

The Great Grid Upgrade

Chesterfield to Willington

Preliminary Environmental Information Report

Volume 1: Chapter 16 Health and Wellbeing

March 2026

nationalgrid

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16. Health and Wellbeing

16.1 Overview

- 16.1.1 This chapter reports the preliminary assessment of the likely significant health and wellbeing effects that could result from the Chesterfield to Willington Project (the 'Project') during construction and operation and describes:
- relevant legislation and policy context;
 - consultation and engagement undertaken to date;
 - the methodology for assessment;
 - relevant baseline information;
 - design, control and additional mitigation measures;
 - potential effects of the construction phase;
 - potential effects of the operational phase;
 - monitoring requirements; and
 - residual effects.
- 16.1.2 This chapter covers effects on both the general population and vulnerable populations in relation to the following effects:
- effects on quality of life – physical and mental wellbeing effects related to environmental changes to baseline conditions;
 - health-related effects associated with environmental changes to the Public Right of Way (PRoW) network;
 - change to provision of and access to facilities;
 - potential employment generation (construction only); and
 - mental health effects of perceived risk from electric and magnetic fields (EMFs) (operation only).
- 16.1.3 This chapter should be read in conjunction with:
- **Chapter 4 Description of the Project.**
 - **Chapter 5 Approach to Preliminary Environmental Information Report.**
 - **Chapter 6 Landscape and Visual.** This chapter includes close association between some landscape receptors and activities that benefit physical and mental health, e.g. exercise and recreation, as well as protective factors for mental health.
 - **Chapter 9 Hydrology and Land Drainage** and **Chapter 10 Geology and Hydrogeology.** These chapters include the potential for water availability and quality, as well as contamination, to affect human health.

- **Chapter 11 Agriculture and Soils.** This chapter includes the potential for effects to agricultural land and soils to affect human health.
- **Chapter 12 Traffic and Transport.** This chapter includes detail on the potential for traffic effects associated with the Project.
- **Chapter 13 Air Quality.** This chapter includes the potential for air quality and dust effects associated with the Project to negatively affect human health.
- **Chapter 14 Noise and Vibration.** This chapter includes the potential for noise and vibration effects associated with the Project to negatively affect human health.
- **Chapter 15 Socio-economics, Recreation and Tourism.** This chapter includes close association between some receptors and the potential for shared embedded environmental measures.
- **Chapter 17 Cumulative Effects.** This chapter includes both intra and inter cumulative effect interactions, including those related to health and wellbeing, as well as interactions with other topics areas and other committed developments.

16.1.4 This chapter is supported by the following figures in **Volume 2**:

- **Figure 16.1 Health and Wellbeing Study Areas.**

16.2 Legislation, Planning Policy Context and Guidance Context

Legislation

16.2.1 A summary of the legislation relevant to health and wellbeing is outlined below:

- The Countryside and Rights of Way Act 2000 (Ref 16.1) outlines public right of access to land mapped as '*open country*' (mountain, moor, heath and down) or registered common land. These areas are known as '*open access land*'.
- The Localism Act 2011 (Ref 16.2) devolves power to local councils, communities, and individuals to act on local priorities, giving greater control over decisions such as housing and planning.
- The Environment Act 2021 (Ref 16.3) makes provision about targets, plans and policies for improving the natural environment.

The Equality Act 2010 (Ref 16.4) legally protects people from discrimination in the workplace and in wider society.

- The Health and Care Act 2022 (Ref 16.5) sets out detail on NHS reforms and how health inequalities can be reduced for people belonging to vulnerable groups, defined as having '*protected characteristics*' in the Act.

National Policy Statements

16.2.2 **Chapter 2 Legislative, Regulatory and Planning Policy Context** sets out the overarching policies relevant to the Project including the Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 16.6) and NPS for Electricity Networks Infrastructure (EN-5) (Ref 16.7). **Table 16.1** sets out the requirements of both NPSs relevant to health and wellbeing and how these have been considered within this chapter.¹

¹ *The updated NPSs came into force on 6 January 2026; however, this post-dated the drafting and assessment work within this chapter and so are not reflected within the relevant policy descriptions in this chapter, which are instead based on the 2023 versions of the NPSs that were in force at the time of preparing the Chapter. These sections will be updated in the ES as part of the Application; however, after initial review and consideration, it is not anticipated that the updates to the NPS will result in any material changes to the assessment methodology or the conclusions in this chapter.*

Table 16.1: National Policy Statements relevant to health and wellbeing

Policy Reference	Policy Context	How It Will Be Considered
Overarching National Policy Statement for Energy (EN-1)		
Section 4.4	NPS EN-1 sets out areas where there may be potential direct and indirect impacts. The Environmental Statement (ES) should identify these impacts, and include measures to avoid, reduce or compensate for these as appropriate. Additionally, cumulative impacts to health should be considered, and potential impacts to vulnerable groups should also be identified.	The assessment will identify impacts following the methodology set out in section 16.4. The mitigation measures are shown in section 16.6 and preliminary effects are presented in section 16.7. Vulnerable groups have been considered as part of the baseline, and potential effects identified on these groups are included in section 16.7.
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
Paragraphs 2.9.44 – 2.9.58 and 2.10.11 – 2.10.13	NPS EN-5 sets out guidance for compliance with EMFs and the required standards that should be met. These include the International Commission on Non-Ionizing Radiation Protection 1998 guidelines (Ref 16.8).	The overhead line has been designed according to the required standards as set out in Table 4.4 of Chapter 4 Description of the Project . This will be demonstrated in the electric and magnetic field compliance report that will be submitted as part of the development consent order (DCO) application. Additionally, this health and wellbeing assessment considers effects on mental health as a result of perceived risk from EMFs during operation.

Other National Policy

16.2.3 A summary of other relevant national policy considered in the scope of effects on health and wellbeing includes:

- National Planning Policy Framework (Ref 16.9).

Regional and Local Policy

16.2.4 **Chapter 2 Legislative, Regulatory and Planning Policy Context** sets out relevant regional and local policy considered by this Project.

16.2.5 Relevant local policy, specific to health and wellbeing includes:

- Chesterfield Borough Council Local Plan, 2018 – 2035, (Adopted July 2020) (Ref 16.10);
- North East Derbyshire District Council Local Plan, 2014 – 2034, (Adopted November 2021) (Ref 16.11);
- Local Plan for Bolsover District Council, up to 2033, (Adopted March 2020) (Ref 16.12);
- Amber Valley Borough Council Local Plan, 2022 – 2040, Draft (at time of writing) (Ref 16.13);
- Erewash Core Strategy, 2011 – 2028, (Adopted 2014) (Ref 16.14);
- Derby City Local Plan, 2011 – 2018 (Adopted 2017) (Ref 16.15);
- South Derbyshire District Council Local Plan Parts 1 and 2, 2011 – 2028, (Adopted June 2016) (Ref 16.16).
- Derbyshire Health and Wellbeing Strategy, 2024 – 2027, (Adopted August 2024) (Ref 16.17); and
- Derby City Council Joint Strategic Needs Assessment, ongoing (Ref 16.18).

Guidance

16.2.6 Relevant guidance, specific to health and wellbeing, which has informed this Preliminary Environmental Information Report (PEIR) and will inform the assessment within the ES, includes:

- Design Manual for Roads and Bridges (DMRB) LA 112 (Ref 16.19);
- National Planning Practice Guidance – Healthy and Safe Communities, 2022 (Ref 16.20);
- Healthy Lives, Healthy People: Our Strategy for Public Health in England, 2010 (Ref 16.21);
- Putting Health into Place, Public Health England (PHE) (2019) (Ref 16.22);
- Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime, PHE (2021) (Ref 16.23);

- Effective Scoping of Human Health in Environmental Impact Assessment (EIA), Institute of Environmental Management and Assessment (IEMA), now Institute of Sustainability and Environmental Professionals (ISEP) (2022) (Ref 16.24);
- Determining Significance for Human Health in EIA, IEMA, now ISEP (2022) (Ref 16.25);
- Mental Wellbeing Impact Assessment (MWIA) – a toolkit for wellbeing, National MWIA Collaborative (England) (2011) (Ref 16.26);
- Guidelines For Limiting Exposure to Time-Varying Electric, Magnetic And Electromagnetic Fields (Up To 300 GHz), International Commission on Non-Ionizing Radiation Protection, (1998) (Ref 16.8); and
- PHE (2017) Health and Environmental Impact Assessment: A Briefing for Public Health Teams in England (Ref 16.27).

16.3 Scoping Opinion and Consultation

Scoping Opinion and Stakeholder Engagement

- 16.3.1 A Scoping Report (Ref 16.28) was prepared and submitted by National Grid to the Planning Inspectorate in October 2024. The Planning Inspectorate provided a Scoping Opinion (Ref 16.29) on behalf of the Secretary of State for Energy Security and Net Zero in December 2024. Responses from the Planning Inspectorate in relation to health and wellbeing and how these requirements will be addressed by the applicant are set out in **Table 16.2**.

Table 16.2: Summary of the Planning Inspectorate’s Scoping Opinion comments in relation to health and wellbeing

Scoping Opinion ID	Planning Inspectorate’s Comments	Response
3.11.1	Potential employment generation – operation and maintenance: <i>‘The Inspectorate agrees that significant effects are not likely and that this matter can be scoped out of the ES’.</i>	Noted and agreed. Matter scoped out in line with the health and wellbeing Scoping Report chapter (Ref 16.28) and not considered within this PEIR.
3.11.2	Mental health due to construction works – construction: <i>‘The Inspectorate agrees that significant effects are not likely, subject to the mitigation measures being secured and implemented, and that this matter can be scoped out of the ES’.</i>	Noted and agreed. Matter scoped out in line with the health and wellbeing Scoping Report chapter and not considered within this PEIR. Mitigation measures which will be implemented during construction are set out in Appendix 4A Draft Outline Code of Construction Practice (CoCP) .

Scoping Opinion ID	Planning Inspectorate's Comments	Response
3.11.3	<p>Generation of EMFs – construction:</p> <p><i>'The Inspectorate agrees that significant effects are not likely and that this matter can be scoped out of the ES'.</i></p>	<p>Noted and agreed. Matter scoped out in line with the health and wellbeing Scoping Report chapter and not considered within this PEIR.</p>
3.11.4	<p>Generation of EMFs – operation:</p> <p><i>'The Inspectorate does not consider that the Scoping Report provides sufficient information regarding the potential effect on public mental health, including how concerns regarding EMFs will be identified and dealt with. The ES should therefore consider effects on mental health, including from risk perception and understanding, posed by the exposure to EMF. The Applicant should seek to agree the scope and methodological approach with relevant consultation bodies including the local authority's public health team, the Director of Public Health and the Office for Health Improvement and Disparities'.</i></p>	<p>Noted. The preliminary assessment considers the effect of the perceived risk of EMFs on mental health during operation, as outlined in section 16.7. This will be developed in the ES. The proposed methodology in section 16.4 has been refined since the scoping stage, and further engagement will be undertaken with relevant consultation bodies during the drafting of the ES, and following responses received from stakeholders after PEIR submission.</p>
3.11.5	<p>Scope of Assessment – Vulnerable Populations:</p> <p><i>'The ES should consider the impact of the Proposed Development on vulnerable populations, including the potential for any significant effects, as required by IEMA guidance (Determining Significance for Human Health in Environmental Impact Assessment)'.</i></p>	<p>Noted. The assessment of vulnerable populations is inherent in the health and wellbeing assessment, with further details provided in section 16.4 below. The ES assessment will consider the potential health effects of the Project on affected population groups and will detail how this informs the sensitivity of receptors.</p>
3.11.6	<p>Impacts on transport links to healthcare facilities – construction:</p> <p><i>'Noting the rural nature of parts of the Proposed Development, the ES should assess impacts on transport routes to and between healthcare facilities, where significant effects are likely. This should consider access by public users of such facilities, as well as by the healthcare providers themselves. Consideration should be given to the impacts of the Proposed Development on air ambulance access, where significant effects are likely. Appropriate cross reference should be made to the Traffic and Transport chapter of the ES'.</i></p>	<p>Noted. As per the DMRB LA 112 guidance (Ref 16.19), healthcare facilities are classed as community facilities. Access to community facilities (including healthcare facilities) is considered in Chapter 15 Socio-economics, Recreation and Tourism. The health-related effects of changes to transport links will be considered in this chapter of the ES.</p>

16.3.2 **Table 16.3** provides a summary of the consultation feedback from specific stakeholders provided as part of the Scoping Opinion to inform the health and wellbeing assessment to date.

Table 16.3: Summary of stakeholder Scoping Opinion responses in relation to health and wellbeing

Consultee	Summary of Key Topics Raised	Response
Ault Hucknall Parish Council/Denby Parish Council/Draycott and Church Wilne Parish Council/Glapwell Parish Council/Horsley Parish Council/Stanley and Stanley Common Parish Council/UK Health and Security Agency	Concerns around EMF exposure and compliance with NPS EN-5, as well as risk perception.	The design of the Project is compliant with the standards set out in NPS EN-5 and presented in Table 4.4 of Chapter 4 Description of the Project . This will be demonstrated in the EMF compliance report that will be submitted as part of the DCO application. As such, the Planning Inspectorate agreed that health and wellbeing effects relating to EMF generation could be scoped out of the assessment for both construction and operation, with the exception of the perception of EMF exposure on mental health during operation. The preliminary assessment considers the potential impacts to mental health of the perceived risk of exposure in section 16.7, and this will be further considered in the ES.
Stanley and Stanley Common Parish Council	Mental health of residents during construction and operation.	A preliminary assessment is included within section 16.7. This will be assessed further in the ES.
UK Health Security Agency	Consideration of air quality, emissions to water, waste and contaminated land should be considered in one section.	These topics have been considered in Chapter 9 Hydrology and Land Drainage, Chapter 10 Geology and Hydrogeology, Chapter 11 Agriculture and Soils and Chapter 13 Air Quality . Where these assessments have identified potential effects, they have been considered in the health and wellbeing assessment. Preliminary effects on quality of life in relation to health-related environmental change (including air quality, emissions to water, and contaminated land) are presented in section 16.7.
UK Health Security Agency	The applicant should use the Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime guidance (Ref 16.23) to inform the assessment.	This guidance has been reviewed and has informed the approach to the assessment, as detailed in section 16.4.

Consultee	Summary of Key Topics Raised	Response
UK Health and Security Agency	Lack of consideration of vulnerable populations in the Scoping Report.	Noted. The assessment of vulnerable populations is inherent in this preliminary health and wellbeing assessment, with further details provided in section 16.4 and section 16.5 below. Additionally, the baseline in regard to vulnerable populations has been developed since the scoping stage with additional information on health, wellbeing and deprivation provided in section 16.5. The ES will consider the potential health effects of the Project on affected population groups and will detail how this informs the sensitivity of receptors.

16.3.3 All statutory stakeholders were consulted during the non-statutory (Stage 1) consultation held between May and September 2024. No specific feedback was received from stakeholders in relation to health and wellbeing. The Health and Safety Executive advised they would respond during the statutory (Stage 2) consultation. The UK Health and Security Agency responded on behalf of the Office of Health Improvement and Disparities, and directed National Grid towards the PHE guidance Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime (Ref 16.23). This document has been considered for this assessment, as outlined in section 16.2. Further consultation will be carried out during Stage 2 consultation, with engagement with the relevant stakeholders following PEIR submission and in preparation of the ES.

16.4 Assessment Methodology

16.4.1 **Chapter 5 Approach to Preliminary Environmental Information Report** sets out the overarching approach used in developing the preliminary environmental information. This section describes the technical methods used to determine the baseline conditions, receptor sensitivity and magnitude of change. This section also identifies further surveys and assessment that will be undertaken and reported in the ES.

16.4.2 The assessment is based on published ISEP (formerly IEMA) guidance on Effective Scoping of Human Health in EIA (Ref 16.24) and Determining Significance for Human Health in EIA (Ref 16.25). The assessment has identified potential effects arising from changes to environmental conditions as a result of the Project, which have the potential to affect the physical and mental health of receptors. The significance of the effect on a receptor presented during construction and operation (where relevant) is informed by the sensitivity or value of the receptor, and the magnitude of the potential impact. This assessment aligns with principles of Health Impact Assessment in EIA as set out by ISEP, including considering wider determinants of health and health inequalities. The terms 'health', 'human health' and 'health and wellbeing' have been used interchangeably throughout this assessment, in line with ISEP guidance (Ref 16.24).

16.4.3 The potential mental health effects arising from the Project, have been assessed specifically in relation to control, resilience and community assets, and participation and inclusion, as set out in the MWIA toolkit (Ref 16.26).

16.4.4 A conclusion on significance and associated reasoning has been provided in relation to identified receptors and impacts, in accordance with the methodology set out in section 7 of the ISEP guide to Determining Significance for Human Health in EIA (Ref 16.25). **Table 16.5** to **Table 16.8** in the following sub-sections summarise the methodology for defining receptor sensitivity, magnitude of impact and significance of effect in relation to health and wellbeing.

Sensitivity

16.4.5 **Table 16.4** below sets out the indicative criteria that will be used to define the sensitivity or value of receptor populations. This is based on (and informed by) **Table 7.1** in the ISEP guidance (Ref 16.25).

Table 16.4: Criteria for determining sensitivity of receptors

Level of Sensitivity	Indicative Description
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the Project); resources, services and facilities potentially affected by the Project; existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; high proportions of dependants; people with very poor health status; and/or people with a very low capacity to adapt to change.
Medium	Moderate levels of deprivation; few alternatives to shared resources services and facilities potentially affected by the Project; 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 as a result of health status; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt to change.
Low	Low levels of deprivation; many alternatives to shared resources services and facilities potentially affected by the Project; 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 as a result of health status; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt to change.
Very Low	Very low levels of deprivation; no shared resources services and facilities potentially affected by the Project; 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 as a result of health status; high proportion of people who are independent (not a carer or dependant); people with good or very good health status; and/or people with a very high capacity to adapt to change.

Magnitude

16.4.6 **Table 16.5** sets out the indicative criteria that will be used to define the magnitude of impact. This is based on (and informed by) Table 7.2 in the ISEP guidance (Ref 16.25).

Table 16.5: Criteria for determining magnitude of impact

Magnitude of Impact	Indicative Description
High	High exposure or scale; long-term duration; 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 and likely irreversible change; substantial service quality implications.

Magnitude of Impact	Indicative Description
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or a major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications.
Low	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; slight service quality implications.
Negligible	Negligible exposure or scale; very short-term duration; one-off frequency or occurrence; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.

Significance of effect

16.4.7 The level of significance will be identified using the matrix set out in **Table 16.6**, which is derived from Table 7.3 in the ISEP guidance (Ref 16.25).

Table 16.6: Significance matrix

Sensitivity		High	Medium	Low	Very Low
Magnitude	High	Major	Major/Moderate	Moderate/Minor	Minor/Negligible
	Medium	Major/ Moderate	Moderate	Minor	Minor/Negligible
	Low	Moderate/ Minor	Minor	Minor	Negligible
	Negligible	Minor/ Negligible	Minor/Negligible	Negligible	Negligible

16.4.8 **Table 16.7** sets out the criteria and reasoning used to determine whether an effect is significant for public health and is based on (and informed by) Table 7.4 in the ISEP guidance. Effects which are moderate or above will be considered to be significant.

Table 16.7: Summary of significance of effect

Level of Effect and Significance	Indicative Criteria (Judgement Based on Most Relevant Criteria; It Is Likely That Some Assessments May Span Categories)
Major (significant)	<p>The narrative explains that this is significant for public health (including physical health and/or mental health) because:</p> <ul style="list-style-type: none"> • changes, due to the Project, have a substantial effect on the ability to deliver current health policy and/or the ability to narrow health inequalities; this may be evidenced by referencing relevant policy and/or effect size (magnitude and sensitivity levels), and/or as informed by consultation themes among stakeholders (particularly public health stakeholders) that show consensus on the importance of the effect; • change, due to the Project, could result in a regulatory threshold or statutory standard being crossed (if applicable); • there is likely to be a substantial change in the health baseline of the population, as evidenced by the effect size (magnitude and sensitivity levels) and/or scientific literature showing there is a causal relationship between changes that would result from the Project and changes to health outcomes; and • health priorities for the relevant Study Area are of specific relevance to the determinant of health or population group affected by the Project.
Moderate (significant)	<p>The narrative explains that this is significant for public health (including physical health and/or mental health) because:</p> <ul style="list-style-type: none"> • changes, due to the Project, have an influential effect on the ability to deliver current health policy and/or the ability to narrow health inequalities; this may be evidenced by referencing relevant policy and/or effect size (magnitude and sensitivity levels), and/or as informed by consultation themes among stakeholders, which may show mixed views; • change, due to the Project, could result in a regulatory threshold or statutory standard being approached (if applicable); • there is likely to be a small change in the health baseline of the population, as evidenced by the effect size (magnitude and sensitivity levels) and/or scientific literature showing there is a clear relationship between changes that would result from the Project and changes to health outcomes; and • health priorities for the relevant Study Area are of general relevance to the determinant of health or population group affected by the Project.
Minor (not significant)	<p>The narrative explains that this is not significant for public health because:</p> <ul style="list-style-type: none"> • changes, due to the Project, have a marginal effect on the ability to deliver current health policy and/or the ability to narrow health inequalities; this may be evidenced by effect size (magnitude and

Level of Effect and Significance	Indicative Criteria (Judgement Based on Most Relevant Criteria; It Is Likely That Some Assessments May Span Categories)
	<p>sensitivity levels); by limited policy influence; and/or that no relevant consultation themes emerge among stakeholders;</p> <ul style="list-style-type: none"> • change, due to the Project, would be well within a regulatory threshold or statutory standard (if applicable); but could result in a guideline being crossed (if applicable); • there is likely to be a slight change in the health baseline of the population, as evidenced by the effect size (magnitude and sensitivity levels) and/or scientific literature showing there is only a suggestive relationship between changes that would result from the Project and changes to health outcomes; and • health priorities for the relevant Study Area are of low relevance to the determinant of health or population group affected by the Project.
Negligible (not significant)	<p>The narrative explains that this is not significant for public health because:</p> <ul style="list-style-type: none"> • changes, due to the Project, are not related to the ability to deliver current health policy and/or the ability to narrow health inequalities; this may be evidenced by effect size (magnitude and sensitivity levels); lack of relevant policy; and/or informed by the Project having no responses on this issue among stakeholders; • change, due to the Project, would not affect a regulatory threshold, statutory standard or guideline (if applicable); • there is likely to be a very limited change in the health baseline of the population, as evidenced by the effect size (magnitude and sensitivity levels) and/or scientific literature showing there is an unsupported relationship between changes that would result from the Project and changes to health outcomes; and • health priorities for the relevant Study Area are not relevant to the determinant of health or population group affected by the Project.

Preliminary Assessment Assumptions and Limitations

16.4.9 The assessment has been undertaken based on the preliminary Project design information. This information is iterative and will be updated in the ES as the design evolves. This may lead to changes which would be accounted for in the assessment presented in the ES.

16.4.10 The following limitations and assumptions have been identified for the assessment within this section:

- this assessment has relied, in part, on data provided by third parties (e.g. Ordnance Survey mapping, Office for National Statistics (ONS)) which are the most up-to-date data available at the time of writing. No significant changes or limitations in these datasets have been identified that would affect the robustness of the assessment. Baseline data will be kept under review throughout the production of the EIA in order to ensure that (where practicable) the most recently published data is utilised.

- no site survey has been undertaken for the purpose of this chapter; this is not considered to be required or affect the robustness of the assessment for EIA purposes, due to baseline information being publicly available from published sources.

Further Assessment Within the ES

- 16.4.11 The preliminary assessment presented here will be developed in the ES as the design of the Project evolves.
- 16.4.12 The ES will present a detailed assessment in accordance with ISEP guidance with the significance of the effect on a receptor identified for construction and operation (and maintenance) where relevant. This will be a qualitative assessment determining the magnitude of potential change and sensitivity of receptors to change (both the general population and vulnerable groups).
- 16.4.13 A conclusion on significance and associated reasoning will be provided where practicable in relation to identified receptors (general population and vulnerable groups) and effects on physical and mental health arising from environmental change.
- 16.4.14 The ES will include the results of relevant site surveys undertaken to inform the assessments of other environmental topics, for example usage surveys for Public Rights of Way (PRoWs).
- 16.4.15 An EMF compliance report will be produced to support the application for development consent. This sits outside the EIA process; however, a summary of this report will be included in the ES.

16.5 Baseline Conditions

Study Area

- 16.5.1 The Study Area for the health and wellbeing assessment (apart from the assessment of mental health effects as a result of EMFs) has been determined using professional judgement and past experience of similar linear infrastructure projects, and is defined by local authority boundaries. The draft Order Limits fall within the following local authority areas, which are all located within the Derbyshire County Council area, and these are shown on **Figure 16.1 Health and Wellbeing Study Areas**:
- North East Derbyshire District Council;
 - Bolsover District Council;
 - Amber Valley Borough Council;
 - Erewash Borough Council; and
 - South Derbyshire District Council.
- 16.5.2 As the draft Order Limits are in close proximity to Chesterfield Borough Council and Derby City Council, these local authorities have also been included within the assessment.

- 16.5.3 Where impacts are identified, additional information will be incorporated in the ES once the design of the Project is refined further. This will enable greater understanding of population receptors, particularly vulnerable groups; how they will be impacted; and to identify disproportionate effects and inequalities. This will include data and analysis at the lowest available geographical level: typically Ward level, or Lower Super Output Area level.
- 16.5.4 For the assessment of mental health effects as a result of EMFs, it is recognised that there remains the potential for effects on mental health arising from perceived risk to health. The potential for effects on physical health arising from EMFs has been scoped out due to design measures ensuring compliance with the requirements of NPS EN-5 (Ref 16.7). Due to the nature of mental health effects, it is not practicable to apply a geographical Study Area for this effect due to the nature of mental health and a person’s experience of mental health effects.

Data Collection

- 16.5.5 The following data sources have been used to inform the baseline for health and wellbeing, as outlined in **Table 16.8**. All data is publicly available and the most recently available data at the time of writing has been used to inform the baseline for this assessment.

Table 16.8: Data sources

Organisation	Data Type
Official Census and Labour Market Statistics (NOMIS) (Ref 16.30)	Data from the 2021 Census on population demographics (including for ethnic groups), life expectancy and rates of income deprivation for the Study Area. It is the most recently published census data at the time of writing.
English Indices of Multiple Deprivation (IMD) (Ref 16.31)	Deprivation data by local authority from the 2025 IMD (the most recently published IMD at the time of writing).
Department of Health and Social Care, Fingertips Public Health Database (Ref 16.32)	Public health data profiles which include profiles for local authorities and populations, including prevalence of disease, disability and weight indicators.

Existing Baseline

- 16.5.6 The following section outlines the health and wellbeing baseline. Statistics on demographics, general and physical health, mental health and deprivation are considered.

Sensitive receptors

- 16.5.7 The World Health Organization defines health as a ‘*state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*’ (Ref 16.33). The range of personal, social, economic, and environmental factors that influence health status are known as health determinants and includes the physical environment, income levels, employment, education, social support, and housing.

- 16.5.8 The Project has the potential to give rise to changes in health status by influencing health determinants as a result of health-related environmental change. Such change can affect the health of receptors, identified as the 'general population' and 'vulnerable groups', both physically and mentally, by influencing activities, provision of or access to resources, or protective factors that contribute to health and wellbeing. A vulnerable group may have a higher sensitivity to these changes in health status, by virtue of factors such as age (for example, older people or children), ethnicity, economic factors, disability, sex, or gender.
- 16.5.9 Health-related environmental change will be identified in the following chapters, with the corresponding physical and mental health effects assessed in this health and wellbeing chapter:
- **Chapter 6 Landscape and Visual;**
 - **Chapter 9 Hydrology and Land Drainage;**
 - **Chapter 10 Geology and Hydrogeology;**
 - **Chapter 11 Agriculture and Soils;**
 - **Chapter 12 Traffic and Transport;**
 - **Chapter 13 Air Quality;**
 - **Chapter 14 Noise and Vibration; and**
 - **Chapter 15 Socio-economics, Recreation and Tourism.**
- 16.5.10 The following sensitive receptors shown in **Table 16.9** were scoped in for further assessment in the Scoping Report as they have the potential to experience significant effects.

Table 16.9: Health and wellbeing impacts scoped into the assessment

Potential Effect	Receptor		Health and Wellbeing Impact		Details	Stage	
	General Population	Vulnerable Groups	Physical	Mental		Construction	Operation
Effects on quality of life – physical and mental wellbeing effects related to environmental change to baseline conditions	Y	Y	Y	Y	Changes to quality of life for the general population and vulnerable groups, associated with physical health and mental wellbeing during construction and operation. This is as a result of environmental changes to baseline conditions associated with landscape and visual amenity, the water environment, geology and hydrogeology, traffic and transport, noise and vibration, and air quality. This could give rise to landscape and visual changes, flood risk, ground contamination, availability and quality of water resources, increased journey times, and changes in amenity due to noise, vibration, and air quality.	Y	Y
Health-related effects associated with environmental changes to the PRow network	Y	Y	Y	Y	Drawing on the findings of the assessment of traffic and transport, and socio-economics, recreation and tourism, the assessment will consider the impacts to physical health and mental wellbeing for the general population and vulnerable groups arising from changes to the PRow network.	Y	Y

Potential Effect	Receptor		Health and Wellbeing Impact		Details	Stage	
	General Population	Vulnerable Groups	Physical	Mental		Construction	Operation
Change to provision of and access to facilities	Y	Y	Y	Y	Drawing on the findings of the assessment of potential impacts on socio-economics, recreation and tourism, the assessment will consider the impacts to physical health and mental wellbeing associated with changes in the provision of, or access to, education, training, employment, community, medical and recreational facilities, during both construction and operation for the general population and vulnerable groups.	Y	Y
Potential employment generation	Y	Y	N	Y	Drawing on the findings of the assessment of potential impacts on socio-economics, recreation and tourism, the assessment will consider the mental health and wellbeing impacts associated with employment generation as a result of the Project.	Y	N
Mental health effects of perceived risk from EMFs	Y	Y	N	Y	The Project will comply with EMF public exposure limits and therefore be scoped out from physical impacts to health and wellbeing. However, there remains a perception of risk associated with EMFs, which has the potential to impact mental health and wellbeing.	N	Y

Health-related environmental change

16.5.11 Population and recreation data are described in **Chapter 15 Socio-economics, Recreation and Tourism**. Baseline information relating to health-related environmental change is set out in the following chapters:

- **Chapter 6 Landscape and Visual;**
- **Chapter 9 Hydrology and Land Drainage;**
- **Chapter 10 Geology and Hydrogeology;**
- **Chapter 11 Agriculture and Soils;**
- **Chapter 12 Traffic and Transport;**
- **Chapter 13 Air Quality;** and
- **Chapter 14 Noise and Vibration.**

Age

16.5.12 In relation to health and wellbeing, protected and vulnerable groups for age are children and young people (typically aged under 18 years old) and older people (aged over 65 years old).

16.5.13 As **Table 16.10** shows, the proportion of under 18 year olds is broadly similar across England (20.7 per cent) and the East Midlands (20.3 per cent). Derby City and South Derbyshire both have a greater proportion of under 18 year olds (22.5 per cent and 21.2 per cent respectively) when compared to the England average. The other council areas all have slightly lower proportions of under 18 year olds, with North East Derbyshire the lowest at 18.4 per cent. North East Derbyshire also has the highest proportion of over 65 year olds, indicating an ageing population in this area.

16.5.14 **Table 16.10** shows the proportion of over 65 year olds, and the population density for each local authority. Derby City has the lowest proportion of over 65 year olds, suggesting there is a younger resident population (as is typical within city centre areas in England). Of the seven local authority areas, six have a higher proportion of over 65s than the England average (18.3 per cent) suggesting that there is an ageing population in these areas.

16.5.15 Population density across the local authority areas varies significantly. The population density for the East Midlands (312.4 people per square kilometre (km²)) is lower than the England average (433.5 people per km²). Each of the local authorities in the Study Area has a higher population density than the average for the East Midlands region. In North East Derbyshire and South Derbyshire, it is lower than the England average. In Amber Valley and Bolsover, it is slightly higher than the England average. By contrast, Derby City has the highest population density, at over seven times higher than the England average. Erewash Borough Council and Chesterfield Borough Council both have significantly higher population densities than the England average, with 1,029.9 people per km² and 1,568.4 people per km², respectively. For Chesterfield Borough Council, this is because the town of Chesterfield is a key population centre in the region, and Erewash Borough Council has several larger towns such as Ilkeston and Long Eaton which are key commuter locations for both Nottingham and Derby.

Table 16.10: Age and population statistics (Ref 16.34)

Geographical Area	Proportion of Under 18 year Olds (%)	Proportion of Over 65 year Olds (%)	Population Density (Per km2)
Country			
England	20.7%	18.3%	433.5
Region			
East Midlands	20.3%	19.4%	312.4
Local Authority			
Chesterfield Borough Council	18.9%	21.6%	1,568.4
North East Derbyshire District Council	18.4%	24.8%	370.1
Bolsover District Council	19.4%	20.2%	500.7
Amber Valley Borough Council	18.7%	22.6%	475.6
Erewash Borough Council	19.4%	20.8%	1,029.9
Derby City Council	22.5%	16.4%	3,349.5
South Derbyshire District Council	21.2%	18.6%	317.1

General and physical health

16.5.16 Whilst a person's 'health' is typically linked to overall wellbeing and the wider determinants of health (such as access to employment, participation and linkages to community), general and physical health measures are one element of this and typically encompass metrics such as life expectancy, illness, and disease.

Life expectancy

16.5.17 Life expectancy rates measured at birth (from 2023, the most recently published data at the time of writing) are generally slightly lower within the seven local authorities when compared with the East Midlands (78.9 years for males and 82.6 years for females) and England (79.1 years for males and 83.0 years for females) averages.

16.5.18 The greatest difference for male life expectancy is in Bolsover, which is 2.1 years lower than the England average, compared with the life expectancy for men in North East Derbyshire (79.5 years) and South Derbyshire (79.4 years) which are both slightly higher than the England average.

16.5.19 For women in North East Derbyshire, life expectancy (83.0 years) is the same as the England average. South Derbyshire has the highest life expectancy for women, at 0.2 years greater than the England average. The lowest life expectancy for women is in Bolsover, at 2.1 years lower than the England average.

Disability

- 16.5.20 The number of people living with a limiting long-term illness or disability is generally higher across the Study Area when compared with the England average (17.3 per cent). In the East Midlands, the rate of those living with a disability that limits activities either a little or a lot is 18.4 per cent, 1.1 per cent higher than the England average. Chesterfield has the highest proportion of residents living with a limiting illness or disability (23.1 per cent). Conversely, South Derbyshire has the lowest proportion at 17.2 per cent, 0.1 per cent lower than the England average.

Child health

- 16.5.21 Across child weight indicators (the prevalence of children who are classed as overweight or obese), at both Reception-age and Year 6, resident children in the Study Area generally performed better than the England average (22.1 per cent for Reception-age and 35.8 per cent for Year 6). However, there are three local authority areas where rates are higher (e.g. worse): Chesterfield (23.1 per cent for Reception-age, 36.2 per cent for Year 6); Bolsover (25.9 per cent for Reception-age, 40.6 per cent for Year 6); and Derby City (37.8 per cent for Year 6 only is higher). This indicates that opportunities for exercise, active travel and outdoor recreation may be more limited in these areas.
- 16.5.22 The proportion of children living in low income households in 2020 (the most recently available data at the time of writing) was the same as or worse than the England average (20 per cent) in every local authority in the Study Area, apart from South Derbyshire (17 per cent). Derby City had the highest proportion of children living in low income households in the Study Area, at 31.9 per cent.

Mental health

- 16.5.23 Mental health is intrinsically linked to physical health and wellbeing as well as the wider determinants of health. Measurable mental health data relates to self-reported statistics on mental health symptoms such as anxiety and depression, as well as mental health services referrals.
- 16.5.24 The number of new referrals to secondary mental health services in 2022/2023 (the most recently available data at the time of writing) was lower in the Derbyshire County Council area² (7,744 per 100,000 of the population) when compared to the England average (8,117 per 100,000 of the population). In the Derby City Council area, the number of referrals (8,325 per 100,000 of the population) was higher than the England average.
- 16.5.25 **Table 16.11** shows self-reported anxiety and low happiness scores for each of the local authority areas in 2022/2023. Generally, self-reported anxiety levels are lower (e.g. better) in the Study Area when compared to the England average; however, Derby City has a significantly higher percentage of residents experiencing anxiety, and Erewash has a slightly higher percentage of residents experiencing anxiety than the England average. For those residents who self-report having low levels of happiness, four of the seven local authorities rank higher than the England average (8.9 per cent), with Bolsover being the highest at 13.1 per cent.

² Derbyshire County Council includes Chesterfield Borough Council, North East Derbyshire District Council, Bolsover District Council, Amber Valley Borough Council, Erewash Borough Council and South Derbyshire District Council.

Table 16.11: Self-reported anxiety and self-reported low happiness within the Study Area

Region	Self-Reported Anxiety	Self-Reported 'Low Happiness'
England	23.3%	8.9%
Chesterfield Borough Council	20.7%	9.4%
North East Derbyshire District Council	22.6%	Small Count – not reported
Bolsover District Council	21.2%	13.1%
Amber Valley Borough Council	18.7%	6.9%
Erewash Borough Council	23.4%	9.0%
Derby City Council	29.3%	9.8%
South Derbyshire District Council	20.3%	8.1%

16.5.26 Within the Study Area, the prevalence of depression in 2022/2023 was higher in the Derbyshire County Council area (15.6 per cent) than the England average (13.2 per cent), whilst in Derby City it was slightly lower (12.8 per cent) than the England average. Emergency hospital admissions for self-harm in 2023/2024 were higher than the England average (117 per 100,000 of the population) in all local authorities in the Study Area, apart from North East Derbyshire which was lower (100 per 100,000 of the population). The highest number of admissions per 100,000 of the population was in Chesterfield – 211, almost twice as high as the England average.

16.5.27 The percentage of pupils with social, emotional and mental health needs in 2022/2023 was slightly higher in Derbyshire County Council (3.6 per cent) when compared with the England average (3.3 per cent). In Derby City Council, the proportion of pupils with social, emotional and mental health needs was marginally higher than the England average, at 3.4 per cent.

Ethnicity

16.5.28 The majority of the local authorities within the Study Area are less diverse than England as a whole. In England, 81 per cent of the population identify as White. Both North East Derbyshire and Bolsover have the highest proportions of the resident population who identify as White (both 97.4 per cent). By contrast, Derby City is the only local authority in the Study Area which has a lower proportion of White residents than the England level, with 73.8 per cent of the population identifying as White.

Deprivation

16.5.29 The English IMD 2025 (Ref 16.31) uses a combination of information relating to seven 'domains' of deprivation: income; employment; health deprivation and disability; education, skills and training; barriers to housing and services; crime; and living environment, to create an overall score of deprivation. Deprivation within each local authority is ranked, with a score of 1 being the most deprived, and the least deprived ranked at 296. **Table 16.12** summarises the overall ranking of deprivation and Health and Disability ranking for each local authority district.

Table 16.12: Local authority IMD ranking

Local Authority	Overall Rank	Overall Percentile Ranking of Local Authorities	Health Rank	Health and Disability Percentile Ranking of Local Authorities
Bolsover District Council	52	Within 20% most deprived	15	Within 10% most deprived
Derby City Council	79	Within 30% most deprived	57	Within 20% most deprived
Chesterfield Borough Council	80	Within 30% most deprived	12	Within 10% most deprived
Erewash Borough Council	144	Within 50% most deprived	88	Within 30% most deprived
North East Derbyshire District Council	158	Within 50% least deprived	92	Within 40% most deprived
Amber Valley Borough Council	161	Within 50% least deprived	115	Within 40% most deprived
South Derbyshire District Council	210	Within 30% least deprived	150	Within 50% least deprived

16.5.30 Across the Study Area, four of the seven local authority districts are ranked within the 50 per cent most deprived local authorities in England according to the overall measure of deprivation. Of all the authorities within the Study Area, Bolsover is ranked the most deprived, and South Derbyshire District Council as the least deprived.

16.5.31 **Table 16.12** shows the health and disability ranking of each of the local authorities. Chesterfield and Bolsover have the highest levels of health deprivation across the Study Area, and both are in the 10 per cent most deprived local authorities across England. South Derbyshire is ranked as the least deprived, within the 50 per cent least deprived local authorities in England by health deprivation.

Employment

16.5.32 Statistics from July 2024 to June 2025 (Ref 16.35) show that model-based unemployment in the East Midlands region currently stands at 3.9 per cent, which is slightly lower than the average England rate of 4.2 per cent. Across the Study Area, each of the local authorities have an unemployment rate that is lower than the East Midlands average, apart from Derby City which is 5.7 per cent, a higher rate than the East Midlands and England averages. The lowest unemployment rate is in South Derbyshire, which is 0.9 per cent lower than the East Midlands average.

Physical and mental health summary

16.5.33 Health and wellbeing statistics show a wide variety of socio-economic and health factors affecting the different authorities across the Study Area. The Study Area tends to have an ageing population, and slightly lower life expectancy than the England average, which suggests that healthcare for older age groups is a focus in the area. Varied levels of deprivation are also present across the Study Area, with four of the seven local authorities within the 50 per cent most deprived local authorities in England. Mental wellbeing and anxiety are reported as being lower (e.g. better) in the Study Area when compared to the England average; however, there are significant concentrations of residents experiencing both depression and anxiety within Derby City, with rates notably higher than the England average and surrounding local authorities within the Study Area.

EMFs

- 16.5.34 There is existing electricity transmission and distribution equipment in the Study Area, including, but not limited to, the Chesterfield to High Marnham 275 kV overhead line and the Ratcliffe to Willington 400 kV overhead line, as well as existing substations at Chesterfield and Willington. The existing electricity infrastructure produces EMFs as it distributes or uses electricity.
- 16.5.35 Background EMFs are present in most homes. Electrical appliances and wiring normally used in houses generates a magnetic field. The design standards and guidelines outlined in NPS EN-5 (Ref 16.7) are included as design embedded mitigation measures, which are further detailed within **Chapter 4 Description of the Project**. In addition, an EMF Report will be prepared and submitted as part of the DCO application.

Future Baseline

- 16.5.36 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation can be assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation and by other confirmed development projects which would be complete prior to construction of the Project. Specific health indicators are unable to be accurately predicted in the future, therefore the future baseline considers population growth and the potential for an ageing population.
- 16.5.37 With regard to health and wellbeing it is anticipated that there would be natural demographic changes to the distribution and structure of the population over time. **Table 16.13** presents the ONS 2022-based sub-national population projections (the most recently available data at the time of writing) for each local authority within the Study Area (Ref 16.36).

Table 16.13: Estimated population increase

Local Authority	% Increase, From Mid-2022 to Mid-2047
England	13.3%
Chesterfield Borough Council	7.4%

Local Authority	% Increase, From Mid-2022 to Mid-2047
North East Derbyshire District Council	16.4%
Bolsover District Council	17.8%
Amber Valley Borough Council	14.0%
Erewash Borough Council	4.4%
Derby City Council	6.4%
South Derbyshire District Council	37.8%

- 16.5.38 The population growth projections vary considerably across the Study Area, with South Derbyshire predicted to experience the greatest levels of population growth (approximately three times the rate of population growth compared to the England average), whilst Erewash is predicted to experience the lowest rates of population growth (at approximately three times lower than the England average).
- 16.5.39 In terms of the age structure of the population, by 2047, the old age dependency ratio (defined as the number of people of pensionable age per 1,000 people of working age) in England is approximately 299. In Chesterfield (363), Bolsover (324), North East Derbyshire (378), Amber Valley (371), Erewash (330) and South Derbyshire (303), the old age dependency ratio is higher than the England average, with North East Derbyshire being the highest. Derby City has a lower ratio than the England average at 266, suggesting a younger population. Every local authority (and England) is predicted to experience an increase in the old age dependency ratio when compared with 2022 data.
- 16.5.40 Overall, population growth across the Study Area is likely to place additional strain on existing health services and require additional housing, with both also likely to require additional services catered towards an ageing population.
- 16.5.41 Whilst it is anticipated that there would be demographic and physical changes to the baseline environment over time, this is unlikely to change significantly should the Project not proceed or be delayed. As such, the assessment conclusions would remain valid.

16.6 Design Embedded and Good Practice Mitigation Measures

- 16.6.1 As set out in **Chapter 5 Approach to Preliminary Environmental Information Report**, mitigation measures fall into one of three categories: design embedded mitigation measures; good practice measures; and additional mitigation measures. Those measures relevant to the assessment of health and wellbeing effects are set out below.

Design Embedded Mitigation Measures

- 16.6.2 The Project will be designed and constructed in line with guidance outlined in the International Commission on Non-Ionizing Radiation Protection (1998) Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (Ref 16.8). The adherence and compliance with these guidelines will help to reduce the potential stress and mental health effects for local communities to which the presence of EMFs may give rise.
- 16.6.3 The Project design, as far as practicable, also reduces effects resulting from environmental change through design, e.g. selecting locations which seek to minimise impacts on historic features and the wider landscape, and designed to reduce potential noise and vibration effects through the selection of equipment. Where required, environmental measures as detailed within the respective topic chapters will further reduce potential changes and effects.

Good Practice Mitigation Measures

- 16.6.4 National Grid Electricity Transmission (NGET) is aware that there may be concern regarding the potential effects of EMFs, despite the measures in place to protect against these.
- 16.6.5 To address any concerns or anxiety, National Grid offers open communication on the issue, providing information on the science, research and measures that will be applied to protect against EMF effects. As per **Appendix 4A Draft Outline Code of Construction Practice** measures include:
- HW01: The Project will provide open and transparent information about electric and magnetic fields (EMFs) through the National Grid Energy Transmission (NGET) website (www.emfs.info), which is linked from all National Grid project websites for public to access; and
 - HW02: NGET also operate 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..
- 16.6.6 The following mitigation measures are outlined within other PEIR chapters including **Chapter 12 Traffic and Transport** and **Chapter 15 Socio-economics, Recreation and Tourism**, and are included in **Appendix 4A Draft Outline Code of Construction Practice**; however, they are applicable to health and wellbeing and therefore have also been included here.
- 16.6.7 As per SO02, all PRowS which have the potential to be impacted by the Project will be identified in an Outline PRow Management Plan (PRowMP). The PRowMP will set out the measures required (including any potential temporary diversions or closures applied for/detailed in the DCO) to ensure that that PRow remains safe to use and any potential disruption to PRow users is minimised. All designated PRow crossings within the draft Order Limits will be managed in discussion with the relevant local authority. Any required temporary diversions or closures of PRowS during construction will be clearly marked at both ends of the PRow with signage explaining the diversion and associated route, with the duration of the diversion and a contact number for users should they have any concerns. This would minimise the potential to give rise to adverse effects on the physical or mental health of PRow users.

16.6.8 As per TT01, SO01 and SO03, construction traffic routes will be selected to avoid impacts on sensitive receptors and communities, where practicable, through routeing plans, restrictions and vehicle choices. Good practice measures outlined within the Draft Outline CoCP and Preliminary Construction Traffic Management Plan (CTMP) would be implemented, where practicable, in order to avoid conflict with walkers, cyclists, and horse riders; local residents; nearby businesses; and other community or tourist users. This would minimise the potential to give rise to adverse effects on the physical or mental health of local residents, employees, and users of facilities in the communities within and surrounding the draft Order Limits.

16.7 Preliminary Assessment of Effects

16.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors identified within the Study Area, as a result of construction and operational activities.

16.7.2 The preliminary assessment of effects reported below considers the design embedded and good practice mitigation measures, as previously described under section 16.6.

16.7.3 It is noted that this is an ongoing assessment and is subject to change due to the ongoing development of the design of the Project, Stage 2 consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

16.7.4 The structure of the assessment section follows that presented in **Table 16.9**. Each effect is considered for construction and operation (where applicable), with the effect on each receptor (both the general population and vulnerable populations) identified.

16.7.5 The potential effects that could result from the construction of the Project are:

- effects on quality of life – physical and mental wellbeing effects on general and vulnerable populations related to environmental change to baseline conditions;
- physical and mental wellbeing effects on general and vulnerable populations associated with environmental changes to the PRoW network;
- physical and mental wellbeing effects on general and vulnerable populations due to changes in provision of and access to facilities; and
- mental wellbeing effects on general and vulnerable populations as a result of employment generation.

16.7.6 The potential effects that could result from the operation of the Project area:

- effects on quality of life – physical and mental wellbeing effects on general and vulnerable populations related to environmental change to baseline conditions;
- physical and mental wellbeing effects on general and vulnerable populations associated with environmental changes to the PRoW network;
- physical and mental wellbeing effects on general and vulnerable populations due to changes in provision of and access to facilities; and
- mental wellbeing effects on general and vulnerable populations due to perceived risks from EMFs.

Effects on Quality of Life – Physical and Mental Wellbeing Effects Related to Environmental Change to Baseline Conditions

- 16.7.7 Quality of life encompasses a person’s overall experience of wellbeing, happiness, and physical and mental health. In the context of this preliminary health and wellbeing assessment, quality of life and potential effects on quality of life are linked to the environment and the presence of environmental effects such as (but not limited to) noise, vibration, and air quality. For example, the presence of construction noise has the potential to affect sleep, for both the general population and vulnerable populations. A person’s experience of sleep disturbance may therefore lead to impacts on their quality of life and overall mental health and wellbeing.
- 16.7.8 In the context of the Project, effects on quality of life have the potential to arise as a result of residual effects associated with other environmental technical topics, if not properly controlled through embedded and good practice mitigation measures, and (where necessary) additional mitigation measures. These can give rise to changes to both physical health and mental wellbeing which could affect quality of life.
- 16.7.9 These potential environmental effects have the ability to impact both the general population and vulnerable groups, particularly: children and young people; older people; people with physical disabilities (including mobility issues); and people with mental health conditions and associated disabilities.

Sensitivity of receptors

- 16.7.10 The sensitivity of the general population within the Study Area to effects on quality of life during both construction and operation of the Project is considered to be low. The sensitivity of vulnerable groups with the potential to experience effects on quality of life is considered to be medium.

Magnitude of change and significance

- 16.7.11 **Table 16.14** provides a summary of potential human health effects identified by other environmental technical topics, related to environmental and amenity changes to the baseline environment as a result of the construction and operational phases of the Project. This will inform the magnitude of change and potential for significant effects for the general and vulnerable populations during construction and operation.

Table 16.14: Preliminary assessment of effects of health-related environmental change reported by environmental technical topics

Topic	Element	Effect
Chapter 6 Landscape and Visual	Visual effects	As reported in the chapter, there may be up to major adverse (significant) effects on changes to views and visual amenity for both residents and recreational receptors during construction and operation. At this stage no additional mitigation measures have been identified; however, this may change in the ES.
Chapter 9 Hydrology and Land Drainage	Impacts to water quality	As per the chapter, no significant effects are identified at this stage during construction and operation. Pollutants and sediment from construction activities may affect water environment receptors and human health. During operation, storage of potential pollutions such as oil-filled transformers on-site may affect water environment receptors if not contained.
	Flood risk and land drainage	As per the chapter, no significant effects are identified at this stage during construction and operation. The Project would introduce new areas of temporary impermeable land cover at construction compounds as well as earthworks which could disrupt current land drainage. Where there are localised flooding events this may impact mental and physical health. During operation, there will be changes to ground surface levels, introduction of a new outfall structure, changes to floodplain capacity as a result of concrete plinths on pylons 4CW141 and 4CW142 and improvements to local highways.
Chapter 10 Geology and Hydrogeology	Human health and controlled waters during construction	As per the assessment, effects are currently anticipated to be major to moderate adverse (significant). Further review and intrusive investigation will determine the presence of potential contamination sources and potential receptors and pathways.
	Changes to principal aquifer groundwater flows during construction	As per the assessment, preliminary effects are anticipated to be moderate (significant). Further review of data and additional investigation will determine the presence of potential receptors and pathways and will be presented in the ES.

Topic	Element	Effect
	Changes to principal aquifer groundwater quality during construction	As per the assessment, preliminary effects are anticipated to be major to moderate (significant). Further review of data and additional investigation will determine the presence of potential receptors and pathways and will be presented in the ES.
	Changes to principal aquifer groundwater flows during operation	As reported in the chapter, areas where there are larger foundations, such as the new Chesterfield Substation may experience major to moderate adverse (significant) effects on groundwater flows. Further review of data and additional investigation will determine the presence of potential receptors and pathways, and will be presented in the ES. At pylon foundations and cable ducts, effects are anticipated to be minor to negligible, and not significant .
Chapter 11 Agriculture and Soils	Agricultural land holdings and farm operations during construction	At this stage, no significant effects have been identified.
	Permanent loss of agricultural land during operation	At this stage, effects are anticipated to be major adverse (significant), for new pylon footings and the new Chesterfield Substation. This may change as the design of the Project develops.
Chapter 12 Traffic and Transport	Accident and road safety during construction	As reported in the chapter, preliminary effects are generally anticipated to be not significant ; however, there may be significant effects at certain locations where the sensitivity of the receptors is high. This will be determined following further assessment and will be presented in the ES.

Topic	Element	Effect
Chapter 13 Air Quality	Construction dust – loss of amenity and health impacts	As reported in the chapter, with mitigation in place, the preliminary effects of construction dust are anticipated to be not significant .
	Use of generators	As reported in the chapter, there are 51 receptors within 100 m of locations where generators are likely to be used; however, with mitigation measures in place, the preliminary effects are anticipated to be not significant .
	Construction vehicle emissions (human receptors)	As reported in the chapter, the preliminary effects may be significant as 39 road links are expected to exceed current criteria for sensitive receptors. Further dispersion modelling will be undertaken with the results presented in the ES. It is anticipated that that additional measures would be implemented to mitigate these impacts.
	Operational vehicle emissions (human receptors)	As reported in the chapter, the preliminary effects are anticipated to be not significant ; however, this will be confirmed in the ES once traffic volumes have been screened against the relevant guidance.
Chapter 14 Noise and Vibration	Construction noise	There is the potential for significant effects at receptors within 200 m (daytime) and 630 m (weekends) of the works. This is based on conservative assumptions and will be refined in the ES. Good practice mitigation measures will be incorporated into the final assessment.
	Construction vibration	There is the potential for significant effects at receptors within 90 m of the works. This is based on conservative assumptions and will be refined in the ES. Good practice mitigation measures will be incorporated into the final assessment.

Topic	Element	Effect
	Noise from construction traffic	As per the chapter, preliminary effects are anticipated to be not significant . An initial assessment at Main Road in Lower Hartshay shows potential for significant effects ; however, due to the proximity to the A38 and A610, ambient noise levels are anticipated to be high. Additional calculations will be carried out; however, predicted noise levels are similar to existing ambient noise levels. This means that effects on Main Road are anticipated to be not significant.
	Noise from the overhead line during operation	As per the chapter, there is potential for significant effects on ‘vulnerable subgroups’ within 200 m of the overhead line, such as Alfreton Park Special School. Additional mitigation measures will be considered within the ES assessment.
Chapter 15 Socio- economics, Recreation and Tourism	Private property and housing (construction)	Moderate adverse (significant) preliminary effects are reported for amenity impacts to private property and housing. This will be updated in the ES once the final assessments for noise and vibration, traffic and transport, air quality and landscape have been completed.
	Private property and housing (operation)	Moderate adverse (significant) preliminary effects are reported for amenity impacts to private property and housing. This will be updated in the ES once the final assessments for noise and vibration, traffic and transport, air quality and landscape have been completed.
	Businesses and development land (construction)	Moderate adverse (significant) preliminary effects are reported for amenity impacts to businesses and development land. This will be updated in the ES once the final assessments for noise and vibration, traffic and transport, air quality and landscape have been completed.
	Businesses and development land (operation)	Moderate adverse (significant) preliminary effects are reported for amenity impacts to businesses and development land. This will be updated in the ES once the final assessments for noise and vibration, traffic and transport, air quality and landscape have been completed.

Topic	Element	Effect
	Agricultural land holdings (construction)	Moderate adverse (significant) preliminary effects are reported for severance and amenity impacts to agricultural land holdings. This will be updated in the ES once the final assessments for noise and vibration, traffic and transport, air quality and landscape have been completed.
	Agricultural land holdings (operation)	Minor adverse (not significant) preliminary effects are reported for severance and amenity impacts to agricultural land holdings. This will be updated in the ES once the final assessments for noise and vibration, traffic and transport, air quality and landscape have been completed.

Construction

Effect on the general population

- 16.7.12 During the construction phase, the general population may experience changes to their mental and physical health as a result of the changes to the environment. The assessment of potential effects outlined in **Table 16.14** and reported in: **Chapter 6 Landscape and Visual; Chapter 10 Geology and Hydrogeology; Chapter 12 Traffic and Transport; Chapter 13 Air Quality; Chapter 14 Noise and Vibration;** and **Chapter 15 Socio-economics, Recreation and Tourism** has identified there is the potential for preliminary effects on human receptors.
- 16.7.13 Preliminary significant effects have been identified for visual receptors, contamination affecting human health and controlled waters, road safety at some locations, potential changes to air quality as a result of vehicle emissions and construction noise and vibration within 200 m during the daytime. Additionally, there are potentially significant effects reported for private property and housing, businesses, and agricultural land holdings reported in **Chapter 15 Socio-economics, Recreation and Tourism**. Residents, businessowners and landowners may face changes to their quality of life as a result of the Project.
- 16.7.14 It should be noted that for the noise, transport and air quality assessments, further modelling and refinement of mitigation measures will be implemented in the final ES, meaning that the likelihood of significant effects is likely to reduce. Equally, for contamination affecting human health receptors, further review and intrusive investigation will inform the final assessment within the ES.
- 16.7.15 There are no potentially significant construction effects identified in **Chapter 9 Hydrology and Land Drainage**, and **Chapter 11 Agriculture and Soils**.
- 16.7.16 The health and wellbeing assessment will continue to monitor the outcomes of these preliminary assessments with a full assessment of the potential for human health effects, which may impact the quality of life of the general population, to be considered within the ES.
- 16.7.17 In line with the above environmental technical topic findings, a medium magnitude of change is anticipated for the general population as there is the potential for them to experience some significant effects during construction (however exposure is anticipated to be relatively limited to the minority of the population within areas immediately proximate to the construction works).
- 16.7.18 Overall, the general population is assessed as having low sensitivity and there is potential for a medium magnitude of change. As such, a minor adverse (**not significant**) preliminary effect is anticipated on quality of life for the general population during construction.

Effect on vulnerable groups

- 16.7.19 Vulnerable groups of people may be more sensitive to changes in their environment when compared to the general population and have a greater potential to experience changes to their mental and physical health as a result of environmental change in the local area.

- 16.7.20 Within the Study Area, there is a slightly higher proportion of people living with a limiting illness or disability than the East Midlands and England averages. There are also varied levels of deprivation across the Study Area. As such, vulnerable groups – particularly children and young people; older people; people with physical disabilities (including mobility issues); and people with mental health conditions and associated disabilities – are deemed likely to experience a medium magnitude of change as there is the potential for them to experience some significant effects during construction (however exposure is anticipated to be relatively limited to the minority of the population within areas immediately proximate to the construction works).
- 16.7.21 Overall, vulnerable groups are assessed as having medium sensitivity and as the population closest to the proposed route alignment has the potential to experience exposure to regular construction phase effects, there is potential for a medium magnitude of change. As such, a moderate adverse (**significant**) preliminary effect is anticipated on quality of life for vulnerable groups during construction.

Operation

Effect on the general population

- 16.7.22 During operation, potentially significant effects have been identified for visual effects, changes to groundwater flows, permanent loss of agricultural land, and noise from the overhead line. Additionally, there are potentially significant effects reported for private property and housing, and businesses. Residents, businessowners and landowners may face changes to their quality of life as a result of the Project.
- 16.7.23 Further modelling and refinement of mitigation measures will be implemented in the final ES, meaning that the likelihood of significant effects is likely to reduce. The health and wellbeing assessment will continue to monitor the outcomes of these assessments.
- 16.7.24 There are no potentially significant operational effects identified in **Chapter 9 Hydrology and Land Drainage**.
- 16.7.25 In line with the above, a medium magnitude of change is anticipated for the general population as there is the potential for them to experience some significant effects during operation (however exposure is anticipated to be relatively limited to the minority of the population within areas immediately proximate to the construction works).
- 16.7.26 Overall, the general population is assessed as having low sensitivity and there is potential for a medium magnitude of change. As such, a minor adverse (**not significant**) preliminary effect is anticipated on quality of life for the general population during operation.

Effect on vulnerable groups

- 16.7.27 During operation, potentially significant effects have been identified for visual effects, changes to groundwater flows, permanent loss of agricultural land, and noise from the overhead line affecting vulnerable subgroups. This includes locations such as Alfreton Park Special School, whose pupils may be particularly susceptible to certain frequencies of noise.

- 16.7.28 Further modelling and refinement of mitigation measures will be implemented in the final ES, meaning that the likelihood of significant effects is likely to reduce. The health and wellbeing assessment will continue to monitor the outcomes of these assessments.
- 16.7.29 Overall, vulnerable groups are assessed as medium sensitivity and as the population is likely to experience low but frequent exposure to effects there is potential for a medium magnitude of change. As such, a moderate adverse (**significant**) preliminary effect is anticipated on quality of life for vulnerable groups during operation.

Effects Due to Health-Related Environmental Change to the PRow Network

- 16.7.30 Use of the PRow network provides a non-motorised mode of transport for people who may utilise PRow for daily recreation and connectivity (such as dog walking or travel to local shops and facilities) or exercise/organised activity (e.g. using a National Trail or PRow for longer walks).
- 16.7.31 PRow are a key aspect of health and wellbeing infrastructure, providing opportunities for all to access recreational facilities for free, and are a resource for relaxation. PRow are particularly useful to more deprived communities, allowing for use by all no matter their socio-economic background, and are therefore integral to community cohesion and equity.
- 16.7.32 In the context of the Project, should temporary diversions or closures of PRow be required, or residual effects associated with other environmental technical topics, these can give rise to changes to impacts on both physical health and mental wellbeing for users. This could be due to diversions necessitating users take a longer route, changes in level of access for users, or routing users in close proximity to construction activities which may lead them to experience noise, dust, or other environmental effects.
- 16.7.33 These potential environmental effects have the ability to impact both the general population and vulnerable groups, particularly: children and young people; older people; people with physical disabilities (including mobility issues); and people with mental health conditions and associated disabilities.

Sensitivity of receptors

- 16.7.34 Maintaining access to PRow for recreation or access is important in order to provide connectivity. Typically, people belonging to vulnerable groups (e.g. children and young people, older people) may be more inclined to travel on foot or by bike as they do not have access to or are unable to use a car. These groups are also more likely to be making shorter daily journeys within their local area, such as travelling to school or visiting the shops or doctor.
- 16.7.35 The sensitivity of the general population within the Study Area to changes to the PRow network during both construction and operation of the Project is considered to be low. The sensitivity of vulnerable groups with the potential to experience effects on quality of life is considered to be medium.

Magnitude of change and significance

- 16.7.36 There are a number of locations where PRowS are crossed by the draft Order Limits, or which pass within close proximity to the draft Order Limits, and there is the potential for temporary disruption and diversions to some PRow access for those routes. **Chapter 12 Traffic and Transport** has identified routes with the potential to be affected; however, further detail will be presented in the ES and will be informed by further work on the design and proposed construction methods.
- 16.7.37 A PRowMP has been produced as part of **Chapter 12 Traffic and Transport (Appendix 12B)** as part of the PEIR, and will be refined into the Outline PRowMP as part of the DCO application. In turn, this will form the Final PRowMP to be developed post-consent. This document will detail how PRow access will be managed, and will include further detail on the potential closures and diversions (both temporary and permanent). As such, access will be maintained throughout the construction and operational phases, ensuring no loss of these routes and maintaining access for all users.
- 16.7.38 Preliminary significant visual effects are also anticipated at PRow receptors along the route during construction and operation. These mainly relate to views of the overhead line and pylons. This may have a negative impact on mental health as views are no longer unspoilt. Users may not want to use or feel discouraged from using routes that are in proximity to the overhead line, therefore reducing opportunities to improve physical wellbeing.

Construction

Effect on the general population

- 16.7.39 During construction, taking account of measures outlined in the PRowMP, the magnitude of change is anticipated to be low or medium for the majority of PRow; however, the outcome of this assessment is subject to change as the design of the Project is refined.
- 16.7.40 Overall, the general population is assessed as having low sensitivity and there is potential for a low to medium magnitude of change. As such, this preliminary assessment suggests that there will be a minor adverse (**not significant**) effect in relation to changes to PRow access for users, due to the presence of construction works, construction traffic, and construction related environmental effects for the general population.

Effect on vulnerable groups

- 16.7.41 Vulnerable groups may be less resilient to changes in their environment when compared to the general population and have a greater potential to experience changes to their mental and physical health as a result of environmental change in the local area.
- 16.7.42 Within the Study Area, there is a somewhat higher proportion of people living with a limiting illness or disability than the East Midlands and England averages. There are also varied levels of deprivation across the Study Area. Diversions away from normal routes may cause increased anxiety in some vulnerable users, and they may feel discouraged to use PRowS for recreation due to the presence of construction activity or environmental effects such as noise. As such, vulnerable groups – particularly children and young people; older people; people with physical disabilities (including

mobility issues); and people with mental health conditions and associated disabilities – are deemed likely to experience a medium magnitude of change as there is the potential for them to experience some significant effects during construction.

- 16.7.43 Vulnerable groups are assessed as having medium sensitivity and there is potential for a medium magnitude of change. As such, this preliminary assessment suggests that there will be a moderate adverse (**significant**) effect in relation to changes to PRoW access during construction for users who belong to vulnerable groups.

Operation

Effect on the general population

- 16.7.44 During operation, there may be permanent diversions required on a small number of routes. This is subject to further design development and specific requirements will be confirmed in the ES.
- 16.7.45 Taking account of measures outlined in the PRoWMP, the magnitude of change for the general population is anticipated to be low or medium for the majority of PRoWs; however, the outcome of this assessment is subject to change as the design of the Project is refined.
- 16.7.46 Overall, the general population is assessed as having low sensitivity and there is potential for a low to medium magnitude of change. As such, this preliminary assessment suggests that there will be a minor adverse (**not significant**) effect in relation to changes to PRoW access for users during operation, due to the potential for permanent diversions in some locations.

Effect on vulnerable groups

- 16.7.47 Diversions away from normal routes may cause increased anxiety in some vulnerable users, and they may feel discouraged to use PRoWs for recreation. However once operational, where permanent diversions are required, vulnerable users will have the opportunity to establish new patterns of use. As such, the potential for mental health effects should be reduced over time and through use, and physical effects will be managed in line with measures in the Outline PRoWMP to ensure that access remains suitable for all users.
- 16.7.48 Taking account of measures outlined in the Outline PRoWMP and the potential for a small number of PRoWs to be affected, the magnitude of change for vulnerable groups is anticipated to be low or medium for the majority of PRoWs. The outcome of this assessment is subject to change as the design of the Project is refined.
- 16.7.49 Vulnerable groups are assessed as having medium sensitivity and there is potential for a low to medium magnitude of change. As such, this preliminary assessment suggests that there will be a minor adverse (**not significant**) to moderate adverse (**significant**) effect in relation to changes to PRoW access for vulnerable users during operation, due to the potential for permanent diversions in some locations.

Effects Due to Changes in Provision of and Access to Facilities

- 16.7.50 Access to services and facilities is essential to all people, including residents and employees within the Study Area. It is also important for community cohesion and equity of access, particularly for vulnerable groups. Social inclusion is a protective factor for mental health, with opportunities for employment, education and leisure having a positive impact on mental wellbeing. There is therefore the potential for disproportionate impacts on vulnerable groups should levels of access to, or provision of facilities change.

- 16.7.51 During construction, there is the potential for journey times and access to be temporarily affected by an increase in the number of heavy goods vehicles or employee vehicles on the road and temporary traffic management at certain locations. These have the potential to lead to temporary delays and could disrupt access to local services, including healthcare facilities, educational facilities and social facilities, which both the general population and vulnerable groups rely on.
- 16.7.52 This includes affecting emergency response times or non-emergency treatment outcomes associated with delays or non-attendance caused by increased traffic and journey times. Measures will be incorporated into the CTMP for the Project to ensure there is continued access for emergency service vehicles during construction.
- 16.7.53 In the context of the Project, should temporary diversions or delays on both roads and PRowS affect people's ability to access services and facilities, this could give rise to impacts on both physical health and mental wellbeing for users. Effects have the potential to be most prevalent for people living in deprived areas within close proximity to the construction areas, particularly people with long-term illnesses and carers, as well as users of ambulance services.
- 16.7.54 The Study Area performs broadly similar to England when comparing averages for happiness scores and anxiety. The effect of increasing journey times can lead to stress and frustration, which may lead to worsening mental health in users of the road network. Reducing access or making it harder to access educational, healthcare and social facilities removes opportunities to release stress, possibly further affecting health in what may be an already vulnerable population.
- 16.7.55 These potential environmental effects have the ability to impact both the general population and vulnerable groups, particularly: children and young people; older people; people with physical disabilities (including mobility issues); and people with mental health conditions and associated disabilities.

Sensitivity of receptors

- 16.7.56 The sensitivity of the general population within the Study Area to changes in access to services and facilities during both construction and operation of the Project is considered to be low. The sensitivity of vulnerable groups with the potential to experience changes in access to services and facilities is considered to be medium.

Magnitude of change and significance

- 16.7.57 There are a number of locations where there is the potential for traffic delays to arise, particularly associated with heavy goods vehicle routes and junctions within and proximate to the draft Order Limits and associated construction compounds. There is the potential for temporary disruption and delays to journeys, including changes to access for facilities within these localities.
- 16.7.58 **Chapter 12 Traffic and Transport** has identified routes with the potential to be affected; however, further detail will be presented in the ES and will be informed by further work on the design and proposed construction methods. An Outline CTMP will be prepared and submitted with the DCO application. Access to businesses and key services would be maintained where practicable.

Construction

Effects on the general population

- 16.7.59 During construction, journey times could increase across a number of routes in the draft Order Limits for the general population. This may result in increases in stress resulting from increased journey times and may lead to reduced mental health resilience; however, this is considered to be limited. As outlined above, measures in the Outline CTMP will ensure that where practicable, suitable alternative routes will be in place to minimise any delays and ensure diversion lengths are kept to a minimum.
- 16.7.60 As such, the magnitude of change is anticipated to be low or medium for the majority of affected routes; however, the outcome of this assessment is subject to change as the design of the Project is refined.
- 16.7.61 Overall, the general population is assessed as having low sensitivity and there is potential for a low to medium magnitude of change. As such, this preliminary assessment suggests that there will be a minor adverse (**not significant**) effect in relation to changes to provision of and access to facilities for users, due to the potential for delays associated with heavy goods vehicles, diversion routes, and access for the general population.

Effects on vulnerable groups

- 16.7.62 Vulnerable groups may be less resilient to changes in access, unexpected delays, or diversions when compared to the general population and have a greater potential to experience changes to their mental and physical health as a result.
- 16.7.63 The proportion of people within the Study Area living with a limiting illness or disability is higher than the England average. As such, vulnerable groups – particularly children and young people; older people; people with physical disabilities (including mobility issues); and people with mental health conditions and associated disabilities – have the potential to experience a low to medium magnitude of change as a result of diversions, delays and changes to access (however, as these are anticipated, they will be managed and are only likely in certain locations).
- 16.7.64 Vulnerable groups are assessed as having medium sensitivity and there is potential for a low to medium magnitude of change due to delays, diversions, and changes in access. As such, this preliminary assessment suggests that there will be a minor adverse to moderate adverse (**not significant to significant**) effect during construction for users who belong to vulnerable groups.

Operation

- 16.7.65 During operation, traffic from the Project is anticipated to be minimal, therefore effects on the local road network have been scoped out of **Chapter 12 Traffic and Transport**. As a result, with a negligible magnitude of change and a low sensitivity, the general population will experience negligible (**not significant**) effects during operation. Those from vulnerable populations would also experience a negligible magnitude of change, which would result in a negligible (**not significant**) effect.

Effects as a Result of Potential Employment Generation

- 16.7.66 During construction, there is the potential for employment opportunities for the local population. These jobs are anticipated to be in the construction industry and supporting sectors. Increasing employment opportunities may boost the local and regional economy, and provide training and development opportunities for local people.
- 16.7.67 Employment offers many health and wellbeing benefits, including increasing confidence and enabling social interaction, allowing financial independence and ensuring that people have a sense of purpose.
- 16.7.68 The Study Area performs slightly better when compared to England for unemployment levels, with a lower proportion of the population classed as unemployed. Despite this, ensuring that there are sufficient opportunities for those already in employment is important to maintain the local and regional economy.
- 16.7.69 These potential effects have the ability to impact both the general population and vulnerable groups, particularly people with mental health conditions and associated disabilities.

Sensitivity of receptors

- 16.7.70 The sensitivity of the general population within the Study Area to changes as a result of employment opportunities during construction of the Project is considered to be low. The sensitivity of vulnerable groups with the potential to experience changes as a result of employment opportunities is considered to be medium.

Magnitude of change and significance

- 16.7.71 As reported in **Chapter 15 Socio-Economics, Recreation and Tourism**, the preliminary assessment anticipates that there are minor beneficial (**not significant**) effects on job creation during construction. Due to this, and the fact that the jobs are created specifically in the construction industry, where experience and skills in specific methodologies are likely to be required, the magnitude of change is anticipated to be low. This will be revisited as the construction methodologies are refined and the Project design progresses.

Construction

Effect on general population

- 16.7.72 During construction there is anticipated to be a slight increase in the opportunities for employment in the local area. It should be noted that the job creation would only affect a small proportion of the local population. The general population would be considered low sensitivity, with a low magnitude of impact due to the minor change in quality of life, with a small minority of the population affected. This would be a minor beneficial (**not significant**) effect.

Effect on vulnerable populations

- 16.7.73 Vulnerable groups within the Study Area, particularly those with existing mental health conditions, would be considered medium sensitivity as they are more likely to have an outlook that is predominantly uncertainty with some concern and with a poor

health status. Those with pre-existing physical health conditions may also be less likely to be employed in the construction industry as job roles are more physical in nature. The magnitude of impact is judged to be low due to the minor expected change in morbidity or quality of life. The significance of effect is therefore expected to be minor beneficial (**not significant**).

Mental Health – Perceived Risks from EMFs

- 16.7.74 Concerns about the potential health effects are often raised when new electricity infrastructure is proposed in an area. NPS EN-5 (Ref 16.7) sets clear requirements for EMF exposure limits and precautionary measures to protect all receptors against EMF. As set out in section 16.6, the Project will fully comply with these requirements. An EMF Report will be prepared and submitted as part of the DCO application.
- 16.7.75 Although the Project will be designed to have no physical effects on human health from EMFs, public perception and understanding of EMFs can lead to concern relating to the perceived risk of exposure during the operational phase. This has the potential for impacts to mental health outcomes. These potential environmental effects have the ability to impact both the general population and vulnerable groups, particularly people with mental health conditions and associated disabilities.

Sensitivity of receptors

- 16.7.76 The sensitivity of the receptors to changes to mental health as a result of EMFs during operation of the Project is considered to be low as only a small proportion of the population are likely to be living near to a pylon and affected by heightened anxieties. The sensitivity of vulnerable groups with the potential to experience changes to mental health as a result of EMFs is considered to be medium as vulnerable groups may be less likely to adapt to changes to their mental health.

Magnitude of change and significance

- 16.7.77 To help address concerns or anxieties of members of the public around effects of EMFs, open and transparent information is provided about EMFs on the NGET website (www.emfs.info) which is linked on all National Grid project websites for members of the public to access. NGET also operate 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. With these measures in place, it is anticipated that the magnitude of change will be low for both the general population and vulnerable groups.

Operation

Effect on general population

- 16.7.78 The general population would be considered low sensitivity, with a low magnitude of change in relation to quality of life, with a small minority of the population affected. This would be an overall minor adverse (**not significant**) effect on the mental health and wellbeing of the general population during operation of the Project associated with the perceived risk of EMFs.

Effect on vulnerable population

- 16.7.79 Vulnerable groups, particularly those with existing mental health conditions, would be considered medium sensitivity as they are more likely to have an outlook that is predominantly uncertain (with a greater susceptibility to concern) and with a poor health status. The magnitude of impact is judged to be low due to the minor expected change in mental health and wellbeing. The effect is therefore expected to be minor adverse (**not significant**) for vulnerable groups during operation of the Project associated with the perceived risk of EMFs.

16.8 Potential Additional Mitigation Measures

- 16.8.1 Potentially significant effects have been identified for vulnerable groups in relation to physical and mental wellbeing effects related to environmental change to baseline conditions, changes to access to services and access to PRowWs. This is in part due to the assessment drawing upon conclusions from other topic chapters, where a full assessment, including modelling, has not been able to be completed at this stage. At the ES stage, where the other topic assessments consider additional mitigation, this will be considered within the health and wellbeing assessment. No additional mitigation measures have been identified as part of the health and wellbeing assessment; however, this will be revisited once the design of the Project has progressed and the other topic chapters have updated their assessments.
- 16.8.2 Due to the interactions between the other topic chapters and the health and wellbeing chapter it is anticipated that additional mitigation implemented for other assessments, will change the outcome of the preliminary health and wellbeing assessment presented here. The EIA process is iterative, to enable the development of further mitigation and refinement of the Project to avoid or reduce potential significant effects.

16.9 Monitoring

- 16.9.1 No additional monitoring is required for the health and wellbeing assessment.

16.10 Residual Effects

- 16.10.1 Additional mitigation measures may be developed following completion of other topic assessment. Therefore, the need for or effect of additional mitigation has not been assessed at the time of writing. At this stage of assessment, the residual effect for each receptor is the same as the effects reported above in section 16.7.
- 16.10.2 The assessment will be refined and updated for the ES as the design of the Project progresses and will include additional mitigation measures to avoid or reduce the significance of effects as far as practicable.

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