A community recycling facility excluded from the Site but bordering the pipeline corridor;
  - b. Within the town of Immingham, approximately 1km to the west are a range of different facilities including a veterinary practice, several sports facilities, petrol stations, large supermarkets, a variety of shops and a range of accommodation facilities;
  - c. Immingham East Fire Station is located within the Kiln Lane industrial estate, approximately 1km to the south of the Site;
  - d. The nearest open space is Homestead Park located within Immingham town centre, approximately 1.5km from the Site; and
  - e. There is one education facility located 1km west of the Site. This is The Canon Peter Hall Church of England Primary School.

### Primary Healthcare – GP Surgeries

- 23.6.36 The reporting of the baseline primary healthcare provision is made with reference to guidance from the Royal College of General Practitioners, which recommends a GP:Patient ratio of 1:1,800 (Ref. 23-17).
- 23.6.37 The Site is located within the National Health Service (“NHS”) Humber and North Yorkshire Integrated Care Board [ICB] (which replaced Clinical Commissioning Groups in 2022). As of April 2023 this ICB had 1,790,490 registered patients (Ref. 23-18) and approximately 1,059 full time equivalent general practitioners (FTE GPs) (Ref. 23-19). This equates to an average patient list size of 1,691 per FTE GP. This average list size at the ICB is thus lower than the target list size detailed above.
- 23.6.38 NHS General Practice Workforce data shows that there are three GP practices within 5km of the Site comprising a total of 18.1 FTE GPs. Given the industrial nature of the site location, there are not any practices within a typical walking distance of 1km. As shown in **Table 23-14**, there are a total of 37,996 patients registered at these practices. For identified practices taken as a whole, the GP:Patient ratio is 1:2,099, which is higher (i.e. worse) than the recommended ratio of 1:1,800. This is variable however, as the Roxton Practice (located approximately 1km from the Site) and Healing Partnership (located approximately 4km from the Site), exceeds the recommended ratio by some distance. However, Killingholme Surgery (located approximately 4km from the Site) is below (i.e. better than) the recommended ratio set by the Royal College of General Practitioners (Ref. 23-19).

**Table 23-14 GP Practices within 5.0km of the Site.**

GP Surgery Name	Number of patients	Number of GPs (FTE)	Patients per GP (FTE)
Roxton Practice	34,065	15.9	2,142
Killingholme Surgery	1,545	1.4	1,104
Healing Partnership	2,386	0.8	2,983
Total*	37,996	18.1	2,099

*Note: Figures may not sum due to rounding.*

*Source: NHS Digital (April 2023); General Practice Workforce (April 2023) and NHS Digital (2023); Patients Registered at a GP Practice (March 2023)*

### Accommodation Capacity

- 23.6.39 According to the 2021 Census, there are 69,826 households in North East Lincolnshire, of which, 15,644 are privately rented (accounting for 22.4% of the tenure mix). This compares to 44,584 owner occupied properties (63.9%) and 9,191 socially rented houses (3.2%) (Ref. 23-23). According to the latest UK Government data (Ref. 23-24, Ref. 23-34), in 2022, approximately 3.9% of the overall housing stock in North East Lincolnshire was vacant (2,869 dwellings).

This empty housing stock could potentially be occupied by incoming workers. If the same tenure mix were to be assumed for the vacant units (i.e. 22.4% being privately rented), approximately 642 privately rented dwellings in North East Lincolnshire are currently unoccupied.

### Future Baseline

- 23.6.40 In the absence of the Project, the future baseline is anticipated to be largely the same as the existing baseline for socio-economics and it is assumed that the Site would continue to be characterised as an industrial landscape, partially utilised as an operational port.
- 23.6.41 However, according to the ONS Population Projections, the population of North East Lincolnshire is projected to decrease from 159,996 in 2020 to 158,738 in 2040 which represents a decrease of -0.8%. In Yorkshire and the Humber and England as a whole, there is expected to be increases of +5.8% and +7.9% respectively (Ref. 23-21).
- 23.6.42 In terms of the local economy, the proportion of the population in North East Lincolnshire which is of working age is expected to reduce (from 59.7% in 2020 to 55.4% in 2040). This is however a similar picture reflected at both the regional (Yorkshire and Humber) and national (England) scale. Business and community facilities may open and close (especially given the proximity of the Site to an existing industrial area. However, it is not expected that there would be any perceptible or material changes to the local economic baseline assessment and the Project has been assessed against current baseline conditions and policies (Ref. 23-21).

## 23.7 Development Design and Impact Avoidance

### Embedded Mitigation Measures

- 23.7.1 The Project has been designed, as far as possible, to avoid and minimise environmental impacts and effects through the process of design development, and by embedding mitigation measures into the design.
- 23.7.2 **Figure 23-1 [TR030008/APP/6.3]** and the **Stopping Up and Restriction of Use of Streets and Public Rights of Way Plan [TR030008/APP/4.7]** detail the proposed temporary diversion of Public Bridleway 36 during the first phase of construction (between two and a half to three years) to enable access to be maintained. A temporary diversion route is proposed between the two points BB and BA shown on the **Stopping Up and Restriction of Use of Streets and Public Rights of Way Plan [TR030008/APP/4.7]**. The temporary diversion would be supported by the appropriate amount of notice and would be adequately signed during the duration of the diversion to minimise disruption to users.
- 23.7.3 It is anticipated that existing businesses located within the vicinity of the Site on Queens Road will be able to remain operational throughout all phases of the Project (except 7-8 and 18 Queens Road). Discussions with any likely affected landowners regarding any mitigation for implications for the safety planning of their operations have taken place and will be ongoing.

- 23.7.4 As noted above at **Paragraph 23.4.33**, it is anticipated that all such residential properties located on Queens Road within the Site will be acquired and residential use will have permanently ceased by the operational phase. As stated in **Paragraph 23.4.34**, properties at 7-8 and 18 Queens Road are in part residential and part commercial use and are also anticipated to be acquired through the same process associated with the DCO. As set out in the Project **Equality Impact Assessment [TR030008/APP/7.8]**, the affected residents on Queens Road are being provided with support in finding alternative accommodation, including funding of support from specialist valuers and appropriate compensation payments and relocation costs.
- 23.7.5 The current access to the sea wall via the Long Strip would be affected during construction of the works through the temporary closure and diversion of Public Bridleway 36. During operation, it is assumed that access will continue to be provided along the sea front, up to the point that Public Bridleway 36 enters the Long Strip woodland.

#### **Standard Mitigation Measures**

- 23.7.6 As referenced in the **Outline Construction Environmental Management Plan (“CEMP”)** **[TR030008/APP/6.5]**, during construction, residents along Kings Road will be notified via a letter drop of the timings, duration and details of any works to utilities along Kings Road.

### **23.8 Assessment of Likely Impacts and Effects**

- 23.8.1 The assessment has identified that the construction, operation and decommissioning phases have the potential to result in adverse and beneficial impacts and effects on socio-economics, which may be significant.

#### **Construction**

##### *Employment during the Construction Phase*

- 23.8.2 The construction activities associated with the Project will generate employment, both directly and also indirectly in the supply chain. The calculation of each is set out below, to arrive at a net construction employment.
- 23.8.3 The construction period is set out in detail in **Chapter 2: The Project [TR030008/APP/6.2]** and will extend over approximately an 11-year period, across six phases. Therefore, employment generation during this period will be of long term duration and represent a positive economic effect for a substantial period of time, but this is still considered to be temporary. The first of these phases is projected to last between two and a half to three years and would represent the peak of construction. Construction of Phases 2-6 may take up to eight years. As Phase 1 represents the peak, there will be the highest employment numbers on site during this time, as this is the only phase when the marine workforce will be required and will also be the peak of the landside employment workforce. Phases 2-6 will be landside only and are projected to require approximately half of the workforce numbers associated with Phase 1.

Employment numbers have therefore been presented to represent the average employment on Site over the course of the Project.

- 23.8.4 It is however recognised that employment numbers will peak during phase 1, both for the landside (792) and the marine side (220), totalling 1,012 workers. So as to predict the ‘worst case’ scenario, this figure has been utilised only when assessing the impact of a changing influx of workers on local services such as primary healthcare and accommodation capacity.

#### Direct Construction Employment

- 23.8.5 Direct impacts are the jobs and GVA supported directly by the economic activities associated with the Project. Employment requirements are established based on the type and nature of construction. The construction of the Project will require on average 351 gross direct full-time equivalent (“FTE”), for both the marine and land side construction activities.

#### Indirect Construction Employment

- 23.8.6 Indirect effects refer to how the direct impacts of economic activities (i.e. the construction of the Project) propagate through the supply chains of the contractor. Indirect impacts are the GVA and jobs supported through the supply chain associated with the Project.
- 23.8.7 Supply chain (indirect) employment effects are estimated in this assessment by applying the ONS sectoral job type I multipliers to the direct job estimates (Ref. 23-30). During the construction phase, the generic construction multiplier (2.45) is applied to the direct employment assumptions, as detailed above in **paragraph 23.8.5**.
- 23.8.8 Applying these multipliers to the total gross direct employment figure of 351, results in total net indirect employment of 509 across the construction period. This together generates an average of 860 total net jobs across the construction period, both across the landside and marine side.
- 23.8.9 For existing employment, the wholesale and retail trade multiplier (1.4) has been applied to the estimated ten direct FTE roles associated with existing businesses at 7-8 and 18 Queens Road (as detailed in **Paragraph 23.6.28**). This is an estimate of maximum direct employment lost. Further explanation of this assessment is provided in **paragraphs 23.8.16 to 23.8.18**.

#### Leakage

- 23.8.10 Leakage effects are the benefits to those outside the economic impact study area, defined as the North East Lincolnshire Local Authority area. Analysis undertaken of the latest Census data available for this indicates that in 2011, 30% of people working in North East Lincolnshire live outside of the area (Ref. 23-27). This corresponds to approximately a medium-high leakage rate as set out by the HCA Additionality Guidance (Ref. 23-1). This rate implies that, although a reasonably high proportion of employment opportunities will be retained in the effect area, a noticeable amount of jobs will be taken up by people living outside the study area.

23.8.11 An adjustment of 30% has therefore been applied to the gross construction jobs to estimate the jobs created outside the study area. Thus, it is estimated that for the duration of the Project's construction period, an average of 246 jobs for residents within North East Lincolnshire will be created and 105 jobs for residents outside of this area (both directly and indirectly), totalling 351 jobs.

#### Displacement

23.8.12 Displacement measures the extent to which the benefits of a development are off-set by reductions in output or employment elsewhere. Any additional demand for labour cannot simply be treated as a net benefit since it has the potential to displace workers from other positions and the net benefit is reduced to the extent that this occurs.

23.8.13 Construction workers typically move between construction projects when delays occur or to help the workforce meet construction deadlines. Due to the flexibility of the labour market, construction labour force displacement has been assumed to be low.

23.8.14 The HCA Additionality Guide (Ref. 23-1) provides standards (or 'ready reckoners') for displacement. Within the context of a construction project in the study area, a low displacement factor for 25% is considered appropriate according to the HCA. This factor is a best practice approach which is used in the absence of specific local information.

23.8.15 Applying this level of displacement to the subtotal gross construction employment figure results in an estimated total net construction employment figure of 645 jobs during the construction period.

#### Existing Employment

23.8.16 The assessment of employment creation has been included to reflect the creation of employment opportunities associated with the construction phase, both direct and indirect, including consideration of any existing employment uses on-site.

23.8.17 The Site is predominantly classed as industrial. It is assumed that business premises located on Queens Road (except 7-8 and 18 Queens Road), which are within the vicinity of but outside the Site, would be able to remain operational and accessible throughout the duration of the Project's construction phase.

23.8.18 As described in **Paragraph 23.6.28**, it is estimated that currently, there are up to ten direct FTE roles associated with the existing businesses located at 7-8 and 18 Queens Road. This is an estimate of maximum employment lost, as a worst-case scenario. Indirect employment associated with these ten direct FTE roles has also been calculated through application of a Sectoral Job Type I multiplier (1.4), as set out in **Paragraph 23.8.7**. The same leakage (30%) and displacement (25%) assumptions have also been applied to the loss of existing employment, which in total, results in the loss of 18 jobs, 13 of which are anticipated to be within the North East Lincolnshire Local Authority area.

### Net Construction Employment

23.8.19 **Table 23-15** presents the employment generated by the Project, accounting for leakage, displacement and multiplier effects. After taking this into account, the Project will support on average 645 net jobs. As set out in **Paragraph 23.8.18**, it is also assumed that existing employment could be lost as a result of the Project (up to 10 direct FTE jobs as a worst case scenario). The same displacement factor (25%), leakage assumption (30%) and a 1.4 multiplier effect has been applied to this to account for indirect existing jobs. When this is accounted for, the Project will support a total of 627 net jobs during the construction period, 438 of which are anticipated to remain within the North East Lincolnshire local authority area.

**Table 23-15 Average Net Construction Employment from the Project:**

	Study area (North East Lincolnshire)	Outside study area	Total
Gross Direct construction Employment	246	105	351
Gross Indirect construction Employment	356	153	509
Subtotal Gross construction Employment	602	258	860
Displacement	-151	-65	-215
<b>Subtotal Net construction Employment</b>	<b>451</b>	<b>193</b>	<b>645</b>
Gross Direct Existing Employment	7	3	10
Existing Gross Indirect Employment	10	4	14
Total Gross Existing Employment	17	7	24
Displacement of Existing Employment	-4	-2	-6
Subtotal Net Existing Employment	-13	-5	-18

	Study area (North East Lincolnshire)	Outside study area	Total
<b>Total Net Construction Employment</b>	<b>438</b>	<b>188</b>	<b>627</b>

Source: AECOM Calculations, 2023.

Note: some figures may not sum due to rounding

23.8.20 The sensitivity of the receptor is considered to be medium, taking into account the size of the construction worker labour pool in North East Lincolnshire, which in 2021 consisted of 2,500 employees (3.6% of total workforce) (Ref. 23-14). Factoring this in, the magnitude of impact of the construction employment generation in the study area has been assessed as high. Therefore, the employment created by the construction phase of the Project is likely to have a **temporary major beneficial** effect on the North East Lincolnshire economy, which is considered significant.

23.8.21 A separate assessment of jobs that could be created by the Project, based primarily on assessment of project-value was prepared in 2021. This concluded that 650 direct FTE jobs could be created during construction with further employment generated within the supply chain, which in total, would likely exceed the total employment generated as stated in this Environmental Impact Assessment.

*Gross Value Added during the construction phase*

23.8.22 GVA creation includes growth added through direct and indirect employment opportunities.

23.8.23 Applying the average GVA per construction worker in the area to the total number of construction workers generated from the Project gives the total GVA arising from the construction period.

23.8.24 As described in the baseline section, GVA estimates are only available for both North and North East Lincolnshire combined. The average GVA per worker for both areas in the construction sector was £55,757 in 2017, which is the latest data available (Ref. 23-26 and Ref. 23-14). By applying this figure to the total construction workers (627) generated by the Project, it is estimated the construction phase will contribute nearly £35 million as an average to both economies, of which over £24 million is projected to remain within North East Lincolnshire, as shown in **Table 23-16**.

**Table 23-16 Gross Value Added from the Project during the construction phase.**

	Study area (North East Lincolnshire)	Outside study area	Total
GVA during the construction phase	£24,471,747	£10,487,891	£34,959,639

Source: AECOM Calculations, 2023.

23.8.25 As described in **paragraph 23.8.20**, the sensitivity of North East Lincolnshire’s economy is considered to be medium. The magnitude of impact is also considered to be medium, as it is anticipated that this will have a noticeable effect on a moderate number of local businesses, workers and residents. Therefore, the GVA created by the construction phase of the Project will have a **temporary moderate beneficial** effect on the North East Lincolnshire economy, which is considered **significant**.

*Public Rights of Way (PRoW)*

23.8.26 Potential effects on PRoW includes impacts on users of footpaths, bridleways, byways and National Cycle Network (“NCN”) routes from disruption to or diversion of journeys.

23.8.27 Changes to journey time, local travel patterns and certainty of routes for users would arise from the temporary closures and diversions of PRoW. Effects during construction on relevant routes are set out in the following paragraphs.

23.8.28 Public Footpath 32 is not currently in active use and abuts the edge of the Site. This PRoW would remain unaffected by the Project and would not need to be diverted. Thus, as there would be no impact on this route as a result of the Project, it is assessed that there would be **permanent no effect** on users of this PRoW.

23.8.29 Temporary disruption to users making journeys on Public Bridleway 36, which forms part of England’s coast path, between Immingham and Grimsby. A temporary diversion route is proposed between the two points BB and BA shown on the **Stopping Up and Restriction of Use of Streets and Public Rights of Way Plan [TR030008/APP/4.7]**, with users being diverted around the eastern perimeter of the temporary construction area which would be established on the area defined for Work No. 9, to reconnect with the retained bridleway further to the east on the sea wall. Once the first phase of construction is completed, the bridleway would be re-instated on its current alignment and the temporary diversion would be closed.

23.8.30 The sensitivity of Public Bridleway 36 is considered to be medium, as even though it forms part of England’s coast path, a suitable alternative route has been provided on an interim basis. The magnitude of impact is considered to be low, as a result of a small diversion on a temporary basis. Therefore, the impact on this route as a result of the Project will have a **temporary minor adverse** effect on the local PRoW network, which is considered **not significant**.

### *Private/public Assets*

#### Residential Properties

- 23.8.31 There are 10 residential properties located within the Site, which includes the following:
- 1 to 5 Queens Road;
  - 6 Queens Road (contains two residential units);
  - Flat above 7-8 Queens Road;
  - Flat above 18 Queens Road; and
  - 31 Queens Road.
- 23.8.32 These properties will be present during the construction phase of the Project and could continue to be occupied during this period. As set out in **Chapter 11: Traffic and Transport [TR030008/APP/6.2]** there would be some localised highway works to Kings Road, Queens Road and Laporte Road associated with culvert works, utilities connections and protective works of existing assets and the creation of site entrances. These works would be undertaken using powers included within the DCO. Any road closures would be managed and agreed with the Local Highway Authority, with suitable diversion routes being available, e.g. via Kiln Lane. No significant disruption is expected.
- 23.8.33 As explained in **Section 23.6**, the residential use of the ten residential units on the west side of Queens Road would need to cease as residential use is not considered to be compatible with the operation of the hydrogen project facility. These properties would remain accessible during the construction period, but some owners/occupiers may opt to move prior to operation. Discussions are ongoing with those landowners / occupiers with a view to negotiating acquisition of the properties and where it is not possible to acquire those properties through negotiation, acquisition powers for these properties are sought through the DCO.
- 23.8.34 Therefore, as a worst case scenario, the acquisition of the residential properties may impact the affected owners and occupiers of these assets on Queens Road permanently from construction. Given the fact that a number of residents' homes will be acquired directly as a result of the Project, sensitivity is assessed to be high, in the context of the impact upon the local community. However, given that the number of properties makes up a relatively small proportion of stock in the local authority area, the loss is considered to represent an impact of low magnitude. Therefore, the loss of these residential properties as a result of the Project is assessed to result in an overall **permanent moderate adverse** effect, which is considered **significant**.

#### Businesses

- 23.8.35 As set out in **paragraph 23.6.28**, there are two part commercial and part residential properties within the Site at Queens Road, at number 7-8 (currently vacant) and 18 Queens Road (currently utilised by the owner for storage purposes). Both of these premises are proposed to be acquired due to their use as part residential and part commercial.

- 23.8.36 As a worst case scenario, the acquisition of these businesses premises may impact the affected owners and occupiers of these assets on Queens Road permanently from construction. However, as these businesses are not considered to have active frontages, or be open to visiting members of the public, it is anticipated that they could be relocated to similar units within the study area. On this basis, sensitivity is assessed to be low. As set out in **Table 23-15**, the existing employment at these units (which also takes into consideration the loss of potential future employment opportunities) is estimated to be up to 10 jobs. This is an estimate of maximum existing employment lost, as a worst-case scenario and is considered to be relatively modest in the context of existing employment in the area. The loss of these premises is therefore considered to represent an impact of low magnitude. Overall, the loss of the business premises at 7-8 and 18 Queens Road as a result of the Project is therefore assessed to result in a permanent **negligible** effect, which is considered **not significant**.
- 23.8.37 In terms of other businesses within the vicinity, discussions with any likely affected landowners and occupiers in terms of any implications for the safety planning of their operations have taken place and will be ongoing. It is not anticipated that any other local businesses would be prevented from trading throughout the construction phase of the Project. As such there would be **no effect** on surrounding businesses arising during construction. There is a border control post/facility which is outside Site Boundary, but within close proximity. It is not currently operational, but is likely to be so in the future. The building will remain in situ during the construction, operation and decommissioning and there would be **no effect** on this facility.
- 23.8.38 There are two Sembcorp Power Station sites on Queens Road and Kings Road which are also located outside of the Site, but within the vicinity. Access to these would be retained during construction, operation and decommissioning and therefore there would be no effect arising from the Project on these businesses. As set out in **Paragraph 23.8.32**, there would be some localised highway works to Kings Road, Queens Road and Laporte Road. Any road closures would be managed and agreed with the Local Highway Authority, with suitable diversion routes being available, e.g. via Kiln Lane. No significant disruption is expected.

#### Agricultural Land

- 23.8.39 Construction of the Project will require approximately 3ha of temporary land take from an agricultural holding for a three year period. This represents a small portion of the overall landholding. The occupier has confirmed that no employment would be lost as a result of the temporary use of this land. The land temporarily used would be returned for use by the agricultural holding with no expected change in condition following construction. On this basis there would be **no effect** arising from the Project on the agricultural holding.
- 23.8.40 As set out in **Chapter 2: The Project [TR030008/APP/6.2]**, the West Site comprises of three fields previously used for agricultural purposes. This area will be used for the construction and operation of the hydrogen production facility and as a result will become permanently unavailable for other use. This area of land already has extant planning permission for industrial development (DM/1027/13/OUT) and has been subject to renewal applications and discharge

of conditions. Taking into account these considerations, it is assessed that there would be **no effect** on this area of on the basis that change of its use has already been planned for.

#### Community Facilities

- 23.8.41 During construction of the Project, informal access to an area through the southern part of the Long Strip woodland, south of Laporte Road which is used on an infrequent basis will be prevented. As set out in **Chapter 2: The Project [TR030008/APP/6.2]**, there will also be permanent removal of informal access to the sea wall between the APT Jetty and the point at which Public Bridleway 36 enters the Long Strip of woodland, to enable both construction and operation of the new terminal. This area is shown on **Figure 23-6 [TR030008/APP/6.3]**.
- 23.8.42 The sensitivity of this receptor is considered to be medium as whilst parts of the sea wall are understood to have features that provide specific value to sea anglers, it provides extensive opportunities for angling in this location including at some distance away from the Site. The magnitude of impact is considered to be low, on the basis that whilst anglers' access to this part of the sea wall is prevented, opportunities for angling remaining on the rest of the wall. PRow 36 will reopen during operation, however, access to the area of sea wall between the APT Jetty and the point at which the PRow diverts into the woodland will still be permanently removed. Therefore, the impact on sea anglers groups accessing this area of sea wall is considered to be **permanent minor adverse**, which is considered **not significant**.
- 23.8.43 A public recycling facility is located outside of, but borders the Site. The facility and access to it will be retained and it will be able to continue operating during construction, operation, and decommissioning. As such there would be **no effect** arising from the Project on this community facility.

#### Development Land

- 23.8.44 Part of the land within the Site is allocated within the North East Lincolnshire Local Plan for employment uses (and partially as an enterprise zone). As an employment use, the Project aligns with the allocation. The impacts arising from this on development land are assessed to be negligible on the basis that it is being used in line with expectations, and the overall effect of the Project on the allocation is assessed as **negligible**, which is **not significant**.

#### Impact of a Changing Influx of Workers – Primary Healthcare

- 23.8.45 The principal impact arising from the changing influx of workers will be on local amenities, with the potential for impacts on primary healthcare provision being the most likely based on the number of peak workers required during construction of the Project. During construction, the peak workforce on the landside is anticipated to be 792 workers and on the marine side, this is 220 workers (1,012 total).
- 23.8.46 As set out in **Paragraph 23.4.38**, it has been assumed that there will be a peak of 1,012 workers involved in the construction period across the land and marine side. Taking account of leakage, of these, 708 are anticipated to reside within the

North East Lincolnshire area, all of whom can be assumed to be registered at local GP practices already. Therefore, there are likely to be approximately 304 workers who are not currently registered at a local practice.

- 23.8.47 Taking a 'worst case scenario' approach, in which all of these construction workers register with local GP practices, this would increase the overall practice list size modestly from 2,099 patients per GP to 2,116 patients per GP, which remains above, (i.e. worse than) the recommended GP:Patient ratio of 1:1,800, but modestly higher than the current scenario.
- 23.8.48 The sensitivity of the receptor is considered to be high, given the fact that the recommended GP:Patient ratio is already exceeded during the baseline scenario. The impact magnitude is however considered to be negligible, as despite still exceeding the recommended ration, it is not significantly higher than the current scenario. Therefore, the influx of construction workers on primary healthcare as a result of the Project is assessed to have a **temporary minor adverse** effect, which is considered **not significant**.

*Impact of a changing influx of workers - accommodation*

- 23.8.49 As set out in **Paragraph 23.6.39**, according to the 2021 Census, approximately 22.4% of households in North East Lincolnshire are privately rented. (Ref. 23-23). This equates to 642 privately rented dwellings in North East Lincolnshire that are assumed to be currently unoccupied. As set out in **paragraph 23.8.46**, it is estimated that there would be approximately 304 direct workers involved in the construction phase who will be from outside the North East Lincolnshire area. These may require accommodation on a temporary basis (although it is acknowledged that some may not require this). It is anticipated that these workers could share accommodation on the basis of at least two workers per home, reducing the number of homes required.
- 23.8.50 Based on a worst case scenario whereby all 304 workers need accommodation on a two workers per rented property basis within the Local Authority area, the workers would require 152 homes whereby approximately 642 are available. Therefore, there is considered to be sufficient local supply to facilitate all construction workers being housed in accommodation.
- 23.8.51 The sensitivity of this receptor is considered to be low, given the available supply in the local area. The impact magnitude is considered to be negligible, as this will have a very limited impact on availability of rented properties in North East Lincolnshire. Therefore, the influx of construction workers on local accommodation availability as a result of the Project is assessed to have a **negligible** effect, which is considered **not significant**.

## Operation

- 23.8.52 The assessment of employment creation has been included to reflect the creation of long-term employment opportunities, both direct and indirect, once the Project is operational including consideration of any existing employment uses on-site.

### *Employment During Operation*

23.8.53 An assessment of employment creation has been included to reflect the creation of long-term employment opportunities, both direct and indirect, once the Project is operational. The activities associated with the Project will generate employment directly and also indirectly in the supply chain. The calculation of each is set out below, to arrive at net operational employment, as shown in **Table 23-18**.

#### Direct Operational Employment

23.8.54 It is estimated that during operation, approximately 134 direct roles will be created. The calculation of indirect employment is set out below, to arrive at net operational employment, as shown in **Table 23-18**.

#### Indirect Operational Employment

23.8.55 Indirect effects refer to how the direct impacts of economic activity (i.e. the operation of the Project) propagate through the supply chains of the contractor and beyond through to the broader economy. Indirect impacts are the GVA and jobs supported through the supply chain associated with the Project.

23.8.56 Indirect employment has been calculated through the application of three different multiplier assumptions as set out in **Table 23-17**. These have been applied to the projected direct operational employment for both landside and marine side employment roles. Across the landside, it is assumed that 70 employees will be involved in the operational manufacturing, therefore a multiplier of 2.46 has been applied. It has also been projected that approximately 50 employees will be involved in transport related roles (by land) and a multiplier of 1.64 has been applied. On the marine side, it is estimated that 14 employees will be involved in transport related roles and a 1.55 multiplier has also been applied to this direct employment projection.

**Table 23-17 ONS Sectoral Job Type I Multipliers**

Manufacture of industrial gases	Transport (by land)	Transport (by water)
2.46	1.64	1.55

Source: ONS (2017) Sectoral Job Type I multipliers (Ref. 23-30)

23.8.57 Applying this to the total net direct employment figure of 134 workers results in net indirect employment of 142 jobs per annum during the construction period, together generating 276 net jobs (both directly and indirectly), as shown in **Table 23-18**.

#### Leakage

23.8.58 As defined within **Paragraph 23.8.10** above, leakage effects are the benefits to those outside the economic impact study area, defined as North East Lincolnshire. An adjustment of 30% has been applied to the gross total operational jobs to estimate the jobs created outside the target area (Ref. 23-27).

Thus, it is estimated that over the course of the operational period, the Project will create 94 direct jobs for residents within North East Lincolnshire and 40 direct jobs for residents outside of this area.

#### Displacement

23.8.59 As defined within **Paragraph 23.8.14**, displacement measures the extent to which the benefits of a development are off-set by reductions in output or employment elsewhere, as there is the potential to displace workers from other positions elsewhere.

23.8.60 As with construction, a low displacement factor of 25% is considered appropriate for operation according to the HCA (Ref. 23-1). Applying the displacement factor of 25% to the total gross operational employment figure results in an estimated total net operational employment figure of 207 jobs per year.

#### Total Net Operational Employment

23.8.61 **Table 23-18** presents the permanent employment generated by the Project, accounting for leakage, displacement, multiplier effects. After taking this into account, the Project will support on average 207 net jobs during the operational phase. Of this, 145 job roles are anticipated to remain within the North East Lincolnshire Area.

**Table 23-18 Net Employment of the proposed development in operation**

	Study area (North East Lincolnshire)	Outside study area	Total
Gross Direct Employment	94	40	134
Gross Indirect Employment	99	43	142
Total Gross Employment	193	83	276
Displacement	-48	-21	-69
<b>Total Net Employment</b>	<b>145</b>	<b>62</b>	<b>207</b>

Source: AECOM Calculations, 2023. Note: some figures may not sum due to rounding.

23.8.62 The sensitivity of receptor is considered to be medium, taking into account the total workforce of 69,000 in North East Lincolnshire (Ref. 23-14). In this context and accounting for the additional net direct and indirect employment associated with the Project, the impact of the operational employment generation in the study area has been assessed to result in a medium magnitude of impact. Therefore, the employment created by the operational phase of the Project is likely to have a **permanent moderate beneficial** effect on North East Lincolnshire's economy, which is considered **significant**.

23.8.63 A separate assessment of jobs that could be created by the Project, based primarily on assessment of project value, was prepared in 2021. This concluded that 750 FTE direct jobs could be created for operation and maintenance with further employment generated within the supply chain which in total would likely exceed the total employment generated as stated in this Environmental Impact Assessment.

*Private/public Assets*

Residential Properties

23.8.64 There are no additional impacts on residential properties to that identified during construction.

Businesses

23.8.65 Discussions of any implications for the safety planning of businesses in the vicinity of the Project have taken place with likely affected landowners and occupiers and will be ongoing. It is not anticipated that any other businesses would be prevented from trading throughout the operational phase of the Project. As such there would be **no effect** on surrounding businesses arising during operation.

Community Facilities

23.8.66 There are no additional impacts on community facilities to that identified during construction.

Development Land

23.8.67 As referred to in **Section 23.4**, until the land use planning consultation zones are defined by the HSE through consideration of the Hazardous Substances Consent application for the Project (submitted to NELC by Air Products in March 2023), it is assumed there would be implications for land use and development in the vicinity of the hydrogen production facility in terms of major hazard planning.

23.8.68 The risks and hazards from a major hazard installation are greatest in the inner consultation zone and therefore restrictions on development are strictest within that zone. The Town and Country Planning (Development Management Procedures) (England) Order 2015 (Ref. 23-32) require a Local Planning Authority (in this instance, NELC) to consult HSE about certain proposed developments within the consultation zones – the trigger being those proposals that would result in an increase in population within any of the zones, such as residential developments, primary schools, old people's homes, and hospitals.

23.8.69 As a result, the sensitivity of development land around the Site is considered to be medium as a number of other employment allocations are located within the Local Authority area, as set out in the Local Plan (Ref. 23-6), and the Project is providing an employment land use. In terms of magnitude of impact on development land, this must be considered within the context of the existing baseline, whereby the land associated with the Project has been allocated for its intended use (employment), and all businesses in the vicinity of the Project are

able to remain operational (except 7-8 and 18 Queens Road). Despite the permanence of impact, there are also a number of other developments within the vicinity of the Project, with associated COMAH zones. After taking this into account, the magnitude of impact is considered to be low, as due to the industrial nature of the surrounding area, future residential development or development for other uses identified in **paragraph 23.8.68** above is considered unlikely. Therefore, the consequences for future development land in the vicinity of the Site as a result of the Project's operation are assessed to have a **permanent minor adverse** effect, which is considered **not significant**.

#### *Changing Influx of Workers - Primary Healthcare*

- 23.8.70 The principal impact arising from the changing influx of workers will be on local amenities, with the potential for impacts on primary healthcare of provision being the most likely based on the number of workers required during operation of the Project.
- 23.8.71 During the operational phase, there are an additional 134 workers estimated to be employed. Of these, 40 workers are expected to reside outside of the study area and so are unlikely to be registered at one of the local practices. Taking a 'worst-case scenario' approach, in which all of these workers register at local GP practices, it would increase the overall practice list size from 2,099 patients per GP to 2,101 patients per GP, which is only marginally higher (i.e. worse than) than current provision.
- 23.8.72 The sensitivity of the receptor is considered to be high, on the basis that the recommended GP:Patient ratio is already exceeded. The impact magnitude is however considered to be negligible, as despite still exceeding the recommended provision guideline, any changes to service provision arising would be imperceptible. Therefore, the influx of operational workers on primary healthcare as a result of the Project is assessed to have a **permanent minor adverse** effect, which is considered **not significant**.

#### *Decommissioning*

- 23.8.73 The impacts of the decommissioning period are predicted to be less than those experienced in the construction phase. This is because decommissioning would only involve the hydrogen production facility and not the marine facilities (these would continue to be maintained so that they can be used for port-related activities to meet long term need, although jetty topside infrastructure may need to be decommissioned alongside associated landside infrastructure) or jetty access road.
- 23.8.74 For the landside structures, the expected design life of the hydrogen production facility is around 25 years, although the operational life may be longer depending on commercial considerations.
- 23.8.75 Decommissioning of the hydrogen production facility would likely involve leaving underground pipelines in situ and making them safe. All above ground infrastructure would likely be dismantled and all material removed would be reused or recycled where possible or disposed of in accordance with relevant waste disposal regulations at the time of decommissioning and land restored to a

satisfactory state. It is estimated that the decommissioning period for the hydrogen production facility would last for approximately two years.

#### *Net Decommissioning Employment*

- 23.8.76 Employment creation includes the creation of temporary employment opportunities directly at work sites and indirectly in the supply chain, arising from the decommissioning period associated with the Project.
- 23.8.77 Employment requirements for decommissioning activities are presently unknown. Based on the assumption that the decommissioning activities will generate jobs, but will be considerably shorter in duration than construction, the impact magnitude is likely to be low. The sensitivity of the labour force is considered to be medium, resulting in a **temporary minor beneficial** effect, which would be **not significant**.

#### *Public Rights of Way*

- 23.8.78 Potential effects on PRow resulting from the decommissioning of the Project include impacts on users of footpaths, bridleways, byways and National Cycle Routes from disruption to, or diversion of, journeys.
- 23.8.79 Changes to journey time, local travel patterns and certainty of routes for users would arise from the temporary closures and diversions of PRow. Effects during decommissioning on relevant routes are set out in the following paragraphs.
- 23.8.80 It is anticipated that due to the nature of decommissioning of the hydrogen production facility only and the location of PRows, it would not be necessary for any PRow to be temporarily or permanently diverted or closed.
- 23.8.81 It is understood that Public Bridleway 36 would be unaffected by the Project during decommissioning and would not need to be diverted during this phase. Therefore, as no impact on this route is anticipated, it is assessed that there would be **no effect** on users of Public Bridleway 36 during decommissioning.

#### *Private/public Assets*

- 23.8.82 It is not anticipated that the decommissioning phase of the Project will require further land from residential or private properties, businesses, community land and assets or from development land to that used in construction and operation and as such there would be **no effect** on private/public assets.

## 23.9 Mitigation and Enhancement Measures

- 23.9.1 Moderate adverse (significant) effects have been assessed in relation to the loss of residential properties on Queens Road during operation. No further significant adverse effects have been assessed for the Project during construction, operation or decommissioning of the hydrogen production facility.

23.9.2 As set out in **paragraph 23.8.33** above, ten properties, comprising ten residential units and two commercial premises on Queens Road are sought to be acquired as a result of the Project. The opportunity for mitigation for the loss of the residential properties and the consequences for development land in the vicinity of the Site is limited due to the nature of the Project, in that certain land uses (such as residential) would not be considered compatible with the proposed hydrogen production facility. However, as explained in **Paragraph 23.8.34**, this needs to be considered within the context of the existing baseline. The immediate area is industrial in nature and there are a number of other sites in the port which have associated COMAH zones. As set out in the **Equality Impact Assessment [TR030008/APP/7.8]**, the affected residents on Queens Road are being provided with support in finding alternative accommodation, including the funding of support from specialist valuers, and appropriate compensation payments and relocation costs. Consultation with the residents has been undertaken to understand any protected characteristics they have which may impact their ability to relocate, and to identify any additional support that may be required. This support will continue until appropriate alternative accommodation is identified.

23.9.3 As set out in **paragraph 23.8.36**, businesses located within 9-30 Queens Road (excluding 7-8 and 18) would be able to remain operational and accessible throughout the Project.

## 23.10 Residual Effects

### Construction

23.10.1 Based on this assessment of socio-economic impacts, it is considered that there are likely to be residual significant effects associated with the construction period. These are construction employment generation (major beneficial), generation of gross value added (moderate beneficial) and loss of residential properties (moderate adverse).

### Operation

23.10.2 It is considered that there is also a residual significant effect associated with employment generation (moderate beneficial) during operation.

### Decommissioning

23.10.3 It is considered that there are no residual significant effects associated with the decommissioning period.

## 23.11 Summary of Assessment

23.11.1 **Table 23-19** below outlines a summary of the assessment on Socio-economics.

**Table 23-19 Summary of potential impact, mitigation measures and residual effects**

Receptor	Impact Pathway	Impact Significance	Mitigation Measure	Residual effect	Confidence
<b>Construction Phase</b>					
North East Lincolnshire's economy	Employment generation during the construction phase	Temporary major beneficial (significant)	None required.	Temporary major beneficial (Significant)	High
North East Lincolnshire's economy	GVA generation during the construction phase	Temporary moderate beneficial (significant)	None required.	Temporary moderate beneficial (Significant)	High
Users of PRoW	Impacts on Public Footpath 32 users during the construction phase	Permanent no effect (not significant)	N/A	No effect	High
	Impacts on Public Bridleway 36 users during the construction phase	Temporary minor adverse (not significant)	Appropriate signage and planned to minimise disruption to users.	Temporary minor adverse (Not significant)	High
Private/public Assets	Loss of residential properties on Queens Road	Permanent moderate adverse (significant)	Residential properties may be acquired through agreement or via acquisition powers in the DCO. Compensation payments and assistance with the	Permanent moderate adverse (Significant).	High

Receptor	Impact Pathway	Impact Significance	Mitigation Measure	Residual effect	Confidence
			relocation process provided.		
	Loss of commercial properties at 7-8 and 18 Queens Road	Negligible (not significant)	Properties likely to be acquired in association with the residential process.	Negligible (Not Significant)	High
	Disruption to other businesses on Queens Road	No effect	N/A	No effect	Medium
	Loss of 3ha of agricultural land (to be used as a temporary construction site)	No effect	N/A	No effect	High
	Loss of agricultural land associated with the West Site	No effect	N/A	No effect	High
	Reduced access to sea front	Permanent minor adverse	None proposed.	Permanent minor adverse (Not significant)	Medium

Receptor	Impact Pathway	Impact Significance	Mitigation Measure	Residual effect	Confidence
	Impacts on other: <ul style="list-style-type: none"> <li>residential properties.</li> <li>business premises.</li> <li>community facilities.</li> </ul>	No effect	None required.	No effect	High
Development Land	Loss of the employment use allocation for development.	Negligible	None required	Negligible (Not significant)	High
Impact of a changing influx of workers	Impact on the capacity of local primary healthcare facilities.	Temporary minor adverse	None required	Temporary minor adverse (Not significant)	High
Impact of a changing influx of workers	Impact on the capacity of local accommodation facilities.	Negligible	None required	Negligible (Not significant)	High
<b>Operational Phase</b>					
North East Lincolnshire's economy	Employment generation during the operational phase	Permanent moderate beneficial (significant)	None proposed.	Permanent moderate beneficial (Significant)	High

Receptor	Impact Pathway	Impact Significance	Mitigation Measure	Residual effect	Confidence
	Disruption to other businesses on Queens Road	No effect	N/A	No effect	Medium
	Impacts on other: <ul style="list-style-type: none"> <li>residential properties.</li> <li>business premises.</li> <li>community facilities.</li> </ul>	No effect	None required.	No effect	High
Development Land	Loss of the potential for future development as a result of major hazard planning	Permanent minor adverse (not significant)	N/A	Permanent minor adverse (Not Significant)	High
Impact of a changing influx of workers	Impact on the capacity of local primary healthcare facilities.	Permanent minor adverse (not significant)	None required.	Permanent minor adverse (Not significant)	High
<b>Decommissioning Phase</b>					
North East Lincolnshire's economy	Employment generation during the	Temporary minor beneficial (not significant)	None required.	Temporary minor beneficial (Not significant)	Medium

Receptor	Impact Pathway	Impact Significance	Mitigation Measure	Residual effect	Confidence
	decommissioning phase				
Users of PRow	Impacts on Public Bridleway 36 users during the decommissioning phase	No effect (not significant).	N/A	No effect	High
Private/public Assets	Impacts on residential properties, business premises and community facilities.	No effect	None required.	No effect	High

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