The Great Grid Upgrade

North Humber to High Marnham

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North Humber to High Marnham

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18. Health and Wellbeing

18.1 Introduction

18.1.1 This chapter of the Environmental Statement (ES) presents the assessment of likely significant health and wellbeing effects that could result from the North Humber to High Marnham Project (the Project) as described in **Application Document 6.4 Chapter 4 Description of the Project**.

18.1.2 This chapter describes relevant legislation and policy, the scope of the assessment, the methodology used, the datasets that have informed the assessment, the baseline conditions, mitigation measures, and the health and wellbeing residual significant effects that could result from the Project.

18.1.3 The Order Limits, which illustrate the boundary of the Project, are shown on **Application Document 6.1.F1 Figure 1.1 Project Location and Route Sections**.

18.1.4 This chapter should be read in conjunction with the following ES chapters:

- **Application Document 6.4 Chapter 4 Description of the Project**;
- **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**;
- **Application Document 6.6 Chapter 6 Landscape**;
- **Application Document 6.7 Chapter 7 Visual**;
- **Application Document 6.11 Chapter 11 Water Environment**;
- **Application Document 6.12 Chapter 12 Geology and Hydrogeology**;
- **Application Document 6.14 Chapter 14 Traffic and Transport**;
- **Application Document 6.15 Chapter 15 Air Quality**;
- **Application Document 6.16 Chapter 16 Noise and Vibration**;
- **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**;
- **Application Document 6.19 Chapter 19 Climate Change**;
- **Application Document 6.20 Chapter 20 Intra-project Cumulative Effects**; and
- **Application Document 6.21 Chapter 21 Inter-project Cumulative Effects**.

18.1.5 This chapter is supported by the following figure:

- **Application Document 6.18.F1 Figure 18.1 Health and Wellbeing Baseline Study Area**.

18.1.6 This chapter is supported by the following appendix:

- **Application Document 6.18.A1 Appendix 18.1 Regional and Local Planning Policy**.

18.1.7 This chapter is supported by the following application documents:

- **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**;
- **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion**;
- **Application Document 6.5.A3 Appendix 5.3 Scoping Response Tables**;
- **Application Document 7.2 Outline Code of Construction Practice**;
- **Application Document 7.3 Register of Environmental Actions and Commitments**;
- **Application Document 7.4 Outline Construction Traffic Management Plan**;
- **Application Document 7.6 Outline Public Right of Way Management Plan**;
- **Application Document 7.7 Outline Noise and Vibration Management Plan**;
- **Application Document 7.8 Outline Landscape and Ecology Management Plan**; and
- **Application Document 7.11 Electric and Magnetic Field Compliance Report**.

18.2 Regulatory and Planning Context

18.2.1 This section sets out the legislation and planning policy that is relevant to the health and wellbeing assessment. A full review of compliance with relevant national, regional, and local planning policy is provided within **Application Document 5.5 Planning Statement** submitted as part of the application for development consent.

18.2.2 **Application Document 6.2 Chapter 2 Legislation and Policy Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy, and planning guidance relevant to the assessment of health and wellbeing effects of the Project is presented below.

Legislation

Health and Care Act 2022

18.2.3 The Health and Care Act 2022 (HM Government, 2022) sets out health reforms in England. It removes existing competition rules and formalises Integrated Care Systems (ICSs) as the means of provision of healthcare service. Integrated Care Systems are partnerships of organisations within a defined geographical area, including NHS providers, local authorities, and other stakeholders. England is covered by 42 ICSs, each of which have an Integrated Care Board (ICB) as the statutory body within the ICS responsible for commissioning NHS services and managing shared resources. The functions of ICBs are set out in Section 21 of the Health and Care Act 2022 (HM Government, 2022). The Nottingham and Nottinghamshire ICB and Humber and North Yorkshire ICB cover the study area as described in section 18.4, relevant to the Project. Each ICB has been established with four strategic purposes:

- Improve population health and healthcare;
- Tackle unequal outcomes and access;

- Enhance productivity and value for money; and
- Help the National Health Service (NHS) to support broader social and economic development.

Equality Act 2010

18.2.4 The Equality Act 2010 (HM Government, 2010) protects people from discrimination in the workplace and wider society, replacing previous anti-discrimination laws with a single Act. It requires equal treatment in access to employment as well as private and public services. The Act is relevant to the assessment as it establishes the framework for considering effects on protected characteristic groups, including age and disability, which may experience disproportionate health impacts from developments.

National Policy

National Policy Statements

18.2.5 National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project will be considered.

18.2.6 Table 18.1 and Table 18.2 provide details of the elements of the Overarching NPS for Energy (EN-1) (Department for Energy Security and Net Zero, 2025) referred to hereafter as NPS EN-1, and NPS for Electricity Networks Infrastructure (EN-5) (Department for Energy Security and Net Zero, 2025) referred to hereafter as NPS EN-5, that are relevant to the assessment of the Project on health and wellbeing and how and where related information is provided in the ES and the application.

Table 18.1 – NPS EN-1 sections relevant to health and wellbeing

NPS EN-1 section	Where this is covered in the application
4.4.1 *'Energy infrastructure has the potential to impact on the health and wellbeing ("health") of the population. Access to energy is clearly beneficial to society and to our health as a whole. However, the construction of energy infrastructure and the production, distribution and use of energy may have negative impacts on some people's health.'*	The potential effects of the Project on health and wellbeing across all phases (construction, operation, and maintenance) are considered in section 18.9 of this chapter.
4.4.2 *'The direct impacts on health may include* • *Increased traffic;* • *Air or water pollution;* • *Dust;* • *Odour;* • *Hazardous waste and substances;*	Direct impacts on traffic are detailed in **Application Document 6.14 Chapter 14 Traffic and Transport**. Direct impacts on air pollution, dust, and odour are detailed in **Application Document 6.15 Chapter 15 Air Quality**.

NPS EN-1 section	Where this is covered in the application
• *Noise;* • *Exposure to radiation; and* • *Increases in pests'*.	Direct impacts on water pollution are detailed in **Application Document 6.11 Chapter 11 Water Environment**. Direct impacts on noise are detailed in **Application Document 6.16 Chapter 16 Noise and Vibration**. Direct impacts on exposure to radiation are detailed in **Application Document 7.11 Electric and Magnetic Field Compliance Report**. Hazardous waste and substances are not considered within the IEMA guidance on effective scoping for human health in EIA (Institute of Environmental Management and Assessment, 2022), however, given the nature of the Project, it is considered that it would not give rise to an increase in pest species or the creation of hazardous waste and substances. The potential health impact of exposure and mobilisation of existing contamination due to ground disturbance from construction activities is detailed in **Application Document 6.12 Chapter 12 Geology and Hydrogeology**, and is considered under the heading 'Land Quality' in this Health and Wellbeing chapter The health and wellbeing assessment, set out in section 18.9 of this chapter, considers the outcomes of these technical chapters relevant to health and wellbeing.
4.4.3 *'New energy infrastructure may also affect the composition and size of the local population, and in doing so have indirect health impacts, for example if it in some way affects access to key public services, transport or the use of open space for recreation and physical activity'.*	The health and wellbeing assessment, set out in section 18.9 of this chapter, considers the impacts of any potential changes to access to key public services, transport, or the use of open space for recreation and physical activity.
4.4.4 '[...] *where the proposed project has an effect on humans, the ES should assess these effects for each element of the project, identifying any potential adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate'.*	Measures to avoid, reduce or compensate impacts that are relevant to supporting technical assessments, will manage risks and ensure effects on health and wellbeing are unlikely/minimised directly. The health and wellbeing assessment thus assesses the likely residual significant effects from the construction, operation, and maintenance of the Project. The relevant assessment chapters include the following: **Application Document 6.6 Chapter 6 Landscape**; **Application**

NPS EN-1 section	Where this is covered in the application
	Document 6.7 Chapter 7 Visual; **Application Document 6.11 Chapter 11 Water Environment**; **Application Document 6.14 Chapter 14 Traffic and Transport**; **Application Document 6.15 Chapter 15 Air Quality**; **Application Document 6.16 Chapter 16 Noise and Vibration**; **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**; and **Application Document 6.19 Chapter 19 Climate Change**.
4.4.5 '*The impacts of more than one development may affect people simultaneously, so the applicant should consider the cumulative impact on health in the ES where appropriate'.*	The cumulative effects on health are considered within **Application Document 6.20 Chapter 20 Intra-project Cumulative Effects** and **Application Document 6.21 Chapter 21 Inter-project Cumulative Effects**.
4.4.6 '*Opportunities should be taken to mitigate indirect impacts, by promoting local improvements to encourage health and wellbeing. This includes potential impacts on vulnerable groups within society and impacts on those with protected characteristics under the Equality Act 2010, i.e. those groups which may be differentially impacted by a development compared to wider society as a whole'.*	A consideration of vulnerable groups within society is covered in this chapter. The health and wellbeing assessment utilises Institute of Environmental Management and Assessment (IEMA) guidance[1] (on effective scoping for human health in Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2022) , and on determining significance for human health in Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2022), detailed in section 18.4 of this chapter. This guidance details the need to consider whether there are any vulnerable sub-populations which would materially change the outcome of an assessment, as discussed in section 18.9 of this chapter.
5.2.1 '*Energy infrastructure development can have adverse effects on air quality. The construction, operation and decommissioning phases can involve emissions to air which could lead to adverse impacts on health* [...]'.	An assessment of air quality is set out in **Application Document 6.15 Chapter 15 Air Quality**; this reports any air quality effects and committed mitigation measures. The assessment of effects for health and wellbeing draws on this chapter, as discussed in section 18.9.
5.11.6	Section 18.9 of this chapter considers the impact of the Project on the accessibility of

[1] The Institute of Environmental Management Assessment (IEMA) has changed its name to the Institute of Sustainability and Environmental Professionals (ISEP). Where general reference is made to the institute within this ES, the following distinction has been made: ISEP (formerly IEMA). When referencing legacy IEMA documents, this distinction is not made.

NPS EN-1 section	Where this is covered in the application
'*The government's policy is to ensure there is adequate provision of high quality open space and sports and recreation facilities to meet the needs of local communities. Connecting people with open spaces, sports and recreational facilities all help to underpin people's quality of life and have a vital role to play in promoting healthy living'.*	open space and play space and the effect on health and wellbeing.
5.12.1 *'Excessive noise can have wide-ranging impacts on the quality of human life and health such as annoyance, sleep disturbance, cardiovascular disease and mental ill-health.* [...]'.	An assessment of noise and vibration is set out in **Application Document 6.16 Chapter 16 Noise and Vibration**; this considers any noise effects and discusses mitigation to control noise. The assessment of effects for health and wellbeing, including physical and mental health, draws on the noise and vibration chapter.
5.12.17 '*The Secretary of State should not grant development consent unless they are satisfied that the proposals will meet the following aims, through the effective management and control of noise:* • *Avoid significant adverse impacts on health and quality of life from noise;* • *Mitigate and minimise other adverse impacts on health and quality of life from noise; and* • *Where possible, contribute to improvements to health and quality of life through the effective management and control of noise.*'	An assessment of noise and vibration is set out in **Application Document 6.16 Chapter 16 Noise and Vibration**; this considers any noise effects and discusses mitigation measures to control noise. The assessment of effects on health and wellbeing draws on the findings of the noise and vibration chapter and considers all of the points laid out in paragraph 5.12.17 of EN-1 (Department for Energy Security and Net Zero, 2025).
5.16.2 '*During the construction, operation, and decommissioning phases, development can lead to increased demand for water, involve discharges to water, and cause adverse ecological effects resulting from physical modifications to the water environment. There may also be an increased risk of spills and leaks of pollutants to the water environment. These effects could lead to adverse impacts on health* [...]'.	An assessment of the water environment is set out in **Application Document 6.11 Chapter 11 Water Environment**; this reports any water-related effects and committed mitigation measures. The assessment of effects for health and wellbeing draws on the results of the assessment presented in the water environment chapter.

Table 18.2 – NPS EN-5 sections relevant to health and wellbeing

NPS EN-5 section	Where this is covered in the application
2.9.47 Electric and Magnetic Fields (EMFs) '*All overhead power lines produce EMFs. These tend to be highest directly under a line and decrease to the sides at increasing distance.* […] *EMFs can have both direct and indirect effects on human health* […]'.	**Application Document 7.11 Electric and Magnetic Field Compliance Report** demonstrates that the Project is compliant with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines (International Commission of Non-Ionizing Radiation Protection, 1998) in ensuring that the threshold for impacts to humans is not met/exceeded. National Grid Electricity Transmission plc (National Grid) will ensure that policies and procedures are in place during detailed design to ensure that all equipment complies with public EMF exposure limits, as secured through the relevant commitment in **Application Document 7.3 Register of Environmental Actions and Commitments**. Therefore, as outlined in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, EMFs are scoped out of the health and wellbeing assessment.
2.9.48 *'The direct effects occur in terms of impacts on the central nervous system resulting in its normal functioning being affected. Indirect effects occur through electric charges building up on the surface of the body producing a microshock on contact with a grounded object, or vice versa, which, depending on the field strength and other exposure factors, can range from barely perceptible to being an annoyance or even painful'.*	**Application Document 7.11 Electric and Magnetic Field Compliance Report** demonstrates that the Project is compliant with the ICNIRP Guidelines (International Commission of Non-Ionizing Radiation Protection, 1998) in ensuring that the threshold for impacts to humans is not met/exceeded. National Grid will ensure that policies and procedures are in place during detailed design to ensure that all equipment complies with public EMF exposure limits.
2.9.49 *'To prevent these known effects, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 for both public and occupational exposure. These are expressed in terms of the induced current density in affected tissues of the body, 'basic restrictions', and in terms of measurable 'reference levels' of electric field strength (for electric fields), and magnetic flux density (for magnetic fields)'.*	**Application Document 7.11 Electric and Magnetic Field Compliance Report** demonstrates that the Project is compliant with the ICNIRP Guidelines (International Commission of Non-Ionizing Radiation Protection, 1998) in ensuring that the threshold for impacts to humans is not met/exceeded. National Grid will ensure that policies and procedures are in place at during detailed design to ensure that all equipment complies with public EMF exposure limits, as secured through the relevant commitment in **Application Document 7.3 Register of Environmental Actions and Commitments.**

NPS EN-5 section	Where this is covered in the application
2.9.52 *'The levels of EMFs produced by power lines in normal operation are usually considerably lower than the ICNIRP 1998 reference levels'.*	**Application Document 7.11 Electric and Magnetic Field Compliance Report** demonstrates the design is compliant with the ICNIRP Guidelines (International Commission of Non-Ionizing Radiation Protection, 1998) in ensuring that the threshold for impacts to humans is not met/exceeded. National Grid will ensure that policies and procedures are in place during detailed design to ensure that all equipment complies with public EMF exposure limits, as secured through the relevant commitment in **Application Document 7.3 Register of Environmental Actions and Commitments**.

National Planning Policy Framework

18.2.7 The National Planning Policy Framework (NPPF) as updated in August 2026 (Ministry of Housing, Communities & Local Government, 2026) sets out national planning policies that reflect priorities of the Government for the operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF (Ministry of Housing, Communities & Local Government, 2026) has a strong emphasis on sustainable development, with a presumption in favour of such development. Although the NPSs set out the primary policy tests for the Project, the NPPF (Ministry of Housing, Communities & Local Government, 2026) has the potential to be considered important and relevant to the consideration of the Project by the SoS.

18.2.8 Table 18.3 below provides details of the elements of the NPPF (Ministry of Housing, Communities & Local Government, 2026) that relate to the health and wellbeing assessment, and how and where they are covered in the ES and application.

Table 18.3 – NPPF sections relevant to health and wellbeing

NPPF section	Where this is covered in the application
HC1: Planning for healthy communities 1. '*To promote the creation of healthy and inclusive places, and the provision, retention and enhancement of appropriate community facilities and public service infrastructure, development plans should, at the most appropriate level:* *a) Be informed by an understanding of any existing deficits in the availability of community facilities and public service infrastructure, and additional requirements expected over the plan period, arising from proposed development and wider changes in the local population and public service*	Section 18.9 sets out the assessment of the effect of the Project on access to health and social care as a result of additional demand associated with the construction workforce. This includes a quantitative and qualitative assessment of demand on health and social care services. Section 18.9 also assesses the impact of the Project on determinants of health including open space, leisure and play, community identity, culture, resilience and influence, and transport modes, access, and connections.

NPPF section	Where this is covered in the application
provision. In doing so, they should take into account both quantitative and qualitative aspects of provision, identified local health needs and opportunities to reduce inequalities through the availability of facilities; […] e) Identify wider opportunities to promote good health, prevent ill-health, reduce health inequalities and support social interaction […].	
P3: Living conditions and pollution 1. 'Development proposals should be appropriate for their location, taking into account the likely effects (including cumulative effects) of pollution on health […]. In assessing the potential effects of pollution, consideration should be given to […] the environment and population in the surrounding area (including where certain groups could be particularly vulnerable to its effects, such as children and older people).'	A cumulative effects assessment has been undertaken and is presented in **Application Document 6.20 Chapter 20 Intra-project Cumulative Effects** and **Application Document 6.21 Chapter 21 Inter-project Cumulative Effects**. Section 18.9 assesses the effects of the Project on human health and wellbeing, including environmental determinants such as air quality, noise and vibration, and water quality. The assessment draws upon the findings of the relevant technical assessments and assesses the effects on both the general population and vulnerable populations (including children and older people) in relation to health and wellbeing.
P4: Impact of development on existing activities 1. '*Existing businesses, community facilities, [and] public services […] should not have unreasonable restrictions placed on their current or permitted operation as a result of development being approved after they were established. […]*'	Section 18.9 and **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** assesses the potential effects on existing businesses, community facilities and public services (e.g. health and social care) during the construction and operation and maintenance phases. Embedded mitigation measures are identified, where necessary, to minimise adverse effects and maintain access to these services and facilities.

National Planning Practice Guidance

18.2.9 The NPPF (Ministry of Housing, Communities and Local Government, 2026) is supported by Planning Practice Guidance (PPG) which was first published in March 2014. This guidance is updated on a regular basis and provides advice on a range of topics related to the implementation of NPPF (Ministry of Housing, Communities and Local Government, 2026) policies. The PPGs that are relevant to the health and wellbeing assessment are summarised below.

Planning Practice Guidance for Healthy and Safe Communities

18.2.10 The PPG for Healthy and Safe Communities (Department for Levelling Up, Housing and Communities, 2022) covers the role of positive planning in delivering healthier communities and how the design and use of the built and natural environments, including green infrastructure, are major determinants of health and wellbeing. The guidance states:

'Planning and health need to be considered together in two ways: in terms of creating environments that support and encourage healthy lifestyles, and in terms of identifying and securing the facilities needed for primary, secondary and tertiary care, and the wider health and care system (taking into account the changing needs of the population)' (paragraph 001).

Planning Practice Guidance for Open Space, Sports and Recreation Facilities, Public Rights of Way and Local Green Space

18.2.11 The PPG for Open Space, Sports and Recreation Facilities, Public Rights of Way and Local Green Space (Ministry of Housing, Communities and Local Government, 2014) provides additional guidance on those designations and how they should be taken into consideration in planning. The guidance outlines that planning should consider proposals that may affect existing open space which provides health and recreational benefits to people living and working nearby.

Planning Practice Guidance for Plan-making

18.2.12 The PPG for Plan-making (Ministry of Housing, Communities and Local Government, 2025) provides guidance on plan-making, relevant to the health and wellbeing assessment. The PPG states:

'Strategic policy-making authorities can work with public health leads and health organisations to understand and take account of the current and projected health status and needs of the local population, including the quality and quantity of, and accessibility to, healthcare and the effect any planned growth may have on this. Authorities will also need to assess the quality and quantity of, and accessibility to, green infrastructure, education, sports, recreation and places of worship including expected future changes, and any information about relevant barriers to improving health and well-being outcomes. Strategic policy-making authorities may consult any relevant Health Impact Assessments and consider their use as a tool for assessing the impact and risks of development proposals' (paragraph 46).

Regional and Local Policy

18.2.13 **Application Document 6.2 Chapter 2 Legislation and Policy Context** lists relevant regional and local policy documents.

18.2.14 A range of regional and local planning policies are in place that seek to protect and enhance health and wellbeing; these have been given due regard in the health and wellbeing assessment and have been considered as part of the design development process of the Project. Full details of local policies relevant to this assessment are presented in **Application Document 6.18.A1 Appendix 18.1 Regional and Local Planning Policy**.

18.3 Scoping Opinion and Consultation

Scoping Opinion

18.3.1 A Scoping Report for the Project was issued to the Planning Inspectorate on 21 August 2023 (**Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**) and a Scoping Opinion was received from the Planning Inspectorate on behalf of the SoS for the Department for Energy Security and Net Zero on 29 September 2023 (**Application Document 6.5.A2 Appendix 5.2 Scoping Opinion**). Table 18.4 sets out the comments raised in **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion** that are relevant to health and wellbeing and how these have been addressed in this assessment. **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion** takes account of responses from prescribed consultees as appropriate. **Application Document 6.5.A3 Appendix 5.3 Scoping Response Tables** provide responses to the comments made by the prescribed consultees at the scoping stage that relate to the scope of the assessment and how each comment has been considered.

Table 18.4 – Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
3.12.1	**Potential impacts of EMFs on local residents and workers – Operation** The Applicant proposes to scope this matter out on the basis that the Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits. The Inspectorate considers that the ES should provide evidence that these policies and procedures are in place and confirm that receptors will not be impacted by potential sources of EMF. In the absence of such evidence, the Inspectorate considers that the ES should provide an assessment of the impact of EMFs on local residents and workers where there is potential for likely significant effects to occur. Although not explicably requested, the Inspectorate agrees to scope out an assessment of EMFs during the construction phase on the basis that they are associated with Operational power distribution.	**Application Document 7.11 Electric and Magnetic Field Compliance Report** demonstrates that the design of the Project is compliant with the ICNIRP Guidelines (International Commission of Non-Ionizing Radiation Protection, 1998), which is based on advice from the UK Health Security Agency, as set out in the NPS EN-5 (Department for Energy Security and Net Zero, 2025) in ensuring that the threshold for impacts to humans is not met/exceeded. The potential impacts of EMFs on local residents and workers during the operation of the Project has therefore been scoped out of this assessment. The Applicant notes that EMFs are screened out during construction on the basis that they are only associated with the operation of the proposed overhead line.
3.12.2	**Health determinants for diet and nutrition, housing and relocation – Construction and Operation**	Diet and nutrition, and housing and relocation are not likely to be affected by the Project and have been scoped out of further assessment as agreed.

ID	Inspectorate's comments	Response
	The Applicant proposes to scope out these health determinants on the basis that they are unlikely to be affected by the Project. The Inspectorate agrees to scope these matters out, however, should housing and relocation be affected by the Project this should be detailed within the ES and an assessment provided where there is the potential for likely significant effects to occur.	
3.12.3	**Determination of sensitivity and magnitude for PRoW and recreational routes** It is unclear how the frequency of use for PRoW and recreational routes will be determined. The Inspectorate considers that the determination of sensitivity and magnitude of impact for these routes should include reference to its usage. The ES should clearly set out the data sources and any surveys utilised in determining the sensitivity and magnitude of these routes. The Applicant's attention is drawn to the United Kingdom (UK) Health Security Agency's response (Appendix 2 of the Opinion) in this regard.	Table 17.11 and Table 17.14 in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** set out the sensitivity and magnitude of impact criteria for Public Rights of Way (PRoWs) and recreational routes. The sensitivity of PRoWs and recreational routes has been determined through desk-based research and engagement with local councils, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. These sources were considered sufficient to inform professional judgement regarding the frequency and extent of use, type of user, reason for use, and potential for substitution. The assessment also considers information set out in **Application Document 6.14 Chapter 14 Traffic and Transport**.

Statutory Consultation

18.3.2 Statutory consultation for the Project took place between 18 February and 15 April 2025. A summary of the relevant feedback received during statutory consultation relating to health and wellbeing is provided below in Table 18.5. Further details on how consultation responses have informed the assessment are provided in **Application Document 5.1 Consultation Report**.

Table 18.5 – Assessment aspects raised at statutory consultation and how these have been addressed

Stakeholder	Key topic raised	How this has been addressed
Bassetlaw District Council	Update local policies relevant to health and wellbeing in line with the most recent adoptions. This includes replacing references to	The ES has been updated to reflect the relevant local policy documents, as set out in **Application Document**

Stakeholder	Key topic raised	How this has been addressed
	the Bassetlaw Core Strategy and Bassetlaw Local Plan Main Modifications with the Bassetlaw Local Plan, and removing references to the Misterton Neighbourhood Plan and the Treswell and Cottam Neighbourhood Plan.	**6.18.A1 Appendix 18.1 Regional and Local Planning Policy**.

Stakeholder Engagement

18.3.3 National Grid has engaged with relevant stakeholders throughout the evolution of the Project including East Riding of Yorkshire Council, North Lincolnshire Council, Nottinghamshire County Council[2], and Bassetlaw District Council.

18.3.4 A summary of discussions and how these have influenced the scope and the approach to the health and wellbeing assessment is provided in Table 18.6.

Table 18.6 – Further engagement

Organisation and Date	Summary of issues raised	How this has been addressed
2 October 2025 East Riding of Yorkshire Council	The engagement included an overview of the health and wellbeing assessment approach, the study areas, and the scoping opinion and statutory consultation responses. **Labelling PRoWs**: Ensure the reference number and status of PRoWs and recreational routes are correct in line with the East Riding of Yorkshire Council Definitive Map. The Yorkshire Wolds Way and the King Charles III England Coast Path are the only National Trails within the East Riding of Yorkshire. Other named recreational routes are known as 'Promoted Routes' **Health concerns on local residents:** Several parish councils outlined health and wellbeing concerns on local residents, including the effects on landscape	**Labelling PRoWs:** This chapter draws upon the definitive map-based labelling set out in **Application Document 6.14 Chapter 14 Traffic and Transport** which identifies the PRoWs, access routes, and recreational routes within the Order Limits. **Health concerns on local residents:** This chapter provides a full assessment of the impact of the Project on health and wellbeing, considering impacts to local communities due to effects on PRoWs, including the Yorkshire Wolds Way. It includes consideration of landscape and visual effects and the impact on mental and physical health. **Electric and magnetic fields: Application Document 7.11 Electric and Magnetic Field Compliance Report** demonstrates

[2] The Project is located within the administrative boundaries of East Riding of Yorkshire Council, North Lincolnshire Council and Bassetlaw District Council, which forms part of the two tier local government authority area of Nottinghamshire, where Nottinghamshire County Council is the upper tier authority

Organisation and Date	Summary of issues raised	How this has been addressed
	amenity, footpaths, and the Yorkshire Wolds Way. **Electric and magnetic fields:** Concern regarding significant noise and possible health risks from overhead lines. **Community wellbeing:** Further detail requested on how ongoing, inclusive engagement with communities will be maintained. **Mental wellbeing:** Potential mental health impacts from uncertainty or lack of control during the Nationally Significant Infrastructure Project process. **Social value and legacy:** Set out how the Project will deliver long-term community benefits. **Cumulative and long-term impacts:** Assess cumulative effects from other infrastructure projects. **Study area:** Consider mapping vulnerable groups within the study area to ensure their needs are captured. Provide further justification for the chosen study areas. **Relevant ES chapters:** Clarify how findings and mitigation from other ES chapters inform the assessment.	that the Project is compliant with the ICNIRP guidelines (International Commission of Non-Ionizing Radiation Protection, 1998) ensuring that the impact threshold for humans is not met or exceeded. National Grid will ensure that policies and procedures are in place during detailed design to ensure all equipment complies with public EMF exposure limits, as secured through the relevant commitment within **Application Document 7.3 Register of Environmental Actions and Commitments**. Therefore, EMFs are scoped out of the health and wellbeing assessment. **Community wellbeing:** The Statement of Community Consultation outlines commitments to inclusive engagement, such as embedding the Gunning Principles[3] into the consultation process. The Project has committed to keeping members of the community and local businesses informed regularly of the works through active community liaison, as secured through the relevant commitments within **Application Document 7.3 Register of Environmental Actions and Commitments**. **Mental wellbeing:** The impact of the Nationally Significant Infrastructure Project process itself is considered to be outside the scope of the ES, in line with IEMA guidance. However, impacts on mental health are thoroughly assessed throughout the ES, including the ‘community identity, culture, resilience, and influence’

[3] The Gunning Principles are four legal rules established in UK case law and intended to make public consultations fair, lawful, and meaningful. The four principles are: 1: Consultations must occur while proposals are still at a formative stage; 2: Sufficient information needs to be supplied for the public to give the consultation 'intelligent consideration'; 3: There needs to be adequate time for the consultees to consider the proposal and respond; and 4: Conscientious consideration must be given to the consultation responses before decisions are made.

Organisation and Date	Summary of issues raised	How this has been addressed
		determinant which considers how the Project could impact a sense of belonging and control. **Social value and legacy:** National Grid will engage with local communities separate to the planning process to deliver meaningful, long-term, social, and economic benefits through local and strategic investment. **Cumulative and long-term impacts:** The cumulative effects on health associated with the Project in combination with other relevant schemes are considered within **Application Document 6.21 Chapter 21 Inter-project Cumulative Effects**. **Study area:** The ES identifies vulnerable groups with a higher sensitivity to health effects as a result of impacts to health determinants. The ES identifies Lower Super Output Areas (LSOAs) within the Direct Impact Area (see paragraph 18.4.18) that exhibit above average proportions of some vulnerable populations, as defined by IEMA (Institute of Environmental Management and Assessment, 2022), based on a review of baseline data. For example, this analysis identifies areas with higher-than-average proportions of older people (aged 80 years and over) and older one-person households (aged 66 years and over). Further detail is provided in section 18.6. The study areas reflect industry guidance, professional judgement, relevant ES chapters' study areas, and experience with comparable electricity network infrastructure schemes. **Relevant ES chapters:** The assessment has drawn upon the residual effects of the relevant ES

Organisation and Date	Summary of issues raised	How this has been addressed
		chapters and therefore considers the embedded and additional mitigation set out in these.
3 November 2025 Bassetlaw District Council and Nottinghamshire County Council	The engagement included an overview of the health and wellbeing assessment approach, the study areas, and the scoping opinion and statutory consultation responses. **Local policies:** Statutory consultation responses requested the ES to reflect the most recent local policies owing to policy updates. **Health concerns on local residents:** Several parish councils outlined concerns around the health and wellbeing of local residents, including the effects on landscape amenity. **Nottinghamshire County Council policies:** Nottinghamshire County Council outlined that policies relevant to health and wellbeing should be considered.	**Local policies:** The ES includes a review of all up-to-date local policies relevant to health and wellbeing as reported in **Application Document 6.18.A1 Appendix 18.1 Regional and Local Planning Policy**. **Health concerns on local residents:** The ES includes a full assessment of the impact of the Project on health and wellbeing, considering impacts to local communities. It considers how landscape and visual effects impact health and wellbeing within the community identity, culture, resilience, and influence health determinant. **Nottinghamshire County Council policies:** The ES has considered relevant health and wellbeing policy, including the Nottinghamshire Joint Health and Wellbeing Strategy 2022-2026 (Nottinghamshire Health and Wellbeing Board, 2022), as referenced in **Application Document 6.18.A1 Appendix 18.1 Regional and Local Planning Policy**.
13 November 2025 North Lincolnshire Council	The engagement included an overview of the health and wellbeing assessment approach, the study areas, and the scoping opinion and statutory consultation responses. North Lincolnshire Council did not provide any statutory consultation comments or Scoping Opinion comments relevant to health and wellbeing; and did not raise any further questions/issues during the engagement.	The Council did not raise any issues to be addressed.

Summary of Scope of Assessment

18.3.5 The following summarises which aspects have been scoped into and out of the assessment through **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report** and **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion** as set out in Table 18.4, statutory consultation as set out in Table 18.5 and further engagement with stakeholders as set out in Table 18.6.

18.3.6 It is also noted that decommissioning of the Project has been scoped out of the assessment as explained in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**.

Health determinants scoped into the assessment

18.3.7 The following determinants have been scoped into the health and wellbeing assessment for the construction phase:

- Health and social care services;
- Employment and income;
- Education and training;
- PRoWs, access routes and recreational routes;
- Air quality;
- Noise and vibration;
- Open space, leisure, and play;
- Climate change mitigation and adaptation;
- Water quality or availability;
- Land quality; and
- Community identity, culture, resilience, and influence.

18.3.8 It is noted that land quality was previously scoped out of assessment in relation to health, as the Chapter 12 Geology and Hydrogeology of **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report** reported that significant effects relating to existing contamination were unlikely to occur. However, as **Application Document 6.12 Chapter 12 Geology and Hydrogeology** of the ES provides an assessment of the impacts to human health from potential exposure (of construction workers) to existing contamination as a result of ground disturbance from construction activities, this has been included in the assessment presented in section 18.9. Noting the land quality remains scoped out in relation to the operation phase as set out in Table 18.7.

18.3.9 The following determinants have been scoped into the health and wellbeing assessment for the operation phase (including maintenance):

- Noise and vibration;
- Open space, leisure, and play;
- Climate change mitigation and adaptation; and
- Community identity, culture, resilience, and influence.

Health determinants scoped out of the assessment

18.3.10 Table 18.7 is sourced from Table 9.1 (EIA wider determinants of health to scope and considerations) in the IEMA Guide to Effective Scoping of Human Health in Environmental Impact Assessment guidance (Institute of Environmental Management and Assessment, 2022). Table 18.7 outlines determinants that have been scoped out of the human health assessment and the justification for this.

Table 18.7 – Determinants scoped out of the health and wellbeing assessment

Health determinants	Justification for scoping out
Physical activity	Physical activity effects relate most directly to 'open space, leisure, and play' and 'PRoWs, access routes, and recreational routes' and so are captured within the assessments of those determinants, as suggested by IEMA guidance (Institute of Environmental Management and Assessment, 2022).
Housing	As stated in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, the Project is unlikely to affect housing need directly or indirectly to justify its inclusion as a determinant.
Risk-taking behaviour	As stated in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, the Major Accidents and Disasters assessment was scoped out due to the nature of the Project. Considerations set out in the IEMA guidance (Institute of Environmental Management and Assessment, 2022) such as alcohol use, cigarette use, drug use, gambling and communicable diseases are unlikely to be affected.
Community safety	As stated in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, the Major Accidents and Disasters assessment was scoped out due to the nature of the Project. Therefore, there are no significant effects expected in relation to community safety through impacts on crime.
Social participation, interaction, and support	Effects relating to accessing community centres and other places of social interaction are assessed under the 'transport, access and modes' determinant, as well as the 'community identity, culture, resilience and influence' determinant. The Project is not expected to materially effect social and family support, volunteering and social enterprise, and the ability to provide family support is not relevant to this Project. These aspects of the determinant are not considered relevant to the assessment.
Diet and nutrition	As stated in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, effects on opportunities to promote good nutrition, to support healthy food options or to increase learning and skills initiatives for this subject are unlikely to be affected by the Project.
Relocation	As stated in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, as housing need is likely to be unaffected by the Project and no population relocation is likely to occur, any impacts on relocation are likely to be negligible.

Health determinants	Justification for scoping out
Wider societal infrastructure and resources	Wider contributions to economic development are assessed under the 'employment and income', and 'education and skills' determinants. Impacts on climate change are considered as part of 'climate change mitigation and adaptation'. Impacts on water resources are considered under 'water quality or availability'. Impacts on transport infrastructure are considered under the 'PRoWs, access routes and recreational routes' assessment.
Built environment	Impacts on community assets, such as health and social care facilities, educational facilities and community spaces are assessed under 'access to health and social care', 'education and training', 'open space, leisure and play', and 'community identity, culture, resilience and influence' assessments. Impacts on mental wellbeing from reduced views and landscape quality from the introduction of pylons to the built environment are covered under the 'community identity, culture, resilience, and influence' determinant.
Radiation	EMFs produced by electricity and transmission systems are termed as non-ionising radiation, which differs fundamentally from ionising radiation. Non-ionising radiation lacks sufficient energy to cause ionisation, unlike ionising radiation which poses strong health risks to humans. As stated in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, impacts of the generation of EMFs have been scoped out during operation as the Applicant will ensure that all policies and procedures are in place at the design phase to ensure all equipment complies with public EMF exposure guidelines (International Commission of Non-Ionizing Radiation Protection, 1998). Furthermore, the Planning Inspectorate noted during the Scoping Opinion (**Application Document 6.5.A2 Appendix 5.2 Scoping Opinion**) that an assessment of EMFs during the construction phase should be scoped out on the basis that they are associated with operational power distribution.

18.3.11 Decommissioning has been scoped out of the assessment as explained in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**.

18.4 Assessment Approach and Methods

18.4.1 **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology** sets out the overarching approach which has been used in preparing the information in this ES. This section describes the technical methods used to determine the baseline conditions, sensitivity of receptors, and magnitude of impacts and sets out the criteria that have been used for the health and wellbeing assessment. Where the assessment criteria terminology differs from the general assessment criteria terminology, as set out in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**, justification is provided.

Guidance Specific to the Health and Wellbeing Assessment

18.4.2 Relevant guidance, specific to health and wellbeing that has informed the approach to the assessment in this chapter comprises:

- Institute of Environmental Management and Assessment Guide to Effective Scoping of Human Health in Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2022); and
- Institute of Environmental Management and Assessment Guide to Determining Significance for Human Health in EIA (Institute of Environmental Management and Assessment, 2022).

18.4.3 In addition to the IEMA guidance documents listed above, the following documents have been reviewed as they underpin the principles set out in the IEMA guidance:

- Public Health England (PHE) Spatial Planning for Health: An evidence resource for planning and designing healthier places (Public Health England, 2017);
- Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime (Public Health England, 2021);
- Putting Health into Place: Introducing NHS England's Healthy New Towns Programme (Public Health England, 2018);
- Public Health England Strategy 2020-2025 (Public Health England, 2019);
- Health Impact Assessment in spatial planning (Public Health England, 2020);
- Fair Society, Healthy Lives (The Marmot Review) (Institute of Health Equity, 2010);
- Health Equity in England: The Marmot Review 10 Years On (Institute of Health Equity, 2020);
- Build Back Fairer: The Covid-19 Marmot Review (Institute of Health Equity, 2020);
- Fit for the Future: 10 Year Health Plan for England (Department of Health and Social Care, 2025);
- Design Manual for Roads and Bridges (DMRB) LA 112 Population and human health (Highways England, 2020);
- Environmental Improvement Plan 2025 (Department for Environment, Food and Rural Affairs, 2025); and
- National Mental Well-being Impact Assessment: A toolkit for well-being (National Mental Well-being Impact Assessment Collaborative, 2011).

Fit for the Future: 10 Year Health Plan for England (2025)

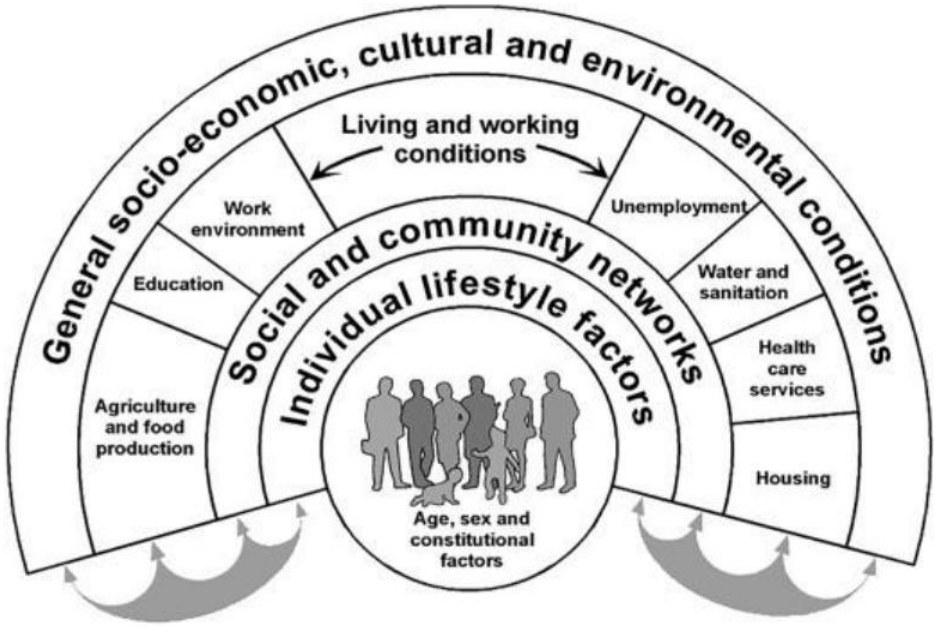
18.4.4 Fit for the Future: 10 Year Health Plan for England (Department of Health and Social Care, 2025) has been published since **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report** was produced, this document sets out a ten-year programme of strategic transformation across the NHS. The plan outlines how the NHS will further its efforts to tackle health inequalities through an increased emphasis on preventative healthcare, digital innovation, and targeted investment in underserved communities. Key priorities include expanding access to mental health services, strengthening integrated local care systems, and supporting initiatives that address the wider determinants of health, such as housing, nutrition, and environmental factors including air quality and climate resilience.

Environmental Improvement Plan 2025

18.4.5 The Environmental Improvement Plan 2025 (Department for Environment, Food and Rural Affairs, 2025) was published in 2025 following a review of the 2023 Environmental Improvement Plan which updated the 25-Year Environment Plan set out in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**. The Environmental Improvement Plan 2025 sets out a comprehensive framework for delivering the government's long-term environmental ambitions. The 2025 plan outlines how England will reduce environmental degradation through air quality, water, biodiversity, waste, and resource efficiency initiatives, and sets clear goals and targets for doing so. The 2025 plan recognises the impact of environmental quality on public health, with actions including improving access to green and blue spaces, reducing exposure to pollutants, and enhancing climate resilience.

18.4.6 As shown in Image 18.1, Dahlgreen and Whitehead's (Dahlgreen & Whitehead, 1991) model of the determinants of health illustrates the breadth of possible influences on health, including the physical environment, income levels, employment, education, social support, and housing. At the centre of the illustration are factors that are largely fixed, including individual age, sex, and constitutional and genetic factors. Outside this are factors generally described as the wider or broader determinants of health. The model emphasises interactions between the layers. Moving outwards from the centre, individual lifestyle choices are embedded in social norms and community networks, and in living and working conditions, which in turn are shaped by and related to the wider socio-economic and cultural environment.

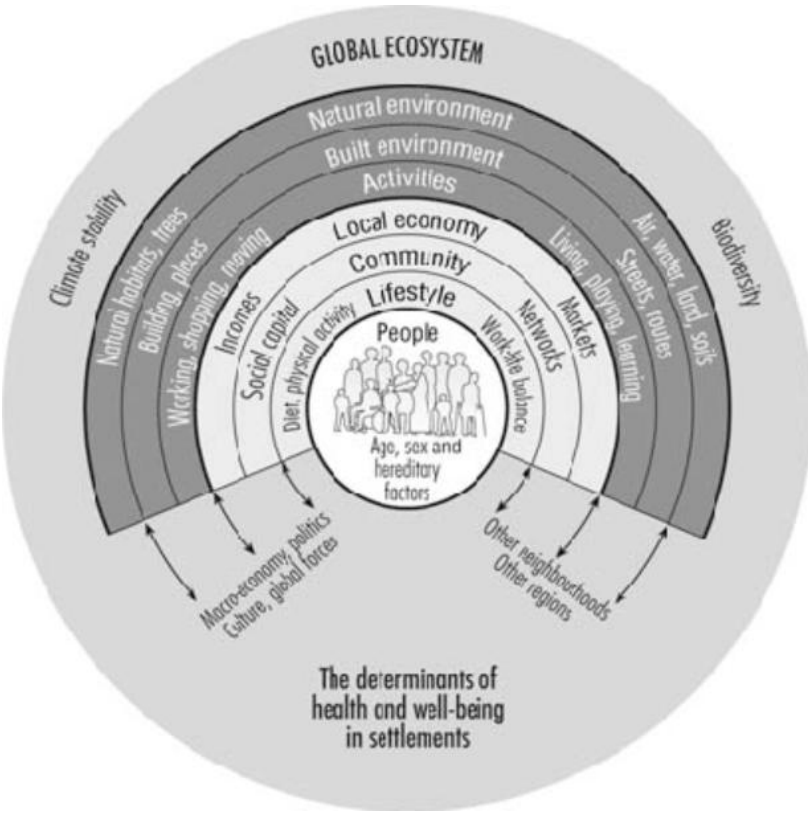
Image 18.1 – Determinants of health



Source: Dahlgreen and Whitehead (Dahlgreen & Whitehead, 1991).

18.4.7 This model demonstrates how health and wellbeing in neighbourhoods are influenced by the interaction between people, communities and the wider environment. The model highlights the role of neighbourhood-level determinants of health, including the local economy, community networks, lifestyle factors, activities, the built and natural environment, and broader environmental systems. As shown in Image 18.2 (Barton & Grant, 2006), health outcomes are shaped by the interrelationships between these factors.

Image 18.2 – Determinants of health in neighbourhoods



Source: Barton and Grant (Barton & Grant, 2006).

18.4.8 The range of personal, social, economic, and environmental factors that influence health status are known as health determinants and include the physical environment, income levels, employment, education, social support, and housing. The Project has the potential to give rise to changes in health status by influencing health determinants. Changes can affect the health of receptors, identified as the 'general population' and 'vulnerable populations'. The latter refers to groups who may have a higher sensitivity to these changes in health status, by virtue of factors such as age (for example older people or children), ethnicity, economic factors, health and disability, sex, or gender.

18.4.9 As discussed, within a population there can be health inequities, defined by the World Health Organisation (WHO) as:

"[…] differences in health status or in the distribution of health determinants between different population groups, arising from the social conditions in which people are born, grow, live, work and age" (World Health Organisation, 2018).

18.4.10 The health and wellbeing assessment is based on IEMA's Guide to Determining Significance for Human Health in EIA (Institute of Environmental Management and Assessment, 2022) and Guide to Effective Scoping of Human Health in EIA (Institute of Environmental Management and Assessment, 2022). The assessment identifies and assesses the change on environmental conditions, along with physical and mental health, as a result of the Project.

18.4.11 The baseline sets out the wider health context required to inform the assessment, covering both physical and mental health. This information has been used as a basis for determining the sensitivity of receptors to changes in health determinants arising from the Project.

Study Area

18.4.12 The study area for the health and wellbeing baseline is presented in **Application Document 6.18.F1 Figure 18.1 Health and Wellbeing Baseline Study Area**.

18.4.13 The study areas for health and wellbeing have been defined using professional judgement and experience of other similar linear projects.

18.4.14 The study areas for the assessment of potential health and wellbeing effects have been defined to include human populations likely to be at risk from the possible direct and indirect health impacts that might arise from the Project. Therefore, the study areas for the health assessment vary by the type of impact being assessed.

18.4.15 For sensitive receptors, the study area is defined based on the geographic extent of other topics' effects for each environmental aspect of relevance to health and wellbeing. The chapters of relevance are listed in paragraph 18.1.4. These study areas are set out in the relevant chapters of this ES and are summarised in Table 18.8.

18.4.16 Beyond these study areas, receptors have been included on a case-by-case basis, based on the contributing assessment chapters (listed in paragraph 18.1.4), rather than a defined distance.

18.4.17 **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**, paragraph 17.3.1 proposed that the health baseline study area would consist of wards. Following a review post-scoping, LSOAs[1] have been used due to more data being available at LSOA level and also to provide more granular data than wards.

18.4.18 The following geographical areas have been considered for the baseline to inform the sensitivity of relevant populations and sub-populations and their ability to respond to change:

- The LSOAs[4,5] comprising the Order Limits, known as the Direct Impact Area[6];
- The local authorities of East Riding of Yorkshire, North Lincolnshire, and Bassetlaw;
- The Wider Study Area, combining the local authorities of East Riding of Yorkshire, North Lincolnshire, and Bassetlaw;
- The regions of Yorkshire and the Humber (region for East Riding of Yorkshire and North Lincolnshire) and the East Midlands (region for Bassetlaw); and
- The national comparator of England.

18.4.19 Table 18.8 presents the health determinants considered in the health and wellbeing assessment, the geographical scale at which these are assessed, and the rationale behind these geographical scales.

[4] LSOAs are small geographical areas comprising approximately 1,500 people.

[5] Note: 2021 LSOA boundaries are used, as these represent the latest geography for which the relevant Office for National Statistics (ONS) datasets are currently available.

[6] The LSOAs comprising the Direct Impact Area include: Bassetlaw LSOAs 002A, 002D, 002E, 003A, 015C, 015D, and 015F; East Riding of Yorkshire LSOAs 020C, 022A, 022E, 024D, 024E, 024F, 026A, 026B, 026C, 026E, 032A, 032I, and 038D; and North Lincolnshire LSOAs 006B, 006C, 020A, 020B, 020D, 023A, 023B, and 023D.

Table 18.8 – Health and wellbeing determinants by geographical scale

Health determinants	Study area	Rationale
Health and social care services	Within and up to 1 km from the Order Limits	The study area includes communities that could be affected by severance, access impacts, or journey delay, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.
Employment and income	60-Minute Drive Time Area	The study area includes human receptors that could benefit from local economic impacts within the principal labour market catchment area, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.
Education and training	60-Minute Drive Time Area	The study area includes human receptors that could benefit from local education and training impacts within the principal labour market catchment area, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.
Transport modes, access and connections	PRoWs and recreational routes that intersect with the Order Limits and/or have management proposed within **Application Document 7.6 Outline Public Right of Way Management Plan**. All construction Primary Access Routes (PARs) and areas within 30 m of PARs, as outlined in **Application Document 6.14 Chapter 14 Traffic and Transport**.	As set out in **Application Document 6.14 Chapter 14 Traffic and Transport** and **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, PRoWs and recreational routes that intersect with the Order Limits and/or have management proposed within **Application Document 7.6 Outline Public Right of Way Management Plan** are assessed. As set out in **Application Document 6.14 Chapter 14 Traffic and Transport**, the study area for the assessment has been defined based on the area where there is likely to be a transport impact resulting from the construction of the Project, including key highway links (PARs) which provide routes between the site and Strategic Road Network.
Air quality	Within and up to 250 m from the Order Limits. 50 m from the route(s) used by construction vehicles on the public highway. 250 m from the proposed bellmouths.	Study area includes human receptors which could be impacted by construction phase dust or emissions generated by construction vehicle emissions and construction plant and equipment emissions, as set out in **Application Document 6.15 Chapter 15 Air Quality**.
Noise and vibration	Within and up to 300 m from the Order Limits.	Study area includes human receptors that could be impacted by increased exposure to noise and vibration. These study areas are in accordance

Health determinants	Study area	Rationale
		with the relevant guidance, as set out in **Application Document 6.16 Chapter 16 Noise and Vibration**.
Open space, leisure, and play	Within and up to 500 m from the Order Limits.	500 m is the distance threshold beyond which it is considered that people are likely to be deterred from making trips to an extent that they would change their habits (based on DMRB LA 112) (Highways England, 2020), as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. Beyond this, receptors must have a clear rationale for their inclusion, which is derived from assessments for the dependent chapters of **Application Document 6.6 Chapter 6 Landscape**; **Application Document 6.7 Chapter 7 Visual**; **Application Document 6.14 Chapter 14 Traffic and Transport**; **Application Document 6.15 Chapter 15 Air Quality**; **Application Document 6.16 Chapter 16 Noise and Vibration**, or a combination of these chapters, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.
Climate change mitigation or adaptation	All greenhouse gas (GHG) emissions from the Project and wider grid decarbonisation.	As outlined in **Application Document 6.19 A.2 Appendix 19.2 Climate Change Risk Assessment**, the Climate Change Risk Assessment encompasses all GHG emissions during the construction, operation, and maintenance of the Project.
Water quality or availability	Within and up to 500 m from the Order Limits.	As outlined in **Application Document 6.11 Chapter 11 Water Environment**, 500 m is considered an appropriate study area based on the nature of the Project's construction and operation activities, and technical knowledge of similar schemes.
Land quality	Within and up to 250 m, from the Order Limits	As outlined in **Application Document 6.12 Chapter 12 Geology and Hydrogeology**, the study area for contaminated land is defined as within and up to 250 m from the Order Limits.
Community identity, culture, resilience, and influence	Within and up to 500 m from the Order Limits and up to 10 km from the Limits of Deviation (LoD).	As outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, community facilities are assessed at 500 m from the Order Limits, based on professional judgement and technical knowledge of similar schemes.

Health determinants	Study area	Rationale
		The study area considers all receptors that could be impacted up to 10 km from the LoD, in line with **Application Document 6.6 Chapter 6 Landscape**, and **Application Document 6.7 Chapter 7 Visual**.

Baseline Data Gathering and Forecasting Methods

Data sources

18.4.20 The baseline information presented in this chapter has been informed by a desk study which has drawn on the following information sources:

- Office of National Statistics (ONS) Census 2021 (Office for National Statistics, 2022);
- Census 2011 (Office for National Statistics, 2011);
- Lower Super Output Areas 2011 to LSOAs 2021 Best Fit Conversion (Office for National Statistics, 2022);
- Claimant count by sex and age - January 2025 (Office for National Statistics, 2026);
- Gross disposable household income (GDHI) (Office for National Statistics, 2024);
- Fingertips: Public Health Profiles – Local Authority Health Profiles (Department of Health and Social Care, 2025);
- English Indices of Deprivation 2025 (Ministry of Housing, Communities and Local Government, 2025);
- General Practice Workforce (NHS England, 2024);
- Community Life Survey October 2024 to March 2025 (Department for Culture, Media and Sport, 2025);
- East Midlands Ambulance Service (EMAS) Annual Report 2024/5 (East Midlands Ambulance Service, 2024);
- Population projections 2018 (Office for National Statistics, 2018);
- Google Maps (Google, 2026);
- Ordnance Survey (OS) 1:10,000, 1:25,000, 1:50,000 and 1:250,000 scale base mapping;
- Ordnance Survey AddressBase Plus; and
- Baseline data presented in other chapters, as listed in paragraph 18.1.4.

Site visits and surveys

18.4.21 Site visits and surveys have been undertaken in support of the landscape (**Application Document 6.6 Chapter 6 Landscape**), visual (**Application Document 6.7 Chapter 7 Visual**), noise and vibration (**Application Document 6.16 Chapter 16 Noise and Vibration**), and traffic and transport (**Application Document 6.14 Chapter 14 Traffic and Transport**) assessments that inform the health and wellbeing assessment.

Assessment Methods and Criteria

18.4.22 The health and wellbeing assessment determines if effects arising because of the Project, following the implementation of mitigation, are likely to be positive or negative, and predicts if effects are likely to be significant.

18.4.23 The WHO defines health as '*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'* (World Health Organisation, 2018).

18.4.24 The potential for likely significant effects on health and wellbeing resulting from related environmental change, as set out in other chapters as listed in paragraph 18.1.4, is assessed in this chapter, for both the general population and vulnerable populations.

18.4.25 The assessment is informed by the Mental Well-being Impact Assessment guidance (National Mental Well-being Impact Assessment Collaborative, 2011) which considers the potential mental health effects as a result of policies, projects, services or legislation, specifically in relation to community assets, resilience, and participation and inclusion.

18.4.26 The health and wellbeing assessment draws upon the residual effects outlined in the relevant chapters and therefore takes into consideration the relevant embedded mitigation and additional mitigation and monitoring measures.

Sensitivity

18.4.27 The sensitivity of health and wellbeing effects is driven by a number of factors which are set out in Table 18.9 and are based on guidance set out in Table 7.1 (Health sensitivity methodology criteria) in IEMA's Guide to Determining Significance for Human Health in Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2022) and professional judgement. These differ from the general sensitivity levels and terminology set out in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**.

18.4.28 The assessment has taken account of the qualitative (rather than quantitative) sensitivity of the general population and vulnerable groups and their likely ability to adapt to change. Sensitivity is informed by baseline data, including demographic statistics, public health statistics, and vulnerable group mapping. It has been informed by professional judgement on the characterisation of the relevant population, including their capacity to change.

Table 18.9 – Sensitivity criteria

Level of sensitivity	Description
High	High levels of deprivation (including pockets of deprivation); reliance on shared resources (between the population and the Project); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.

Level of sensitivity	Description
Medium	Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Very low	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

Magnitude

18.4.29 Magnitude of impact is driven by several factors which are set out in Table 18.10, based on guidance set out in Table 7.2 (Health magnitude methodology criteria) of IEMA's Guide to Determining Significance for Human Health in Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2022).

18.4.30 Magnitude of impact entails consideration of:

- The scale of the exposure of the population to an impact;
- Whether the impact is one-off or continuous;
- The likely nature of the human health impact;
- The permanence of the change; and
- The proportion of the relevant study area population that would be affected.

18.4.31 Magnitude has been informed by a full understanding of the Project and the findings of the other technical chapters, including their expected extent of change.

Table 18.10 – Magnitude criteria

Level of magnitude	Description
Large	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) or very severe illness/injury outcomes; majority of population affected; permanent change; or substantial service quality implications.

Level of magnitude	Description
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or moderate change in quality of life; large minority of population affected; gradual reversal; or small service quality implications.
Small	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality of life; small minority of population affected; rapid reversal; or slight service quality implications.
Negligible	Negligible exposure or small scale; very short-term duration; one-off frequency; severity predominantly related to minor change in quality of life; very few people affected; immediate reversal once activity complete; or no service quality implications.

Significance of effects

18.4.32 Health and wellbeing effects reflect the relationship between the sensitivity of the relevant population's health and the magnitude of the impact. This is set out in Table 18.11 as based on Table 7.3 (Generic indicative EIA significance matrix) in IEMA's Guide to Determining Significance for Human Health in Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2022). Where two levels of significance are shown for the classification of effect, professional judgement has been used to determine which of the two options is the most appropriate level of effect.

Table 18.11 – Classification of effect

Magnitude of impact	Sensitivity of receptor			
	High	**Medium**	**Low**	**Very Low**
Large	Major	Major/moderate	Moderate/ minor	Minor/negligible
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Small	Moderate/minor	Minor	Minor	Negligible
Negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

18.4.33 The overall effects of the Project are defined as one of the following:

- Beneficial – an advantageous or beneficial effect on a receptor; or
- Adverse – a disadvantageous or negative effect on a receptor.

18.4.34 Duration of effect is also considered, with more weight given to permanent changes than to temporary ones.

18.4.35 In accordance with the methodology set out in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**, the following criteria are applied to determine the significance of effect:

- 'Major' or 'Moderate' effects are classed as 'significant';
- 'Minor' effects are classed as 'not significant', although they may be a matter of local concern; and
- 'Negligible' effects are classed as 'not significant'.

Assumptions and Limitations

18.4.36 The assessment has been undertaken based on design information for the Project as described in **Application Document 6.4 Chapter 4 Description of the Project**.

18.4.37 The assessment of the significance of health and wellbeing effects has been carried out against a benchmark of current and future baseline conditions prevailing around the Project, as far as possible within the limitations of the datasets. Baseline data are 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. Baseline conditions reported in section 18.6 regarding health and wellbeing are based on the latest data available at the time of writing.

18.4.38 Health and wellbeing effects are considered at a population level, rather than individual level. Effects are therefore presented in relation to the general population as well as vulnerable groups.

18.4.39 Ascertaining the level of exposure of a population to effects on certain health determinants is based on professional judgement, considering inherent uncertainties in identifying how and where people may spend their time (for example, in a location exposed to effects) as opposed to other locations where other factors may be responsible for health changes.

18.4.40 The assessment draws from and builds upon the outputs of the supporting technical disciplines and is therefore subject to the same limitations and assumptions affecting those assessments.

18.5 Basis of Assessment

18.5.1 This section sets out the assumptions that have been applied in respect of design flexibility maintained within the Project.

18.5.2 Details of the available flexibility and assessment scenarios are presented in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**.

Flexibility Assumptions

18.5.3 The health and wellbeing assessment has been undertaken based on the description of the Project provided in **Application Document 6.4 Chapter 4 Description of the Project**. To take account of the flexibility allowed in the Project, consideration has been given to the potential for effects to be of greater or different significance, should any of the permanent or temporary infrastructure elements be moved within the LoD (horizontal, vertical or longitudinal) or Order Limits.

18.5.4 The health and wellbeing assessment draws upon the assessments of the relevant topic chapters outlined in paragraph 18.1.4. Therefore, the flexibility assumptions for the health and wellbeing assessment are embedded within those topic assessments and are set out in the corresponding tables of the relevant chapters.

Optionality

18.5.5 As set out in **Application Document 6.4 Chapter 4 Description of the Project** and shown on **Application Document 6.4.F3 Figure 4.3 Temporary Construction Works** optionality has been included at the following five locations:

- Two alternative options for temporary construction access between Pennyhill Cottages (Main Street) Primary Access Route (PAR 34) and proposed pylon 4AF82 and satellite construction compound S-3:
  - Bellmouths BM-040/41, associated construction access track and watercourse crossings C-169 and BC-11; or
  - Bellmouths BM-040A/41A, associated construction access track and watercourse crossings C-220A, C-169A and BC-11A.
- Two alternative options for temporary construction access tracks to proposed pylon 4AF88:
  - Watercourse crossing BC-36 and BC-37; or
  - Watercourse crossing B-06A.
- Two alternative options for the construction access track between proposed pylons 4AF130 and 4AF131
  - Watercourse crossing BC-29; or
  - Watercourse crossings BC-29A and BC-29B.
- Two alternative options for taking access off High Melwood (PAR 63) and the associated construction access track:
  - Bellmouth BM-078; or
  - Bellmouth BM-110.
- Two alternative power supply connections to the proposed main construction compound (M1) as shown on **Application Document 6.4.F4 Figure 4.4 Third Party Works.**
  - NPG-09A from the west – there is currently uncertainty whether capacity of the network would be sufficient for this this connection; or
  - NPG-09B from the east.

18.5.6 Where differences in effects between options have been identified, these are set out within section 18.9, with clear reference to the nature, extent and significance of any resulting health and wellbeing effects.

Sensitivity Test

18.5.7 Under the terms of the DCO, construction could commence any year up to five years from the granting of the DCO which is assumed to be 2028. Consideration has therefore been given to whether the effects reported would be different if the works were to commence in any year up to year five, following the granting of the DCO. Where there is a difference, this is reported in section 18.9 of this chapter.

18.6 Baseline Conditions

Existing Baseline

18.6.1 This section describes the baseline conditions with specific reference to health and wellbeing. These include the population, health, and infrastructure baselines.

18.6.2 The potential impacts arising from the Project are assessed relative to the baseline conditions and benchmarked against regional and national conditions where appropriate.

Population baseline

Population

18.6.3 The resident populations of the Direct Impact Area, Wider Study Area and comparator geographies are presented in Table 18.12. In 2021, the Direct Impact Area had a population of approximately 49,000, while the Wider Study Area had a population of approximately 630,000. Within the Wider Study Area, East Riding of Yorkshire was the most populous local authority (340,000), and Bassetlaw the least populous (120,000).

18.6.4 Between the 2011 and 2021 Censuses, the population of the Direct Impact Area grew by 3.7%, which was lower than the national average of 6.6%, but higher than the Wider Study Area (2.5%).

18.6.5 In 2021, 14.8% of the Direct Impact Area population was aged 0-15 years, representing the smallest proportion of all comparator geographies, including within the Wider Study Area (16.6%), both of which were lower than the national average (18.6%). Across the local authorities within the Wider Study Area, the proportion of younger people ranged from 15.8% in East Riding of Yorkshire to 17.8% in North Lincolnshire, all below the national average.

18.6.6 The Direct Impact Area and Wider Study Area had a higher proportion of residents aged 65 years and over (25.6% and 24.4% respectively) than England (18.4%). Within the Wider Study Area, 26.5% of the East Riding of Yorkshire population were 65 years and older, while North Lincolnshire (22.0%) and Bassetlaw (22.1%) also exceeded the national average.

18.6.7 In comparison, the proportion of working age residents (16-64 years) in the Direct Impact Area (59.6%) and the Wider Study Area (58.9%) was lower than the national average (63.0%). Within the Wider Study Area, the proportion of older people ranged from 57.8% in East Riding of Yorkshire to 60.5% in Bassetlaw, all below the national average.

Table 18.12 – Population, population change, and age cohorts

Area	Population (2021)	Population change 2011-2021 (%)	Population aged 0-15 years (%, 2021)	Population aged 16-64 years (%, 2021)	Population aged 65+ years (%, 2021)
Direct Impact Area	49,345	3.7	14.8	59.6	25.6
East Riding of Yorkshire	342,217	2.4	15.8	57.8	26.4

Area	Population (2021)	Population change 2011-2021 (%)	Population aged 0-15 years (%, 2021)	Population aged 16-64 years (%, 2021)	Population aged 65+ years (%, 2021)
North Lincolnshire	169,680	1.3	17.8	60.2	22.0
Bassetlaw	117,805	4.4	17.3	60.5	22.1
Wider Study Area	629,720	2.5	16.6	58.9	24.4
East Midlands	4,880,054	7.7	18.1	62.4	19.5
Yorkshire and the Humber	5,480,774	3.7	18.6	62.4	19.0
England	56,490,047	6.6	18.6	63.0	18.4

Source: 2021 Census (Office for National Statistics, 2022); 2011 Census (Office for National Statistics, 2022).

Note: Table may not sum due to rounding.

Economic activity

18.6.8 Economic activity rates for residents aged 16 years and over (excluding full-time students) are presented in Table 18.13. The Direct Impact Area and Wider Study Area had an economic activity rate of 55.6% and 56.0% respectively, both of which are lower than the national average of 58.6%. Across the local authorities within the Wider Study Area, economic activity rates ranged from 54.9% in East Riding of Yorkshire to 57.3% in Bassetlaw, with all areas recording lower rates than the national average.

18.6.9 The unemployment rates in the Direct Impact Area and Wider Study Area were 1.8% and 2.2% respectively, lower than the national average of 2.9% and the regional averages of the East Midlands (2.4%) and Yorkshire and the Humber (2.7%). Within the Wider Study Area, unemployment rates ranged from 2.0% in East Riding of Yorkshire to 2.6% in North Lincolnshire, with all local authorities recording lower unemployment rates than the national average.

18.6.10 The ONSs claimant count provides monthly data on the proportion of the population of residents aged 16 to 64 claiming benefits, principally for being unemployed. In January 2026, the Direct Impact Area recorded a claimant rate of 2.0%, lower than all other comparator geographies. The Wider Study Area had a claimant rate of 3.0%, also below the national average of 4.0%. Within this, East Riding of Yorkshire recorded the lowest claimant rate (2.4%), while Bassetlaw (3.2%) and North Lincolnshire (3.4%) also remained below the national average.

Table 18.13 – Economic activity

Area	Economic activity rate (%, 2021)	Unemployment rate (%, 2021)	Claimant count (%, Jan 2026)
Direct Impact Area	55.6	1.8	2.0
East Riding of Yorkshire	54.9	2.0	2.4

Area	Economic activity rate (%, 2021)	Unemployment rate (%, 2021)	Claimant count (%, Jan 2026)
North Lincolnshire	55.9	2.6	3.4
Bassetlaw	57.3	2.1	3.2
Wider Study Area	56.0	2.2	3.0
East Midlands	57.5	2.4	3.4
Yorkshire and the Humber	56.2	2.7	4.0
England	58.6	2.9	4.0

Source: 2021 Census (Office for National Statistics, 2022) and Claimant Count (January 2026) (Office for National Statistics, 2026).

Qualifications

18.6.11 The 2021 Census (Office for National Statistics, 2022) provides data on the skills and qualifications of working aged residents, which are presented in Table 18.14 and outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.

18.6.12 The Direct Impact Area has a lower proportion of residents with NVQ4+ qualifications (31.8%) compared with the national average (33.9%), although higher than the Wider Study Area (26.6%). Within the Wider Study Area, the proportion of residents with NVQ4+ qualifications ranges from 30.5% in East Riding of Yorkshire to 23.9% in North Lincolnshire, all of which are below the national average.

18.6.13 At lower qualification levels, the Direct Impact Area records a smaller proportion of residents with no qualifications (16.8%) than the national average (18.1%). In contrast, the Wider Study Area (20.5%) and its constituent local authorities (East Riding of Yorkshire (18.2%), North Lincolnshire (21.8%), and Bassetlaw (21.6%)) have higher proportions of residents with no qualifications than the national average.

Table 18.14 – Qualifications

Skills and qualifications	Direct Impact Area	East Riding of Yorkshire	North Lincolnshire	Bassetlaw	Wider Study Area	East Midlands	Yorkshire and the Humber	England
	%	%	%	%	%	%	%	%
NVQ4+	31.8	30.5	23.9	25.5	26.6	29.1	29.5	33.9
NVQ3+	18.2	17.2	17.2	17.4	17.3	18.3	17.4	16.9
NVQ2+	14.2	14.1	15.1	14.8	14.7	13.9	13.6	13.3
NVQ1+	9.5	10	11.7	10.9	10.9	10.4	10.1	9.7
Apprenticeships	6.9	7.2	7.1	6.7	7.0	6	6.1	5.3
Other qualifications (NVQ)	2.6	2.8	3.1	3.1	3.0	2.8	2.6	2.8
No qualifications (NVQ)	16.8	18.2	21.8	21.6	20.5	19.5	20.6	18.1

Source: 2021 Census (Office for National Statistics, 2022).

Average gross disposable household income

18.6.14 Data on GDHI per person for 2022 is presented in Table 18.15. GDHI is a measure of the amount of money available to residents for spending or saving after taxes, social contributions and benefits have been taken into account.

18.6.15 The Direct Impact Area has an average GDHI per person of approximately £20,301, lower than the national average (approximately £23,000), but higher than the Wider Impact Area (approximately £19,800). Across the constituent local authorities, East Riding of Yorkshire records the highest GDHI per person (approximately £21,500), while North Lincolnshire records the lowest (approximately £18,200).

Table 18.15 – Gross disposable household income (2022)

Area	Gross disposable household income per person
Direct Impact Area	£20,301*
East Riding of Yorkshire	£21,547
North Lincolnshire	£18,195
Bassetlaw	£19,662
Wider Study Area	£19,801
East Midlands	£19,879
Yorkshire and the Humber	£19,249
England	£23,338

Source: Gross disposable household income, 2022 (Office for National Statistics, 2024).

**Source: Estimated from UK small area gross disposable household income estimates, 2023 (Office for National Statistics, 2026) and 2021 Census (Office for National Statistics, 2022) data.*

Deprivation

18.6.16 The Indices of Multiple Deprivation (IMD) 2025 provide a measure of relative deprivation across 33,755 LSOAs or 296 local authorities and ranks them from most deprived (first) to least deprived, across seven domains[7], as well as an overall rank.

18.6.17 As shown in Table 18.16, the Direct Impact Area has an average rank of 18,592 and an average decile of six, with no LSOAs within the 10% most deprived decile[8]. Across the Wider Study Area, 8.3% of the LSOAs fall within the 10% most deprived areas nationally, with an average LSOA rank of 19,087. Among the constituent local authorities, North Lincolnshire records the highest proportion of LSOAs within the most deprived decile (11.7%), followed by Bassetlaw (7.2%) and East Riding of Yorkshire (6.1%).

[7] The seven IMD domains are: Income Deprivation; Employment Deprivation; Education, Skills and Training Deprivation; Health Deprivation and Disability; Crime; Barriers to Housing and Services; and Living Environment Deprivation.

[8] Note: The IMD deciles split all neighbourhoods in England into ten equal-sized groups based on their deprivation rank. Therefore, decile 1 includes the most deprived 10% of neighbourhoods in England, and decile 10 includes the least deprived 10% of neighbourhoods in England.

18.6.18 A similar pattern is observed in the Health Deprivation and Disability domain. None of the LSOAs within the Direct Impact Area fall within the most deprived decile for this domain. In the Wider Study Area, 6.8% of LSOAs are within the most deprived decile, with an average rank of 19,138. Bassetlaw records the highest proportion of LSOAs within the most deprived decile for health deprivation (8.7%), followed by North Lincolnshire (7.8%) and East Riding of Yorkshire (3.8%).

Table 18.16 – Indices of Multiple Deprivation 2025

Area	% of LSOAs in the most deprived decile (Decile 1)	Average LSOA decile	Average LSOA rank	Health Deprivation and Disability domain: % of LSOAs in the most deprived decile	Health Deprivation and Disability domain: Average LSOA decile	Health Deprivation and Disability domain: Average LSOA rank
Direct Impact Area	0.0	6	18,592nd	0.0	6	18,655th
East Riding of Yorkshire	6.1	6	18,587th	3.8	6	18,651st
North Lincolnshire	11.7	6	18,597th	7.8	6	18,634th
Bassetlaw	7.2	6	20,076th	8.7	6	20,129th
Wider Study Area*	8.3	6	19,087th	6.8	6	19,138th

Source: Index of Multiple Deprivation 2025 (Ministry of Housing, Communities and Local Government, 2025).

Health baseline

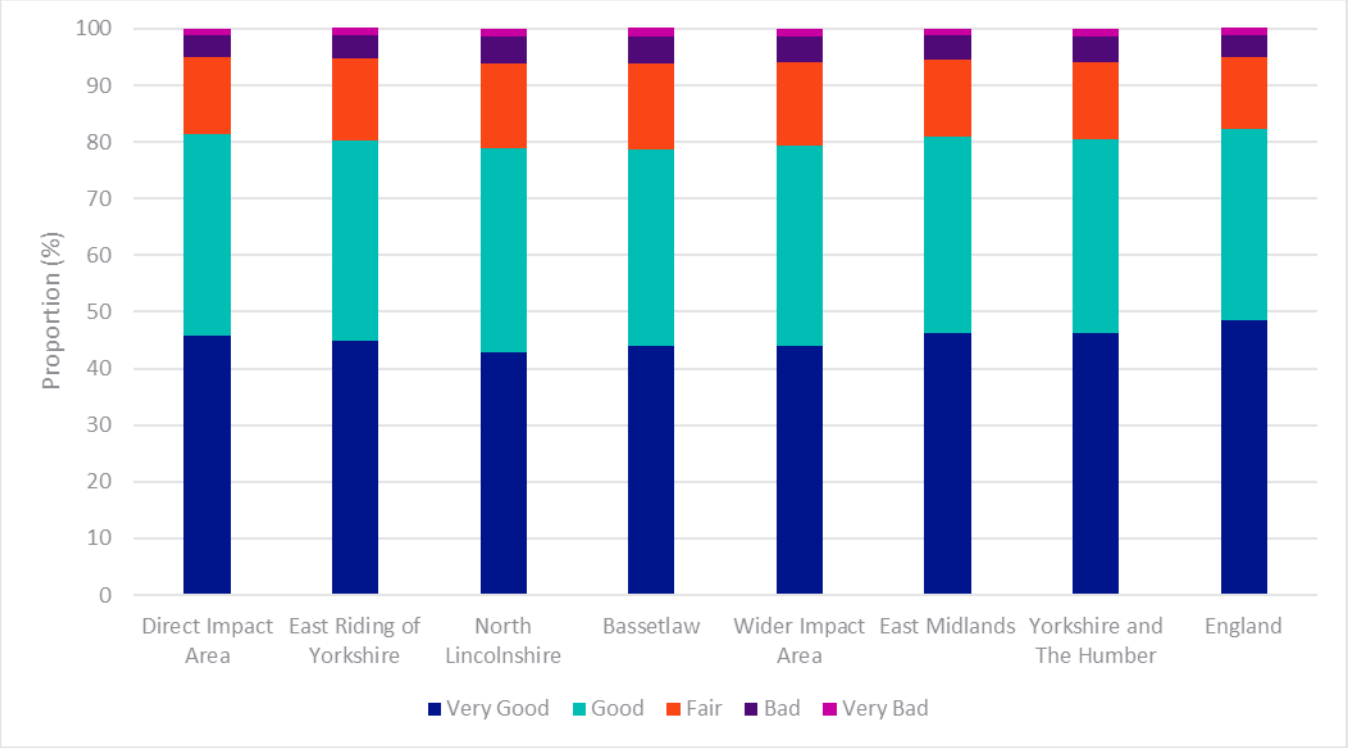
General health

18.6.19 Data from the 2021 Census (Office for National Statistics, 2022) provides residents' self-reported health status, with individuals assessing their overall health on a scale from 'Very Good' to 'Very Bad', as shown in Image 18.3.

18.6.20 In the Direct Impact Area, 81.3% of residents reported being in 'Very Good' or 'Good' health, which is slightly lower than the national average (82.2%), but higher than the Wider Study Area (79.3%). Within the Wider Study Area, East Riding of Yorkshire recorded the highest proportion of residents in 'Very Good' or 'Good' health (80.3%), followed by North Lincolnshire (78.8%) and Bassetlaw (78.7%); however, all local authorities were below the national average.

18.6.21 In comparison, 4.9% of residents in the Direct Impact Area reported being in 'Bad' or 'Very Bad' health, which is lower than the national average (5.2%). The Wider Study Area recorded a higher proportion (5.9%) of residents reporting 'Bad' or 'Very Bad' health, which exceeds the East Midlands (5.4%), Yorkshire and the Humber (5.8%), and the national average (5.2%).

Image 18.3 – Self-assessment of general health



Source: 2021 Census (Office for National Statistics, 2022).

Disability

18.6.22 Table 18.17 presents data on the extent to which residents' day-to-day activities are impacted by long-term health problems or disability, according to the 2021 Census (Office for National Statistics, 2022). Under the Equality Act 2010 (HM Government, 2010), people with disabilities are defined as individuals with a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on their ability to carry out normal day-to-day activities.

18.6.23 In the Direct Impact Area, 18.1% of residents are classified as disabled under the Equality Act, higher than the national average (17.3%). The proportion is also higher across the Wider Study Area (19.6%) when compared nationally, with the highest levels observed in Bassetlaw (20.4%) and North Lincolnshire (19.7%), followed by East Riding of Yorkshire (18.6%).

18.6.24 Both the Direct Impact Area and England report 7.3% of residents whose day-to-day activities are limited a lot. In contrast, the Wider Study Area reports higher proportions (8.5%), with Bassetlaw (9.1%), North Lincolnshire (8.6%), and East Riding of Yorkshire (7.7%) all exceeding the national average.

Table 18.17 – Disability

Area	Disabled under Equality Act 2010 (%)	Disabled – day-to-day activities limited a lot (%)	Disabled – day-to-day activities limited a little (%)
Direct Impact Area	18.1	7.3	10.8
East Riding of Yorkshire	18.6	7.7	10.9

Area	Disabled under Equality Act 2010 (%)	Disabled – day-to-day activities limited a lot (%)	Disabled – day-to-day activities limited a little (%)
North Lincolnshire	19.7	8.6	11.1
Bassetlaw	20.4	9.1	11.3
Wider Study Area	19.6	8.5	11.1
East Midlands	18.3	7.7	10.7
Yorkshire and the Humber	18.6	8.1	10.5
England	17.3	7.3	10.0

Source: 2021 Census (Office for National Statistics, 2022).

Mental health

18.6.25 The Department of Health and Social Care provides data on the prevalence of common mental health conditions within the population aged 16 and over, and 65 years and over, as shown in Table 18.18 (Department of Health and Social Care, 2017).

18.6.26 Across the Wider Study Area, the prevalence of common mental health conditions for residents aged 16 and over (16.2%) is slightly lower than the national average for England (16.9%). Within the constituent local authorities, Bassetlaw records the highest prevalence (17.7%), exceeding both the Wider Study Area and national averages. For residents aged 65 years and over, the Wider Study Area has a lower prevalence of mental health conditions at 9.9% than the national average (10.2%).

Table 18.18 – Mental health

Area	Prevalence of common mental disorders aged 16+ (%)	Prevalence of common mental disorders aged 65+ (%)
Direct Impact Area	n/a	n/a
East Riding of Yorkshire	14.2	9.4
North Lincolnshire	16.8	10.4
Bassetlaw	17.7	n/a
Wider Study Area	16.2	9.9
East Midlands	16.3	10.0
Yorkshire and the Humber	17.6	10.7
England	16.9	10.2

Source: Adult health and wellbeing (Department of Health and Social Care, 2017).

Community cohesion

18.6.27 The Community Life Survey (October 2024 to March 2025) (Department for Culture, Media and Sport, 2025) provides data on residents' sense of belonging to their immediate neighbourhoods among those aged 16 and over.

18.6.28 The survey found that 71% of respondents in East Riding of Yorkshire reported feeling 'very strongly' or 'fairly strongly' that they belonged to their immediate neighbourhood. This was followed by 66% in Bassetlaw and 64% in North Lincolnshire. Therefore, 67% of residents across the Wider Study Area reported a strong sense of belonging, which is higher than the national average of 62%. At the regional level, 64% of residents in both Yorkshire and the Humber and the East Midlands reported a strong sense of belonging, both of which are slightly higher than the national average.

Wider determinants of health

18.6.29 The Department of Health and Social Care publishes local authority health profiles annually, detailing health outcomes across a range of indicators (Department of Health and Social Care, 2025). Data for the local authorities of Bassetlaw, East Riding of Yorkshire and North Lincolnshire, compared with the national average, are summarised below.

Life expectancy

18.6.30 The indicators presented below summarise life expectancy across the study area local authorities.

- In 2023, male life expectancy was lower in Bassetlaw (78.8 years) and North Lincolnshire (77.5) than the national average (79.3), whereas East Riding of Yorkshire had a slightly higher male life expectancy (79.5).
- In 2023, female life expectancy was lower in North Lincolnshire (81.9 years) than the national average (83.2), whereas Bassetlaw and East Riding of Yorkshire had a slightly higher female life expectancy (83.7 and 83.3 respectively).
- Between 2021 and 2023, the difference in male life expectancy between the most deprived and least deprived areas in East Riding of Yorkshire, North Lincolnshire, and Bassetlaw was 7.3, 10.3, and 8.3 years respectively.
- Between 2021 and 2023, the difference in female life expectancy between the most deprived and least deprived areas in East Riding of Yorkshire, North Lincolnshire, and Bassetlaw was 6.2, 5.8, and 5.8 years respectively.

Child health

18.6.31 The indicators presented below summarise child health across the study area local authorities.

- In 2023/24, the prevalence of obesity in year-6 students was highest in Bassetlaw (25.2%) followed by North Lincolnshire (22.9%), both higher than the national average of 22.1%. In East Riding of Yorkshire, 20.6% of year-6 students were obese, which is lower than the national average.

- In 2022/23, GCSE attainment (average Attainment 8 score[9]) was highest in East Riding of Yorkshire (46.4%), followed by Bassetlaw (44.0%), and North Lincolnshire (43.8%). While attainment in East Riding of Yorkshire was slightly higher than the national average (46.2%), attainment in both Bassetlaw and North Lincolnshire was below the national average.

Adult health

18.6.32 The indicators presented below summarise adult health across the study area local authorities.

- Between 2023 and 2024, the proportion of adults in East Riding of Yorkshire, North Lincolnshire, and Bassetlaw who self-reported as overweight or obese was 69.2%, 69.4%, and 68.2% respectively, higher than the national average of 64.5%.
- Between 2023 and 2024, physically active residents comprised 68.3% of the population in East Riding of Yorkshire, greater than the national average of 67.4%. In comparison, Bassetlaw and North Lincolnshire reported lower rates of physical activity across the population (64.6% and 64.9% respectively).
- In 2023, 17.0% of the adult population in North Lincolnshire were active smokers, followed by 12.3% in East Riding of Yorkshire, both of which were greater than the national average of 11.6%, and significantly higher than Bassetlaw at 4.7%.
- In 2023, the under-75 mortality rate from all causes was highest in North Lincolnshire (407.2 per 100,000 people), greater than the national average (341.6 per 100,000 people). Bassetlaw also had a higher mortality rate (350.3 per 100,000 people) than the national average, while East Riding of Yorkshire had a lower mortality rate (325.0 per 100,000 people).
- In 2023, the under-75 mortality rate from all cardiovascular diseases was highest in North Lincolnshire (99.9 per 100,000 people), followed by Bassetlaw (80.3 per 100,000 people), and East Riding of Yorkshire (81.5 per 100,000 people), all of which were greater than the national average (77.4 per 100,000 people).
- Between 2022 and 2024, the under-75 mortality rate from respiratory diseases was greatest in Bassetlaw (38.4 per 100,000 people) followed by North Lincolnshire (34.4 per 100,000 people), both of which are greater than the national average of 32.4 per 100,000 people. In comparison, East Riding of Yorkshire had a lower rate (25.6 per 100,000 people) compared to the national average.
- In 2023/4, there were 547 hip fractures per 100,000 people in the over-65-years population in England. There were 620 hip fractures per 100,000 people in North Lincolnshire, followed by 531 in Bassetlaw, and 530 in East Riding of Yorkshire.

Vulnerable populations mapping

18.6.33 A review of the baseline assessment considered the distribution of potentially vulnerable populations within the Direct Impact Area, including older people aged 80 and over, households deprived in three or more dimensions, disabled residents, unemployed individuals, ethnic minorities, residents reporting ‘bad’ or ‘very bad’ general health, household size and tenure, and level of qualifications, based on 2021 Census data (Office for National Statistics, 2022).

[9] Attainment 8 score measures a student's average academic achievement across up to eight Key Stage 4 (GCSE and approved equivalent) qualifications

18.6.34 The Direct Impact Area has a relatively older population profile than England as a whole. Residents aged 80 years and over account for 6.0% of the population within the Direct Impact Area, compared with 5.0% nationally. This equates to 9,730 residents aged 80 years or over. Higher concentrations of older residents are present within several rural communities, including the villages of Epworth and Skidby and their surrounding rural areas, where residents aged 80 years and over account for up to 12.0% (North Lincolnshire 020A) and 9.9% (East Riding of Yorkshire 022E) of the population respectively.

18.6.35 The Direct Impact Area also contains a higher proportion of one-person households aged 66 years and over than the national average, accounting for 13.8% of households compared with 5.4% nationally. This equates to 2,792 households. The prevalence of older single-person households is particularly pronounced in and around Epworth (North Lincolnshire 020A), where almost one-quarter (24.0%) of households comprise a single resident aged 66 years and over.

18.6.36 Whilst levels of vulnerability are generally lower across the Direct Impact Area than nationally, the analysis identified several other localised concentrations of vulnerability. The most notable concentrations occur within North Lincolnshire 020D (south of Epworth and parts of Church Town and Bracon villages) and North Lincolnshire 006B (rural LSOA comprising the villages of Garthorpe, Luddington, and Eastoft), which rank highly across several indicators of vulnerability compared to the Direct Impact Area average, including multidimensional deprivation, long-term sickness or disability, poorer self-reported health, and lone-parent households. Other areas exhibiting multiple vulnerability indicators compared to the Direct Impact Area average, include East Riding of Yorkshire 026B, East Riding of Yorkshire 022E, East Riding of Yorkshire 038D, and North Lincolnshire 020A, 023A and 023D.

18.6.37 Overall, the Direct Impact Area is not characterised by a high prevalence of vulnerable population groups. Whilst the area contains a higher proportion of older residents and older single-person households than the national average, it generally exhibits lower levels of vulnerability across a range of other indicators. Compared with England as a whole, the Direct Impact Area has lower proportions of ethnic minority populations, households deprived in three or four dimensions, unemployed residents, lone-parent households, people employed in the lowest occupational grades, people with no qualifications, and households living in socially rented or privately rented accommodation. As such, vulnerability within the Direct Impact Area is primarily associated with an older age profile and is concentrated within a limited number of rural communities, rather than being a widespread characteristic of the area.

Infrastructure baseline

Residential properties

18.6.38 There is one residential property within the Order Limits, namely Rowley Cottage, a private residence associated with the Rowley Cottage Kennels. The dwelling is located in Route Section A to the southwest of Little Weighton. As set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, the Order Limits occupy the driveway and pathway leading around the back of the property, but fall outside the curtilage of the dwelling itself. It is not intended that this property, or any other properties, will be assessed individually within this health and wellbeing assessment; however, they will be considered in terms of the potential for community level effects.

18.6.39 The nearest settlements to Route Sections A and B are Little Weighton, Brantingham, Ellerker, Newport, Gilberdyke, Broomfleet and Ousefleet, which are all located within 500 m of the Order Limits. The larger settlement of Beverley lies approximately 1 km to the north of the Order Limits.

18.6.40 In Route Sections C and D there are eight settlements within 500 m of the Order Limits, namely Garthorpe, Luddington, Crowle, Belton, Beltoft, Epworth, East Lound and Graizelound.

18.6.41 In Route Sections E and F there are eleven settlements within 500 m of the Order Limits, namely Misterton, Beckingham, Saundby, North Wheatley, Sturton-le-Steeple, South Leverton, Treswell, Woodbeck, East Drayton, Darlton, and Fledborough.

18.6.42 A number of isolated residential properties also lie within 500 m of the Order Limits.

18.6.43 Two mooring sites are located within the 500 m of the Order Limits. Both are located on the Chesterfield Canal, near to Misterton (Route Section E) and adjacent to the Order Limits. These sites are Wooden Beck visitor moorings, allowing 48-hour moorings, and a private mooring site near Misterton Bridge (Shaw Road).

Business, recreation, and tourism

18.6.44 There is only one business located within the Order Limits, namely Rowley Cottage Kennels in Route Section A, as outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. The Order Limits overlap the driveway of the business and the access track behind the business, but do not encroach onto the building or any functional part of the business. There are no recreation or tourism receptors within the Order Limits.

18.6.45 There are an additional 74 business, recreation, and tourism receptors located within 500 m of the Order Limits, as outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. These include, but are not limited to, tourist accommodation, restaurants and cafés, garden centres, sports clubs, and airfields.

Community facilities

18.6.46 There are no community facilities located within the Order Limits, as outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.

18.6.47 There are 34 community facilities located within 500 m of the Order Limits, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. These include, but are not limited to, nurseries, schools, libraries, hospitals, surgeries, pharmacies, community centres, sports halls, swimming pools, and places of worship. There are no Special Educational Needs and Disabilities (SEND) schools located within 500 m of the Order Limits.

Healthcare facilities

18.6.48 The health and wellbeing assessment considers healthcare facilities located within 1 km of the Order Limits. One general practice (GP) surgery has been identified within this area, which is South Axholme Practice, Belton Surgery, located in Belton.

18.6.49 The NHS General Practice Workforce (NHS England, 2025) provides information on the number of GPs and patients, as detailed in Table 18.19. There are 13.8 full-time equivalent (FTE) GPs, with 14,955 patients, averaging 1,084 patients per GP across the South Axholme surgeries. This is below (better than) the Royal College of Practitioners' target of 1,800 patients per GP.

Table 18.19 – General practitioner surgeries

GP surgery	Distance from Order Limits	Route Section	FTE GPs	Number of patients	GP-to-patient ratio
South Axholme Practice	Belton Surgery – 380 m	Route Section D	13.8	14,955	1:1,084

Source: General Practice Workforce June 2025 (NHS England, 2025).

18.6.50 One hospital is located within 1 km of the Order Limits; this is Rampton High Security Hospital, located approximately 220 m from the Order Limits. Rampton High Security Hospital is a high-security psychiatric hospital located within Route Section E.

Emergency services

18.6.51 East Midlands Ambulance Service (EMAS) serves a population of approximately 4.9 million people across 6,500 square miles, covering Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, and Rutland. This area is supported by six ICSs. In the 2024/5 period, EMAS received an average of 3,337 emergency 999 calls every day (East Midlands Ambulance Service, 2024). The service operates with approximately 4,368 staff members, with an operational fleet of 828 vehicles.

18.6.52 There are no police or fire stations located within 500 m of the Order Limits, the nearest being Humberside Police – Epworth Police Station, and Crowle Fire Station, located approximately 940 m and 1.2 km from the Order Limits respectively.

Recreational land and open space

18.6.53 There are three recreational land and open spaces designated under the Countryside and Rights of Way Act 2000 (HM Government, 2000) located within the Order Limits, as outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**.

18.6.54 There are an additional 54 recreational land and open space areas located within 500 m of the Order Limits, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. These include designations such as the National Landscape, nature reserves, open access land (excluding roadside verges), Registered Common Land, parks, playing fields, and canals.

18.6.55 The Project crosses three sections of canal, including the Market Weighton Canal near Broomfleet, the Stainforth and Keadby Canal near Ealand, and the Chesterfield Canal near Misterton. Stainforth and Keadby Canal and Chesterfield Canal are rented by Scunthorpe Amalgamated Anglers as a Fishery, and Market Weighton Canal is available for fishing for any rod-licensed fishers, and is used by Hull and District Anglers Club. These sections of the canal may also be used for leisure purposes such as boating, canoeing, kayaking, and paddleboarding.

Public rights of way, access routes and recreational routes

18.6.56 Table 17.4 of **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** sets out PRoWs, access routes and recreational routes intersected by the Order Limits, as informed by **Application Document 6.14 Chapter 14 Traffic and Transport**. These routes have been identified through the following sources:

- PRoWs, National Cycle Network (NCN) Routes, and National Trails - Informed by **Application Document 6.14 Chapter 14 Traffic and Transport**;
- Access routes - Outdoor Recreation Valuation (ORVal) Access Path Map (University of Exeter, 2018); and
- Other promoted routes[10] – Informed by relevant local authority resources.

18.6.57 There are 99 PRoWs, two National Cycle Network Routes, one National Trail (Yorkshire Wolds Way), 13 access routes, and 13 promoted recreational routes that intersect with the Order Limits, noting that trails and promoted routes coincide with either PRoWs or roads.

Future Baseline

18.6.58 As detailed in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**, a review has been undertaken to determine whether the existing baseline conditions might change between the time of undertaking the assessment and the future years in which the Project is planned to be constructed and become operational.

Population projections

18.6.59 The population of the Wider Study Area is expected to increase from approximately 630,000 in 2021 to approximately 660,000 by 2031 when the Project is expected to be complete and operational, representing a 4.2% increase over the period. This growth is lower than the projected population increase for England (5.1%) and the East Midlands (6.9%), but broadly comparable with the regional projection for Yorkshire and the Humber (4.4%).

18.6.60 Within the Wider Study Area, Bassetlaw is projected to experience the highest population growth between 2021 and 2031 (7.4%), exceeding the projected growth rate for England. In contrast, North Lincolnshire and Bassetlaw are expected to experience more modest population growth (3.8% and 3.2% respectively), both below the national average. Table 18.20 provides more detail on population projections.

Table 18.20 – Population projections

Area	Population projection (2031)	Population change 2021-2031 (%)
Direct Impact Area	n/a	n/a
East Riding of Yorkshire	353,292	3.2
North Lincolnshire	176,201	3.8
Bassetlaw	126,473	7.4

[10] These are not physically separate paths or access routes, and occupy the same space as named roads and PRoWs, however, are identified by the relevant local authority as a recommended walking route, and so have the potential to be of importance for recreational access, specifically along sections which may not be purpose-built for such activities, such as roads.

Area	Population projection (2031)	Population change 2021-2031 (%)
Wider Study Area	655,966	4.2
East Midlands	5,219,027	6.9
Yorkshire and the Humber	5,721,284	4.4
England	59,389,107	5.1

Source: Population projections – local authority (Office for National Statistics, 2018).

18.6.61 Table 18.21 presents population projections by age group (Office for National Statistics, 2018). The data indicate that by 2031, the proportion of the population aged 0-15 years and 16-64 years is expected to decline across all geographies compared with 2021.

18.6.62 In the Wider Study Area, the proportion of residents aged 0-15 years is projected to decrease slightly from 16.6% in 2021 to 16.0% in 2031. The working-age population (16-64 years) is also expected to decrease from 58.9% to 56.0%.

18.6.63 Over the same period, the proportion of residents aged 65 years and over is projected to increase from 24.4% to 28.0%. This projected population of residents aged 65+ in the Wider Study Area (28.0%) is higher than the projected averages for the East Midlands (22.9%), Yorkshire and the Humber (22.1%), and England (21.8%).

Table 18.21 – Population projections by age breakdown

Area	Age 0-15 years (%)		Age 16-64 years (%)		Age 65+ years (%)	
	2021	2031	2021	2031	2021	2031
Direct Impact Area	n/a	n/a	n/a	n/a	n/a	n/a
East Riding of Yorkshire	15.8	14.7	57.8	53.8	26.4	31.6
North Lincolnshire	17.8	16.2	60.2	57.6	22.0	26.1
Bassetlaw	17.3	17.0	60.5	56.6	22.1	26.4
Wider Study Area	16.6	16.0	58.9	56.0	24.4	28.0
East Midlands	18.1	17.2	62.4	60.0	19.5	22.9
Yorkshire and the Humber	18.6	17.5	62.4	60.4	19.0	22.1
England	18.6	17.5	63.0	60.7	18.4	21.8

Source: Population projections – local authority (Office for National Statistics, 2018).

Planning applications and local plan allocations

18.6.64 The health and wellbeing assessment draws upon the assessments of the relevant topic chapters outlined in paragraph 18.1.4. Therefore, the future baseline with respect to planning applications and local plan allocations for the health and wellbeing assessment are embedded within those topic assessments and are set out in the corresponding sections of the relevant chapters.

Sensitivity of receptors

18.6.65 Table 18.22 outlines the health and wellbeing receptors identified within the baseline and assigns a sensitivity value using professional judgement and best practice.

Table 18.22 – Sensitivity of health and wellbeing receptors

Receptor	Sensitivity of receptor
Human receptors who use local health and social care services	General population – **Medium** The GP practice located within 1 km of the Project is operating considerably below (better than) the benchmark patient to GP ratio, and general health in the Direct Impact Area is broadly in line with national averages. However, there is limited healthcare provision in close proximity to the Project. As a result, whilst capacity appears sufficient to accommodate additional demand, users of local health and social care services are considered to have medium sensitivity to changes in service demand or accessibility. Vulnerable population – **High** Vulnerable groups include elderly residents and those with mental or physical health and social care needs, including individuals with existing healthcare conditions, disabilities, or populations with poor health. These groups may have greater reliance on healthcare and social care services, more frequent interactions with service providers, and a reduced ability to accommodate changes in service accessibility or capacity.
Human receptors who could benefit from employment and income opportunities	General population – **Medium** Baseline data with respect to employment and income show that the local area has a lower unemployment rate and Claimant Count compared to the national average. The Direct Impact Area is also less deprived than the local authorities. However, the Wider Study Area has a lower GDHI than the national average. Vulnerable population – **High** Vulnerable groups include unemployed residents, low-income residents, and residents with low or no skills and qualifications. As a result, changes in employment availability and income generation are likely to have a greater influence on their socioeconomic circumstances.
Human receptors who could benefit from training and apprenticeship opportunities	General population – **Medium** Baseline data with respect to education and training indicate a mixed profile, with a higher proportion of residents in the Direct Impact Area qualified to NVQ3+ level than the national average and a lower proportion with no qualifications. However, the proportion of residents qualified to NVQ4+ level is below the national average. Across the wider study area, the proportion of residents with no qualifications exceeds the national average.

Receptor	Sensitivity of receptor
	Vulnerable population – **High** Vulnerable groups include residents with low or no skills and qualifications. These groups are more likely to benefit from training and apprenticeship opportunities because such opportunities can improve skills, qualifications, employability and access to future employment. As a result, changes in the availability of training and skills development opportunities are likely to have a greater effect on these receptors
Transport users, pedestrians, and users of recreational routes (including PRoWs)	General population – **Medium** Baseline data show that general health in the Direct Impact Area is broadly in line with national averages. **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** and **Application Document 6.14 Chapter 14 Traffic and Transport** set out the importance of local recreational routes. However, there is a large network that can be used as substitutions in the event of closure and diversion. **Application Document 6.14 Chapter 14 Traffic and Transport** outlines that the local road network is predominantly rural in character with low baseline traffic flows. Vulnerable population – **High** Vulnerable groups include elderly residents, those with mobility impairments, families with young children, people without access to private vehicles, individuals with health conditions or disabilities, and deprived populations. These groups may be more reliant on transport to access services, have a reduced ability to navigate or utilise diversions, or be more sensitive to changes in familiar routes.
Human receptors likely to be at risk of possible direct and indirect air quality impacts	General population – **Low** As outlined in **Application Document 6.15 Chapter 15 Air Quality**, concentrations of nitrogen dioxide and particulate matter in the vicinity of the Project are below annual mean air quality objective values. As described, general health in the Direct Impact Area is broadly in line with national averages. Vulnerable population – **Medium** Potentially vulnerable populations to air quality effects include elderly residents, children, deprived populations, and those with health conditions including respiratory conditions. These vulnerable groups have a higher sensitivity to air quality impacts due to reduced physiological capacity to compensate for additional respiratory stress, existing respiratory and conditions, and increased susceptibility to stress and disease from environmental changes. This sub-population are therefore more likely to experience negative health effects from worsened air quality.
Human receptors likely to be at risk of possible direct and indirect noise and vibration impacts	General population – **Medium** Baseline data show that general health in the Direct Impact Area is broadly in line with national averages. As outlined in **Application Document 6.16 Chapter 16 Noise and Vibration**, background and average sound levels are relatively low along the route, typical of the rural setting. It is assumed that existing vibration levels are negligible within the Order Limits compared to construction vibration threshold values. Whilst the general population is not considered especially vulnerable to these effects, residents are likely to

Receptor	Sensitivity of receptor
	experience and perceive changes in the acoustic environment, and therefore are considered to have medium sensitivity. Vulnerable population – **High** Vulnerable populations could include night shift workers, elderly residents, deprived populations, unemployed residents, and those with limiting health conditions or disabilities. These groups may have a higher sensitivity to noise and vibration impacts due to a greater proportion of time typically spent at home, existing health conditions, reduced ability to adapt to environmental changes, a higher risk of sleep disturbance, and increased susceptibility to stress from environmental change.
Users of open space, leisure, and play space	General population – **Medium** General health in the Direct Impact Area is broadly in line with national averages. However, baseline data highlight that the study area has a greater proportion of overweight or obese children and adults and a lower proportion of physically active adults compared to national averages. Vulnerable population – **High** Vulnerable populations could include families with children and more deprived communities, who may have a greater reliance on accessible outdoor spaces for recreation, physical activity and social interaction.
Human receptors at risk of experiencing worsened respiratory conditions as a result of GHG emissions	General population – **Medium** General health in the Direct Impact Area is broadly in line with national averages. However, the under-75 mortality rates from respiratory diseases in Bassetlaw and North Lincolnshire were above the national average. Vulnerable population – **High** Vulnerable groups include older residents, children, and people with existing health conditions. These groups are more susceptible to adverse respiratory outcomes.
Human users of water resources	General population – **Low** General health in the Direct Impact Area is broadly in line with national averages. Vulnerable population – **Medium** Vulnerable groups such as those with poor health, health conditions, or deprived populations, may be more sensitive to changes in water quality due to increased susceptibility to environmental health risks.
Human receptors in communities near to the Project	General population – **Medium** The proportion of residents in all local authorities that felt they belonged strongly or fairly strongly to their neighbourhood was greater than the national average. Vulnerable population – **High** Vulnerable groups include older residents, single-person households, single parents, and people with disabilities. These groups may rely more heavily on local support networks, community facilities and social connections for wellbeing and day-to-day activities, and may have a reduced ability to adapt to changes affecting community cohesion or sense of place.

18.7 Potential Effects

18.7.1 Based on the assessment scope (see section 18.3), the following sections describe how construction (C) operation (O), and maintenance (M) activities are likely to affect health and wellbeing receptors in the study area. This takes account of the embedded mitigation measures which are defined in **Application Document 7.3 Register of Environmental Actions and Commitments**. This section first lists the impacts that could result from each phase of the Project and Table 18.23 sets out the potential effects on the receptors identified in section 18.6.

Construction

18.7.2 The potential impacts that could result from the construction of the Project are:

- Health and wellbeing effects on residents' access to healthcare and social services due to increased pressure on GP capacity and impacts on the accessibility of GPs;
- Health and wellbeing effects on local workers from increased employment and income for the construction workforce;
- Health and wellbeing effects on local communities from education and training levels due to upskilling and apprenticeships from the Project;
- Health and wellbeing effects on local communities from PRoWs, access routes and recreational routes due to temporary closures or diversions;
- Health and wellbeing effects on local communities from a reduction in air quality due to dust and air pollutants associated with the construction of the Project;
- Health and wellbeing effects on local communities from construction noise and vibration;
- Health and wellbeing effects on local communities from the amenity, access, and provision of open space, leisure space, and play space due to severance associated with the Project;
- Health and wellbeing effects on local communities from local and national climate change mitigation and adaptation from GHG emissions associated with the Project;
- Health and wellbeing effects on local communities from a reduction in water quality due to water pollution associated with the Project;
- Health and wellbeing effects on construction workers and users of the land adjacent to and within the Order Limits from exposure to existing land contamination; and
- Health and wellbeing effects on local communities from the deterioration of community identity, culture, resilience, and influence.

Operation

18.7.3 The potential impacts that could result from the operation (including maintenance) of the Project are:

- Health and wellbeing effects on local communities from noise and vibration;

- Health and wellbeing effects on local communities from the amenity, access, and provision of open space, leisure space, and play space due to severance associated with the Project;
- Health and wellbeing effects on local communities from local and national climate change mitigation and adaptation from GHG emissions associated with the Project; and
- Health and wellbeing effects on local communities from the deterioration of community identity, culture, resilience, and influence.

Maintenance

18.7.4 The potential types of health and wellbeing effects that could result from maintenance of the Project during the operational phase are consistent with the operational phase outlined above.

Potential Effects

18.7.5 Table 18.23 sets out the impact pathways that have the potential to result in an effect on the receptors identified in section 7.6, and during which phase of the Project.

Table 18.23 – Summary of potential health and wellbeing effects at each phase of the Project

Receptor	Potential effect	Description	C	O	M
Human health and wellbeing	Health and wellbeing effects due to change in access to healthcare and social services	Construction activities from the Project may restrict, or create severance to, the accessibility of hospitals, GPs and other social infrastructure for residents in the study area.	✓		
		Increased demand for healthcare services during construction may reduce access to healthcare and social services for the local population.	✓		
Human health and wellbeing	Health and wellbeing effects due to employment and income	Human receptors could potentially benefit from employment and income opportunities directly related to the Project. Good quality work protects against social exclusion through the provision of income, social interaction, a core role, identity, and purpose.	✓		
Human health and wellbeing	Health and wellbeing effects due to training and education	Human receptors could potentially benefit from education and training opportunities directly related to the Project.	✓		
Human health and wellbeing	Health and wellbeing effects due to the accessibility and safety of PRoWs, active travel networks and the road network	Users of PRoWs, recreational routes, pedestrian walkways, bridle paths and roads within proximity to the Project could be impacted by diversions or closures of active travel routes, causing impacts on delay, severance and journey length to pedestrians, cyclists and road users.	✓		

Receptor	Potential effect	Description	C	O	M
Human health and wellbeing	Health and wellbeing effects due to air quality	Human receptors could be at risk of possible direct and indirect air quality impacts from the Project due to construction dust/elevated PM10 concentrations and construction vehicle emissions.	✓		
Human health and wellbeing	Health and wellbeing effects due to direct and indirect noise and vibration effects (i.e. construction activity and construction traffic)	Construction and operation and maintenance activities related to the Project have the potential to lead to increases in noise and vibration, which could lead to adverse health and wellbeing effects in terms of annoyance and/or disruption to local amenities.	✓	✓	✓
Human health and wellbeing	Health and wellbeing effects due to amenity, access, and provision of open space, leisure space and play space	Construction activities associated with the Project and the operation of the Project including maintenance activities may intersect, or otherwise impact upon, the accessibility of open space, leisure space, recreational routes and PRoWs in the study area, which could impact the physical and mental health and wellbeing of local residents.	✓	✓	✓
Human health and wellbeing	Health and wellbeing effects due to GHG emissions contributing to climate change	Human receptors at risk of impacts on respiratory conditions as a result of GHG emissions contributing to climate change. By reinforcing the electricity transmission network, the Project would facilitate the connection of new renewable and low-carbon energy generation and transmission.	✓	✓	-
Human health and wellbeing	Health and wellbeing effects due to reductions in water quality	Where construction works are undertaken within or in proximity to surface watercourses and groundwater there is potential for adverse impacts on water quality due to deposition or spillage of soils, sediment, oils, fuels, or other construction chemicals. There may also be indirect water quality impacts to downstream receptors, as contaminated water can propagate down to receiving watercourses.	✓	-	-
Human health and wellbeing	Health and wellbeing effects due to exposure to existing land contamination	Construction workers and users of land adjacent to and within the Order Limits are at risk of exposure to existing contamination if disturbed (e.g. excavations).	✓	-	-
Human health and wellbeing	Health and wellbeing effects due to impacts on community identity, culture, resilience, and influence	Impacts on landscape and visual amenity arising from the Project during construction and operation (including from maintenance activities) could have an impact on residents' mental health. This could be linked to pride around their local area and uncertainty surrounding the	✓	✓	✓

Receptor	Potential effect	Description	C	O	M
		Project and the impacts it would have visually. Potential effects that could result from the construction of the Project relate to effects on landscape character, due to vegetation removal, the presence of construction compounds, storage areas, access roads and tracks, plant vehicles and personnel. Pylons associated with the Project in some Route Sections would be the most prominent vertical element in the landscape, leading to a noticeable loss of scenic quality and a diminished sense of tranquillity and rurality. Impacts on community facilities due to traffic disruption and severance could impact community identity.			

18.8 Mitigation

Embedded Measures

18.8.1 Environmental appraisal has been an integral part of the Project design from the outset, which has meant that the Project has been able to avoid environmentally sensitive features as far as reasonably practicable. National Grid has also embedded measures into the design of the Project to avoid or reduce significant effects that may otherwise be experienced during construction and operation (and maintenance) of the Project.

18.8.2 Embedded measures are those that are intrinsic to and built into the design of the Project; these are presented in **Application Document 7.3 Register of Environmental Actions and Commitments**. Embedded measures of relevance to the health and wellbeing assessment are:

- EDM01: Sensitive routeing and siting was undertaken to develop the proposed overhead line alignment and draft Order Limits. The routeing and siting avoids and reduces, as far as practicable, impacts on identified receptors, in line with the Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security and Net Zero, 2025) and National Policy Statement for Electricity Networks Infrastructure (EN-5) (Department for Energy Security and Net Zero, 2025) as well as the Holford Rules (Holford, 1959).
- EDM04: The Project has been designed to use existing watercourse crossing points as far as practicable to minimise the introduction of new crossings and associated impacts.
- EDM05: The design includes strategically located and optimised construction access tracks along the Project alignment to reduce the impact on the local highway network. This includes the inclusion of largely continuous construction access tracks, breaking only as a result of major roads, railways, areas of environmental constraints and/ or major watercourses.
- The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.

- DE2: The Project's detailed design will be compliant with the guidelines and policies relating to electric and magnetic fields (EMF) stated in the National Policy Statement for Electricity Networks Infrastructure (EN-5) (Department for Energy Security and Net Zero, 2025), including the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines (International Commission of Non-Ionizing Radiation Protection, 1998).
- DE5: To reduce potential for audible noise and tones to occur from all types of fittings, the pylon fittings, such as insulators, dampers, spacers and clamps, will be designed and procured in accordance with a series of National Grid Technical Specifications and must be type registered (rigorously tested) to ensure the fittings conform to the specifications.
- DE11: The Project will be designed to comply with design safety standards including National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS) and the suite of National Grid policies and processes which contain details on design standards required to be met when designing, constructing, and operating its projects.
- GG01: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction:
  - Code of Construction Practice (CoCP);
  - Construction Traffic Management Plan (CTMP);
  - Public Right of Way Management Plan;
  - Noise and Vibration Management Plan;
  - Landscape and Ecology Management Plan;
  - Archaeological Written Scheme of Investigation; and
  - Cultural Heritage Management Plan.
  - Framework Construction Surface Water Management Plan (CSWMP)
- All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans.
- Sensitive routeing and siting of infrastructure and temporary works to avoid or reduce impacts on health and wellbeing receptors;
- Limiting construction activities to defined daytime core working hours, reducing general disruption to nearby communities, local businesses and tourism/recreation receptors;
- Project design in accordance with National Grid design standards and compliant with guidelines and policies relating to EMFs, including the ICNIRP guidelines (International Commission of Non-Ionizing Radiation Protection, 1998); and
- Other commitments made within **Application Document 7.3 Register of Environmental Actions and Commitments**.

Control and Management Measures

18.8.3 Control and management measures comprise management activities and techniques that will be implemented during construction and reinstatement to limit effects, through adherence to good site practices and ensuring legal compliance.

18.8.4 Measures relevant to the control and management of impacts during construction have been included within **Application Document 7.2 Outline Code of Construction Practice**, **Application Document 7.4 Outline Construction Traffic Management Plan**, **Application Document 7.6 Outline Public Right of Way Management Plan**, **Application Document 7.7 Outline Noise and Vibration Management Plan**, and **Application Document 7.8 Outline Landscape and Ecology Management Plan** which are secured by Requirement 4 of **Application Document 3.1 Draft Development Consent Order** and **Application Document 7.3 Register of Environmental Actions and Commitments** secured by Requirement 5 of **Application Document 3.1 Draft Development Consent Order**. These outline management plans and the following measures in **Application Document 7.3 Register of Environmental Actions and Commitments** have been taken into account in assessing the health and wellbeing effects of the Project:

- GG02: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01.
- GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project as set out within **Application Document 7.2 Outline Code of Construction Practice**.
- GG09: As per **Application Document 7.2 Outline Code of Construction Practice**, contact details for the Project will be displayed at a safe and accessible point in close proximity the entrance to all compounds.
- GG10: As far as reasonably practicable and safe to do so, any activity carried out or equipment located within a construction compound that may produce dust, noise, vibration and lighting emissions, will be located away from sensitive receptors such as residential properties or designated ecological sites.
- GG11: Appropriate site layout and housekeeping measures will be implemented by the Main Works Contractor(s) at all construction sites. This will include but not be limited to:
  - Inspecting and collecting any waste or litter found on-site;
  - Locating or designing site offices and welfare facilities to limit the overlooking of residential properties;
  - Locating designated smoking/ vaping areas to avoid nuisance to neighbours;
  - Managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
  - Managing potential off-site contractor and visitor parking.
- GG12: Vehicles and vessels will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. The operators of plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. Electric or other low carbon plant and equipment will be used where available and where practicable.

- GG13: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including excavated materials, drop heights will be limited, where practicable.
- GG15: Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors. Where practicable, they will be stored >15 m from watercourses, ponds and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a >15 m distance, additional measures will be identified by the Main Works Contractor(s) These measures may include double bunded bowsers.
- GG17: Potential hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate.
- GG27: Working areas will be appropriately demarcated. The type of demarcation to be installed will depend on the area to be managed and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. For some locations the demarcation used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Any demarcated area will be regularly inspected and maintained and removed as part of demobilisation unless otherwise specified.
- GG28: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A free telephone Project helpline and website will be provided which members of the public can use to raise any concerns or complaints about the Project. All construction-related queries will be logged by National Grid in a complaint register, together with a record of the responses given and actions taken.
- GG29: Following the erection of any scaffolding structures, anti-climbing devices will be fitted as soon as reasonably practicable. No scaffolding will be left unattended without an anti-climbing device fitted.
- LV01: The Main Works Contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with operational safety, replacement vegetation will be planted as close by as practicable and will complement the landscape character and be sympathetic to the local habitat type in order to provide a high biodiversity value.
- LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting.
- ARB01: All construction, operation and maintenance works will be undertaken in accordance with the approaches and measures set out within **Application Document 7.8 Outline Landscape and Ecology Management Plan**.
- GH02: Where specific sites within the Order Limits have been assessed in the ES as presenting a Moderate or above risk to sensitive receptors, these sites will be individually investigated and assessed in accordance with Land Contamination Risk Management (LCRM) prior to construction. This will inform the assessment of the risks to receptors, and good practice measures and working methods to control those risks will be developed. The results will be discussed, and the nature

and scope of any mitigation or remediation will be agreed with the Environment Agency and LPA (as appropriate).

- Where sites have been identified within the Order Limits as having a moderate (or above) potential for generating contamination (and not also a moderate or above risk to receptors, for example due to limited or no interaction with the Project), these sites will be reviewed against the final detailed design. Where the final detailed design and proposed construction activities do not interact with these sites, no further assessment will be required. However, where there is potential for any interaction of the final design or proposed construction activities with these sites, each site will be individually investigated and assessed to determine any mitigation or remediation measures required. The nature and scope of any mitigation or remediation will be agreed with the Environment Agency and local authority (as appropriate).
- If a site to be investigated is identified as a historical landfill, then prior discussions will be held with the Environment Agency to determine any assessments required to be undertaken before any intrusive ground investigations commence.
- GH03: A protocol for dealing with any unexpected contamination will be developed and complied with by the Main Works Contractor(s). The protocol will include, as a minimum:
  - Details of a watching brief and toolbox talks to be implemented throughout the construction phase;
  - Details regarding how any affected area will be delineated, protected, investigated and assessed;
  - The qualifications and competencies of the person appointed to oversee the works;
  - The preparation of a method statement for how the contamination will be dealt with or remediated (as appropriate);
  - An escalation policy describing when and how any notifications and approvals will be agreed with the local planning authority; and
  - Details of verification procedures for any mitigation or remediation works demonstrating compliance with the method statement.
- W01: All qualifying works within and in proximity to main rivers and flood defences will be undertaken in accordance with a method approved under environmental permits issued under the Environmental Permitting (England and Wales) Regulations 2016 (HM Government, 2016).
- TT01: All construction HGVs will adhere to the designated construction routes (Preliminary Access Routes (PARs)) to and from the site. As noted within **Application Document 7.4 Outline Construction Traffic Management Plan**.
- TT02: Emergency access protocols will be put in place and complied with. These will be identified within the site health and safety procedures.
- TT05: Provision of appropriate road markings and signs will be in place to warn the public of increased traffic movements to and from the site during construction.
- TT06: Site inductions will cover traffic safety, highlighting the need to pay special attention to vulnerable road users.

- TT09: Where practicable, temporary traffic management measures (including single lane running, temporary traffic signals or stop/go working) will be used to avoid the need for road closures. Where appropriate and subject to agreement with the relevant local authority, works may be undertaken outside of peak traffic periods, including overnight or outside standard business hours, to reduce disruption to road users and affected receptors.
- TT10: Where road closures are required for safe construction, the extent and duration of such closures will be minimised. Where reasonably practicable, suitable diversion routes will be provided. This may include programming works outside of peak hours or normal business hours, including overnight working where appropriate and agreed with the relevant local authority
- TT11: In circumstances where diversion routes are not reasonably practicable, including on single-access or no-through roads, access will be managed through controlled access arrangements. These may include temporary time-restricted closures, escorted access, or pre-arranged access periods and agreed with the relevant local highway authority.
- TT12: Where controlled access arrangements would result in unacceptable disruption, particularly for residential occupiers, businesses or agricultural operations, further/enhanced mitigation measures will be developed in consultation with affected parties. These may include alternative access provision, changes to construction programming or working methodologies, or other bespoke arrangements.
- TT13: All parties affected by road closures will be informed of access arrangements in advance of works commencing and will be provided with advance notice of any changes to access restrictions. Emergency and pedestrian access will be maintained at all times.
- AQ01: A stakeholder communications plan that includes community engagement will be developed and implemented before construction work commences. Contact details for the Project will be displayed at the entrance to the main construction compounds. This will include an emergency telephone number. A free telephone helpline and website will be provided for the Project. This will be maintained and managed by the National Grid community relations team. The Project helpline and website information will be visible on boards placed in appropriate locations where they will be visible to the public.
- AQ02: Dust Management: The Main Works Contractor(s) will develop and comply with a Dust Management Plan (DMP), which may include measures to control other air emissions, and will be implemented prior to construction.
- NV01: **Application Document 7.7 Outline Noise and Vibration Management Plan** has been prepared to set out the framework for how noise and vibration will be controlled and managed. The Main Works Contractor(s) will conduct detailed construction noise and vibration assessments to determine whether any additional measures, including site-specific best practicable means (BPM) and monitoring, may be required. A Noise and Vibration Management Plan will be prepared by the Main Works Contractor(s) substantially in accordance with the **Application Document 7.7 Outline Noise and Vibration Management Plan** and submitted for approval by the relevant local planning authority prior to the commencement of construction, and updated and managed during the construction phase as appropriate.

- S02: Where community facilities, businesses, tourism, and recreational assets cannot be avoided, access to these affected assets will be maintained where practicable. In the case of closures, appropriate access arrangements, including provision of temporary diversion routes, will be provided where possible. Advance notice signage will be erected regarding route diversions. These notice boards will be erected prior to and throughout the construction period.
- S05: To reduce the duration of temporary closure of the Yorkshire Wolds Way, crossing protection will be implemented for both lines. During this closure, users will be signposted onto an alternative route to bypass the closed section of the Yorkshire Wolds Way. This will include constructing crossing protection for both lines simultaneously to shorten the overall duration the route be closed for.
- S06: Prior to the commencement of construction works, National Grid and the Main Works Contractor(s) will produce and comply with a Skills, Supply Chain and Employment Plan.
- S07: Residential and business properties subject to road closures resulting in temporary loss of vehicular access to the property will be managed through the staged mitigation approach outlined within **Application Document 7.4 Outline Construction Traffic Management Plan**:
  - Stage 1 - application of standard construction phasing and traffic management measures which to ensure maintenance of vehicular access and avoidance of severance effects;
  - Stage 2 - application of standard best practice control and management measures. Such measures may include sensitive programming of works, managed crossings, effective communication, ensuring delivery windows, etc; and
  - Stage 3 - application of additional mitigation measures which may be bespoke to the affected location.
- CC02: Materials will be sourced from local suppliers, where reasonably practicable, to minimise transportation distances and associated greenhouse gas emissions.

18.8.5 The socio-economics, recreation and tourism assessment draws upon and is supported by the topic chapters listed in paragraph 18.1.4. Therefore, commitments in **Application Document 7.3 Register of Environmental Actions and Commitments** relevant to those topics, as listed in the corresponding section of the topic chapters, may also be of relevance to health and wellbeing.

Additional Measures

18.8.6 Additional measures comprise mitigation measures over and above any embedded, and control and management measures, for which assessment within this ES has identified a requirement to further reduce significant environmental effects.

18.8.7 The following additional measures in **Application Document 7.3 Register of Environmental Actions and Commitments** have been taken into account in assessing the health and wellbeing effects of the Project:

- LV04: Planting and seeding operations will be undertaken during an appropriate planting/seeding season, and where planting is in locations not affected by other construction activities, planting will be undertaken at the earliest opportunity.

18.9 Residual Effects Assessment

18.9.1 The Project has the potential to affect health and wellbeing (positively or negatively) during construction, and operation and maintenance, in the following ways:

- Impacts on residents' access to healthcare and social services due to increased pressure on GP capacity and impacts on the accessibility of GPs;
- Impacts on local workers from increased employment and income for the construction workforce;
- Impacts on education and training levels locally due to upskilling and apprenticeships from the Project;
- Impacts on PRoWs, access routes and recreational routes due to temporary closures or diversions;
- Impacts on local communities from a reduction in air quality due to dust and air pollutants associated with the construction of the Project;
- Impacts on local communities from construction noise and vibration;
- Impacts on the amenity, access, and provision of open space, leisure space, and play space due to severance associated with the Project;
- Impacts on local and national climate change mitigation and adaptation from GHG emissions associated with the Project;
- Impacts on local communities from a reduction in water quality due to water pollution associated with the Project; and
- Impacts on local communities from the deterioration of community identity, culture, resilience, and influence.

18.9.2 The assessment of the effects of the Project on health and wellbeing receptors described in this section considers the embedded and control and management mitigation measures described in Section 18.9.

Construction Phase

Access to health and social care services: increased demand for healthcare services

18.9.3 Access to health and social care plays an important role in supporting population health. Healthcare services play a central role in disease prevention, early diagnosis and effective treatment, with timely access enabling the identification and management of both physical and mental health conditions. Factors such as increased demand and limited service capacity may act as barriers to access.

18.9.4 During the construction phase, additional pressure on healthcare services as a result of the construction workforce may lead to longer wait times and reduced availability of appointments, impacting both physical and mental health outcomes. In addition,

this may adversely affect mental health through increased stress and anxiety associated with delays or uncertainty in receiving care.

18.9.5 **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** outlines that during the construction stage of the Project, it is estimated that an average of 378 gross direct FTE jobs are expected to be created on-site per annum over the construction period, with a peak of 626 FTE staff. Under a worst-case scenario using the peak construction workforce, 125 FTE positions per annum would be expected to be taken up by residents within the study area (i.e. those living within a 60-minute drive time from the Site), and 501 by residents outside the study area. The construction workers required to build the Project may place extra demand on healthcare services if they move to the area, or if emergency treatment is required.

18.9.6 Baseline analysis shows that the one GP practice located within 1 km of the Order Limits is operating below the benchmark patient to GP ratio. Additionally, the GP surgery is accepting registrations from new patients. As set out in Table 18.22, the sensitivity of the general population is assessed as medium. Vulnerable groups are assessed to have a high sensitivity, including elderly residents and people with mental or physical health and social care needs, including individuals with existing healthcare conditions, disabilities, or populations with poor health. The average proportion of the population aged over 65 within the Direct Impact Area is greater than the national average. The Direct Impact Area also has a higher proportion of disabled residents compared to the national average.

18.9.7 Workers already residing locally would be registered at a local GP and would not therefore place additional demand for services upon local GPs. It is considered unlikely that workers would permanently relocate to move within the study area and access the surgeries located in the vicinity of the Project. However, assuming a worst-case scenario whereby all of the approximately 501[11] gross direct FTE construction workers who are likely to reside outside the study area at the Project's peak construction period[12], need to register at local GP surgeries, this would increase the average patient per GP provision at Belton Surgery (South Axholme Practice) from 1,084 patients per GP to 1,585 patients per GP, which would remain significantly better than (below) the national target (1,800 patients per GP).

18.9.8 With regard to emergency healthcare services, the capacity and demand on local services, including ambulance and emergency response teams, are not anticipated to experience any significant impact. Considering the total peak construction workforce would constitute 0.01% of the population served by the EMAS, it is assumed that existing emergency services are well-equipped to handle any incidental needs that may arise due to the additional construction workforce without any significant additional pressure on resources.

18.9.9 Due to the temporary nature of the construction period, minor service implications, and the overall limited scale of impacts upon healthcare services, the magnitude of these adverse impacts is assessed to be **negligible**.

[11] 501 gross direct FTE represents 80 per cent of the total peak workforce of 626 gross direct FTE, and is the proportion of workers estimated to live outside of the study area during the peak construction period.

[12] Peak construction employment is used as a worst-case scenario for potential demand on local services.

18.9.10 Overall, the effect on health and wellbeing as a result of impacts on access to health and social care services from increased demand is assessed to be **negligible adverse (not significant)** for the general population and vulnerable populations.

Access to health and social care services: increased traffic and severance

18.9.11 As outlined above, access to health and social care plays an important role in supporting population health. Factors such as distance to services, travel time, and ease of movement may act as barriers to access, influencing both physical and mental health outcomes.

18.9.12 When accessing health and social care services, residents in the settlements surrounding the Project are likely to use many of the routes proposed to be used by construction traffic and site workers. Potential increases in traffic flows, alongside severance effects associated with road closures or diversions, may reduce accessibility to health and social care services.

18.9.13 The sensitivity of the general population in the study area is assessed to be medium, as outlined in Table 18.22. Vulnerable populations include older residents, disabled[13] residents, and those with mental or physical health conditions who are likely to have higher reliance on health and social care services, and whose sensitivity has therefore been assessed to be high.

18.9.14 As outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, there are no community facilities, including health and social care services, that would be affected by land-take required for the Project during the construction phase.

18.9.15 Activities related to the construction of the Project may restrict, or create severance to, the accessibility of health and social care services. **Application Document 6.14 Chapter 14 Traffic and Transport** outlines that there are not anticipated to be any residual significant severance effects on the road network as a result of construction traffic or road diversions and/or closures. Temporary Traffic Regulation Orders (TTROs) would be implemented where required to maintain highway safety during construction. In addition, as noted in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, no community facilities, which includes health and social care services, are anticipated to experience any significant severance effects during the construction of the Project.

18.9.16 As per the relevant commitment in **Application Document Volume 7.3 Register of Environmental Actions and Commitments**, access for emergency vehicles and emergency access will be maintained at all times. The CTMP will identify (which will be substantially based upon **Application Document 7.4 Outline Construction Traffic Management Plan**) will identify how this will be achieved. Therefore, it is anticipated that there will be no effect on health and wellbeing as a result of access to communities by emergency services.

18.9.17 It is acknowledged that **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** identifies significant severance affects to five residential receptors on Cornley Road (PAR 77), noting that the Main Works Contractor will continue to consider opportunities to mitigate this effect as the detailed Project

[13] In line with the NPPF (Ministry of Housing, Communities and Local Government, 2026), disabled people are identified as those who have a physical or mental impairment that has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities. This includes, but is not limited to, people with ambulatory difficulties, blindness, learning difficulties, autism, and mental health needs. Disabled people are therefore considered as a potentially vulnerable population group within the human health and wellbeing assessment.

design, programme, and construction logistics proposals are developed; and as a minimum emergency and pedestrian access to properties is secured through **Application Document 7.3 Register of Environmental Actions and Commitments**. At a population level, the effect on health and wellbeing is **not significant**.

18.9.18 As outlined in **Application Document 6.14 Chapter 14 Traffic and Transport**, construction traffic effects would be temporary, considered modest in absolute terms, and dispersed across the network. Accordingly, no significant adverse effects on access to community services are identified in relation to traffic and transport, including severance, delay, and accidents and safety.

18.9.19 Therefore, the overall magnitude of impact as a result of traffic and transport effects on access to health and social care services is assessed to be **small**.

18.9.20 Overall, the effect on health and wellbeing as a result of impacts on access to health and social care services from increased traffic and severance is assessed to be temporary, medium-term **minor adverse (not significant)** for the general population and vulnerable populations, largely due to its temporary nature and the application of TTROs and mitigation measures within the CTMP.

Employment and income

18.9.21 Employment is an important determinant of health, not only from an economic perspective but also in terms of overall quality of life. Stable, good quality work is widely recognised as beneficial to health and wellbeing, providing income, social interaction, routine and structure, and a sense of purpose and identity. As such, the generation of employment opportunities is likely to result in beneficial physical and mental health outcomes.

18.9.22 Income is a fundamental determinant of health, influencing the ability to access essential goods and services such as adequate housing, nutritious food, education, and transport. Lower income can constrain access to these resources and is associated with poorer health outcomes. In terms of mental health, financial security may reduce stress and anxiety associated with meeting basic needs, whereas financial strain may contribute to psychological distress and reduced wellbeing.

18.9.23 Baseline data with respect to employment indicate lower average gross household income and lower economic activity rates than the national average, however, the Direct Impact Area also exhibits low unemployment and Claimant Count rates. The sensitivity of the population with respect to employment and income is therefore assessed to be medium, as set out in Table 18.22. Vulnerable groups are assessed to have a high sensitivity and include unemployed residents, low income residents, and residents with low or no skills and qualifications.

18.9.24 As set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, it is estimated that the Project would require a peak of 626 FTE staff, which is expected in 2029. However, an average of 378 gross direct FTE jobs is estimated to be required on-site per annum over the construction period[14]. The jobs generated over the construction period would be temporary. The size of the workforce generated is therefore based on activities required and will fluctuate during the construction period, being both higher and lower than average at times.

[14] Employment and income effects are assessed using the average construction workforce per annum across the construction period, in line with **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, as this provides a representative measure of the economic benefits generated across the construction period.

Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism estimates that after accounting for displacement, leakage, and multiplier effects, the Project would support on average 284 net additional FTE jobs during the construction period. This is net additional employment which is actually created both directly and indirectly by the Project. Firstly, a displacement factor of 50% is applied as it is estimated that 50% of the 378 jobs are not created, but displaced from previous employment, resulting in a figure of 189 FTE net direct employment. After this, a multiplier of 1.5 is applied to this figure in order to account for the expected further additional jobs created up and down the supply chain as a result of these construction activities (indirect employment). This results in a net additional job creation (both direct and indirect) of 284 FTE as a result of the Project. The justification for the factors used are set out in Table 17.9 of **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. Of these, 284 FTE additional jobs 20% per annum would be expected to be taken up by residents within the study area, defined as a 60-minute Drive Time Catchment Area, and 80% by residents outside the study area. The additional jobs within the study area would represent local job growth of 57 FTE jobs per annum across the construction period. This overall change would be very small in the context of the overall number of jobs locally, as well as being temporary in nature.

18.9.25 Activities related to the construction of the Project may restrict, or create severance to, the accessibility of businesses, recreation and tourism facilities, adversely impacting the viability of these commercial assets, potentially resulting in job losses. **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, reports moderate adverse significant effects on the following local businesses associated with severance effects (road closures) during construction: Beetroot UK (a farm business), Sunflower Lodge (a holiday let), Newlands Equestrian, Epworth Fields Holiday Park, and Misterton Christian Centre (a campsite). The undertaker and the contractor will continue to consider opportunities as set out within **Application Document 7.4 Outline Construction Traffic Management Plan** to mitigate this effect as the detailed Project design, Project programme and construction logistics proposals are developed. Therefore, these adverse effects to individual businesses are not considered to have a significant health and wellbeing effect on employment and income at a population level.

18.9.26 **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** also assesses the positioning of the proposed overhead line as having a significant effect on the commercial and recreational use of the following three unlicenced aerodromes, Forwood Farm, Headon Airfield, and Darlton Gliding Club. Given the nature and small scale of these aerodromes, these adverse effects are not considered to have a significant health and wellbeing effect on employment and income at a population level.

18.9.27 Therefore, the magnitude of impact to health and wellbeing in relation to employment and income at the population level during the construction phase is assessed to be **small**.

18.9.28 Overall, the likely effect on health and wellbeing arising from employment and income impacts during the construction phase is assessed to be mixed beneficial and adverse effects, with overall **minor beneficial (not significant)** for the general population and **minor beneficial (not significant)** for vulnerable populations.

Education and training

18.9.29 Educational attainment is also associated with improved health outcomes and longer life expectancy, contributing to better employment prospects, higher income, and

reduced exposure to socio-economic disadvantage. As such, education and training are important determinants of both physical and mental health. Skills development and training can support improved employment outcomes and economic participation, which are likely to result in positive health impacts through increased income security, access to stable employment, and a greater sense of purpose.

18.9.30 Baseline data with respect to education and training indicate a mixed profile, with a higher proportion of residents in the Direct Impact Area qualified to NVQ3+ level than the national average and a lower proportion with no qualifications. However, the proportion of residents qualified to NVQ4+ level is below the national average. Across the wider study area, the proportion of residents with no qualifications exceeds the national average. The sensitivity of the population with respect to education and training is therefore assessed to be medium for the general population, as outlined in Table 18.22. Vulnerable groups are considered to include residents with no or low skills and qualifications and are assessed as having a high sensitivity.

18.9.31 As outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, prior to the commencement of works, National Grid will produce and comply with a Skills, Supply Chain, and Employment Plan as secured through a commitment in **Application Document 7.3 Register of Environmental Actions and Commitments**. The nature and extent of the Skills, Supply Chain, and Employment Plan is not known at this stage. However, given the relatively low number of construction workers anticipated to be required, and under a worst-case scenario, the extent of education and training opportunities is assumed to be limited in scale.

18.9.32 Given the limited scale and temporary nature of opportunities, the magnitude of impact in relation to education and training at the population level during the construction phase is assessed to be **negligible**.

18.9.33 Overall, the likely effect on health and wellbeing arising from education and training impacts during the construction phase is assessed to be **negligible beneficial (not significant)** for both the general population and vulnerable populations.

Transport modes, access, and connections: accessibility and safety of PRoWs, active travel networks and the road network

18.9.34 The availability, accessibility, and safety of PRoWs, active travel networks and the road network, shape how people access local facilities and interact with their environment. Well-connected and safe access routes can support increased physical activity, which is associated with reduced risk of chronic conditions, while also benefiting mental health through improved wellbeing and reduced stress.

18.9.35 Residents in settlements surrounding the Project are likely to use the same strategic roads as construction traffic and workers associated with the Project. Increased traffic flows and severance effects may inhibit the ability of local residents to access facilities, and construction activities may intersect or otherwise impact the accessibility of local PRoWs and active travel networks. This may adversely affect mental health through increased stress and frustration associated with more constrained or less reliable journeys, as well as reduced opportunities for walking and cycling. Reduced access to safe and convenient routes may also discourage outdoor activity and social interaction, which may contribute to lower wellbeing over time, particularly for individuals who rely on these networks for recreation or daily travel.

18.9.36 As set out in the baseline, there are 99 PRoWs, two National Cycle Network routes, one National Trail (Yorkshire Wolds Way), 13 access routes, and 13 promoted recreational routes located within the Order Limits, noting that trails and promoted routes coincide with either PRoWs or roads.

18.9.37 Given the importance of the recreation network in the local area alongside the number of PRoWs, access routes, and recreational routes, the sensitivity of the general population to health and wellbeing effects associated with PRoWs, active travel networks and the road network is assessed to be medium. Vulnerable groups include elderly residents, those with mobility impairments, families with young children, people without access to private vehicles, individuals with health conditions or mental and physical disabilities, and deprived populations, and are assessed to have a high sensitivity.

18.9.38 It is possible that local residents could experience adverse impacts related to their access to PRoWs and the road network due to changes in traffic caused by the construction of the Project. **Application Document 6.14 Chapter 14 Traffic and Transport** outlines that there are not anticipated to be any residual significant severance effects on the road network as a result of construction traffic or road diversions and/or closures. TTROs would be implemented where required to maintain highway safety during construction. Overall, construction traffic effects would be temporary, considered modest in absolute terms, and dispersed across the network. Accordingly, no significant adverse effects are identified in relation to traffic and transport, including severance, delay, and accidents and safety.

18.9.39 **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** outlines that there are no PRoWs, access routes, or recreational routes currently proposed for permanent closure as part of the Project. **Application Document 7.3 Register of Environmental Actions and Commitments** secures appropriate mitigation as it requires, where community facilities, businesses, tourism, and recreational assets cannot be avoided, access to affected assets to be maintained where practicable and, where closures are necessary, appropriate alternative access arrangements, including temporary diversion routes will be provided where possible. Furthermore, advance notice signage regarding route diversions be erected prior to and throughout the construction period. The assessment set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** identifies no significant residual adverse effects to PRoWs, access routes and recreational routes.

18.9.40 On balance, based on these considerations, any impacts on community connectivity and accessibility, including PRoWs and other active travel networks would be experienced by a small proportion of the population and for a short term. Therefore, the magnitude of impact is assessed to be **small**.

18.9.41 Overall, the likely effect on health and wellbeing arising from transport, access, and connection impacts during the construction phase is assessed to be **minor adverse (not significant)** for both the general population and vulnerable populations, given its temporary nature.

Air quality

18.9.42 Air pollution is recognised as one of the largest environmental risks to human health (Institute of Health Equity, 2020). Exposure to air pollution can result in both short-term and long-term health effects; in the short term, this may include symptoms such as coughing, wheezing and breathing difficulties, while long-term exposure is

associated with reduced lung function, the development of chronic conditions and premature mortality.

18.9.43 The construction activities associated with the Project have the potential to reduce air quality due to construction dust or increased pollutants which could lead to adverse health effects on local residents.

18.9.44 Baseline data outlined in **Application Document 6.15 Chapter 15 Air Quality** indicate good air quality in the vicinity of the Project, with 2026 background nitrogen dioxide and particulate matter concentrations below the relevant annual mean air quality objective values. Background pollutant concentrations are also predicted to decrease in future years. As set out in Table 18.22, the sensitivity of the general population in the study area with respect to air quality is therefore assessed to be low.

18.9.45 The average proportion of the population aged over 65 across the Direct Impact Area is higher than the national average and is projected to increase at a greater rate compared to all other comparator geographies. Older residents, people with existing health or respiratory conditions, children, and deprived populations are likely to be more sensitive to changes in air quality and are assessed as having a medium sensitivity.

18.9.46 The assessment of potential air quality effects during the construction phase of the Project is set out in **Application Document 6.15 Chapter 15 Air Quality**. The chapter presents an assessment of construction dust (**Application Document 6.15.A2 Appendix 15.2 Construction Dust Methodology and Assessment**), construction vehicle emissions (**Application Document 6.15.A3 Appendix 15.3 Construction Vehicle Emissions Modelling**), and construction plant and equipment emissions.

18.9.47 During the construction phase, activities such as excavation, ground works, material storage and vehicle movements have the potential to generate fugitive dust emissions. As set out in **Application Document 6.15.A2 Appendix 15.2 Construction Dust Methodology and Assessment**, human health receptors are assessed as having a high sensitivity, with a worst-case risk of dust effects assessed as high. However, **Application Document 7.3 Register of Environmental Actions and Commitments** sets out mitigation measures covering communications, dust management, site management, monitoring, preparing and maintaining the site, operating vehicles/machinery and sustainable travel, operations, waste management, earthworks, construction, and trackout measures. With the implementation of these measures, the temporary effects of construction dust are assessed as not significant.

18.9.48 In terms of construction vehicle (exhaust) emissions, there is potential for temporary air quality effects at human receptors within 200 m of those construction routes where Project-related heavy duty vehicle movements increase traffic numbers above defined thresholds (**Application Document 6.15.A3 Appendix 15.3 Construction Vehicle Emissions Modelling**). However, the assessment concludes that construction vehicle emissions are expected to be negligible and therefore not significant.

18.9.49 In terms of construction plant and equipment emissions, due to the temporary and transient nature of machinery and plant operation, proximity of receptors, and implementation of control measures, there are no significant effects on human receptors anticipated.

18.9.50 Therefore, the magnitude of impact on health and wellbeing from air quality is assessed to be **small**.

18.9.51 Overall, the likely effect on health and wellbeing arising from increased exposure to dust and particulate matter emissions during the construction phase is assessed to be **minor adverse (not significant)** for both the general population and vulnerable population.

Noise and vibration

18.9.52 Environmental noise can contribute to annoyance, sleep disturbance and cognitive impacts, while also triggering physiological stress responses. Noise is experienced subjectively but is influenced by intensity, duration, frequency, time of day, indoor environmental conditions, and individual sensitivity. Long-term exposure has been associated with increased risks of cardiovascular disease, hypertension, stroke and premature mortality, with effects increasing at higher noise levels and longer durations (European Environmental Agency, 2025). Sleep disturbance is a key pathway, impacting recovery, mental health and overall quality of life. Vibration may also contribute to discomfort and disturbance.

18.9.53 The various construction activities as well as construction traffic associated with the Project have the potential to lead to increases in noise and vibration which could lead to adverse health and wellbeing effects in terms of annoyance or disruption to local amenity.

18.9.54 Baseline data outlined in **Application Document 6.16 Chapter 16 Noise and Vibration** indicate that background and average sound levels are relatively low along the route, typical of the rural setting in which the majority of the route sits. Baseline data outlined in **Application Document 6.16 Chapter 16 Noise and Vibration** also assume that existing vibration levels are negligible within the Order Limits. As set out in Table 18.22, the general population is assessed to have a medium sensitivity to noise and vibration effects. Vulnerable populations could include night shift workers, elderly residents, deprived populations, unemployed residents, neurodiverse people, and people with mental or physical health conditions or disabilities; and are assessed to have a high sensitivity.

18.9.55 **Application Document 6.16 Chapter 16 Noise and Vibration** outlines the potential for significant adverse noise effects at seven noise-sensitive receptors (located in Route Sections A, D, and F) and seven vibration-sensitive receptors (located in Route Sections A, C, D, and F), with effects at all other sensitive receptors not anticipated to be significant, even without mitigation. There is also potential for significant adverse effects from the construction of haul roads and highway works at a further 43 noise-sensitive receptors, without mitigation. However, the duration of such works at any one location is not expected to exceed the temporal criteria for significant adverse effects.

18.9.56 In addition, BPM would be employed by the contractor(s) at all work locations to reduce construction noise and vibration impacts. **Application Document 6.16 Chapter 16 Noise and Vibration** concludes that construction noise and vibration levels can be readily mitigated to not significant levels with the application of BMP. As such, with standard mitigation measures incorporated into the works, no residual significant adverse effects are expected from construction noise or vibration, during weekday daytime periods.

18.9.57 Weekend and bank holiday working is proposed during the construction phase; however, temporal restrictions would be considered as part of BPM. Based on the implementation of BPM, including temporal restrictions where required, significant

adverse effects from construction noise during weekend periods including bank holidays are not anticipated.

18.9.58 **Application Document 6.16 Chapter 16 Noise and Vibration** also assesses potential effects from construction noise on users of PRoWs and canals. Effects on these users would be temporary and of short duration as users move towards and away from construction works, with effects reducing with distance. With the implementation of appropriate mitigation measures, construction noise effects on users of PRoWs and canals are not considered to be significant.

18.9.59 In terms of noise effects from construction traffic, **Application Document 6.16.A4 Appendix 16.4 Construction Traffic Noise and Vibration Assessment** outlines that no significant effects are associated with construction traffic on construction access tracks. In terms of vibration effects from construction traffic, significant adverse effects are not expected where the road surface is well-maintained. **Application Document 7.4 Outline Construction Traffic Management Plan** and **Application Document 7.3 Register of Environmental Actions and Commitments** commit to the maintenance of haul roads and the public highway. Therefore, significant adverse effects from construction traffic vibration are not anticipated.

18.9.60 Overall, the magnitude of impact anticipated with respect to noise and vibration during the construction phase is assessed to be **small**.

18.9.61 Overall, the likely effects on health and wellbeing arising from noise and vibration impacts during the construction phase is assessed to be **minor adverse (not significant)**, largely due to its temporary nature and the application of BPM.

Open space, leisure, and play

18.9.62 Open space, leisure, and play space support opportunities for recreation, physical activity, social interaction, and mental wellbeing. The accessibility and quality of these spaces are key determinants of their use and associated health benefits. The availability of well-located, accessible, attractive and safe open space supports regular physical activity, social interaction and psychological wellbeing.

18.9.63 Engagement in physical activity facilitated by open space is associated with reduced risk of a range of physical and mental health conditions, including cardiovascular disease, type 2 diabetes, certain cancers, dementia and depression. It is also linked to improved sleep quality, cognitive function and overall quality of life. Open spaces also support mental wellbeing through opportunities for leisure and informal social contact.

18.9.64 Construction activities of the Project may intersect with or otherwise impact upon the accessibility of open space in the study area, which could impact the health and wellbeing of local communities.

18.9.65 Baseline data highlight that the study area has a greater proportion of overweight or obese adults and children than the national average. The proportion of physically active adults in England is similarly greater than in the study area. However, across the Direct Impact Area, 81.3% of residents self-reported to be in ‘Very good’ or ‘Good’ health. Therefore, the sensitivity of the general population to impacts relating to open space, leisure, and play is assessed to be medium, as set out in Table 18.22. Vulnerable populations include families with children and deprived communities and are assessed as having a high sensitivity.

18.9.66 There are three recreational land and open space receptors located within the Order Limits, with a further 54 within 500 m of the Order Limits, as set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**. The three receptors located within the Order Limits have the potential to experience land use changes and therefore impact access to open space, leisure, and play. There is potential for severance effects arising from construction of the Project to impact residents' ability to access open spaces within 500 m of the Order Limits.

18.9.67 The three recreational receptors located within the Order Limits would likely be affected by land-use associated with the construction of the Project. All three receptors are areas registered as common land under the Commons Registration Act 1965 (HM Government, 1965), i.e. land over which a person (or persons) other than the owner is entitled to exercise rights of common, such as grazing animals. By virtue of section 1 of the CRoW Act 2000 (HM Government, 2000) these three areas of common land are also access land, which allows public access on foot for open-air recreation. Two of these receptors occupy the same land as PRoWs, and therefore the assessment of construction effects has already been accounted for in the assessment of transport modes, access, and connections. The third common land area falling within the Order Limits runs adjacent to Cow Lane to the west of Adlingfleet. The land occupies the same area as one PRoW that intersects the Order Limits, ADLFB01, but also encompasses an additional area surrounding this PRoW. A temporary stone construction access track would be implemented for the duration of the Project construction period that would intersect this area of common land. Given the total area of land-use by the Project is such a small proportion of the total area of common land, and that the integrity and utility of the majority of the common land would not be affected, the temporary effect on its use and accessibility is assessed to be **not significant**.

18.9.68 Taking into account the residual effects of the assessment provided in **Application Document 6.14 Chapter 14 Traffic and Transport**, no recreational land-based receptors, including open space, leisure and play receptors are anticipated to experience any significant severance effects during construction of the Project. However, significant adverse effects are identified at the following two unlicenced airfields for recreational use, Forwood Farm, Headon Airfield, and one unlicenced recreational gliding club, Darlton Gliding Club.

18.9.69 **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** identifies that there are not anticipated to be any significant effects on recreational water-based receptors.

18.9.70 As set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, there is potential for noise and vibration, air quality, visual, and traffic effects arising from the construction phase. The assessment of amenity effects has therefore considered the residual effects outlined in the relevant chapters: **Application Document 6.7 Chapter 7 Visual**, **Application Document 6.14 Chapter 14 Traffic and Transport**, **Application Document 6.15 Chapter 15 Air Quality**, and **Application Document 6.16 Chapter 16 Noise and Vibration**. There are no sections identified within the relevant chapters that would experience a significant effect on their amenity during construction, and therefore it is not considered there would be any amenity effects on open space, leisure and play space.

18.9.71 Overall, potential effects associated with access and severance, land-take, and amenity would be temporary in nature and would not result in a change in the

integrity of open space, leisure, or play space. In addition, the permanent closure of the identified airfields as recreational facilities is not anticipated to have significant health and wellbeing effects at the population level. Therefore, the magnitude of impact is assessed to be **small**.

18.9.72 Overall, the likely effect on health and wellbeing arising from open space, leisure, and play effects due to impacts on amenity, access, and provision during the construction phase is assessed to be **minor adverse (not significant)**.

Climate change mitigation or adaptation

18.9.73 Climate change is a widely recognised significant, and growing threat, to population health (Institute of Health Equity, 2020), including extreme weather events, changes in environmental quality, infrastructure disruption, and reduced access to services. In the UK, the impacts of climate change are expected to result in hotter, drier Summers and milder, wetter, Winters, alongside an increased likelihood of extreme weather events such as heatwaves, intense rainfall, flooding, storms and drought. The health impacts of climate change are not experienced equally and are likely to exacerbate existing health inequalities.

18.9.74 As set out in Table 18.22, the sensitivity of the general population in the study area with respect to air quality is assessed to be medium. Vulnerable populations include older residents, residents with existing health conditions, children, and construction workers, and are assessed to have a high sensitivity.

18.9.75 **Application Document 6.19 Chapter 19 Climate Change** outlines the construction phase GHG emission sources, including raw materials supply and manufacture, material transport, pre-construction demolition, construction activities, waste, and worker transport. The total GHG emissions associated with the construction phase of the Project is 143,537.2 tCO_2e (0.144 $MtCO_2$), the majority of which are attributed to embodied emissions in raw materials. To contextualise the impacts, the chapter presents a comparison of GHG emissions from the Project against the fifth UK carbon budget (2028-2032) (which coincides with the construction phase). This shows that the construction of the Project contributes to less than 0.1% of the UK carbon budget. **Application Document 6.19 Chapter 19 Climate Change** assesses the combined effect of the Project on climate change from construction and operation (and maintenance), and therefore the associated health impacts are assessed in the Operational Phase section at paragraph 18.9.120.

18.9.76 **Application Document 6.19 Chapter 19 Climate Change** also sets out the risks associated with climate change. During the construction phase, there is potential for workforce exposure to dangerous working conditions and damage to physical structures associated with climate change, including increased extreme weather conditions (e.g. flooding, drought and heatwaves) and increased temperatures. The assessment in **Application Document 6.19.A2 Appendix 19.2 Climate Change Risk Assessment** concluded that all residual effects associated with climate change risks in the construction phase are assessed to be not significant.

18.9.77 Therefore, taking into account both the impact on GHG emissions and climate change risk, the magnitude of impact is assessed to be **small**.

18.9.78 The effect of climate change mitigation and adaptation associated with the Project is therefore assessed to be **minor adverse (not significant)** on the general population and vulnerable populations, given the one-off nature of the embedded CO_2 emissions

which relate to construction alone and the temporary nature of the workforce exposure risk.

Water quality

18.9.79 Water quality is a fundamental determinant of human health, as clean water is essential for drinking, sanitation, and recreation (Environment Agency, 2008). Poor water quality, resulting from contamination of surface water or groundwater, can lead to a range of adverse health outcomes, including gastrointestinal illness, skin irritation, and longer-term effects associated with exposure to harmful substances. In addition, water pollution can degrade the quality of local environments that support physical activity and wellbeing, thereby influencing wider determinants of both physical and mental health. Human exposure may occur through ingestion, dermal contact, or indirectly via the food chain.

18.9.80 The construction activities associated with the Project have the potential to result in impacts on water quality where construction works are undertaken within or in proximity to surface watercourses and groundwater. Potential effects include deposition or spillage of soils, sediment, oils, fuels, or other construction chemicals, as well as indirect impacts on downstream receptors.

18.9.81 The baseline conditions set out in **Application Document 6.11 Chapter 11 Water Environment** identifies watercourses which receive, transport, and dilute consented and informal discharges in the study area. Existing abstractions support uses such as general agriculture, spray and trickle irrigation, mineral washing, dust suppression, and local and regional potable water supply. Waterbodies within the study area achieve a moderate to poor ecological status and fail for chemical status. As outlined in Table 18.22, the sensitivity of the general population to impacts relating to water quality is assessed to be low. Vulnerable populations include residents with poor general health, health conditions, and deprived populations who are likely to be more susceptible to environmental health risks, and are therefore assessed to have a medium sensitivity.

18.9.82 **Application Document 6.11 Chapter 11 Water Environment** identifies that channel works during construction have an associated risk of pollution. Other construction activities with a risk of opening pollution pathways to water environment receptors include the dewatering of excavations, soil stripping, and earthworks. Mitigation measures that would reduce pollution risks are set out in **Application Document 7.2 Outline Code of Construction Practice** and **Application Document 7.3 Register of Environmental Actions and Commitments**. Therefore, effects on the water quality of watercourses are assessed as negligible.

18.9.83 **Application Document 6.11 Chapter 11 Water Environment** also notes that there is potential for surface water quality to deteriorate from receiving silt-laden runoff. However, mitigation measures are set out in **Application Document 7.2 Outline Code of Construction Practice** and **Application Document 7.3 Register of Environmental Actions and Commitments** to address any risks. Therefore, effects on surface water quality are assessed as negligible.

18.9.84 Temporary construction compounds have been situated so as not to be in close proximity to watercourses, and avoiding pathways for potential pollutants to reach surface water receptors. **Application Document 6.11 Chapter 11 Water Environment** concludes a negligible impact for construction works located in or under watercourses and within their riparian corridors, given the mitigation measures set out in **Application Document 7.2 Outline Code of Construction Practice** and **Application Document 7.3 Register of Environmental Actions and**

Commitments. For construction works located beyond the riparian corridors of watercourses, it is assessed there is likely to be no effect.

18.9.85 **Application Document 6.12 Chapter 12 Geology and Hydrogeology** assessed the effect on human health from potential exposure to existing contamination as a result of ground disturbance from construction activities. **Application Document 6.12.A2 Appendix 12.2 Preliminary Contamination Risk Assessment** identified a very low/low risk of existing contamination being present within the Order Limits. Therefore, it has been assessed that there is a low risk of exposure to any existing contamination through ground disturbance. It is assessed that the temporary construction impacts from exposure to existing contamination for human health receptors would result in an overall negligible effect, which would be not significant.

18.9.86 Therefore, the magnitude of impact is assessed to be negligible.

18.9.87 The health and wellbeing effects of changes to water quality associated with the Project is therefore assessed to be **negligible adverse (not significant)** on both the general population and vulnerable populations.

Land quality

18.9.88 Land quality has the potential to impact human health, including construction workers and users of the land adjacent to and within the Order Limits, through exposure to existing contamination as a result of ground disturbance from construction activities (e.g. excavations), as noted in **Application Document 6.12 Chapter 12 Geology and Hydrology**.

18.9.89 These receptors (construction workers) are identified as having a high (general population) to very high (vulnerable populations) sensitivity, in line with **Application Document 6.12 Chapter 12 Geology and Hydrology**.

18.9.90 A contamination Preliminary Risk Assessment (PRA) was undertaken which included a review of current and historical site activities to identify the potential for sources of contamination within the 250 m study area that could potentially lead to harmful consequences (**Application Document 6.12.A2 Appendix 12.2 Preliminary Contamination Risk Assessment**). This identified a very low/low risk of existing contamination being present within the Order Limits. Therefore, it has been assessed that there is a low risk of exposure to any contamination through ground disturbance. The assessment will be reviewed once the detailed design of the Project is available, and if the assumptions are not still valid, or additional sites are identified, they will be required to be investigated to determine any additional mitigation measures or remediation requirements. These measures are secured through the relevant commitment within **Application Document 7.3 Register of Environmental Actions and Commitments**. Furthermore, as per commitment GH03 of **Application Document 7.3 Register of Environmental Actions and Commitments** a protocol for dealing with unexpected contamination to be developed. Therefore, the magnitude of impact is assessed to be negligible.

18.9.91 The health and wellbeing effects from exposure to existing contamination is therefore assessed to be **negligible adverse (not significant)**.

Community identity, culture, resilience, and influence

18.9.92 Community identity, culture, resilience and influence are important determinants of health, shaping both mental and physical wellbeing through social connection,

inclusion, belonging, and participation (UK Health Security Agency, 2021). Loneliness and social isolation are linked to increased risks of depression, anxiety, cardiovascular disease, stroke, cognitive decline and premature mortality. The ability of individuals and communities to participate in decision-making processes can also strengthen empowerment and resilience, supporting better health outcomes over time.

18.9.93 Community facilities, local services and shared public environments play an important role in supporting social interaction and reinforcing community identity. These assets provide venues for everyday contact, community activities and collective experiences, which help strengthen cohesion and reduce isolation. Changes that reduce access to, or continuity of such spaces may undermine community cohesion, particularly in areas with long-established social networks.

18.9.94 Construction-related changes to the road network and active travel routes can result in severance between neighbourhoods, reducing access to community facilities and limiting opportunities for social interaction. This can increase the risk of social isolation and exclusion, particularly where residents rely on these routes for daily activities, services, and community participation. In addition, changes in landscape and visual amenity during construction can influence perceptions of place, potentially affecting residents' pride in their local area and contributing to feelings of uncertainty or reduced wellbeing.

18.9.95 Baseline data show that the proportion of residents of the Wider Impact Area who felt they belonged very strongly or strongly to the immediate neighbourhood was greater than the national average. This suggests a higher sense of community and community pride in the area, in comparison to the national average. In addition, given the relatively rural setting of the Project, local communities are likely to be sensitive to landscape and visual amenity, potentially impacting quality of life for residents. As set out in Table 18.22, the sensitivity of the general population to impacts relating to community identity, culture, resilience, and influence is assessed to be medium. Vulnerable populations include older residents, single-person households, single parents, and people with disabilities, and are assessed as having a high sensitivity.

18.9.96 **Application Document 6.14 Chapter 14 Traffic and Transport** set out a reasonable worst-case assessment of the traffic and transport effects of the Project during the construction phase, including severance, delay, amenity, and accidents and safety. No significant effects are identified, including on community facilities.

18.9.97 **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** identifies that no community facilities are anticipated to experience any significant severance or land-take effects during construction of the Project.

18.9.98 **Application Document 6.6 Chapter 6 Landscape** provides an assessment of the potential impacts on landscape receptors as a result of the Project, taking into account the mitigation measures set out in **Application Document 7.8 Outline Landscape and Ecology Management Plan**. During the construction phase, it is assessed that there would be no residual significant effects on the assessed Yorkshire Wolds Important Landscape Area or on any National Character Areas (NCAs) landscape receptors, with any non-significant effects being most pronounced within 500 m to 1 km of the LoD depending on the openness of the landscape. **Application Document 6.6 Chapter 6 Landscape** identifies residual significant adverse landscape effects for 12 Landscape Character Types (LCTs) and Regional Landscape Character Types (RLCTs). These significant effects are related to the introduction of construction activity and equipment, including the temporary loss of

some landscape features including field boundary vegetation. These effects tend to be most pronounced with 500 m to 1 km of the construction activities. Beyond this, effects on landscape are not considered significant.

18.9.99 **Application Document 6.7 Chapter 7 Visual** provides an assessment of the potential visual impacts on communities as a result of the Project. During the construction phase, significant residual effects are identified at eight communities: Beckingham, Crowle and Ealand, Darlton, East Drayton, Ellerker, Gringley on the Hill, Misterton, and Owston Ferry, with minor effects on the South Cave community as a whole, but moderate effects at receptors along Ings Lane in close proximity to the Project.

18.9.100 As a result of these landscape and visual impacts, local amenity may be affected due to the reduced enjoyment of these areas by the local population, including residential, business, recreational, and road receptors.

18.9.101 The construction phase may also be characterised by changes in population composition, including an increased demand for temporary construction workers. A more transient population can contribute to reduced social stability and weaker community ties, particularly in areas experiencing high levels of turnover. As set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, the Project will support an average of 378 FTE staff during the construction phase, of which 303 FTE staff would be from outside the study area. Given their residence outside a 60-minute Drive Time Catchment Area, these construction staff could move into the area temporarily during the construction phase, likely during the working week. Given the small number of construction workers coming from outside the study area, construction employment is not considered to have a material impact on the composition of the local population.

18.9.102 Construction of the Project is not anticipated to result in an increase in crime risk, given the small temporary construction workforce moving to the area, as well as temporary construction compounds, working areas and access points being secured through measures including fencing, controlled access gates, and monitored entry and exit points, which will deter unauthorised access and reduce opportunities for crime.

18.9.103 Given that only a small number of residential properties are anticipated to be subject to significant visual effects, and health and wellbeing is assessed at a population level, the overall magnitude of impact is assessed as **small**.

18.9.104 Overall, the likely effect on health and wellbeing arising from community identity, culture, resilience and influence impacts during the construction phase is assessed to be **minor adverse (not significant)** for both the general population and vulnerable sub-populations.

Operational Phase

Noise and vibration

18.9.105 As outlined in **Application Document 6.16 Chapter 16 Noise and Vibration**, a ‘triple Araucaria’ conductor is proposed for the majority of the route. The ‘triple Araucaria’ conductor system is low noise, and significant adverse and adverse effects from operational noise are not expected. Based on this, operational noise

from proposed overhead lines strung with triple Araucaria conductors is scoped out of the assessment. Operational vibration effects are scoped out of the assessment.

18.9.106 As set out in Table 18.22, the sensitivity of the general population is assessed as medium and the sensitivity of vulnerable populations is assessed as high.

18.9.107 There are two locations where 'triple Araucaria' is not proposed or cannot be committed to at this stage due to potential operational constraints. These are: the River Ouse between proposed pylons 4AF76 and 4AF80 and the realignment of the existing ZDA route between Ealand and west of Keadby (between proposed pylons ZDA119A and ZDA120C).

18.9.108 The assessment presented in **Application Document 6.16 Chapter 16 Noise and Vibration** concludes that the operational noise effects would not be significant at either location, even considering a worst-case scenario, given the distance of noise-sensitive receptors.

18.9.109 Given this, the magnitude of impact is assessed to be **negligible** during the operation and maintenance phase.

18.9.110 Overall, the likely effect on health and wellbeing arising from impacts on noise during the operational and maintenance phase is assessed to be **negligible adverse (not significant)** for both the general population and vulnerable populations

Open space, leisure and play

18.9.111 Operational and maintenance activities of the Project may intersect, or otherwise impact upon, the accessibility of open space in the study area, which could impact the physical and mental health and wellbeing of local residents, as outlined above.

18.9.112 As set out in Table 18.22, the sensitivity is assessed to be medium for the general population and high for vulnerable populations.

18.9.113 **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism** sets out that there would be no further land-take required during the operational and maintenance phase of the Project.

18.9.114 Furthermore, the operational and maintenance phase has been scoped out of the assessment within **Application Document 6.14 Chapter 14 Traffic and Transport** on the basis that any traffic movements generated by operation or maintenance activities will have a negligible magnitude of impact for all assessment categories including severance.

18.9.115 As outlined in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, there is potential for amenity effects on open space, leisure and play from noise and visual effects. Therefore, the assessment of amenity effects has considered effects from **Application Document 6.7 Chapter 7 Visual**, and **Application Document 6.16 Chapter 16 Noise and Vibration**. Taking into account the residual effect assessment results of the visual and noise assessments relating to the operation and maintenance activities, it is assessed that there would be no significant effect on open space, leisure, and play as a result of amenity during operation and maintenance.

18.9.116 Therefore, the magnitude of impact is assessed to be **negligible** during the operational and maintenance phase.

18.9.117 Overall, the likely effect on health and wellbeing arising from impacts on accessing open space, leisure, and play facilities during the operational and maintenance phase is assessed to be **negligible adverse (not significant)** for both the general population and vulnerable populations.

Climate change mitigation and adaptation

18.9.118 As identified in Table 18.22, the sensitivity of the general population with respect to climate change mitigation and adaptation is assessed to be medium, with the sensitivity of vulnerable groups assessed as high.

18.9.119 **Application Document 6.19 Chapter 19 Climate Change** identifies that the total GHG emissions associated with the Project during the operational phase are approximately 312,222.8 tCO_2e (0.312 $MtCO_2e$), the majority of which are attributed to transmission losses[15], accounting for 87% of emissions. This is followed by maintenance, repair, and replacement emissions which account for 13% of operational emissions. To contextualise the impacts, the chapter presents a comparison of operational GHG emissions from the Project against the respective UK carbon budgets and the Climate Change Committee's Balanced Net Zero Pathway (from the Seventh Carbon Budget period and beyond) which coincide with the operational phase up to 2050. The overall estimated GHG emissions of the Project contribute to less than 0.1% of each respective UK carbon budget and net zero balanced pathway.

18.9.120 As set out in paragraph 18.9.75 **Application Document 6.19 Chapter 19 Climate Change** assesses the combined effect of the Project on climate change from construction and operation. Over its lifetime, the Project will provide a key contribution to the reduction of the UK's carbon output, fulfilling its net zero policy and transition away from fossil fuels. By reinforcing the electricity transmission network, the Project will facilitate connection to the network of new renewable and low-carbon energy generation and transmission. Without projects such as this, that facilitate the connection of low-carbon energy generation projects to the network, GHG intensity will not decrease as projected, thereby adversely affecting the UK's ability to meet its carbon reduction targets. **Application Document 6.19 Chapter 19 Climate Change** therefore concludes that, although there are emissions associated with the operation of the Project, it is anticipated that the potential benefits of improving efficiency and enabling greater renewable energy connections from the Project, outweigh the associated emissions.

18.9.121 During operation and maintenance, the climate change risks associated with the Project relevant to health and wellbeing, include workforce exposure to dangerous working conditions from extreme weather and changes in temperature and precipitation. **Application Document 6.19 Chapter 19 Climate Change** concluded that all climate change risks have been assessed as not significant.

18.9.122 Therefore, the magnitude of impact has been assessed as **small**.

18.9.123 Overall, the likely effect on health and wellbeing arising from impacts on climate change mitigation and adaptation during the operational and maintenance phase is assessed to be **minor beneficial (not significant)** for both the general population and vulnerable populations.

[15] The proposed overhead line itself will not generate direct greenhouse gas emissions during operation, rather transmission losses are indirect GHG emissions arising from energy lost as heat during power flow.

Community identity, culture, resilience, and influence

18.9.124 As outlined above, community facilities, local services, open spaces and shared public environments play an important role in supporting social interaction and reinforcing community identity. Changes that reduce access to, or continuity of, such spaces may undermine community cohesion, particularly in areas with long-established social networks.

18.9.125 As set out in Table 18.22, the sensitivity of the general population is assessed as medium, with vulnerable populations assessed as having a high sensitivity.

18.9.126 The operational and maintenance phase has been scoped out of the assessment within **Application Document 6.14 Chapter 14 Traffic and Transport**, due to the limited number of operatives manning the site, with infrequent additional maintenance trips. On this basis, it is anticipated that no severance impacts are expected at any receptors during this phase.

18.9.127 **Application Document 6.6 Chapter 6 Landscape** provides an assessment of the potential impacts on landscape receptors as a result of the Project and identifies residual significant adverse landscape effects on 11 LCTs and RLCTs during Year 1 of operation. However, major adverse landscape effects are limited to those areas where the proposed overhead line does not run parallel with existing overhead lines, or affects a character area which does not already contain existing overhead lines, or where vegetation removal which occurred during construction would continue to be noticeable. Significant effects are anticipated to occur on the following:

- LCT 4: River Corridors;
- LCT 12: Sloping Wooded Farmland;
- LCT 13: Open High Rolling Farmland;
- LCT 16: Sloping Farmland;
- LCT 23: Humber Banks;
- Trent Levels: Flat Drained Farmland LCT;
- Trent Levels: Flat Wooded Farmland LCT;
- Trent Levels: Open Island Farmland LCT;
- RLCT 2b: Planned and Drained Fens and Carrlands;
- RLCT 4a: Unwooded Vales; and
- RLCT 5b: Wooded Village Farmlands.

18.9.128 **Application Document 6.6 Chapter 6 Landscape** also identifies significant adverse effects at nine LCTs and RLCTs during Year 15 of operation. Although landscape mitigation would be maturing, significant effects relating to the proposed overhead line would remain. Significant effects are anticipated to occur on the following:

- LCT 4: River Corridors;
- LCT 12: Sloping Wooded Farmland;
- LCT 13: Open High Rolling Farmland;
- Trent Levels: Flat Drained Farmland LCT;
- Trent Levels: Flat Wooded Farmland LCT;
- Trent Levels: Open Island Farmland LCT;

- RLCT 2b: Planned and Drained Fens and Carrlands;
- RLCT 4a: Unwooded Vales; and
- RLCT 5b: Wooded Village Farmlands.

18.9.129 **Application Document 6.7 Chapter 7 Visual** provides an assessment of the potential impacts on visual receptors, including communities and recreational receptors, as a result of the Project. During the operational phase at Year 1 and Year 15, significant effects are identified at the following 19 communities: Beckingham, Belton, Brantingham, Darlton, East Drayton, Ellerker, Fledborough, Gringley on the Hill, Misterton, North Leverton with Habblesthorpe, Ragnall, Rampton and Woodbeck, Rowley, South Leverton, Stokeham, Sturton le Steeple, Treswell, Twin Rivers, and Walkeringham), with minor effects on the Crowle and Ealand and Headon cum Upton community as a whole, but moderate effects at receptors in closer proximity to the Project.

18.9.130 **Application Document 6.7.A5 Appendix 7.5 Residential Visual Amenity Assessment** assesses the effect on residential amenity as a result of the visual changes from the Project. A total of 64 residential properties have been identified as having the potential to experience impacts on visual amenity, of which five are assessed to experience major visual change as a result of the Project. Although significant effects on individual properties are identified due to changes in views, the effect on residential visual amenity is not considered to be so great that it would affect living conditions or render those properties unattractive places to live. It is acknowledged that there are many locations within the study area where properties are closer to the existing 400 kV overhead lines, showing that these properties are not so affected that people do not want to live there. It is therefore anticipated that, whilst there may be some localised and perceptual effects on amenity and associated wellbeing for a small number of residents, these effects would not be of a scale or nature that would result in significant adverse health effects at the population level.

18.9.131 As set out in **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**, no permanent effects on residential properties in terms of physical changes or disruptions to residential communities are anticipated within the study area as a result of the Project.

18.9.132 During operation, no additional effects on crime are anticipated as the Project will not introduce new permanent features that would materially alter local crime risk or patterns of community safety. The operational phase is not expected to change the population composition in a way that would influence health or wellbeing outcomes within the surrounding communities.

18.9.133 While significant visual and landscape effects are identified in some communities and residential receptors, these effects are not considered to be of a scale or nature that would result in significant adverse physical or mental health effects at a population level. Given a small number of residential properties (relative to the size of the population) are anticipated to be significantly visually affected, and that there are no significant effects identified in relation to any other contributing factors within this determinant, the overall magnitude of impact is assessed as **small**.

18.9.134 Overall, the likely effect on health and wellbeing arising from social cohesion and community identity impacts during the operational and maintenance phase is assessed as **minor adverse (not significant)** for both the general population and vulnerable sub-populations.

18.10 References

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