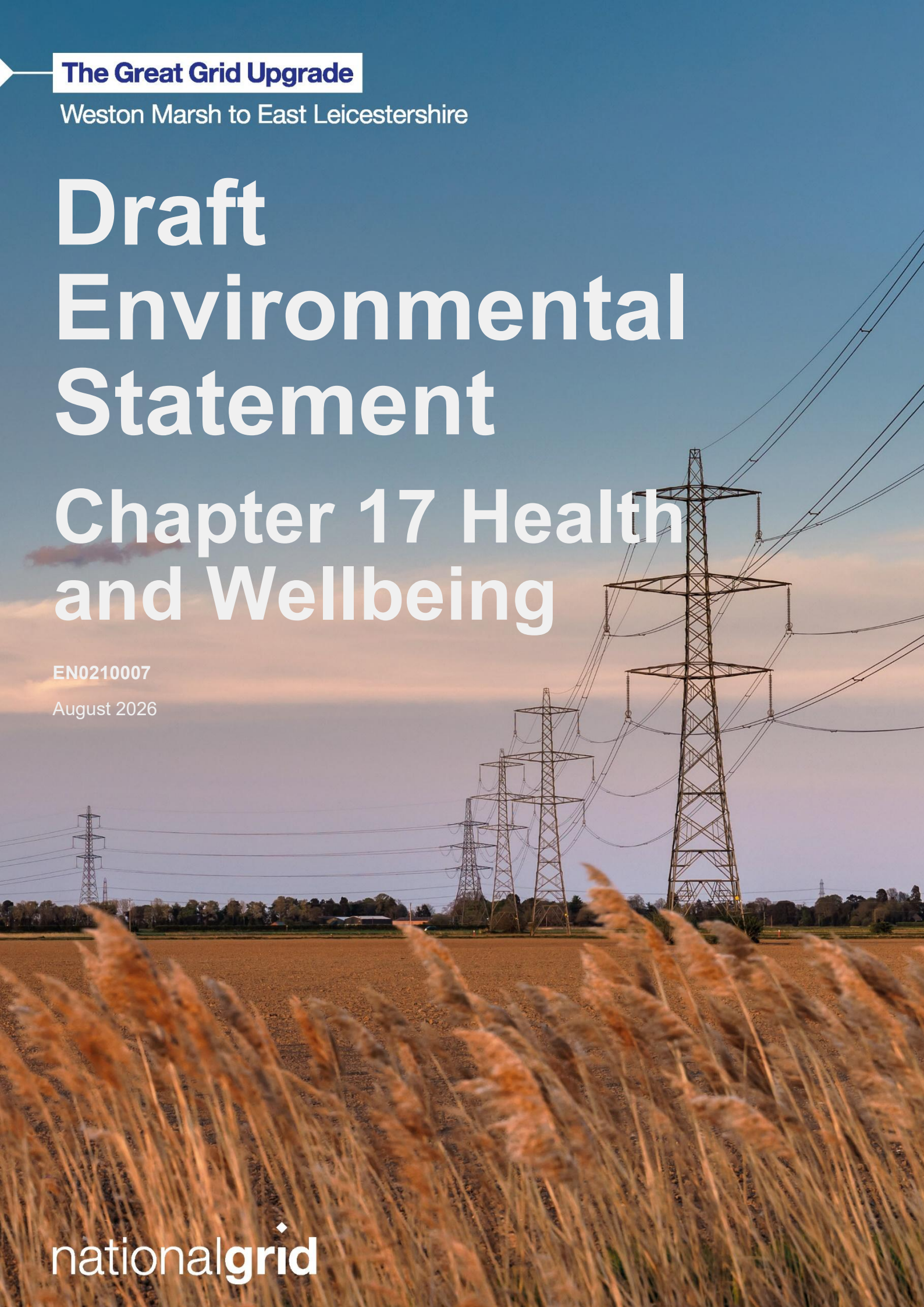




The Great Grid Upgrade

Weston Marsh to East Leicestershire

Draft Environmental Statement

Chapter 17 Health and Wellbeing

EN0210007

August 2026

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17. Health and Wellbeing

17.1 Introduction

- 17.1.1 This chapter presents the preliminary assessment of the potential effects of the Weston Marsh to East Leicestershire Project (the Project) on health and wellbeing. This chapter includes consideration of the potential effects for population health and wellbeing that may arise from the construction, operation and maintenance of the Project as described in **Chapter 4 Description of the Project**.
- 17.1.2 The World Health Organization (WHO) defines health as ‘*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*’ (Ref 17.15). Factors that have the most significant influence on the physical and mental health of a population are called ‘determinants of health’ and include a wide range of social, economic and environmental factors which then influence the health of individuals and populations.
- 17.1.3 Potential effects are reported in relation to both physical and mental health and wellbeing for the general population, as well as for vulnerable and disadvantaged groups (defined by characteristics such as age, social and economic deprivation, disability and health status), who may be disproportionately affected by the Project (see Section 17.5 for more detail).
- 17.1.4 This chapter should be read in conjunction with the following chapters which provide the Project context and approach to Environmental Impact Assessment (EIA):
- **Chapter 2 Regulatory and Planning Policy Context;**
 - **Chapter 3 Main Alternatives Considered;**
 - **Chapter 4 Description of the Project;** and
 - **Chapter 5 EIA Approach and Methodology.**
- 17.1.5 There are interrelationships with other disciplines. Therefore, this chapter should also be read in conjunction with the following chapters:
- **Chapter 7 Visual:** which includes visual amenity, including effects upon potential receptors (people) and viewing groups caused by changes in the appearance of the landscape.
 - **Chapter 11 Geology and Hydrogeology:** which includes effects on human health from ground and water contamination. This has been scoped out of the health and wellbeing assessment, as the Project will comply with legally required standards to minimise the risk of exposure of the population to harmful substances, as described in **Chapter 11**.
 - **Chapter 13 Traffic and Transport:** which includes effects on accessibility, active travel and use of Public Rights of Way (PROWs).
 - **Chapter 14 Air Quality:** which includes air quality effects from construction activities and traffic and their impact on human receptors.

- **Chapter 15 Noise and Vibration:** which includes noise and vibration effects from construction activities and traffic, as well as noise from the proposed new substations, and their impact on human receptors.
- **Chapter 16 Socio-Economics, Recreation and Tourism:** which includes impacts on community land and facilities, commercial property and land, and employment creation, as well as effects on recreational, tourism and community receptors including the ability to access open space and recreational amenities.
- **Chapter 19 Cumulative Effects:** which includes consideration of the potential for in-combination and cumulative effects on health and wellbeing.

17.1.6 This chapter is supported by the following figures and appendices:

- **Figure 16.1 Indices of Multiple Deprivation;**
- **Figure 16.2 Socio-Economic, Tourism, Recreation and Health Receptors** (this figure maps key receptors within the Study Area for both **Chapter 16 Socio-Economics, Recreation and Tourism** as well as this health and wellbeing chapter);
- **Figure 17.1 Health and Wellbeing Study Area;**
- **Appendix 17A Health and Wellbeing Evidence Review;** and
- **Appendix 17B Health and Wellbeing Baseline.**

17.2 Legislation, Policy Framework and Guidance

Legislation and National Policy

17.2.1 Legislation and national policy relevant to the Project and this chapter are described in **Chapter 2 Regulatory and Planning Policy Context**, and supporting appendices **Appendix 2A Key Legislation**, **Appendix 2B National and Regional Policy** and **Appendix 2C Local Policy**.

Regional and Local Policy

17.2.2 **Chapter 2 Regulatory and Planning Policy Context** sets out relevant regional and local policy. Regional and local plans or policies relevant to this assessment are as follows:

- South East Lincolnshire Local Plan 2011-2036 (Ref 17.4): Policy 32: Community, Health and Well-being;
- South Kesteven District Council Local Plan 2011-2036 (Ref 17.5): Objective 11: To support new and existing community infrastructure;
- Melton Local Plan 2011-2036 (Ref 17.2): community development objectives such as: Improve access to services and facilities, including health, schools, social care, jobs, recreation, sport and education, broadband; Promote sustainable communities; Improve facilities for all the community; Improve the health of the Borough and reduce health inequalities within the community. It also includes Policy C9 Healthy Communities;
- Harborough Local Plan 2011-2031 (Ref 17.1): Objective 4 Infrastructure and Policy IN3 Electronic connectivity;

- North Northamptonshire Joint Core Strategy 2011-2031 (Ref 17.3): Objective 10 Enhanced quality of life for all residents, Policy 8 North Northamptonshire Place Shaping Principles, Policy 10 Provision of infrastructure and Policy 19 The Delivery of Green Infrastructure; and
- West Northamptonshire Joint Core Strategy Local Plan (Adopted 2014) (Ref 17.6): Policy RC2 Community Needs and Policy BN1 Green Infrastructure Connections.

Guidance

- 17.2.3 Relevant guidance, specific to health and wellbeing, that has informed this non-statutory Draft Environmental Statement (DES) (referred to in this document as the “DES” and the “non-statutory DES”) and will inform the assessment within the Environmental Statement (ES), comprises:
- The Institute of Environmental Management and Assessment (IEMA) (now known as the Institute of Sustainability and Environmental Professionals (ISEP)) Guide to Determining Significance for Human Health in Environmental Impact Assessment (Ref 17.8);
 - ISEP Social Impact Assessment in Environmental Impact Assessment in the UK (Ref 17.26);
 - Human Health: Ensuring a high level of protection. A reference paper on addressing Human Health in Environmental Impact Assessment as per EU Directive 2011/92/EU amended by 2014/52/EU (Ref 17.9);
 - Public Health England (PHE) Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime (Ref 17.10);
 - International Association of Impact Assessment, International Best Practice Principles for Health Impact Assessment (Ref 17.11);
 - Mental Wellbeing Impact Assessment – a toolkit for wellbeing (Ref 17.12);
 - Welsh Health Impact Assessment Support Unit (WHIASU), Health Impact Assessment (HIA) – a practical guide (Ref 17.13); and
 - West Northamptonshire Health Impact Assessment (HIA) Guidance and Toolkit (Ref 17.14).

17.3 Scope of Assessment

- 17.3.1 The scope of the assessment has been informed by the Scoping Opinion provided as **Appendix 5B Scoping Opinion** (adopted by the Planning Inspectorate on behalf of the Secretary of State on 17 December 2025) and ongoing engagement with relevant technical consultees.
- 17.3.2 The health determinants that are scoped in for the assessment that are relevant to construction are listed below:
- **Employment, training and income:** There is strong evidence linking employment, training and income to health outcomes. The construction of the Project would provide opportunities for increased employment, income and

training contributing to positive health outcomes for the wider Study Area and its population.

- **Planning uncertainty:** Uncertainty and stress relating to the actual and perceived impacts during the pre-construction period can impact mental health and wellbeing of local communities. A review of published research evidence linking uncertainty and construction of major infrastructure projects with health and wellbeing can be found in Section 17A.3 of **Appendix 17A Health and Wellbeing Evidence Review**.
- **Neighbourhood amenity:** The term 'neighbourhood amenity' is used in this assessment to describe a combination of factors that have the potential to affect residents' feelings about, and experience of, their local environment. If these factors are altered to a sufficient degree, there could be effects on mental health and wellbeing. The construction phase of the Project could affect the quality of neighbourhoods through environmental changes resulting from the presence of construction compounds, construction activities and construction traffic on local roads.
- **Physical activity:** There is evidence to show that physical activity contributes to positive physical and mental health outcomes and that environmental factors such as access to PRowS, safety and amenity, can influence participation in active travel and physical activity. Physical activity is strongly linked to health outcomes. A review of published research evidence linking physical activity with health and wellbeing can be found in Section 17A.3 of **Appendix 17A Health and Wellbeing Evidence Review**.
- **Open space, leisure and play:** Amenity impacts and loss of open space contributes to reduced physical activity, leisure and play, resulting in reduced physical and mental health benefits. There is strong evidence linking access to open and green spaces to health outcomes in Section 17A.3 of **Appendix 17A Health and Wellbeing Evidence Review**.
- **Access to health and social care, and other social infrastructure:** There is evidence linking access to healthcare facilities and social infrastructure with health outcomes, and there is also evidence to suggest that transport problems are a key barrier to people's ability to access these services. A review of published research evidence linking access to health and social care services, and other social infrastructure with health and wellbeing can be found in Section 17A.3 of **Appendix 17A Health and Wellbeing Evidence Review**.

17.3.3 Health determinants that are scoped in for the health assessment that are relevant to operation (and maintenance) are listed below:

- **Neighbourhood amenity** (as described in Paragraph 17.3.2).
- **Electric and Magnetic Fields (EMFs):** This assessment considers the mental wellbeing impacts associated with perceived EMF exposure. Research suggests that even when exposure levels are within accepted safety guidelines, perceived exposure can be linked to heightened anxiety, worry, and other stress-related symptoms.
- **Visual amenity of the countryside:** There are potential permanent changes to the local environment due to the visual presence of the Project. This may affect the physical and mental wellbeing of the local population due to the changed amenity of the rural landscape. There is evidence linking visual amenity to health

outcomes in Section 17A.3 of **Appendix 17A Health and Wellbeing Evidence Review**.

- **Wider societal infrastructure and resources:** This health determinant considers overarching impacts on the local and wider community due to the Project. The provision of improved electrical infrastructure as a resource would contribute towards positive outcomes for population health and wellbeing. Evidence linking wider societal infrastructure and resources to health outcomes is outlined in Section 17A.3 of **Appendix 17A Health and Wellbeing Evidence Review**.

17.3.4 The following matters have been scoped out of the assessment as agreed with the Planning Inspectorate in the Scoping Opinion provided as **Appendix 5B Scoping Opinion**.

- **Scoping Opinion ID 3.13.1 – Temporary and permanent land take affecting residential properties, community facilities and businesses** – the construction of the Project will be undertaken so as to avoid temporary or permanent land take affecting residential properties, community facilities and businesses. On this basis, significant effects are not likely to occur.
- **Scoping Opinion ID 3.13.3 – Soil and water contamination due to the emission of harmful substances** – the construction of the Project will comply with legally required standards to minimise the risk of exposure of the population to harmful substances. Pollution control measures are included in **Appendix 4A Draft Outline Code of Construction Practice (CoCP)**. Significant effects are not likely to occur.
- **Scoping Opinion ID 3.13.4 – Increased employment for the operational and maintenance workforce** – for a Project of this nature and scale, it is unlikely that there will be increased employment, income and training opportunities for communities in the wider Study Area during operation at a level to have a population-wide effect. Significant effects are not likely to occur.
- **Scoping Opinion ID 3.13.5 – Reduced opportunities for access for physical activity, and increased severance** – for this Project, there will be no permanent closures or diversions of promoted recreational routes and PRowS during operation and maintenance that would lead to a reduction in mental and physical health benefits gained from use of these, at a population level. Significant effects are not likely to occur.
- **Scoping Opinion ID 3.13.6 – Permanent land take leading to changes in access to open space** – due to the nature and scale of the Project, it is unlikely that there will be permanent changes to access to open space during operation and maintenance that would lead to a reduction in mental and physical health benefits associated with access to open space.
- **Scoping Opinion ID 3.13.7 – Permanent land take affecting residential properties, community facilities and businesses** – the operation and maintenance of the Project will avoid land take affecting residential properties, community facilities and businesses. On this basis, significant effects are not likely to occur.
- **Scoping Opinion ID 3.13.8 – Permanent impacts associated with the generation of EMFs** – the Project will be designed to comply with existing National Grid standards and relevant external guidelines and policies relating to EMFs as stated in National Policy Statement (NPS) EN-5 (Ref 17.2), including the International Commission on Non-Ionizing Radiation Protection (ICNIRP)

guidelines for reducing effects in relation to EMFs (Ref 17.30) Compliance with these guidelines and policies mean that the Project will already have designed out potential effects from EMFs to a level appropriate to meet health and safety standards, including precautionary measures. However, the potential effect on mental wellbeing associated with uncertainty and stress relating to the perceived impacts of EMFs is scoped into the assessment for the operation (and maintenance) phase, as EMFs are generated by operational infrastructure.

- **Scoping Opinion ID 3.13.9 – Soil and water contamination due to the emission of harmful substances** – the operation and maintenance of the Project will comply with legally required standards to minimise the risk of exposure of the population to harmful substances.

17.3.5 A full summary of all issues raised relevant to health and wellbeing in the Scoping Opinion and National Grid's response is provided in **Appendix 5C Preliminary Scoping Opinion Response**. Further details of engagement undertaken to date is provided in Section 17.4.

17.4 Stakeholder Engagement

17.4.1 National Grid has held several meetings with relevant consultees including the UK Health Security Agency, Office for Health Improvement and Disparities and representatives from relevant local authority Public Health teams. A summary of discussions and how these have influenced the Project, scope and/or the approach to the assessment is provided in **Table 17.1**.

Table 17.1 Key stakeholder engagement and National Grid's response

Organisation and Date	Summary of Issues Discussed	Project Response
UK Health Security Agency, Office for Health Improvement and Disparities and representatives from relevant local authority Public Health teams	• Key comments received from consultation bodies formally consulted on the Scoping Report (Appendix 5A EIA Scoping Report), specific to the health and wellbeing assessment.	• A full summary of all issues raised relevant to health and wellbeing in the Scoping Opinion and National Grid's response is provided in Appendix 5C Preliminary Scoping Opinion Response.
Technical Working Group meeting one, 11 March 2026	• Brief overview of the health and wellbeing assessment scope. • Overview of initial assessment findings to be reported in the DES.	• The scope of the assessment has been informed by the Scoping Opinion provided as Appendix 5B Scoping Opinion. • This chapter presents the preliminary assessment of the potential effects of the Project on health and wellbeing.

17.5 Assessment Methodology

- 17.5.1 This section describes the methodology used to establish the existing and future baseline together with the methodology and approach used to undertake the preliminary assessment of effects on population health and wellbeing. The overarching approach is also described in **Chapter 5 EIA Approach and Methodology**. This section also identifies further assessment needed to be undertaken as part of the ES.
- 17.5.2 Section 17.2 includes reference to all guidance that has informed the health and wellbeing assessment methodology.
- 17.5.3 **Appendix 17A Health and Wellbeing Evidence Review** outlines the evidence reviewing the links between health determinants (environmental, social and economic factors that influence health) and resulting effects on health and wellbeing according to the available literature. This provides background to the assessment conducted within this chapter.

Study Area

- 17.5.4 The Study Area defines the geographic extent within which potentially significant health and wellbeing effects of the Project are likely to occur and has been defined using professional judgement and experience of other similar linear projects. The Study Area varies by the type of impact being assessed; for example, some impacts on health determinants occur at a local level whereas some, such as access to work and training, affect the population across a wider geographic area and these are therefore considered at the local authority level.
- 17.5.5 For most impacts on health determinants, the Study Area has been defined to include the areas closest to the Project, which are likely to be affected by issues such as loss of land, access and amenity impacts. This includes the lower super output areas¹ (LSOAs) that contain populations and/or community receptors within 500 m of the draft Order Limits. LSOAs are geographic units used for reporting small area statistics and contain populations of between 1,000 to 3,000 people. The Study Area and the LSOA boundaries are illustrated in **Figure 17.1 Health and Wellbeing Study Area**.
- 17.5.6 The Study Area will be reviewed and updated as required for the ES assessment, to capture any additional impacts outside the 500 m Study Area with the potential to influence health and wellbeing. For example, this may include impacts on the wider highway network.
- 17.5.7 As described in **Chapter 1 Introduction**, the Project has been divided into five Sections based on the boundaries of the local authorities in which works would be required, including the new 400 kV overhead line, the new substations, and the reconductoring. The five Sections are:
- Section 1: Infrastructure within South Holland District;
 - Section 2: Infrastructure within South Kesteven District;

¹ An LSOA is a small, standardised geographic area created by the Office for National Statistics for analysing local data in England and Wales. Each LSOA typically contains around 1,000–3,000 residents and is designed to have a consistent population size, making comparisons between areas more reliable.

- Section 3: Infrastructure within Melton Borough;
- Section 4: Infrastructure within Harborough District; and
- Section 5: Infrastructure within Northamptonshire (including both North Northamptonshire and West Northamptonshire unitary areas).

Data Collection

Desk study

- 17.5.8 Baseline conditions in the Study Area have been gathered from desk-based analysis of publicly available information and presented with reference to the Section of the Project Study Area where they are located. Where relevant and available, data has either been collected at local and district authority level or LSOA level.
- 17.5.9 The baseline provides an understanding of the health and social baseline conditions in the Study Area. It includes population demographics, socio-economic status and mental and physical health indicators. This information has been used as a basis for determining the sensitivity of receptor populations to changes in health determinants arising from the Project.
- 17.5.10 The baseline also provides a description of the existing conditions within the Study Area, including the location, scale, and characteristics of key settlements, as well as the community resources and facilities that support local populations.
- 17.5.11 The health and wellbeing assessment also takes into consideration relevant baseline data from other aspect assessments notably **Chapter 7 Visual, Chapter 11 Geology and Hydrogeology, Chapter 13 Traffic and Transport, Chapter 14 Air Quality, Chapter 15 Noise and Vibration, and Chapter 16 Socio-Economics, Recreation and Tourism.**
- 17.5.12 The following data sources have been accessed to inform the baseline with respect to health and wellbeing:
- Office for National Statistics (ONS) 2021 Census Data (Ref 17.16);
 - Office for Health Improvements and Disparities Fingertips – local health profiles (Ref 17.17);
 - Leicestershire Rutland Statistics and Research, Joint Strategic Needs Assessment (JSNA), 2022-25 (Ref 17.18);
 - Lincolnshire Health Intelligence Hub, JSNA, 2025 (Ref 17.19);
 - West Northamptonshire Public Health and Intelligence & Partnerships teams, JSNA, 2022-2025 (Ref 17.20);
 - North Northamptonshire Council JSNA (Ref 17.21);
 - AddressBase Plus (Ref 17.22); and
 - Ministry of Housing, Communities and Local Government Index of Multiple Deprivation (IMD) (2025) (Ref 17.23): The 2019 IMD data source was accessed to inform the baseline with respect to health and wellbeing for the Scoping Report, provided as **Appendix 5A EIA Scoping Report**. Since the Scoping Report was published, the 2025 IMD dataset has been published, therefore the updated dataset has been accessed to inform the health and wellbeing assessment.

Vulnerable groups

- 17.5.13 The term 'vulnerable groups' refers to groups of individuals who are made vulnerable by the situations and environments they are exposed to. This includes groups of people who may be more sensitive to changes in health determinants or who may be more likely to experience adverse effects due to their circumstances or characteristics.
- 17.5.14 Both the WHIASU HIA guidance (Ref 17.13), which is widely applied to assessments outside of Wales, and the ISEP guidance on Effective Scoping of Human Health in EIA (2022) (Ref 17.8) include checklists for identifying the health determinants and vulnerable groups relevant to the health and wellbeing assessment being undertaken. The WHIASU and ISEP guidance documents have been used to inform **Table 17.2**.
- 17.5.15 The assessment identifies vulnerable groups in relation to each health determinant, based on the outcomes of the baseline review, where vulnerable groups are likely to be present and where there is the potential for an effect on those groups that is different to the effect on the general population.

Table 17.2 Vulnerable groups

Vulnerable Group	Social Receptors in the Study Area (Examples of Types of Receptors)	Description of Vulnerabilities
Children and adolescents	Schools, nurseries, parks, recreational grounds	Children and adolescents are more likely to be pedestrians and require freedom to move between their home, school, and recreational activities. They lack the experience and judgement of adults whilst interacting with traffic and public spaces. They are therefore more at risk from the dangers of motorised transport. Children are more sensitive than adults to air pollution, noise, odour, and other environmental factors, with their bodies less able to deal with them or inform them when something is wrong. Children living in deprived areas are particularly susceptible due to other disadvantages.
Older people	Community resources like parks, local neighbourhood centres, places of worship, PRowS, bus services, care homes, healthcare facilities	As people age, movement and reactions generally become slower and hearing loss becomes more likely. Older people can be more at risk from injury and may also fear falls and be anxious about crossing the road safely or about navigating the neighbourhood setting in general. This can lead to barriers to older people participating in outdoor activities, especially walking, which can adversely affect their health. Older people are generally more reliant on health and social care services and other social

Vulnerable Group	Social Receptors in the Study Area (Examples of Types of Receptors)	Description of Vulnerabilities
		infrastructure. They are less likely to drive and therefore more likely to be pedestrians or to use public transport. Therefore, this group is vulnerable to effects on transport and access.
Low-income groups and people who are unemployed	Public transport routes, PRowWs, community facilities, health and social care facilities	People on a low income generally experience poorer health because they have higher exposure to risk factors such as stress and poor nutrition and have fewer resources available to stay healthy. This group are more likely to use shops and community facilities in their local area and are less likely to have resources to adapt to change. People on low incomes are less likely to own a vehicle and may be more vulnerable to impacts on social isolation, e.g. from impacts on local bus services.
Rural communities	Rural roads and bus routes	People in rural areas are more reliant on transport connections, making it more difficult for them to access basic facilities such as education, employment opportunities, healthcare facilities and social opportunities when transport is disrupted. This makes them more vulnerable to social isolation.
People with poor health status or who are disabled	Health and social care facilities, open space and parks, footpaths, PRowWs, community facilities, public transport	Disabled people and those with poor health status are likely to be less resilient to changes in health determinants. For example, impacts on noise and air quality are more likely to adversely affect those with existing hearing or respiratory issues. This group is generally more reliant on social care services and other social infrastructure. They are less likely to drive and therefore more likely to be pedestrians or to use public transport services. Therefore, this group is vulnerable to effects on transport and access.
Pregnant women	Health and social care facilities, open space and parks, footpaths and PRowWs	Pregnant women and foetuses are more vulnerable to environmental stressors such as air pollution. Pregnant women may be more likely to experience stress from issues such as traffic and noise, due to higher baseline anxiety and greater sensitivity.
People from ethnic minority backgrounds	Health and social care facilities, open space and parks, footpaths and PRowWs, community facilities, places of worship, public transport	Ethnic minority groups are more likely to be socially disadvantaged (see low-income groups above) and are more likely to live in areas where they are exposed to environmental stressors (such as poor air quality or lack of green space) and physical hazards (such as heavy traffic).

Vulnerable Group	Social Receptors in the Study Area (Examples of Types of Receptors)	Description of Vulnerabilities
LGBTQ+ community	Health and social care facilities, public transport, community facilities	LGBTQ+ individuals often face heightened vulnerability in urban environments. They may be disproportionately affected by construction impacts in areas where they already feel unsafe or marginalised.

Future baseline

- 17.5.16 The future baseline relates to known or anticipated future changes to the current baseline in the absence of the Project. Relevant factors for defining the future baseline considered in this DES are described here, or will be considered in the ES.
- 17.5.17 The future baseline considers the following:
- population projections (e.g. population size, density, age profile);
 - likely future health trends (based on past trends, e.g. obesity, life expectancy);
 - availability and capacity of health and social care services;
 - likely changes in health determinants scoped into the assessment (see Paragraphs 17.3.3 and 17.3.4); and
 - any relevant other developments expected to be completed prior to commencing construction of the Project. These developments are identified as part of the cumulative effect assessment screening described in **Chapter 19 Cumulative Effects**.
- 17.5.18 The following data sources have been accessed to inform the future baseline with respect to health and wellbeing:
- ONS population projections (Ref 17.24); and
 - Green Space Index (GSI) 2024 (Ref 17.25).

Further data to be collected to inform the ES

- 17.5.19 All required baseline data has been obtained; however, ongoing reviews of this data will be undertaken to ensure the assessment in the ES incorporates the latest available information.

Impact Assessment Methodology

- 17.5.20 The following section summarises the methodology that has been used for the preliminary health and wellbeing assessment which builds on the general assessment methodology presented in **Chapter 5 EIA Approach and Methodology**.
- 17.5.21 The assessment of likely significant health effects will follow ISEP's guidance on Determining Significance for Human Health in Environmental Impact Assessment (Ref 17.8). Certain principles apply in all cases, including applying a population health approach (i.e. entire groups of people as opposed to the health of individuals), considering effects on health inequalities and vulnerable groups (**Table 17.2**) as well

as the general population, and giving parity to mental and physical health. The assessment will apply the WHO's definition of health as '*a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*' (Ref 17.15).

- 17.5.22 The ISEP guidance (Ref 17.8) provides indicative criteria to inform judgements of the significance of health effects, based on the magnitude of impacts on health and the sensitivity of the receptor population. It recommends that the use of these terms is supported by a narrative explaining the rationale for the assessment.
- 17.5.23 The assessment uses standard categories of magnitude and sensitivity to provide consistency across all EIA aspects. These differ slightly from those in the ISEP guidance. The ISEP guidance (Ref 17.8) for determining magnitude and sensitivity has been adapted to fit with the standardised categories used in this assessment.

Sensitivity

- 17.5.24 The judgement of sensitivity of health effects is driven by a number of factors, which are set out below and are adapted from ISEP guidance (Ref 17.8). A receptor population may not meet all of the criteria in a particular category or may exhibit criteria across two or more categories. Therefore, justification for the selection of the sensitivity criteria detailed in **Table 17.3** has been provided in the assessment.

Table 17.3 Sensitivity of receptors

Value/Sensitivity	Description
Very high	- communities experiencing severe and widespread deprivation; - critical reliance on scarce resources shared (between the population and the project); - pronounced health inequalities, with substantial gaps between the most and least healthy; - a community where anxiety, fear, or distress is pervasive, and where trust in decision-making is very low; - people significantly restricted in their ability to carry out daily activities; - very high numbers of dependants; - populations with very poor or unstable health status; and/or - groups with extremely limited capacity to adapt, recover, or absorb change.
High	- high levels of deprivation (including pockets of deprivation); - reliance on resources shared (between the population and the project); - existing wide inequalities between the most and least healthy; - a community whose outlook is marked predominantly by anxiety or concern; - people who are prevented from undertaking daily activities; - high number of dependants; - people with very poor health status; and/or - people with a very low capacity to adapt.

Value/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.
Negligible	• 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

- 17.5.25 Magnitude of impact is driven by a number of factors, which are set out in **Table 17.4** and are adapted from ISEP guidance (Ref 17.8). A potential health effect may not meet all of the criteria in a particular category or may exhibit criteria across two or more categories. Therefore, justification for the selection of magnitude criteria has been provided in the assessment.

Table 17.4 Magnitude of impact

Magnitude	Description
Large	• high exposure or scale; • long-term duration;

Magnitude	Description
	• continuous frequency; • severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; • majority of population affected; • permanent change; and/or • substantial service quality implications.
Medium	• low exposure or medium scale; • medium-term duration; • frequent events; • severity predominantly related to moderate changes in morbidity or major change in quality-of-life; • large minority of population affected; • gradual reversal; and/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; and/or • slight service quality implications.
Negligible	• negligible exposure or scale; • very short-term duration; • one-off frequency; • severity predominantly relates to a minor change in quality-of-life; • very few people affected; • immediate reversal once activity complete; and/or • no service quality implication.

Significance of effects

- 17.5.26 Effects resulting from construction and operation (and maintenance) of the Project are defined as follows:
- **No significant effect** (neutral or minor): a receptor or group of receptors may be affected by the Project, but the magnitude of changes to health determinants and sensitivity of the receptor population would not result in a significant effect on population health.
 - **Significant beneficial effect** (moderate or major): positive changes to health determinants that would lead to significant population health benefits.

- **Significant adverse effect** (moderate or major): adverse changes to health determinants that would lead to significant population health disbenefits.

17.5.27 ISEP guidance (Ref 17.8) recommends using a matrix similar to that shown in **Table 17.5**, which has been used to guide the assessment of significance taking into account the sensitivity of the receptor and the magnitude of the impact.

Table 17.5 Determination of significance matrix

Value/Sensitivity of Receptor						
Magnitude of Impact		Very high	High	Medium	Low	Negligible
	Large	Major	Major/moderate	Major/moderate/minor	Moderate/minor	Minor/negligible
	Medium	Major/moderate	Major/moderate	Moderate/minor	Minor/negligible	Negligible
	Small	Major/moderate/minor	Moderate/minor	Moderate/minor	Minor/negligible	Negligible
	Negligible	Minor/negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

17.5.28 The assessment matrix is a tool to assist with professional judgement; there are no defined cut-off points between the categories, and no guidance on which score should be assigned where the matrix provides alternatives. As set out in the ISEP guidance (Ref 17.8), this is an informed professional judgement of the importance, desirability or acceptability of a change in population health and wellbeing.

Assessment Assumptions and Limitations

- 17.5.29 The health and wellbeing assessment is qualitative and based on professional judgement, taking account of relevant information such as baseline data including health inequalities and vulnerable groups, impacts identified by other assessment aspects and scientific evidence relating to health determinants and outcomes.
- 17.5.30 Data used to define the baseline conditions has been compiled from existing published sources. Assessments are based on the most recent data available for the Study Area at a set point in time. As with any dataset, these conditions may be subject to change over time, which may influence the findings of the assessment. It is assumed that the data collated is accurate.
- 17.5.31 The health and wellbeing assessment is reliant on information from other aspects and as such the assumptions and limitations of those aspects may also apply to the health and wellbeing assessment.
- 17.5.32 The aggregated data and statistics used to support this assessment cannot be used to make inferences about the health of individuals within the communities assessed.
- 17.5.33 The assessment has been undertaken based on the preliminary Project design information and the consideration of preliminary conclusions from other related environmental aspect assessments. This information is iterative and will be updated

in the ES as the design evolves and any changes are made. All assessment work has applied a precautionary principle, in that where limited information is available (in terms of the proposals for the Project), a realistic worst-case scenario is assessed.

17.6 Baseline Conditions

Existing Baseline

- 17.6.1 The Project has been divided into five Sections as described in **Chapter 4 Description of the Project** and shown in **Figure 17.1 Health and Wellbeing Study Area**. The five Sections are defined by the geographic alignment of the draft Order Limits and the administrative boundaries of the local authorities.
- 17.6.2 The social, demographic and health baseline presented below presents data at LSOA and local authority level. There is a high degree of variation in the baseline conditions across the LSOAs. Due to the size of the Study Area and the large number of LSOAs included in the baseline dataset, average figures have been given for the LSOAs in each Section, with examples of outlier LSOAs provided to highlight variation. The baseline in the chapter is supported by the detailed baseline datasets presented in **Appendix 17B Health and Wellbeing Baseline**.
- 17.6.3 Key existing baseline features for health are the demographic, socio-economic and health profiles of the population within the Study Area. Overall deprivation, which is a fundamental feature of the baseline as it encompasses both socio-economic and health indicators and is closely correlated with key health outcomes such as life expectancy, is shown in **Figure 16.1 Indices of Multiple Deprivation** which shows the locations of LSOAs in the Study Area.

Key receptors in the Study Area

- 17.6.4 The Project is located in an area that is predominantly rural, with large parts of the land under arable use. The towns of Spalding, Bourne, Melton Mowbray, Market Harborough, Kettering, and Wellingborough are located within 5 km of the Project. There are also multiple villages and individual properties near to the Project.

Residential

- 17.6.5 Section 1 is in South Holland, a predominately rural district characterised by dispersed rural properties, small settlements and market towns. The closest town to the Project is Spalding, with the villages of Surfleet, Crossgate, Pinchbeck and Northgate close to or adjacent to the Study Area. Within the area there are several footpaths, bridleways and local access roads that provide links between rural dwellings and villages.
- 17.6.6 Section 2 is in South Kesteven which is a large and diverse district encompassing several market towns and rural villages. The closest town is Bourne, with the villages of Dunsby, Haconby, Morton, Stainfield, Hanthorpe, Bulby, Irnham, Swinstead, Corby Glen, Swayfield, North Witham and South Witham within or adjacent to the Study Area. Within the area there are several footpaths, bridleways and local access roads that provide links between rural dwellings and villages.
- 17.6.7 Section 3 is in Melton which is a predominantly rural borough, centred around the historic market town of Melton Mowbray and a network of surrounding villages including, Sewstern, Garthorpe, Holwell, Ab Kettleby, Wartnaby, Asfordby, Frisby on

the Wreake and Twyford within or adjacent to the Study Area. Within the area there are several footpaths, bridleways and local access roads that provide links between rural dwellings and villages.

- 17.6.8 Section 4 is in Harborough which is a rural district. The closest and largest town is Market Harborough with the villages of Marefield, Lowesby, Cold Newton, Tilton on the Hill, Halstead, Skeffington, Tugby, Rolleston, Noseley, Goadby, Glooston, Stonton Wyville, Cranoe, Slawston, Thorpe Langton, Welham, Great Bowden, and Little Bowden within or adjacent to the Study Area. Within the area there are several footpaths, bridleways and local access roads that provide links between rural dwellings and villages.
- 17.6.9 Section 5 is in West and North Northamptonshire which encompass a diverse mix of urban centres, market towns, and rural communities. The closest towns are Market Harborough and Wellingborough with the villages of Weston by Welland, Sutton Bassett, Dingley Braybrooke, Harrington, Orton, Loddington, Mawsley, Great Cransley, Broughton, Pytchley, Orlingbury, Little Harrowden, Hardwick, Mears Ashby, Wilby, Great Doddington, Earls Barton, Castle Ashby and Grendon within or adjacent to the Study Area. Within the area there are several footpaths, bridleways and local access roads that provide links between rural dwellings and villages.

Healthcare and social infrastructure

- 17.6.10 Section 16.6 of **Chapter 16 Socio-Economics, Recreation and Tourism** makes reference to healthcare and social infrastructure receptors and **Figure 16.2 Socio-Economic, Tourism, Recreation and Health Receptors** includes health and social infrastructure located within the Study Area, as well as all relevant receptors for the health and wellbeing assessment including (but not limited to) education, health and community receptors; these have been identified using the Ordnance Survey (OS) Local Important Buildings dataset (Ref 17.28).
- 17.6.11 Further health care and social infrastructure receptors may be identified within the Study Area following the use of additional Geographic Information Systems (GIS) data, desk-top research and engagement with relevant stakeholders. These will be reported in the ES.

Open spaces

- 17.6.12 The Study Area comprises large areas of agricultural land or open countryside interspersed by settlements. Open spaces within the Study Area are shown in **Figure 16.2 Socio-Economic, Tourism, Recreation and Health Receptors**. For the purposes of this assessment, the term open space refers to land that is publicly available, left in a natural undeveloped, or landscaped state that is of community value. Both general amenity space and designated open space has been identified, where relevant. Where effects are reported for designated open spaces, this has been made clear in the assessment.
- 17.6.13 Open spaces have been identified using the OS Open Greenspace dataset (Ref 17.27) which is a dataset of open greenspaces in urban and rural areas including playing fields, sports' facilities, play areas and allotments. Desk-based analysis has determined which are publicly accessible for the purposes of the health and wellbeing assessment.

Public Rights of Way

- 17.6.14 National Cycle Network routes, the local cycle network, long-distance paths and national trails have been identified in the Study Area. These are shown in **Figure 16.2 Socio-Economic, Tourism, Recreation and Health Receptors**. **Chapter 16 Socio-Economics, Recreation and Tourism** considers potential disruption to users of recreational routes including PRowS. The health and wellbeing assessment has focused primarily on effects on promoted recreational routes which are a subset of these. Further information can be found in **Chapter 13 Traffic and Transport**, which includes a baseline of PRowS, National Cycle Networks, and recreational routes within the Study Area. The **Chapter 13 Traffic and Transport** assessment also identifies PRowS which are potentially highly used in the local area.

Health indicators in the Study Area

- 17.6.15 This section presents the overall data for the Study Area as a whole and for each route Section. More detailed data provided at the LSOA level is included within **Appendix 17B Health and Wellbeing Baseline**. Outlier values have been bolded for ease of comparison.
- 17.6.16 **Table 17.6** shows the age profile of the Study Area in comparison with regional and national values.

Table 17.6 Age profile

	Children and Young People (Under the Age of 16)	Older People (Aged 65 and Above)
Study Area	16.8%	23.8%
Section 1	17.0%	24.0%
Section 2	16.0%	24.4%
Section 3	15.8%	25.8%
Section 4	17.3%	23.0%
Section 5	17.4%	22.7%
East Midlands	18.1%	19.4%
England	18.5%	18.3%

- 17.6.17 The Study Area overall has a lower proportion of children and young people than East Midlands and England and has a higher proportion of older people than East Midlands and England.
- 17.6.18 **Table 17.7** shows the proportion of good and bad self-reported health in the Study Area in comparison with regional and national values.

Table 17.7 General (self-rated) health

	Very Good Health	Good Health	Fair Health	Bad Health	Very Bad Health
Study Area	48.6%	34.9%	12.4%	3.3%	0.8%
Section 1	42.9%	37.5%	14.7%	4.0%	0.9%
Section 2	46.3%	35.9%	12.8%	4.0%	1.0%
Section 3	49.2%	34.4%	12.5%	3.0%	0.9%
Section 4	54.6%	32.0%	10.3%	2.4%	0.6%
Section 5	49.4%	34.7%	11.8%	3.2%	0.8%
East Midlands	46.2%	34.8%	13.6%	4.2%	1.2%
England	48.5%	33.7%	12.7%	4.0%	1.2%

17.6.19 The Study Area on average has better health, with 83.5% rate of good and very good self-reported health as compared to East Midlands with 81.0% and England with 82.2%.

17.6.20 **Table 17.8** shows the proportion of people disabled under the Equality Act 2010 (Ref 17.31) and people with disabilities experiencing severe limitations in day to day activities in the Study Area in comparison with regional and national values.

Table 17.8 Disability

	Disabled Under the Equality Act	Disabled Under the Equality Act: Day to Day Activities Limited a Lot
Study Area	16.0%	6.0%
Section 1	18.0%	7.4%
Section 2	17.5%	6.5%
Section 3	16.3%	5.8%
Section 4	13.7%	4.8%
Section 5	15.5%	5.9%
East Midlands	18.3%	7.7%
England	17.3%	7.3%

17.6.21 The Study Area has a lower proportion of people defined as disabled under the Equality Act than East Midlands and England.

17.6.22 **Table 17.9** shows the male and female life expectancy in the Study Area in comparison with the regional and national values.

Table 17.9 Life expectancy

	Male Life Expectancy	Female Life Expectancy
Study Area	79.7	83.3
East Midlands	78.9	82.7
England	79.3	83.2

17.6.23 The average male (79.7 years) and female (83.3 years) life expectancy in the Study Area is higher than East Midlands and England.

17.6.24 **Table 17.10** shows the prevalence of overweight and obesity in children aged 4–5 years and 10–11 years in the Study Area in comparison with the regional and national values.

Table 17.10 Obesity

	Reception Prevalence of Overweight (Including Obesity)	Reception Prevalence of Obesity (Including Severe Obesity)	Year 6 Prevalence of Overweight (Including Obesity)	Year 6 Prevalence of Obesity (Including Severe Obesity)
Study Area	22.3%	9.4%	34.6%	20.4%
East Midlands	22.0%	9.6%	36.0%	22.1%
England	22.1%	9.6%	35.8%	22.1%

17.6.25 The Study Area on average has a high rate of overweight children (including obesity) and its obesity rate (including severe obesity) for reception age children (4 to 5 years old), is similar to that of the East Midlands and England. The Study Area has a lower prevalence of overweight and obesity for Year 6 children (10 to 11 years old) than the regional and national averages.

17.6.26 **Table 17.11** shows the standardised mortality ratio (SMR) of different causes including cancer, cardiovascular disease, coronary heart disease, stroke and respiratory diseases in the Study Area by each Section of the Project, with comparison to regional and national values.

Table 17.11 Mortality

Area	All Causes (SMR)	Cancer (SMR)	Cardiovas cular Disease (SMR)	Coronary Heart Disease (SMR)	Stroke (SMR)	Respirator y Diseases (SMR)
Section 1	100.5	99.3	109.6	114.4	91.7	86
Section 2	93.5	95.8	100.9	97.8	91.3	82.9
Section 3	91.8	90.6	96.8	96.3	90.3	85.5
Section 4	87.8	93.7	83.9	85.2	82.7	74.3

Area	All Causes (SMR)	Cancer (SMR)	Cardiovascular Disease (SMR)	Coronary Heart Disease (SMR)	Stroke (SMR)	Respiratory Diseases (SMR)
Section 5	102.05	104.4	96	87.45	94.65	111.35
Average across Sections	96.3	98.0	97.2	94.8	90.9	91.9
East Midlands	103.5	103.1	104.7	106.9	100.3	99.4
England	100	100	100	100	100	100

17.6.27 The Study Area has on average lower mortality rates than England, whilst the region of East Midlands has higher all cause mortality rates, including from cancer, stroke, coronary and cardiovascular diseases.

17.6.28 **Table 17.12** shows the level of deprivation in the Study Area for overall deprivation, employment, health and disability and living environment deprivation.

Table 17.12 Deprivation

Area	Overall Deprivation	Employment	Health and Disability	Living Environment
Section 1	4	4	5	6
Section 2	6	6	7	7
Section 3	7	8	8	6
Section 4	10	10	10	10
Section 5	6	7	6	8

17.6.29 The Study Area has moderate to low levels of deprivation, with overall deprivation between the 4th and 10th decile, where 1 indicates the most deprived local authority district and 10 is the least. Section 1 is the most deprived in the Study Area and Section 4 is the least deprived.

17.6.30 **Table 17.13** shows the socio-economic classifications from AB to DE social grade in the Study Area by each Section of the Project, in comparison with the regional and national values.

Table 17.13 Socio-economic classifications

Area	AB Higher and Intermediate Managerial/Administrative/Professional Occupations (%)	C1 Supervisory, Clerical and Junior Managerial/Administrative/Professional Occupations (%)	C2 Skilled Manual Occupations (%)	DE Semi-Skilled and Unskilled Manual Occupations; Unemployed and Lowest Grade Occupations (%)
Section 1	14.1	30.9	30.2	24.9
Section 2	23.7	33.1	24.6	18.6
Section 3	24.1	33.1	26.4	16.3
Section 4	33.5	35.8	19.4	11.4
Section 5	20.4	33.8	24.0	21.9
Study Area	22.7	33.4	24.8	19.1
East Midlands	23.5	32.7	21.3	22.5
England	20.3	33.1	23.3	23.3

17.6.31 The Study Area has a higher proportion of residents within C1 and C2 occupations when compared to the East Midlands and England.

17.6.32 **Table 17.14** shows the economic activity status in the Study Area, by each Section of the Project in comparison with regional and national values.

Table 17.14 Economic activity status

	Economically Active: In Employment	Economically Active: Unemployed	Economically Inactive
Study Area	58.3%	1.9%	38.3%
Section 1	56.4%	2.5%	39.9%
Section 2	57.1%	1.9%	39.6%
Section 3	57.6%	1.6%	39.4%
Section 4	60.4%	1.8%	36.0%
Section 5	59.0%	1.9%	37.5%
East Midlands	55.1%	2.4%	40.1%
England	55.7%	2.9%	39.1%

17.6.33 The Study Area has a higher proportion of economically active people in employment than East Midlands and England. It has a lower proportion of unemployed people

than East Midlands and England. A lower proportion of the Study Area population is economically inactive than East Midlands and England.

Sensitivity assessment

- 17.6.34 The sensitivity assessment draws on statistical data on the demographic, socio-economic and health profile of the local community presented in Sections 17B.4 to 17B.8 of **Appendix 17B Health and Wellbeing Baseline**.

Overall Study Area

- 17.6.35 The baseline information shows that overall, the Study Area population has a low proportion of vulnerable groups such as children and young people, people experiencing unemployment, people with bad or very bad health and people with disabilities. The overall Study Area also has moderate to low levels of deprivation, with the highest levels of deprivation in Section 1 and the lowest in Section 4. The overall Study Area population has high life expectancy, and relatively low mortality and obesity rates. Based on this information, the sensitivity of the Study Area population as a whole is considered to be low to medium.
- 17.6.36 Additionally, the population has some further sensitivities, including areas of higher deprivation and worse health and an overall high proportion of older people. These areas are identified for each Section in **Appendix 17B Health and Wellbeing Baseline** and are considered in the assessment where impacts are localised in these areas.

Section 1 – South Holland

- 17.6.37 The baseline information outlined in Section 17B.4 of **Appendix 17B Health and Wellbeing Baseline** shows that the general population of South Holland comprises of a high proportion of older people, people with no qualifications, people in the DE social grade, people with bad or very bad health and people with disabilities compared with the England average. South Holland has moderate levels of deprivation, low life expectancy, and high mortality and obesity rates. Based on this information, the sensitivity of the Study Area population in South Holland as a whole is considered to be high.
- 17.6.38 There is variation across the population with some areas experiencing higher deprivation and worse health compared to the Section average. These areas are identified in **Appendix 17B Health and Wellbeing Baseline** and are considered in the assessment where impacts are localised in these areas.

Section 2 – South Kesteven

- 17.6.39 The baseline information outlined in Section 17B.5 of **Appendix 17B Health and Wellbeing Baseline** shows that the general population of South Kesteven comprises of a low proportion of children and young people, people with bad or very bad health and people experiencing unemployment compared with the England average. South Kesteven has low deprivation levels, high life expectancy and low mortality rates. The local authority has a high proportion of older people and a high reception prevalence (in children 4-5 years old) of overweight and obesity. Based on this information, the sensitivity of the Study Area population in South Kesteven as a whole is considered to be low to medium.

- 17.6.40 There is variation across the population, with some areas experiencing higher deprivation compared to the Section average. These areas are identified in **Appendix 17B Health and Wellbeing Baseline** and are considered in the assessment where impacts are localised in these areas.

Section 3 – Melton

- 17.6.41 The baseline information outlined in Section 17B.6 of **Appendix 17B Health and Wellbeing Baseline** shows that the general population of Melton comprises of low proportions of children and young people, people with bad or very bad health and people with disabilities compared with the England average. Melton has low deprivation levels, high life expectancy, and low mortality and obesity rates. The local authority has a high proportion of older people. Based on this information, the sensitivity of the Study Area population in Melton as a whole is considered to be low.
- 17.6.42 There is variation across the population, with a higher concentration of vulnerable groups, such as older people, in some areas. These areas are identified in **Appendix 17B Health and Wellbeing Baseline** and are considered in the assessment where impacts are localised in these areas.

Section 4 – Harborough

- 17.6.43 The baseline information outlined in Section 17B.7 of **Appendix 17B Health and Wellbeing Baseline** shows that the general population of Harborough comprises of low proportions of children and young people, people with bad or very bad health and people with disabilities compared with the England average. Harborough has low deprivation levels, high life expectancy, low mortality and obesity rates, and high education and employment levels. Based on this information, the sensitivity of the population in Harborough as a whole is considered to be low.
- 17.6.44 There is variation across the population with some areas experiencing higher deprivation and worse health compared to the Section average. These areas are identified in **Appendix 17B Health and Wellbeing Baseline** and are considered in the assessment where impacts are localised in these areas.

Section 5 – Northamptonshire (including both North Northamptonshire and West Northamptonshire)

- 17.6.45 The baseline information outlined in Section 17B.8 of **Appendix 17B Health and Wellbeing Baseline** shows that the general population in Section 5 (West and North Northamptonshire) comprises of low proportions of children and young people, people with no qualifications, people with bad and very bad health and people with disabilities compared with the England average. Section 5 has moderate levels of deprivation and higher than average levels of education and employment. All-cause mortality is slightly higher than England's average and the population is slightly older. The sensitivity of the Study Area for Section 5 is considered to be medium.
- 17.6.46 There is variation across the population with some areas of higher deprivation and worse health compared to the Section average. These areas are identified in **Appendix 17B Health and Wellbeing Baseline** and are considered in the assessment where impacts are localised in these areas.

Future Baseline

- 17.6.47 According to ONS Census 2021 population projections (Ref 17.24), the population of the Study Area will grow by 8% on average between 2022 and 2032, which is higher than the region of East Midlands with a growth rate of 6.8% and England with a growth rate of 6.4%. The local authority of Harborough is projected to have the highest population increase in the Study Area at 14.8%.
- 17.6.48 The proportion of people aged 65 and above in the Study Area is projected to grow by 24.8% on average between 2022 and 2032, which is higher than the region of East Midlands with a projection of 21.3% and England with a rate of 20.7%. The local authority of Harborough is projected to have the highest increase in population of older people in the Study Area with an increase of 30.1%.
- 17.6.49 In the East Midlands, obesity in children aged 10–11 years increased from 17.5% in 2008 to 22.4% in 2025, increasing by 4.9 percentage points in 17 years. This is higher than England which saw an increase of 3.7 percentage points from 18.5% in 2008 to 22.2% in 2025. It is assumed for the purposes of the assessment that these trends are likely to continue.
- 17.6.50 Further, East Midlands has observed an increase in life expectancy from 76.3 years in 2001 to 79.3 years in 2024 for males and 80.5 years in 2001 to 83.1 years in 2024 for females, as compared to England where male life expectancy increased from 76 years in 2001 to 79.8 years in 2024 and female life expectancy increased from 80.6 years in 2001 to 83.6 years in 2024. This suggests that the East Midlands has a lower rate of increase in life expectancy compared with the national average. In England, male and female life expectancy are projected to increase to 88 years and 91.8 years respectively by 2040. There is no data available for projected life expectancy for East Midlands²; however, it is assumed for the purposes of the assessment that the trend towards an increase in life expectancy in the East Midlands is likely to continue.
- 17.6.51 According to the GSI 2024 (Ref 17.25), provision of green space per person in the Study Area is projected to decrease by 8.44% on average between 2024 and 2043. The local authority of Harborough is projected to experience the largest decrease by 11.32%.

17.7 Design, Standard, and Additional Mitigation Measures

- 17.7.1 Mitigation measures to avoid, reduce, manage, or control potential impacts and resulting effects of the Project are typically described and considered in assessment in three groups or types as defined in **Chapter 5 EIA Approach and Methodology** of this DES. Each measure considered in this preliminary assessment is described in the relevant section below.

² ONS Census 2021. Life expectancies - Past and projected period and cohort life tables: 2022-based, UK, 1981 to 2072. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/pastandprojecteddatafromthepreperiodandcohortlifetables/2022baseduk1981to2072#projected-life-expectancy-across-the-uk-countries>

Design Measures

- 17.7.2 The Project and draft Order Limits have been designed to avoid sensitive receptors as far as practicable. This is in accordance with the Holford Rules (Ref 17.32) applicable to routeing of new overhead lines and the Horlock Rules (Ref 17.33) (as defined in Section 2.6 of **Chapter 2 Regulatory and Planning Policy Context**) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (Ref 17.34), which considers the impacts across a wide range of criteria, including environmental and socio-economic, and **Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 17.7.3 The Project will be designed to comply with existing National Grid standards and relevant external guidelines and policies relating to EMFs as stated in NPS EN-5 (Ref 17.2), including the ICNIRP guidelines for reducing effects in relation to EMFs (Ref 17.30). Compliance with these guidelines and policies mean that the Project will already have designed out potential effects from EMFs to a level appropriate to meet health and safety standards, including precautionary measures. This is mandated through National Grid's Technical Specifications and Policy Statements which dictate that all designs must comply with these EMF policies, ensuring the Project is designed to meet these obligations.
- 17.7.4 National Grid are aware that, notwithstanding the Project's compliance with safety standards, there may be concern regarding the potential effects of EMFs. To address any concerns or anxiety, National Grid offer open communication, providing information on the science, research and measures that will be applied to protect against EMF effects. These measures include:
- providing open and transparent information about EMFs on the National Grid website (www.emfs.info) which is linked to all National Grid project websites for members of the public to access;
 - National Grid operating a helpline on EMFs to answer any questions on this subject; this and the website are aimed at providing information on EMFs to help reduce anxiety or concern around EMFs; and
 - ensuring EMF experts are present at public consultation events to address any questions or concerns on EMFs.

Standard Measures

- 17.7.5 Standard measures are those that would be implemented on a project of this scale and nature regardless of being subject to statutory assessment. As such, it can be assumed that these measures will be applied in the assessment.
- 17.7.6 A range of standard measures for the Project will be adopted throughout the duration of the construction phase. A Draft Outline CoCP is provided in **Appendix 4A Draft Outline CoCP**. Measures relevant to the control and management of impacts that could affect health and wellbeing include (refer to **Appendix 4A** for the full description of each measure):

- GG02 – on compliance with existing National Grid standards and relevant external guidelines and policies relating to EMFs as stated in NPS EN5 (Ref 17.2), including the ICNIRP guidelines for EMFs (Ref 17.30).
- GG04 – on employment of Environmental Managers and Environmental Clerks of Works during construction to ensure requirements are met and good practice implemented.
- GG05 – on environmental training of construction workers.
- GG07 – on requirement for the development of management plans to secure mitigation measures.
- GG12 – on locating activities that could cause potential nuisance away from sensitive receptors such as residential receptors, where reasonably practicable.
- GG26 – working areas will be appropriately fenced and will take into consideration the level of security required.
- GG27 – on engagement with the community and local businesses.
- GG29 – on the Contractor's Stakeholder Engagement Plan (or equivalent) measures to include appropriate strategies and tools to tailor engagement to local needs. This includes effective communication with diverse and less heard groups, with all communication in plain English and translated information provided where reasonable and upon request.
- AS03 – on maintaining access to and from residential, commercial, community and agricultural land uses.
- AQ01 – on dust management measures set out in the Dust Management Plan.
- TT01 – on the Construction Traffic Management Plan (CTMP) measures to manage and control construction vehicle movements. The Outline CTMP will be provided with the application for development consent and the final CTMP secured through the draft development consent order (DCO).
- TT03 – on management of affected PRowS.
- Additional Mitigation Measures

17.7.7 Additional mitigation measures are those identified through assessment to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and standard mitigation measures described above.

17.8 Preliminary Assessment of Effects

17.8.1 A summary of potential impacts and mitigation measures identified in this preliminary assessment, and likely significance of the resulting effect with that mitigation in place, is provided in **Table 17.15**. Where appropriate for likely significant or notable effects, further explanation is provided in the following sections on construction, and operation and maintenance effects.

17.8.2 The potential effects of the Project, including those that are expected to be significant, have been assessed on a preliminary basis using current available data relating to both the construction and operation (and maintenance) phases of the Project. For any residual health and wellbeing effects reported in this section, it is

assumed that all mitigation, including design, standard, and any additional mitigation measures confirmed at the time of writing, are in place before the effects are reported, which is in accordance with ISEP guidance (Ref 17.8).

- 17.8.3 The scope of the assessment is based on determinants of health that are likely to change as a result of the Project. It should be noted that the assessment is ongoing and subject to change as the Project develops. The final assessment will be based on the Project for which development consent is sought and presented within the ES submitted with the application for development consent.
- 17.8.4 The assessment reported within this chapter is considered a reasonable 'worst case' as a precautionary approach has been taken where design, construction or baseline information is being developed. However, the preliminary assessment is considered sufficiently robust to enable consultees to understand the likely health and wellbeing effects of the Project, based on current design information and understanding of the baseline within the Study Area.

Construction

- 17.8.5 During construction, there is the potential for health and wellbeing to be affected by construction activities and traffic.
- 17.8.6 Impacts on some health determinants are assessed at the Project-wide level. This is considered most appropriate for these determinants as the potential changes are not confined to individual communities but are measurable across a wider geographical area, such as the whole Study Area or unknown locations throughout the Study Area. These are:
- employment, training and income; and
 - planning uncertainty.
- 17.8.7 Impacts on the remaining health determinants scoped into the assessment during construction are assessed separately for each Section of the route. These are:
- neighbourhood amenity;
 - physical activity;
 - open space, leisure and play; and
 - access to health and social care, and other social infrastructure.

Project-wide assessment

Employment, training and income

- 17.8.8 A review of published research linking employment and training opportunities with health and wellbeing can be found in **Appendix 17A Health and Wellbeing Evidence Review**. There is considerable evidence to support the link between employment and health. Employment is consistently associated with better physical and mental health outcomes, whereas unemployment is linked to higher risks of limiting long-term illness, cardiovascular disease and poor mental health.
- 17.8.9 Pathways through which construction of the Project may impact on access to employment and training include the following:

- short- to medium-term employment opportunities in construction made available to people from within local communities;
 - use of local or regional companies to procure materials and services needed for construction, supporting the local economy; and
 - opportunities for training and apprenticeships for local communities.
- 17.8.10 Health and wellbeing effects associated with employment, training and income may be experienced across the geographic area from which people would travel to work on the construction of the Project, and where the economic benefits of construction are felt.
- 17.8.11 Across the five-year construction programme, it is anticipated that the peak construction period would be in years 2030 and 2032. As set out in **Chapter 4 Description of the Project**, the peak workforce would be approximately 930 workers. This would comprise 50 for enabling works, 320 for overhead line works, 380 for substation works and 180 for reconductoring works.
- 17.8.12 **Chapter 16 Socio-Economics, Recreation and Tourism** assesses how the direct employment opportunities generated by the Project are likely to impact on the economy in the wider Study Area. The assessment in **Chapter 16 Socio-Economics, Recreation and Tourism** concludes that the direct construction employment and economic growth (measured as gross value added (GVA)) generated by the Project is likely to result in a minor beneficial economic and employment effect at route-wide level, which is **not significant**.
- 17.8.13 Communities within commuting distance of the Project will potentially benefit from these new employment opportunities, in terms of income, training and development. From experience on other National Grid projects the majority of construction activities would require trained specialists who are qualified to work on high voltage electricity lines. These are typically sourced from National Grid's existing pool of approved contractors. The local Study Area has a higher proportion of people working in construction than the regional and national averages. Depending on skill levels required and the skills of local people, construction employment may be accessible to residents within the wider Study Area. The Project is currently considering the ways in which it can promote local employment and skills.
- 17.8.14 The extent of beneficial health effects within the wider Study Area arising from construction employment will depend on the number of people who are able to, and choose to, take up opportunities made available. For those who do, this may result in improved income and employment status, with the potential for beneficial physical and mental health outcomes. In particular, uptake by disadvantaged groups who could benefit most, such as young people not in education, employment or training (NEET), or long-term unemployed people, will determine the health benefits.
- 17.8.15 Based on the preliminary assessment and given the minor beneficial effect reported in **Chapter 16 Socio-Economics, Recreation and Tourism**, although individuals may benefit from direct employment opportunities generated, at a population level for both the general population and vulnerable groups, a beneficial impact of small magnitude is expected for this health determinant.
- 17.8.16 The general population is considered to have a low sensitivity to health effects associated with employment, training and income, as the Study Area has a higher

proportion of economically active people in employment³ and a lower proportion of people in the DE⁴ social grade than in the East Midlands and England. This will result in a temporary minor beneficial health effect on the general population in the Study Area, which is **not significant**.

- 17.8.17 Vulnerable groups that may be more sensitive to changes in access to employment, training and income include people in low-income households, people who are economically inactive or unemployed, children and young people (who may be affected by changes in household income) and people who are unable to work due to ill health. Within the Study Area there are LSOAs which have high unemployment rates, such as North Northamptonshire 031C, high proportions of people unable to work due to ill health such as North Northamptonshire 031A, and low educational attainment levels and high deprivation such as South Holland 007C. Vulnerable groups are considered to have medium sensitivity to health effects associated with this determinant, leading to a temporary minor beneficial effect which is **not significant**.

Planning uncertainty

- 17.8.18 This health determinant concerns uncertainty and negative perceptions during the project planning stages, for example, about the potential adverse impacts resulting from the construction and operation (and maintenance) of the Project. Public concern is likely to be high during the planning and construction stages, when there is most uncertainty about the impacts of the Project. Uncertainty and concerns about potential impacts can affect mental health directly (stress, anxiety, depression) and indirectly through social determinants (access to services).
- 17.8.19 A review of published research evidence linking planning uncertainty with health and wellbeing can be found in **Appendix 17A Health and Wellbeing Evidence Review**. While research focusing specifically on planning uncertainty associated with major infrastructure projects is limited, there is a well-established body of research demonstrating an association between uncertainty and adverse mental health outcomes generally. Further to this, learning from other large infrastructure projects indicates that uncertainty during the planning phases for projects can lead to anxiety and reduced wellbeing among stakeholders and residents. Review of consultation responses suggest that residents affected by major infrastructure projects experience feelings of anxiety during the planning stages, including negative feelings associated with the potential effects on the value of their properties, impact on their quality of life, impact on their local green spaces, construction noise and air emissions, construction traffic and social isolation caused by congestion and severance.
- 17.8.20 Analysis of responses from local residents submitted during Stage 1 Consultation held between 11 June and 6 August 2025 revealed the following concerns, which could contribute to a feeling of uncertainty and a reduction in mental wellbeing during the planning stages of the Project:
- concerns about the length of the construction programme and construction working hours;
 - concerns about the presence of the construction workforce in communities;

³ People of working age who are part of the labour market and who currently have a job

⁴ Semi-skilled and unskilled manual occupations; unemployed and lowest grade occupations

- concerns about potential increases in crime and anti-social behaviour associated with construction compounds;
- perception that there has been or will be a lack of information shared in advance of construction works taking place; and
- construction effects from multiple projects in the same area.

- 17.8.21 Inclusive, clear and transparent community engagement, delivered in person and via multiple other methods, can help to decrease the uncertainty felt by local residents. Receiving accurate updates on Project scope, timeline, and impacts can help to dispel misconceptions and enable communities to understand and plan for changes that will affect them, reducing the potential for anxiety.
- 17.8.22 Consideration of the feedback received through public consultation and wider stakeholder engagement has been a contributing factor in the development of the Project. Consultation has been completed at an early stage in the development of Project proposals to provide local communities with an opportunity to share their local knowledge, raise concerns about the Project and influence its development. Stage 1 Consultation included inviting the public to comment on the emerging Project. The Project is proceeding with a voluntary, non-statutory Stage 2 Consultation.
- 17.8.23 Based on this preliminary assessment, and the fact that standard good practice measures for engagement and timely provision of information about the construction works are expected to provide mitigation for these effects, an adverse impact of medium magnitude is expected for this health determinant. Some people in the Study Area may already be experiencing uncertainty in connection to other major infrastructure projects, like the Grimsby to Walpole project, another network reinforcement project being proposed by National Grid, which can result in heightened feelings of stress and anxiety. This may reduce the resilience of the community to the introduction of further new developments. Whilst the general population of the Study Area has a low sensitivity, it is considered to have an increased sensitivity to the determinant of planning uncertainty, due to the presence of multiple major projects in the area. Taking this into account, the general population is considered to have a medium sensitivity to health effects associated with planning uncertainty. This would result in a temporary minor adverse effect on wellbeing of the general population in the Study Area, which is **not significant**.
- 17.8.24 Uncertainty and concern about the impacts of a Project can affect different people in different ways. Those in vulnerable groups may be more sensitive to adverse effects on their mental wellbeing due to planning uncertainty. Older people, people with poor health status, existing health conditions or who are disabled are more likely to be adversely affected by planning uncertainty due to concerns about how the Project will affect them. For example, as described in **Table 17.2**, these groups of people may be more reliant on accessible transport and public services. Disruption or delays can limit mobility, access to healthcare, and social connections. These groups typically have less flexibility to adapt to alternative arrangements, leading to an increase in uncertainty and anxiety. In addition, groups such as older people and families with young children may be more vulnerable to safety risks associated with construction traffic. Vulnerable groups are therefore considered to have high sensitivity to health effects associated with this determinant, leading to a temporary moderate adverse effect on vulnerable groups which is **significant**, based on the preliminary assessment. This is most likely to affect those closest to the draft Order Limits.

Section assessment

Neighbourhood amenity

- 17.8.25 The term ‘neighbourhood amenity’ is used in this assessment to describe effects on a combination of physical factors that affect the character, comfort and attractiveness of a neighbourhood, which in turn may affect residents’ feelings about, and experience of, their local environment. Relevant impacts include air quality, noise, visual amenity, lighting, landscape and townscape character and traffic levels which, when combined, contribute to an overall amenity effect. If these factors are altered to a sufficient degree, there could be effects on quality of life and mental wellbeing for local residents. A review of published evidence for health outcomes associated with environmental amenity is included in **Appendix 17A Health and Wellbeing Evidence Review**.
- 17.8.26 The construction phase of the Project could affect the quality of neighbourhoods through environmental changes resulting from the presence of construction compounds, construction activities and construction traffic on local roads. The residual environmental effects on sensitive receptors from the construction of infrastructure are assessed in the following chapters of this DES:
- **Chapter 7 Visual;**
 - **Chapter 13 Traffic and Transport;**
 - **Chapter 14 Air Quality;** and
 - **Chapter 15 Noise and Vibration.**
- 17.8.27 The assessment of neighbourhood amenity is guided by the findings from these other assessments, but does not rely on significance thresholds used in these assessments since these do not relate specifically to health; rather it assesses qualitatively how the Project is likely to alter local amenity and perceptions about neighbourhood quality and consequently how this may affect health and wellbeing.
- 17.8.28 This assessment has focused on villages and other settlements. Effects on neighbourhood amenity for the rural community will also be assessed within the ES. This will consider the combined impacts on neighbourhood amenity at individual residential receptors and the surrounding areas, collectively as a Project-wide population.

Section 1

Surfleet

- 17.8.29 Surfleet is a linear village, arranged in an east–west alignment along Station Road. The A16 forms the eastern boundary of the village and beyond this is the neighbourhood of Surfleet Seas End. The village would be surrounded by construction activities or Primary Access Routes (PARs) (this, and other terminology used in discussion of traffic and access, is defined in **Chapter 13 Traffic and Transport**) on three sides, with the draft Order Limits to the south, a primary construction traffic access (core) route along the A16 to the east, and primary access (local) links along the A152 to the north. The elements of the Project in closest proximity to the village would be a construction compound and construction laydown

area immediately south of the village. Some individual properties on the southern edge of the village are located within the draft Order Limits.

- 17.8.30 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Surfleet:
- **Chapter 7 Visual** has identified a moderate adverse (significant) effect from viewpoint (VP) 1B.2 located at the southern edge of the settlement. It is reported that construction activity is likely to be visible in relatively close proximity to the south of the settlement.
 - **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including Heavy Goods Vehicles (HGVs). The local roads that run from east to west along the length of the village do not form part of the defined PARs. Construction traffic will pass through the village at two locations, on the A16 and the B1356 Gosberton/Surfleet Road.
 - **Chapter 15 Noise and Vibration** has identified approximately five residential receptors on Cuckoo Lane and White Cross Lane in Surfleet that would be potentially significantly affected by vibration from the construction of the overhead line (if percussive piling is required) and due to ground compaction required for the construction of temporary construction access routes.
- 17.8.31 Construction of, and activity along, temporary haul roads and a series of towers will be visible in southern parts of the village to the west of the A16. Affected resources include residential properties, community facilities and public realm. This will include Station Road, Surfleet Primary School, Surfleet Village Hall, the River Glen path and Park Lane, a single track road with open views to the south of the village. Based on the noise assessment, noise from construction activities is also likely to be audible from southern parts of the village including Park Lane, the River Glen path and some residential areas.
- 17.8.32 It is likely that residents in Surfleet will feel the quality of their neighbourhood has been diminished during construction of the Project. Due to the proximity of construction sites and traffic routes, the extent of the affected areas and the temporary nature of effects, the magnitude of impact on neighbourhood amenity is assessed as medium. The population of Surfleet is assessed as having medium sensitivity. This would result in a temporary, moderate adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction which is **significant**. Effects on vulnerable groups, as defined in **Table 17.15** are the same as for the general population.

Settlements affected by Primary Access Routes

- 17.8.33 The PARs in Section 1 include routes through a number of settlements where there is a potential for construction traffic to affect neighbourhood amenity. These include:
- Gosberton – A152 Spalding Road and B1397 Belchmire Lane at the southern end of the village.
 - Gosberton Risegate – B1397 Risegate Road along the southern edge of the village, and Beach Lane to the south.
 - Weston – A151 Weston Bypass passes north of the village of Weston.
 - Weston – Stone Gate passes north of the village Weston and north east of Wykeham.

- 17.8.34 The PARs will pass along residential streets and routes used by the community to access local services and facilities. Construction traffic (including HGVs) may adversely affect perceptions of environmental amenity in these locations. The percentage increase of HGV flows due to construction traffic is not yet available and will be considered within the ES. However, due to the temporary nature of impacts on the PARs, it is considered unlikely that there will be significant adverse effects on wellbeing due to changes in neighbourhood amenity.

Section 2

Haconby

- 17.8.35 Haconby is a village centred around the local roads of Main Street and Chapel Street, which run through the village in an east to west direction. The Hare and Hounds pub is located on West Road and St Andrew's Church is situated towards the south east of the village. There are no local shops or community facilities located in the village.
- 17.8.36 The village will be located approximately 280 m to the south of the Project. The elements of the Project in closest proximity to the village will be the overhead lines and towers.
- 17.8.37 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Haconby:
- **Chapter 7 Visual** has identified a moderate adverse (significant) effect from VP 2B.2 which represents views from residential properties located at the northern edge of Haconby and the local PRow network. It is reported that construction activity related to the proposed overhead lines will be visible from these receptors.
 - **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. The local roads in the village including Main Street and Chapel Street do not form part of the defined PARs. There is a primary access (local) route identified approximately 750 m to the west of the village edge along the A15 running in a north to south direction.
 - **Chapter 15 Noise and Vibration:** Haconby is located more than 500 m away from the A15, so the noise impacts from additional road traffic are not expected to be significant.
- 17.8.38 The village is mainly residential and is surrounded on all sides by agricultural fields. Although a moderate adverse (significant) effect has been reported for residents and users of the local PRow network from VP 2B.2, with construction works likely to be visible in close proximity, the views for residential receptors are likely to be screened by intervening vegetation. Traffic and transport and noise and vibration effects are not expected for receptors within Haconby.
- 17.8.39 Therefore, it is unlikely that residents in Haconby will feel the quality of their neighbourhood has been diminished during construction of the Project to any great extent. The magnitude of impact on neighbourhood amenity is therefore assessed as small. The population of Haconby is assessed as having low sensitivity, determined with reference to the baseline data collected and presented in **Appendix 17B Health and Wellbeing Baseline**. This would result in a negligible effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **not significant**. Effects on vulnerable groups, as defined in **Table 17.15** are

considered to be the same as for the general population in relation to this assessment.

Stainfield

- 17.8.40 Stainfield is a village with the majority of residential properties located along Elsthorpe Road and Hanthorpe Road. There are multiple agricultural buildings in the village as well as residential properties and the village is surrounded on all sides by agricultural land. The Project would be located to the south and east of the village with some residential properties approximately 10 m from the draft Order Limits. The elements of the Project in closest proximity to the village are a construction compound immediately south of the village and the overhead lines and towers.
- 17.8.41 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Stainfield:
- **Chapter 7 Visual** has identified a moderate adverse (significant) effect from VP 2B.4, located at the southern edge of the village and on the boundary on the draft Order Limits, reporting that the construction of the Project would dominate the view for residents in the south, east and west of the village in an otherwise open rural landscape.
 - **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. The local roads in the village including Elsthorpe Road and Hanthorpe Road do not form part of the defined PARs and the nearest primary access (local) route identified to the east of the village along the A15 running in a north to south direction is approximately 1 km away.
 - **Chapter 15 Noise and Vibration** has reported that substantial road traffic noise is anticipated from construction traffic vehicles on the A15. Stainfield is located more than 500 m away from the A15, so the noise impacts in Stainfield from additional road traffic are not expected to be significant.
- 17.8.42 A significant visual effect is identified during the construction phase, where residential properties in the south, east and west of Stainfield would experience a change to the open rural landscape from the presence of the construction site. There may also be intermittent views from St Andrew's Churchyard on the south side of the village. No areas of public realm are likely to be affected. No significant noise impacts are expected to affect neighbourhood amenity in the village.
- 17.8.43 While residents on the south side of Stainfield could feel the quality of their neighbourhood has been diminished during construction due to changes in views from their properties, the overall neighbourhood amenity of the village, including the Main Street and other areas of public realm, is not likely to be noticeably affected. Therefore, the magnitude of impact on neighbourhood amenity is assessed as small. The population of Stainfield is assessed as having medium sensitivity determined with reference to the baseline data collected and presented in **Appendix 17B Health and Wellbeing Baseline**. This would result in a temporary, minor adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **not significant**. Effects on vulnerable groups, as defined in **Table 17.15** are considered to be the same as for the general population in relation to this assessment.

Morton and Hanthorpe

- 17.8.44 Morton and Hanthorpe comprise two closely related villages, with Hanthorpe forming a smaller, subsidiary settlement adjoining the main village of Morton. Together they comprise a linear residential settlement along Hanthorpe Road, High Street and Station Road. Along these roads, which form Morton High Street, there are a number of small local shops including a Co-op.
- 17.8.45 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Morton and Hanthorpe:
- **Chapter 7 Visual** has identified a minor (not significant) adverse effect from viewpoint VP 2B.3 located at the northern edge of Hanthorpe and Morton and the local PRow network.
 - **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. A primary access (local) route runs along the A15 running in a north to south direction bisecting Morton and Hanthorpe.
- Chapter 15 Noise and Vibration** has reported that substantial road traffic noise is anticipated from vehicles on the A15 Folkingham Road/Bourne Road, which passes through the centre of Morton. The neighbourhood of Morton is therefore expected to experience noise effects from construction traffic. Hanthorpe lies more than 500 m west of the A15 and is not expected to experience significant effects.
- 17.8.46 No significant noise or visual effects are anticipated in Hanthorpe.
- 17.8.47 Morton is likely to experience noise impacts from additional road traffic along Folkingham Road/Bourne Road, which intersect with the High Street and have residential properties, local shops, takeaways and businesses located along them. Further detailed assessment on noise and vibration effects will be reported in the ES, but it is anticipated that construction traffic noise will impact the quality of neighbourhood amenity in the village centre.
- 17.8.48 Therefore, residents in Morton could feel the quality of their neighbourhood has been diminished during construction of the Project and the magnitude of impact on neighbourhood amenity is assessed as small to medium. The population of Morton is assessed as having medium sensitivity. This would result in a temporary, minor adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **not significant**. Effects on vulnerable groups, as defined in **Table 17.15** are considered to be the same as for the general population in relation to this assessment.

Corby Glen

- 17.8.49 Corby Glen is a large village in South Kesteven that lies entirely within the 500 m buffer, and within 500 m of WMEL-A Substation construction site, to the west of the village. The village includes local shops and services used by residents from surrounding smaller villages. Key community receptors that may experience impacts on neighbourhood amenity during construction include a primary school, secondary school, village hall, GP surgery, children's playground and two churches.
- 17.8.50 The following effects identified in the preliminary environmental topic assessments are relevant to the assessment of neighbourhood amenity in Corby Glen:

- **Chapter 7 Visual** has identified a minor adverse (not significant) effect from VP 2C.3 located north west of Corby Glen. No significant visual effect is reported with regards to this area.
- **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. Primary access (local) routes run along the B1176 Corby Road 400 m west of the village and the A151 Station Road/The Green/Bourne Road, running in an east to west direction through the village.
- **Chapter 15 Noise and Vibration** has reported that substantial road traffic noise is anticipated from vehicles on PARs in and around the village including the A151 through the village and the B1176. It is expected that residential and community receptors in proximity to these routes will experience noise impacts from additional road traffic.

- 17.8.51 The village is expected to experience noise impacts from traffic along the A151 and B1176. Some locations in Corby Glen may also be affected by noise from construction activities; for example, noise from the substation construction may be noticeable from Tanner's Lane. Further detailed assessment on noise and vibration and traffic effects will be reported in the ES.
- 17.8.52 Construction traffic on the A151 will run past residential properties, a children's playground, Market Cross GP Surgery and Charles Read Academy secondary school. Footpaths along the north and south sides of the road provide access to other local facilities on the High Street to the north. It is expected that the presence of construction traffic on this route will adversely affect perceptions of neighbourhood amenity on the south side of the village.
- 17.8.53 Residents in Corby Glen are likely to feel the quality of their neighbourhood has been diminished during construction of the Project. The magnitude of impact on neighbourhood amenity is assessed as small to medium. The population of Corby Glen is assessed as having medium sensitivity. This would result in a temporary, minor adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **not significant**. Effects on vulnerable groups, as defined in **Table 17.15** are considered to be the same as for the general population in relation to this assessment.

Burton-le-Coggles (also referred to as Burton Coggles)

- 17.8.54 Burton-le-Coggles is a small village, with most residential properties located along Village Street, Church Lane and Manor Road. WMEL-A Substation would be located to the south of the village, with some residential properties located as close as approximately 10 m from the draft Order Limits. Burton Coggles Village Hall, The Cholmeley Arms pub and St Thomas of Canterbury Church are located in the village.
- 17.8.55 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Burton-le-Coggles:
- **Chapter 7 Visual** has identified a moderate adverse (significant) effect from viewpoint VP 2C.5, which represents views from residential properties on the south side of the village. It is reported that construction activity related to the proposed overhead line and WMEL-A Substation will result in significant changes to the views from these properties.

- **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. The local roads in the village including Church Road, Village Street and Manor Road do not form part of the defined PARs. There is a haul route site access proposed off Back Lane, to the south of the village. The access would be reached via a dedicated haul road constructed across agricultural land to the south of the village, linking directly to the B1176. As a result, construction traffic would not be required to use roads through the southern part of the village, including Post Office Lane, Manor Road and Corby Road.
- **Chapter 15 Noise and Vibration** has reported that substantial road traffic noise is anticipated from vehicles on the A151 and B1176. Burton-le-Coggles is located more than 500 m away from the B1176, so the noise impacts from additional road traffic are expected to be minimal.

- 17.8.56 The village is expected to experience significant visual effects from the construction of the WMEL-A Substation and overhead lines. This will impact the quality of neighbourhood amenity from residential properties and users of Manor Road, Post Office Lane and Back Lane. Noise from construction activities and vehicles is also likely to be noticeable in these areas.
- 17.8.57 Residents in Burton-le-Coggles are likely to feel the quality of their neighbourhood has been diminished during construction of the Project. The magnitude of impact on neighbourhood amenity is assessed as medium. The population of Burton-le-Coggles is assessed as having medium sensitivity. This would result in a temporary, moderate adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **significant**. Effects on vulnerable groups, as defined in **Table 17.15** are considered to be the same as for the general population in relation to this assessment.

Settlements affected by Primary Access Routes

- 17.8.58 The PARs in Section 2 include routes through a number of settlements where there is a potential for construction traffic to affect neighbourhood amenity. These include:
- Osbournby, Swarby, Silk Willoughby, Greylees, Sleaford, Folkingham – A15 passes through and along these villages.
 - Aslackby, Morton, Bourne and Thurlby – The A15 North Road passes through the villages.
 - Corby Glen – The A151 Bourne Road/The Green passes through the village.
 - Edenham and Grimsthorpe – The A151 Main Street passes through the villages.
 - Colsterworth – The B676 Bourne Road passes along the southern edge of the village.
 - Stainby – The B676 Buckminster Road passes through the villages.
 - Thistleton – Main Street passes through the village.
- 17.8.59 The PARs will pass along residential streets and routes used by the community to access local services and facilities. Construction traffic (including HGVs) may adversely affect perceptions of environmental amenity in these locations. The percentage increase of HGV flows due to construction traffic is not yet available and will be considered within the ES. However, due to the temporary nature of impacts on

the PARs, it is considered unlikely that there will be significant adverse effects on wellbeing due to changes in neighbourhood amenity.

Section 3

Wartnaby

- 17.8.60 Wartnaby is a small village comprising St Michaels's Church, Church Farm and the Courtyard Barns wedding venue to the east, various businesses in the Friars Well Estate and Business Centre to the west, and residential properties to the south. There are no local shops or community facilities located in the village.
- 17.8.61 The WMEL-B Substation construction site is in close proximity to the west of the village, with some business properties to the west of the village approximately 10 m from the draft Order Limits. The nearest residential property is approximately 110 m from the draft Order Limits.
- 17.8.62 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Wartnaby:
- **Chapter 7 Visual** has identified a moderate adverse (significant) effect from VP 3D.3, at the western edge of the village, reporting that construction activity will be in the immediate vicinity and will become the defining element of this view.
 - **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. A primary access (local) route follows the unnamed single-track lane running north to south through the village and continuing westwards into the WMEL-B Substation.
- 17.8.63 The road to be used as a primary access (local) route through the village is a narrow, single track lane bounded by residential properties and mature vegetation and trees, with no footpaths and pinchpoints between residential properties either side of the carriageway. HGV movements along this route are likely to have an adverse effect on perceptions of environmental amenity and safety. Visual and noise effects from the WMEL-B Substation construction site are likely to be largely screened from residential areas by vegetation and buildings in the Friars Well Estate.
- 17.8.64 It is likely that residents in Wartnaby will feel the quality of their neighbourhood has been diminished during construction of the Project due to construction traffic movements through the village. The magnitude of impact on neighbourhood amenity is assessed as large. The population of Wartnaby is assessed as having low sensitivity, determined with reference to the baseline data collected and presented in **Appendix 17B Health and Wellbeing Baseline**. This would result in a temporary, moderate adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **significant**. Effects on vulnerable groups, as defined in **Table 17.15** are considered to be the same as for the general population in relation to this assessment.

Saxelbye (also referred to as Saxelby)

- 17.8.65 Saxelbye is a village with most residential properties situated along the crossroads of Ostler Lane and Main Street, and St Peter's Church to the south east along Church Lane. The draft Order Limits for WMEL-B Substation would be approximately 600 m to the north of the village, whilst the existing overhead line, to be reconducted, currently forms the boundary to the east of the village. The Old Dalby Test Track (a

former Midland Railway main line running between Melton Mowbray and Nottingham) forms a boundary along the south east side of the village.

- 17.8.66 The following effects identified in the preliminary environmental aspect assessments are relevant to the assessment of neighbourhood amenity in Saxelbye:
- **Chapter 7 Visual** has identified a moderate adverse (significant) effect from VP 3D.7, which is representative of views from residential properties to the north of the village as well as users of the local PRoW network, reporting that construction activity associated with WMEL-B Substation and the reconductoring works will notably change the view.
 - **Chapter 13 Traffic and Transport** identifies the PARs to be used by construction traffic, including HGVs. A primary access (local) route has been identified along the section of Saxelby Road, approximately 400 m to the east of the village, running south to north from Asfordby as far as Main Street. The eastern end of Main Street will also be used as a PAR for approximately 500 m, connecting to the haul road running north into the WMEL-B Substation site.
- 17.8.67 The section of Main Street to be used as a PAR is outside the village and is not a key route for pedestrians. Construction traffic will pass within around 70 m of the nearest houses on the east side of the village.
- 17.8.68 The presence of the WMEL-B Substation and the reconductoring works on two sides of the village and the proximity of HGV movements are likely to have an adverse effect on perceptions of environmental amenity. It is likely that residents in Saxelbye will feel the quality of their neighbourhood has been diminished during construction of the Project. Due to the proximity of construction sites and traffic routes the magnitude of impact on neighbourhood amenity is assessed as medium. The population of Saxelbye is assessed as having low sensitivity. This would result in a temporary, minor adverse effect on wellbeing and quality of life associated with changes to neighbourhood amenity during construction, which is **not significant**. Effects on vulnerable groups, as defined in **Table 17.15** are considered to be the same as for the general population in relation to this assessment.

Settlements affected by Primary Access Routes

- 17.8.69 The PARs in Section 3 include routes through a number of settlements where there is a potential for construction traffic to affect neighbourhood amenity. These include:
- Ab Kettleby, Nether Broughton and Upper Broughton – the A606 Nottingham Road/Melton Road runs through these villages.
 - Kirby Bellars – Station Lane passes east of the village and the A607 Leicester Road/Main Road runs through the village.
 - Frisby on the Wreake – Gaddesby Lane passes through this village.
 - Buckminster and Coston – The B676 Buckminster Road passes through the villages.
 - Asfordby – Saxelby Road and Hoby Road pass through this village.
 - Shoby – The A6006 passes through this settlement.
 - Gaddesby – Pasture Lane North and Ashby Folville Road pass east of the village.

- Ashby Folville and Twyford – Folville Street and Ashby Road pass through these villages.
- Grimston and Wartnaby – Six Hills Lane passes north of these settlements.

17.8.70 The PARs will pass along residential streets and routes used by the community to access local services and facilities. Construction traffic (including HGVs) may adversely affect perceptions of environmental amenity in these locations. The percentage increase of HGV flows due to construction traffic is not yet available and will be considered within the ES. However, due to the temporary nature of impacts on the PARs, it is considered unlikely that there will be significant adverse effects on wellbeing due to changes in neighbourhood amenity.

Section 4 and Section 5

17.8.71 The infrastructure within these Sections comprises approximately 53 km of reconductoring of the existing 400 kV ZA overhead line. Reconductoring involves upgrading existing electricity transmission lines by replacing old conductors with new, more efficient ones that can transfer higher electrical loads. The towers would remain in place (except potentially in limited circumstances where foundations may require works or, rarely, tower replacement is required). Given the limited and localised construction impacts anticipated in association with the works required in these Sections, it is considered that there is no potential for significant effects on neighbourhood amenity. This will be confirmed in the ES based on further design and construction information.

Physical activity

17.8.72 A review of published research linking physical activity and positive health outcomes can be found in **Appendix 17A Health and Wellbeing Evidence Review**. There is evidence to show that physical activity provides wide-ranging health benefits across all age groups. For adults, it helps prevent and manage chronic conditions while improving mental health and overall wellbeing. In children and adolescents, it supports healthy growth, bone strength, and cognitive development. For older people it can reduce the risk of injury and extend healthy lifespans and independence.

17.8.73 Rural PRoWs and safe walking and cycling routes on the road network are important resources for rural communities and enable physical activity⁵. Use of PRoWs and access to the countryside are primary pathways through which construction of the Project may impact on levels of physical activity.

17.8.74 Potential impacts considered in this section include the following:

- direct impacts on PRoWs, including temporary closures and diversions;
- indirect impacts on PRoWs such as loss of amenity which may deter the use of the affected routes by walkers, cyclists and equestrians; and
- the presence of construction traffic, including HGVs, on local roads, which may deter their use by walkers, cyclists and equestrians.

17.8.75 Details for managing PRoW crossings are included in **Appendix 13E Draft Outline Public Rights of Way Management Plan**. Each of the affected PRoWs are

⁵ Access to open space is also a resource which promotes physical activity, although this is being considered separately in this section under Open space, leisure and play.

considered separately in this document, with specific management proposed for implementation during the construction phase. Management measures will include the following: signage schemes, temporary holding of users for short periods (e.g. during deliveries), active management of 'shared routes' including appropriate vehicle management measures such as signs and speed limits, temporary stopping up of PRowS with provision of diversions and stopping up of PRowS overnight specifically in relation to navigation on watercourses where the overhead lines cross.

- 17.8.76 The Project will cross 56 PRowS in total. As the Project is linear, not all PRowS will be impacted at the same time or for the entire duration of the construction period. There is likely to be incremental disruption to all PRowS that fall within the draft Order Limits, although this will be for short-term periods, and will be managed to minimise impacts on PRow users.
- 17.8.77 There are many PRowS which interact with the PARs for Project construction traffic. Some of the affected PRowS 'share routes' or run alongside the PARs, cross the PARs and abut the PARs. Users of PRowS which abut but do not cross or share routes with the PARs are not likely to be directly impacted by the presence of increased construction traffic and HGVs. However, users of PRowS that share routes or cross the PARs may be impacted by increased traffic, including HGVs, reducing perceptions of safety and making road crossings more difficult, particularly for people with specific vulnerabilities such as children, older people or people with restricted mobility. The percentage increase of HGV flows due to construction traffic on the PARs is not yet available and will be considered within the ES.
- 17.8.78 The presence of construction traffic on the local road network will be managed using Project design and standard mitigation measures. Design measures include routing construction traffic along classified roads as far as possible. Standard measures are set out in **Appendix 4A Draft Outline CoCP** and **Appendix 13D Draft Outline Construction Traffic Management Plan**, and include construction worker training on awareness of environmental issues and communication with local communities and businesses regarding issues including heavy traffic periods. Additional mitigation measures will remain under review during the completion of further assessment and will be reported in the ES.
- 17.8.79 PRowS that have been initially identified as potentially highly used with extensive connectivity and/or social significance such as long distance trails, recreational circular routes or local authority promoted routes are presented in **Table 13.4** within **Chapter 13 Traffic and Transport**. This chapter reports potentially significant impacts on users of PRowS and Promoted/Recreational Routes due to potential for increased journey distance/time due to long-term temporary closures or diversions of PRowS in Sections 1–5. This will be subject to further assessment in the ES.

Section 1

- 17.8.80 The PRow network in Section 1 consists mostly of individual footpaths and bridleways which do not connect, and MacMillan Way, a designated long distance walking route, as shown in **Figure 13.3 Existing Public Rights of Way**. Approximately 11 PRowS interact with the PARs, and three are crossed by the draft Order Limits.
- 17.8.81 The PARs in Section 1 comprise the A16 trunk road, A152 (unnamed, Gosberton and Spalding Road), B1397 Belchmire Lane, A151 High Road and Stone Gate (a lane running north from the A151). A temporary haul road is aligned with the overhead

lines through all of Section 1 from just east of the A16 to the South Forty Foot Drain, with breaks near the River Welland and Gosberton Road.

- 17.8.82 There are four PRowWs which cross the PARs, including three minor PRowWs and MacMillan Way. These routes all cross the PARs on existing A roads. Whilst construction traffic is expected to result in increased traffic on the PARs, the existing A roads are currently throughfares and users of PRowWs are likely accustomed to fast moving vehicles and expect traffic on these roads. Measures set out within **Appendix 13E Draft Outline Public Rights of Way Management Plan**, including signage and speed limits, will help to make crossing or sharing routes more accessible.
- 17.8.83 Two PRowWs are crossed by the draft Order Limits along the River Welland at the very eastern boundary of the Project. These routes will be managed where they cross the draft Order Limits, although the presence of construction activities, a construction lay-down area and construction vehicles on haul routes within the draft Order Limits would likely reduce feelings of tranquillity and safety. Some recreational users of these routes may seek alternative routes during the active construction period. This would result in a small magnitude of impact on physical activity from impacts on minor PRowWs.
- 17.8.84 MacMillan Way is crossed by the draft Order Limits to the south west of Surfleet. MacMillan Way is a 279 mile coast to coast walking route. Long distance walkers using MacMillan Way are unlikely to be deterred from use due to the Project, as the route crosses the draft Order Limits for fewer than 200 m and continued access will be maintained. Local recreational users are unlikely to be deterred from using the route entirely as it is a quality resource and there are few alternative PRowWs within the area, although some users may choose to avoid the portion of the route which is crossed by the draft Order Limits due to the presence of construction activities and vehicles on haul roads. For example, some residents of Surfleet may choose to take the route in the north east direction away from the Project. This would result in a small magnitude of impact on physical activity from impacts on MacMillan Way.
- 17.8.85 The effects on physical activity due to impacts on PRowWs in this Section are assessed as a small magnitude of impact on a receptor population of medium sensitivity, resulting in a minor temporary adverse effect on health and wellbeing, which is **not significant**.
- 17.8.86 The PARs in Section 1 include roads that are likely to be regularly used as active travel or recreational routes by pedestrians and cyclists due to their proximity to residential areas. These include:
- the A152 Spalding Road between Gosberton and Surfleet;
 - the B1397 Belchmire Lane in Gosberton;
 - the B1397 Risegate Road and Beach Lane in Gosberton Risegate; and
 - Stone Gate, a lane running north from Weston toward the River Welland.
- 17.8.87 Construction traffic (including HGVs) may adversely affect perceptions of environmental amenity and safety and could discourage walking and cycling on the affected routes. The percentage increase of HGV flows due to construction traffic is not yet available and will be considered within the ES. Due to the temporary nature of impacts on the PARs, it is considered unlikely that there will be significant adverse effects on the wellbeing of the general population due to changes in physical activity.

- 17.8.88 Certain groups, such as children, older people, and people with physical or learning disabilities, may be more likely to be deterred from walking and cycling due to increased traffic flows. There is a potential for significant effects on vulnerable groups at specific locations where resources used by this route are affected by significant changes in traffic flows and HGV movements. This will be determined at the ES stage.

Section 2

- 17.8.89 There is an extensive network of PRowS in Section 2, as shown in **Figure 13.3 Existing Public Rights of Way**. Approximately 37 PRowS in Section 2 interact with the PARs, and approximately 14 are crossed by the draft Order Limits.
- 17.8.90 The PARs in Section 2 are the A15, the A151, the B676, Main Street through Thistleton and The Drift/Witham Road/New Road, which joins the A1 at Stretton. A temporary haul road is mostly aligned with the overhead lines through all of Section 2, starting at the South Forty Foot Drain going west towards The Drift. There are breaks near the A1 and just west of Folkingham Road, and there are additional short haul roads around the A51 between Burton-Le-Coggles and Swayfield.
- 17.8.91 There are 11 PRowS which cross the PARs, and six PRowS which share parts of their routes with the PARs. Measures set out within **Appendix 13E Draft Outline Public Rights of Way Management Plan**, including signage and speed limits, will help to make crossing or sharing routes more accessible.
- 17.8.92 The affected PRowS include two designated long distance walking routes (the Viking Way and Rutland Round), which share routes with PARs along minor roads. Rutland Round is a circular walk of about 65 miles, and the Viking Way is 149 miles. Both connect with many other PRowS, and are highly valued as recreational routes within the local area. Both routes share the route of the PARs for about 2,000 m along Fosse Lane, and Rutland Round also crosses New Road. It is likely that some users of these long distance routes would feel less comfortable walking alongside these roads with the increased presence of construction vehicles. For some people, this may reduce their willingness to participate in long distance walks that utilise the affected route, which would reduce options for recreational walks between Wymondham, Market Overton and South Witham.
- 17.8.93 All other PRowS which cross or share routes with the PARs do so on A roads. Whilst construction traffic is expected to result in increased traffic on the PARs, the existing A roads are currently throughfares and users of PRowS are likely accustomed to fast moving vehicles and expect traffic on these roads
- 17.8.94 Access to PRowS which cross the draft Order Limits will be maintained, although the presence of construction activities and construction vehicles on haul routes would likely reduce feelings of tranquillity and safety. Routes that cross the draft Order Limits multiple times, including loops or out-and-back walks, are likely to be less appealing and PRow users may seek alternatives to these routes. This would result in a small magnitude of impact on physical activity from impacts on PRowS.
- 17.8.95 The general population of Section 2 is considered to have medium sensitivity to health effects associated with this determinant. This will result in a minor health effect on the general population, which is **not significant**.

- 17.8.96 The PARs in Section 2 include roads that are likely to be regularly used as active travel or recreational routes by pedestrians and cyclists due to their proximity to residential areas. These include:
- the A15 North Road through Aslackby, Morton, Bourne and Thurlby;
 - the A151 Main Street through Edenham and A151 Bourne Road/The Green through Corby Glen;
 - the B676 Bourne Road along the southern edge of Colsterworth and B676 Buckminster Road through Stainby and Buckminster; and
 - Main Street, through Thistleton.
- 17.8.97 Construction traffic (including HGVs) may adversely affect perceptions of environmental amenity and safety and could discourage walking and cycling on the affected routes. The percentage increase of HGV flows due to construction traffic is not yet available and will be considered within the ES. Due to the temporary nature of impacts on the PARs, it is considered unlikely that there will be significant adverse effects on the wellbeing of the general population due to changes in physical activity.
- 17.8.98 Certain groups, such as children, older people, and people with physical or learning disabilities, may be more likely to be deterred from walking and cycling due to increased traffic flows. There is a potential for significant effects on vulnerable groups at specific locations where resources used by this route are affected by significant changes in traffic flows and HGV movements. This will be determined at the ES stage.

Section 3

- 17.8.99 There is an extensive network of PRowS in Section 3 as shown in **Figure 13.3 Existing Public Rights of Way**, providing opportunities for physical activity and access to nature. Approximately 60 PRowS interact with the PARs, and 17 are crossed by the draft Order Limits, including four long distance, promoted recreational routes. Additionally, Mowbray Way, a long distance, promoted route shares a route with Stainby Lane PAR for approximately 800 m.
- 17.8.100 Mowbray Way runs for nine miles through the villages of Chadwell, Waltham on the Wolds, Stonesby and Sproxton and Buckminster. It connects to the Leicestershire Jubilee Way, which is 21 miles long, running south to north from Burrough Hall Country Park and connecting to the Viking Way at Woolsthorpe. These routes connect with many PRowS and are highly valued.
- 17.8.101 The PARs in Section 3 are the A606 Nottingham Road, A607 Leicester Road, A6006 Loughborough Road, B676 Six Hills Lane, Stainby Road and Main Street in Buckminster, The Drift, Freeby Lane and Station Lane in Asfordby. A temporary haul road is mostly aligned with the overhead lines throughout Section 3, starting just east of The Drift and travelling west past Ab Kettleby, terminating 350 m east of Ostler Lane.
- 17.8.102 Construction traffic is expected to result in increased traffic on the PARs. The majority of PRowS that interact with PARs do so at A roads, and users of these PRowS are likely accustomed to fast moving vehicles and expect traffic on these roads. A number of PRowS cross B roads, such as those near to Six Hills Lane, and Mowbray Way shares a route with the PAR for a short stretch. Users may feel less comfortable whilst crossing B roads and walking along this shared stretch, and may

seek alternative routes. Measures set out within **Appendix 13E Draft Outline Public Rights of Way Management Plan**, including signage and speed limits, will help to make crossing or sharing routes more accessible. Overall, this would result in a small magnitude of impact on physical activity from impacts of construction traffic on PRowS.

- 17.8.103 Access to PRowS which cross the draft Order Limits will be maintained, although the presence of construction activities and construction vehicles on haul routes within the draft Order Limits would likely reduce feelings of tranquillity and safety, and these affected networks may become less appealing. Additionally, users of PRowS which are crossed by the draft Order Limits may use the affected sections multiple times, such as through routes which are loops or out-and-back walks. There are two long distance promoted routes which are crossed by the draft Order Limits: Leicestershire Jubilee Way and the Viking Way. Use of the PRow network crossed by the draft Order Limits is likely to be less appealing, which could reduce participation in recreational countryside walks. Due to the temporary nature of these effects, this is assessed as a small magnitude of impact on physical activity.
- 17.8.104 The general population of Section 3 is considered to have medium sensitivity to health effects associated with this determinant. This will result in a temporary, minor adverse health effect on the general population, which is **not significant**.
- 17.8.105 The PARs in Section 3 include roads that are likely to be regularly used as active travel or recreational routes by pedestrians and cyclists due to their proximity to residential areas. These include:
- the A606 Nottingham Road/Melton Road through Ab Kettleby, Nether Broughton and Upper Broughton;
 - the A607 Leicester Road/Main Road through Kirby Bellars; and
 - Station Lane in Asfordby.
- 17.8.106 Construction traffic (including HGVs) may adversely affect perceptions of environmental amenity and safety and could discourage walking and cycling on the affected routes. The percentage increase of HGV flows due to construction traffic is not yet available and will be considered within the ES. Due to the temporary nature of impacts on the PARs, it is considered unlikely that there will be significant adverse effects on the wellbeing of the general population due to changes in physical activity.
- 17.8.107 Certain groups, such as children, older people, and people with physical or learning disabilities, may be more likely to be deterred from walking and cycling due to increased traffic flows. There is a potential for significant effects on vulnerable groups at specific locations where resources used by this route are affected by significant changes in traffic flows and HGV movements. This will be determined at the ES stage.

Section 4 and Section 5

- 17.8.108 The infrastructure within these Sections comprises approximately 53 km of reconductoring of the existing 400 kV ZA overhead line. Reconductoring involves upgrading existing electricity transmission lines by replacing old conductors with new, more efficient ones that can transfer higher electrical loads. The towers would remain in place (except potentially in limited circumstances where tower replacement is required.) Where the draft Order Limits and PARs interact with PRowS in these Sections, any impacts will be managed through **Appendix 13E Draft Outline Public**

Rights of Way Management Plan. Given the limited and localised construction impacts anticipated in association with the works required in this Section, it is not likely that reconductoring will have an impact on physical activity and therefore an assessment of this health determinant for Section 4 and 5 has been scoped out. This approach will be maintained for both the DES and the ES.

Open space, leisure and play

- 17.8.109 As set out in **Appendix 17A Health and Wellbeing Evidence Review**, there is evidence to show that good access to areas of open space and facilities for leisure and play contributes to good mental health and physical health and increased social interaction.
- 17.8.110 The health and wellbeing assessment considers open spaces that are publicly accessible and provide access to nature, recreation and opportunities for physical activity and social interaction. This includes spaces like public sports facilities, playgrounds, parks and community allotments.
- 17.8.111 Pathways through which construction of the Project may impact on levels of access to areas of open space and facilities for leisure and play include impacts on access to, or quality of, sports pitches and other open green spaces which would prevent or deter people from utilising the facilities or opportunities offered by such spaces for leisure and play or reduce the health and wellbeing benefits gained from their use.

Section 1

- 17.8.112 **Chapter 16 Socio-Economics, Recreation and Tourism** identifies one open space in the Section 1 Study Area, Spalding Golf Club. The golf club is located outside of the draft Order Limits and therefore it is not anticipated that there will be any land take from this receptor. Indirect impacts on access or changes to the quality of the open space are not currently known, therefore further assessment will be provided in the ES. Golf courses are generally not considered 'open space' in the context of a health assessment, as their accessibility, function and user profile differ from publicly accessible recreational green spaces. Therefore, access and amenity impacts on Spalding Golf Club will be addressed in Section 16.8 of **Chapter 16 Socio-Economics, Recreation and Tourism**.

Section 2

- 17.8.113 **Chapter 16 Socio-Economics, Recreation and Tourism** identifies seven open spaces located within the Section 2 Study Area: Corby Glen Playing Field, Corby Glen Bowling Green, Corby Glen Allotments, Station Road Play Area, Orchard Way/Bourne Road Play Area, South Witham Allotments and Great Close Play Area. They are all located outside of the draft Order Limits so it is not anticipated that there will be any direct land take effects on these open spaces. Indirect impacts on access or changes to the quality of the open space are not currently known, therefore further assessment will be provided in the ES.
- 17.8.114 However, as identified in **Chapter 13 Traffic and Transport** a primary access (local) route would pass through Corby Glen along the A151; this PAR pass the entrances to Corby Glen Bowling Green, Station Road Play Area and the Orchard Way/Bourne Road Play Area. The PAR continues west to join the LK-29 primary access (local) route along the B1176. It is known that the Stamford Bus Station and Grantham Bus

Station are located along the A151 and B1176. **Chapter 13 Traffic and Transport** reports that road users (all vehicles) may experience potentially significant effects from severance, changes in journey time, driver delay and highway safety effects due to increased traffic along the A151. These potential effects could then lead to changes in access to these identified open space, leisure and play spaces. The presence of construction traffic may also lead to air quality, noise and vibration and visual effects which could in turn deter people from utilising these spaces, reducing the health and wellbeing benefits gained from their use. Further detailed assessment will be provided in the ES.

Section 3

- 17.8.115 There are seven open spaces located within the Section 3 Study Area, four of which are located outside of the draft Order Limits. These are Wartnaby Playing Field, Asfordby Football Club, Ashby Folville Playing Field and Twyford Playing Field. It is not anticipated that there will be any direct land take effects on these open spaces. Indirect impacts on access or changes to the quality of the open space are not currently known, therefore further assessment will be provided in the ES.
- 17.8.116 However, three open spaces, Wreake Crescent Play Area, Asfordby, Hoby Road Allotments, Asfordby and Mill Lane Allotments, Frisby on the Wreake are located in the draft Order Limits. These open spaces lie within the reconductoring section of Section 3. Therefore, no direct land take effects are anticipated for these open spaces. Additionally, it is assumed that appropriate mitigation will be provided where there is temporary or permanent land take from open spaces such as community allotments; this could be in the form of replacement or re-provision. Further assessment on indirect impacts on access, amenity or changes to the quality of the open space will be provided in the ES.

Section 4 and Section 5

- 17.8.117 The infrastructure within these Sections comprises approximately 53 km of reconductoring of the existing 400 kV ZA overhead line. There are minimal construction activities associated with these works. There are no major air quality or noise impacts for associated construction activities. Landscape and visual impacts for reconductoring construction activities are expected to be temporary and minimal in nature. Based on this information, there are no expected health and wellbeing impacts related to open space, leisure and play due to reconductoring works during the construction phase. This will be confirmed in the ES.

Access to health and social care, and other social infrastructure

- 17.8.118 As set out in **Appendix 17A Health and Wellbeing Evidence Review**, there is evidence linking access to healthcare facilities and social infrastructure with health outcomes, and there is also evidence to suggest that transport problems are a key barrier to people's ability to access these services. When medical services and community facilities are nearby, people receive timely care, stay socially connected, and maintain healthier lifestyles.
- 17.8.119 There will be no loss of health and social care or other social infrastructure facilities as a result of the Project. Pathways through which the Project may impact indirectly on access to health and social care, and other social infrastructure such as schools, religious establishments or community centres include the following:

- temporary closure and diversion of vehicle, pedestrian and cycle routes;
 - increased journey times due to congestion and delays resulting from construction traffic; and
 - deterring the movement of pedestrians and cyclists due to safety concerns.
- 17.8.120 Indirect impacts such as increased journey time (resulting from either lengthened or congested routes) in relation to this health determinant will be completed for the ES, when further design and traffic modelling is available.
- 17.8.121 The assessment of effects for this health determinant will be completed for Sections 1, 2 and 3. The construction works within Sections 4 and 5 comprises reconductoring of the existing 400 kV ZA overhead line only. Given the limited and localised construction impacts anticipated in association with reconductoring, it is considered that there is no potential for significant effects on access to health and social care, and other social infrastructure. This will be confirmed in the ES.

Operation and Maintenance

- 17.8.122 During operation (and maintenance), there is the potential for both physical and mental health and wellbeing to be affected by operation and maintenance activities.
- 17.8.123 Impacts on some health determinants are assessed and presented at the Project wide level as the potential effects are not linked to a specific location. These are:
- EMFs;
 - wider societal infrastructure and resources – permanent provision of wider societal infrastructure and resources leading to improvements in the determinants of health; and
 - visual amenity of the countryside – presence of new infrastructure in the landscape (not new infrastructure for all of the Project).
- 17.8.124 Impacts on neighbourhood amenity as the remaining health determinant scoped into the operational assessment are also presented for the Project overall.

Project-wide assessment

Electric and magnetic fields (EMFs)

Physical health effects

- 17.8.125 EMFs arise from the generation, transmission, distribution, and use of electricity. Compliance with the relevant guidelines and practices in force in the UK will ensure that EMFs do not cause significant health or environmental effects. The ICNIRP (1998) (Ref 17.30) has set public exposure guideline limits to protect against direct effects of EMF exposure. Exposure limits have been set by independent scientific bodies and are based on decades-long studies into the effects of EMFs on health. The weight of this scientific evidence is against there being any health risks from exposure to EMFs below the ICNIRP guideline limits. The UK government (Department of Energy and Climate Change (DECC)) has adopted additional precautionary measures, set out in a voluntary Code of Practice: Optimum Phasing of high voltage double-circuit Power Lines (Ref 17.35), which National Grid follows. The Project has been designed to comply with ICNIRP guidelines and the precautionary

measures set out by DECC will be followed in the design, operation, maintenance and monitoring of the Project. Compliance is mandated through National Grid's Technical Specifications and Policy Statements which dictates that all designs must comply with these EMF policies, ensuring the Project is designed to meet these obligations. An EMF report will be produced for the application for development consent to demonstrate compliance of the Project with the requirements of NPS EN-5 (Ref 17.2), including the exposure limits and precautionary measures. A summary of this report will be included in the ES. Therefore, physical health impacts associated with EMFs have been scoped out of this assessment.

Mental health effects

- 17.8.126 Whilst the body of conducted research into EMFs has not proven any human health effects at levels below the exposure limits, and scientific consensus is that EMFs do not pose a risk to human health, previous surveys suggest that substantial minorities of the public may hold concerns about exposure.
- 17.8.127 This assessment is informed by the best available evidence, which includes systematic reviews and meta-analyses supported by reputable health organisations including the WHO and UK Health Security Agency. This type of evidence reflects results from multiple studies employing rigorous methodologies and returns the strongest overall conclusions. A review of published research evidence discussing the links between EMF and health and wellbeing can be found in **Appendix 17A Health and Wellbeing Evidence Review**.
- 17.8.128 It is noted that some residents in the Study Area may be aware of other individual studies which do not reflect the established base of evidence. Although these studies may not change the scientific understanding of risk associated with EMFs, they can still result in fear and anxiety surrounding EMFs. For example, a review of consultation responses from the Stage 1 Consultation indicates existing concern in the Study Area around the health risks of EMFs, and responses include references to cancer and other diseases such as cardiovascular disease and reproductive and development disorders. It is therefore acknowledged that despite the scientific consensus against EMFs posing a risk to human health, the perceived risk of EMFs may remain for some and could result in mental health and wellbeing effects.
- 17.8.129 Negative perceptions of EMFs at any frequency can also be influenced by social factors like community beliefs, personal experiences and social media. For example, during the COVID-19 pandemic, fake news stories on social media linked radio frequency EMFs via 5G Wi-Fi technology to the spread of COVID-19. In the UK, community campaigns against infrastructure projects often reference these fears, promoting a negative perception around EMFs which can result in increased anxiety.
- 17.8.130 As stated in Paragraph 17.8.125, the Project will adhere to government guidelines for EMF exposure. These limits have been set by independent scientific bodies and are based on decades-long studies into the effects of EMFs on health. It is noted that large safety factors are incorporated into these exposure limits to compensate for any uncertainties in knowledge. Messaging and awareness-raising about compliance with design standards, guidance and policies, particularly in relation to EMFs, will continue through the Project development phase, as outlined in Paragraph 17.7.4. Inclusive, clear and transparent engagement and communications about how negative physical effects from EMFs have been designed out of the Project will help to decrease the uncertainty and anxiety felt by local residents.

- 17.8.131 Anxiety and fear can also be mitigated through promoting accurate perceptions of the negligible health risk associated with EMFs. National Grid offers open communication through the provision of information on the science and research behind EMFs on their website (www.emfs.info) and operates a helpline on EMFs to answer questions and concerns surrounding the topic.
- 17.8.132 Based on this preliminary assessment of the perceptions of effects associated with EMFs, and with the mitigation measures described above, an adverse effect on mental wellbeing of small magnitude is expected for the general population. This population is considered to have medium sensitivity to health effects associated with this determinant. This will result in a minor adverse health effect on the general population in the Study Area, which is **not significant**.
- 17.8.133 For vulnerable groups, such as people with existing health conditions or who are disabled or those with children who are more likely feel anxious about the perceived health effects associated with EMFs, an adverse effect on mental wellbeing of medium magnitude is expected. As described in **Table 17.2**, these groups may already have heightened awareness of potential health risks and therefore this additional worry is more likely to lead to a feeling of anxiety. Vulnerable groups are therefore considered to have high sensitivity to health effects associated with this determinant, leading to a moderate adverse effect on vulnerable groups based on the preliminary assessment, which is **significant**.

Wider societal infrastructure and resources

- 17.8.134 As explored in the published research evidence in **Appendix 17A Health and Wellbeing Evidence Review** the contribution of new and improved energy infrastructure, particularly from renewable sources, could lead to potential positive effects on population health and wellbeing. Access to clean, sustainable and affordable energy plays a crucial role in maintaining the health and wellbeing of populations. Not only from the provision of an improved and more reliable energy supply but also from the generation of jobs, provision of training and, more widely, the reduction in the use of fossil fuels.
- 17.8.135 Once operational, the Project would play an important role in building a more secure and resilient future energy system by reliably transporting clean, renewable energy to the East Midlands and beyond. Upgrading the network through Lincolnshire, Leicestershire and Northamptonshire would help to ensure that the energy from new home-grown renewable sources can be safely transported to where it is needed. Delivering the infrastructure needed will provide jobs and opportunities to learn new skills and bring vital investment right across the country.
- 17.8.136 The need for an energy supply to provide power for living is an important consideration at a population level for the general population and vulnerable groups across the UK as a whole. Secure energy access supports comfort, safety, and autonomy which are key for positive mental health.
- 17.8.137 In addition, energy infrastructure offers a variety of additional benefits to local communities, including through community benefit funds.
- 17.8.138 There is a Community Grant Programme run by National Grid (Ref 17.29). Communities impacted by construction work for new infrastructure projects such as this Project can apply for grants.
- 17.8.139 Based on this preliminary assessment, given the contribution of this Project to a more secure and resilient future energy system in the East Midlands, a positive effect of

medium magnitude is expected for this health determinant. The general population is considered to have low sensitivity to health effects associated with this determinant. This will result in a minor beneficial health effect on the general population in the Study Area, which is **not significant**.

- 17.8.140 Vulnerable groups, likely to include older people, families with young children, people on low incomes and people with existing health conditions are more likely to experience adverse health consequences and a reduction in mental wellbeing in the event of an energy deficit because they often have higher dependency on stable energy supply for essential needs. Vulnerable groups are therefore considered to have high sensitivity to health effects associated with this determinant, leading to a permanent moderate beneficial effect, which is **significant**. This may be particularly felt by vulnerable groups in South Holland, where the sensitivity of the population is considered to be high.

Visual amenity of the countryside

- 17.8.141 As described in the evidence review in **Appendix 17A Health and Wellbeing Evidence Review**, there is evidence to suggest that people living in more scenic areas with beautiful natural landscapes report better health, including when taking factors such as social deprivation into account. One of the studies referenced sought to understand what constitutes a scenic environment and it was determined that the absence of manmade structures was the defining factor. The introduction of new infrastructure will introduce a new visual element into the rural environment within the Study Area, which has the potential to influence perceptions of its scenic and natural character and the wellbeing of those affected.
- 17.8.142 Those affected include residents in their homes and local neighbourhoods, users of PRowS and recreational visitors to the area. Local residents are likely to have an investment in, and attachment to, their local area and as such are more likely to be affected. Effects are most likely when using outside space such as gardens, public spaces and rural PRowS with views of the Project.
- 17.8.143 **Chapter 6 Landscape** reports one moderate adverse significant effect for the Ridge and Valley Local Character Area (LCA) during operation. In total, there are 22 LCAs in the **Chapter 6 Landscape** study area, of which 16 have been taken forward in the assessment due to the potential for significant effects. The LCAs are derived from published local authority Landscape Character Assessments. The Ridge and Valley LCA is one of the local landscape character areas within Section 3 and approximately 7.5 km of the proposed new overhead line would be located within the Ridge and Valley LCA, where the new overhead line will pass to the north of Melton. Although the Project will introduce new permanent vertical structures and continuous overhead lines into the rural landscape, the majority of the key characteristics would not be altered. While the Project would be visible in parts of the landscape the overall impression of a rural agricultural landscape would remain intact. However, it is recognised that there is potential for more intensive and notable direct and/or indirect change within a localised area in the immediate vicinity of WMEL-A and WMEL-B substation sites.
- 17.8.144 **Chapter 7 Visual** identifies significant (moderate and major) adverse effects at eleven representative viewpoints in Section 1, eighteen in Section 2 and twelve in Section 3. As stated in **Chapter 7 Visual**, the level and nature of effects can vary at different stages of the Project and can change over time, particularly where mitigation planting is proposed, by increasing the degree of screening of the Project within the

landscape. In parallel, receptors may experience a degree of adaptation, whereby the initial adverse reactions and sensitivity to the sight of the new infrastructure lessen with continued exposure. Together, the physical screening effects and the reduced sensitivity arising from long-term exposure could act to decrease the overall level of effect on visual amenity over time.

- 17.8.145 On a Project-wide basis, with a focus on Sections 1, 2 and 3 (as the reconductoring sections have been scoped out for this health determinant (see ID 3.3.3 in **Appendix 5B Scoping Opinion**)) a small magnitude of impact is expected for this health determinant. In line with the overall Study Area sensitivity assessment, the general population is considered to have medium sensitivity to effects associated with this health determinant. This will result in a minor adverse health effect which is **not significant**.
- 17.8.146 Effects on vulnerable groups, as defined in **Table 17.15**, are considered to be the same as for the general population in relation to this assessment.

Neighbourhood amenity

- 17.8.147 The term 'neighbourhood amenity' is used in this assessment to describe a combination of factors that have the potential to affect residents' feelings about, and experience of, their local environment. For the health and wellbeing assessment this includes air quality, the noise environment, lighting, landscape, traffic levels and ground conditions which, when combined contribute to an overall amenity effect. If these factors are altered to a sufficient degree, there could be effects on mental health and wellbeing. The operation (and maintenance) of the Project could affect the quality of neighbourhoods through environmental changes resulting from the presence of Project within and near to neighbourhoods. This section assesses how changes to neighbourhood amenity may influence people's experience of their local environment.
- 17.8.148 Pathways through which the operation of the Project may impact on neighbourhood amenity, and the potential for health effects include:
- changes to the landscape and visual amenity which connect people to their neighbourhood; and
 - noise emitted from substations and the overhead line equipment which affect how a person experiences their neighbourhood.
- 17.8.149 The assessment of effects in relation to this health determinant will be completed for the ES, as the level of design detail required to inform a robust assessment is not currently available at this preliminary stage and potentially significant effects cannot be ruled out. The assessment of effects for this health determinant will be completed for Sections 1, 2 and 3 only.
- 17.8.150 The construction works within Sections 4 and 5 only includes reconductoring of the existing 400 kV ZA overhead line. Reconductoring involves upgrading existing electricity transmission lines by replacing old conductors with new, more efficient ones that can transfer higher electrical loads. The towers would remain in place (except potentially in limited circumstances where tower replacement may be required). Given the limited and localised construction impacts anticipated in association with the works required in Sections 4 and 5, it is considered that there is no potential for significant effects on access to health and social care, and other social infrastructure. This will be confirmed in the ES.

Table 17.15 Preliminary summary of health and wellbeing effects

Receptor	Key Design, Standard and Additional Mitigation	Impact	Magnitude of Change	Sensitivity/Value	Likely Significance of Effect
Construction					
Wider Study Area population – Project-wide assessment	Not applicable	Increased employment for the construction workforce	Small	Low (general population) Medium (vulnerable groups)	Temporary minor beneficial effect (general population and vulnerable groups) which is not significant
Local residents – Project-wide assessment	Measures described in Appendix 4A Draft Outline CoCP	Uncertainty and stress relating to the actual and perceived impacts on local communities from construction and operation (and maintenance) of the Project	Medium	Medium (general population) High (vulnerable groups)	Temporary minor adverse effect (general population) which is not significant Temporary moderate adverse effect (vulnerable groups) which is significant
Local residents – Route-Section assessment Surfleet (within Section 1)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Medium	Medium	Temporary, moderate adverse effect (general population and vulnerable groups) which is significant

Receptor	Key Design, Standard and Additional Mitigation	Impact	Magnitude of Change	Sensitivity/Value	Likely Significance of Effect
Haconby (within Section 2)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Small	Low	Negligible effect (general population and vulnerable groups) which is not significant
Stainfield (within Section 2)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Small – medium	Medium	Minor adverse effect (general population and vulnerable groups) which is not significant
Morton and Hanthorpe (within Section 2)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Small – medium	Medium	Minor adverse effect (general population and vulnerable groups) which is not significant
Corby Glen (within Section 2)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions,	Small – medium	Medium	Minor adverse effect (general population and vulnerable groups) which is not significant

Receptor	Key Design, Standard and Additional Mitigation	Impact	Magnitude of Change	Sensitivity/Value	Likely Significance of Effect
		visual impacts and increased traffic movements.			
Burton-le-Coggles (within Section 2)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Medium	Medium	Temporary, moderate adverse effect (general population and vulnerable groups) which is significant
Wartnaby (within Section 3)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Large	Low	Temporary, moderate adverse effect (general population and vulnerable groups) which is significant
Saxelbye (within Section 3)	Measures described in Appendix 4A Draft Outline CoCP	Potential temporary changes in neighbourhood amenity due to noise, air emissions, visual impacts and increased traffic movements.	Medium	Low	Temporary, minor adverse effect (general population and vulnerable groups) which is not significant

Receptor	Key Design, Standard and Additional Mitigation	Impact	Magnitude of Change	Sensitivity/Value	Likely Significance of Effect
Local residents and users of promoted recreational routes and PRowS – receptor-specific assessment Section 1	Measures described in Appendix 4A Draft Outline CoCP and Appendix 13E Draft Outline Public Rights of Way Management Plan	Potential reduced opportunities for access for physical activity, and increased severance	Small	Medium (general population) High (vulnerable groups)	Temporary, minor adverse effect on general population which is not significant Effects on vulnerable groups to be reported in ES
Local residents and users of promoted recreational routes and PRowS – receptor-specific assessment Section 2	Measures described in Appendix 4A Draft Outline CoCP and Appendix 13E Draft Outline Public Rights of Way Management Plan	Potential reduced opportunities for access for physical activity, and increased severance	Small	Medium (general population) High (vulnerable groups)	Temporary, minor adverse effect on the general population which is not significant Effects on vulnerable groups to be reported in ES
Local residents and users of promoted recreational routes and PRowS – receptor-specific assessment Section 3	Measures described in Appendix 4A Draft Outline CoCP and Appendix 13E Draft Outline Public Rights of Way Management Plan	Potential reduced opportunities for access for physical activity, and increased severance	Small	Medium (general population) High (vulnerable groups)	Temporary, minor adverse effect on the general population which is not significant Effects on vulnerable groups to be reported in ES.
Local residents and users of open spaces – receptor-specific assessment	Measures described in Appendix 4A Draft Outline CoCP and Appendix 13E Draft Outline Public	Potential temporary and permanent land take leading to	To be reported in the ES	To be reported in the ES	To be reported in the ES

Receptor	Key Design, Standard and Additional Mitigation	Impact	Magnitude of Change	Sensitivity/Value	Likely Significance of Effect
	Rights of Way Management Plan	changes in access to open space			
Local residents – receptor-specific assessment	Measures described in Appendix 4A Draft Outline CoCP and Appendix 13E Draft Outline Public Rights of Way Management Plan	Increased journey times affecting access to health and social care, and other social infrastructure	To be reported in the ES	To be reported in the ES	To be reported in the ES
Operation and Maintenance					
Local residents – Project-wide assessment	To be included in the ES	Potential permanent changes in neighbourhood amenity due to noise, and visual impacts	To be reported in the ES	To be reported in the ES	To be reported in the ES
Local residents – Project-wide assessment	Measures described in Appendix 4A Draft Outline CoCP	Uncertainty and stress relating to the perceived impacts of the generation of EMFs	Small (general population) Medium (vulnerable groups)	Medium (general population) High (vulnerable groups)	Minor adverse effect (general population) which is not significant Moderate adverse effect (vulnerable groups) which is significant
Local residents and owners/operators of businesses – Project-wide assessment	Not applicable	Permanent provision of wider societal infrastructure and resources leading to	Medium	Low (general population) High (vulnerable groups)	Minor beneficial effect (general population) which is not significant

Receptor	Key Design, Standard and Additional Mitigation	Impact	Magnitude of Change	Sensitivity/Value	Likely Significance of Effect
		improvements in the determinants of health			Moderate beneficial effect (vulnerable groups) which is significant
Local residents and visitors to the countryside – Project-wide assessment	Measures described in Appendix 4A Draft Outline CoCP	Change to visual amenity of the countryside	Small	Medium	Minor adverse effect (general population and vulnerable groups) which is not significant

Alternative Scenarios

- 17.8.151 As described in Section 4.4 of **Chapter 4 Description of the Project**, there are elements of the Project which have not been fixed at this stage. Therefore flexibility needs to be considered in this DES. Two potential alternative scenarios are outlined in **Table 4.3** and are assessed in **Table 17.16**.
- 17.8.152 This assessment considers each scenario, together with the assumptions and mitigation measures described in this chapter. It provides a qualitative appraisal of the potential changes to the preliminary conclusions reported in this section, should these scenarios occur.
- 17.8.153 **Table 17.16** presents the conclusions of this appraisal, supported by appropriate qualitative justification, to ensure that any potentially significant effects are identified in this DES. If these alternative scenarios remain under consideration in the application for development consent, they will be appropriately assessed in the ES.

Table 17.16 Preliminary assessment of alternative scenarios

Scenario	Potential change in impacts	Potential change in effects
1. No or reduced haul roads	The removal or reduction of dedicated haul roads could alter the spatial distribution of construction traffic and associated environmental effects, including noise, visual and air quality effects. This scenario could increase reliance on the public highway network for the movement of construction workers, plant and materials. Consequently, traffic-related impacts on the public highway network may increase, with associated effects experienced by communities along construction traffic routes and within the PARs.	This scenario could result in changes in the distribution of construction traffic impacts and changes to the likely impacts from construction-related activity along proposed haul roads. This could alter the magnitude and spatial extent of health and wellbeing effects in relation to neighbourhood amenity, perceptions of safety, physical activity, access to services, and mental wellbeing.
2. Off-site construction compound near Melton Mowbray	The introduction of an off-site construction compound could alter the spatial distribution of construction traffic and associated environmental effects, including noise, visual and air quality effects. It may also introduce a new location of construction-related activity, resulting in associated noise, visual and amenity effects for communities located close to the off-site compound and along its associated access routes.	This scenario could introduce new health and wellbeing effects associated with traffic on the access routes to the site, localised construction traffic and construction-related activity, including changes in air quality, noise levels, visual amenity and related environmental conditions. This could alter the magnitude and spatial extent of health and wellbeing effects in relation to neighbourhood amenity, perceptions of safety, physical activity, access to services, and mental wellbeing. The overall change in health and wellbeing effects would depend on

Scenario	Potential change in impacts	Potential change in effects
		the confirmed access routes to the site, the location of the compound, the surrounding receptors and the extent to which construction activities are displaced from the Project corridor.

17.9 Monitoring

- 17.9.1 There are no monitoring requirements specific to the health and wellbeing assessment. **Appendix 4A Draft Outline CoCP** includes monitoring measures specific to those aspects which inform the health and wellbeing assessment.
- 17.9.2 Those aspects are:
- **Chapter 6 Landscape** and **Chapter 7 Visual** – identifies requirements for the monitoring of the implementation and maintenance of mitigation planting.
 - **Chapter 14 Air Quality** – identifies requirements secured for the monitoring of construction dust.
 - **Chapter 15 Noise and Vibration** – identifies requirements for noise and vibration monitoring by the Contractor during construction.
 - **Chapter 13 Traffic and Transport** – identifies monitoring requirements associated with construction traffic management and PRoW management.

17.10 Further Assessment

- 17.10.1 The preliminary assessments presented in this chapter will be reviewed and refined for the ES to reflect ongoing design development, any updates to baseline data, and further understanding of the Project and its potential effects.
- 17.10.2 The ES will present an assessment of likely significant effects on the following health determinants:
- open space, leisure and play;
 - access to healthcare, social care and wider community infrastructure; and
 - neighbourhood amenity during operation and maintenance.
- 17.10.3 The ES will incorporate the outcome of ongoing engagement and consultation, including voluntary, non-statutory Stage 2 Consultation. The assessment will also take account of iterative design development and design, standard and additional mitigation measures secured through the design process, required to avoid or reduce likely significant adverse effects, as well as to enhance beneficial health effects where reasonably practicable.

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