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15.1 Introduction

15.1.1 This chapter defines the study area, the methodology used for developing the impact assessment, and provides a description of the baseline environment and impacts in relation to human health and wellbeing. Where relevant it also identifies and proposes mitigation measures to address potential impacts of the Scheme on human health and wellbeing during construction, operation, and decommissioning.

15.1.2 This chapter presents a summary of the information on health and wellbeing provided in ***Chapter 11: Noise and Vibration***, ***Chapter 12: Socio-Economics and Land Use***, ***Chapter 13: Transport and Access***, *and* ***Chapter 14: Air Quality*** of this Environmental Statement (ES) **[EN010118/APP/6.1]**.

15.1.3 Abbreviations and capitalised terms are defined in the Glossary, ***Chapter 0: Table of Contents, Glossary and Abbreviations*** of this ES **[EN010118/APP/6.1]**.

15.2 Legislation and Planning Policy

15.2.1 Legislation, planning policy and guidance relating to health and wellbeing, relevant to the Scheme is outlined below.

Legislation

Countryside and Rights of Way Act 2000

15.2.2 The Countryside and Rights of Way Act 2000 (Ref 15-1) is the principal legislation governing the registration and protection of public footpaths, bridleways and byways and provides measures to improve public access to the open countryside and Common Land.

15.2.3 The potential effects of the Scheme on walkers, cyclists and horse riders travelling on these routes, and their access to healthcare or connections to neighbouring settlements have been considered as part of the assessment.

Health and Social Care Act 2012

15.2.4 In terms of human health legislation, the *Health and Social Care Act 2012* (Ref 15-2) outlines the Secretary of State's duty to promote and improve the National Health Service (NHS), in pursuit of several key aims, which include:

a. An improvement in the quality of services;

b. A reduction in health inequalities;

c. The promotion of autonomy for general practitioners and health centres; and

d. Improvements to the treatments and services offered to patients.

15.2.5 The legislation focuses on the regulation of the NHS at a national and local level. It also promotes changes such as the abolition of NHS Trusts, support for the production of *Joint Strategic Needs Assessments (JSNAs)* and establishment of health and wellbeing boards at a local authority level. These boards were established for the purpose of advancing the health and wellbeing of people within each local authority area and will aim to "*encourage persons who arrange for the provision of any health or social care services in that area to work in an integrated manner*."

15.2.6 Effects on human health have been considered as part of the assessment.

National Planning Policy

National Planning Statement for Energy (EN-1) (2011)

15.2.7 Planning policy on Nationally Significant Infrastructure Projects (NSIPs) is primarily contained in Overarching National Policy Statements (EN-1) (Ref 15-3).

15.2.8 NPS-EN1 paragraph 4.1.3 requires the decision maker to take into account potential benefits of development proposals including "*contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits".*

15.2.9 NPS-EN1 paragraph 4.1.4 states that the decision maker "*should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels*".

15.2.10 NPS-EN1 Section 4.13 deals in detail with the health effects of major energy infrastructure and states that the assessment should consider all relevant effects, which may include the following:

a. Disrupted access to key public services;

b. Alteration open spaces used for recreation and physical activity;

c. Direct impacts on health, which may include increased traffic, air or water pollution, dust, odour, hazardous waste and substances, noise, exposure to radiation, and increases in pests; and

d. The cumulative health impacts from other developments.

15.2.11 NPS-EN1 paragraph 5.11.4 states that where noise impacts arise from the Scheme, the applicant should identify noise sensitive premises and noise sensitive areas that may be affected, and outline measures to be employed to mitigate the noise.

Draft National Planning Statement for Energy (EN-1) (2021)

15.2.12 The Government is currently reviewing and updating the Energy National Planning Statements (NPSs). It is doing this in order to reflect its policies and strategic approach for the energy system and to ensure that the planning policy framework enables the delivery of the infrastructure required for the

country's transition to net zero carbon emissions. As part of the Energy NPS review process, the Government published a suite of Draft Energy NPSs for consultation on 6 September 2021.

15.2.13 The following draft policies are contained in the Draft Overarching National Policy Statement for Energy (EN-1) (Ref 15-4) with relevance to the assessment of human health for this Scheme.

15.2.14 Paragraph 4.3.5 outlines that generally, those aspects of energy infrastructure which are most likely to have a significantly detrimental impact on health are subject to separate regulation (for example for air pollution) which will constitute effective mitigation of them, so that it is unlikely that health concerns will either by themselves constitute a reason to refuse consent or require specific mitigation under the Planning Act 2008. However, not all potential sources of health impacts will be mitigated in this way and the Secretary of State will want to take account of health concerns when setting requirements relating to a range of impacts such as noise.

15.2.15 Opportunities should also be taken to mitigate indirect impacts, by promoting local improvements to encourage health and wellbeing, this includes potential impacts on vulnerable groups within society i.e., those groups within society which may be differentially impacted by a development compared to wider society as a whole.

National Policy Statement for Energy (EN-3) (2011)

15.2.16 NPS EN-3 (Ref 15-5) has been reviewed but does not raise any pertinent issues to the assessment of health for this Scheme.

National Policy Statement for Energy (EN-5) (2011)

15.2.17 NPS EN-5 (Ref 15-6) has been reviewed but does not raise any pertinent issues to the assessment of health for this Scheme.

National Planning Policy Framework

15.2.18 Paragraph 5 of the National Planning Policy Framework (NPPF) (Ref 15-7) confirms that the document does not contain specific policies for NSIPs (Nationally Significant Infrastructure Projects) and that applications in relation to NSIPs are to be determined in accordance with the decision making framework set out in the Planning Act 2008 and relevant NPSs, as well as any other matters that are considered relevant (which may include the NPPF).

15.2.19 Section 8 of the NPPF (Ref 15-7) refers to promoting healthy and safe communities, setting out the need for planning policies to promote healthy, inclusive and safe places. This includes provision of social, recreational and cultural facilities which the community needs. It recognises the importance of high-quality open spaces and opportunities for sport for the health and wellbeing of communities and calls for planning policies to be based on robust assessments of such provision. Additionally, it states that planning

policies should enhance public rights of way (PRoW) and access, including provision of better facilities for users.

15.2.20 Section 9 of the NPPF (Ref 15-7) focuses on promoting sustainable transport. It emphasises the need to identify opportunities for walking, cycling and public transport use from the early stages of development proposals. It states planning policies should provide for walking and cycling facilities, to encourage sustainable transport solutions.

15.2.21 The requirements of the NPPF (Ref 15-7) have been accounted for in the assessment, with particular regard given to establishing the effects of the Scheme on land uses and identifying opportunities to improve facilities for non-motorised users (NMUs) and accessibility to community facilities through the design-development process, where practicable.

Planning Practice Guidance

15.2.22 Planning Practice Guidance (PPG) for healthy and safe communities (Ref 15-8) adds further context to the NPPF (Ref 15-7) by providing guidance on health and wellbeing in planning. It covers: the role of health and wellbeing in planning; the links between health, wellbeing and planning; and details how health infrastructure should be considered in planning decisions.

15.2.23 PPG for open space, sports and recreation facilities, public rights of way and local green space (Ref 15-9) also adds context to the NPPF (Ref 15-7) in relation to how such facilities should be considered when planning new development, and when new development might affect existing facilities.

15.2.24 Both PPGs (Ref 15-8; and Ref 15-9) have been considered in the assessment by establishing all areas of community land and facilities and the movements made by walkers, cyclists, and horse riders on the PRoW and local road network (and any associated amenity value), that would be affected or improved as a result of the Scheme.

National Strategies

Public Health England Strategy 2020 to 2025

15.2.25 Public Health England's (PHE) purpose is to protect and improve the Nation's health and reduce health inequalities. PHE aims to keep people safe, prevent poor health, narrow the health gap and support a strong economy.

15.2.26 The Public Health England Strategy 2020 to 2025 (Ref 15-10) lays out PHE's priorities over the next five years and outlines ten priorities including working towards cleaner air in England.

15.2.27 Relevant opportunities for creating healthy communities and air quality priorities contained within the strategy have been reviewed as part of the assessment of effects on human health.

Local Planning Policy

Chelmsford Local Plan 2013-2036 (2020)

15.2.28 The Chelmsford Local Plan was adopted in 2020 (Ref 15-11) and provides a new planning framework to meet local development needs for the period 2013-2036, to ensure Chelmsford remains a vibrant, attractive place to live, work and socialise. The Local Plan outlines the strategic priorities and long-term vision for Chelmsford and identifies locations for delivering housing and other strategic development needs such as employment, retail, leisure, community and transport development.

15.2.29 The following polices are relevant to human health and the project:

a. **Policy S8**: Creating well designed and attractive places, and promoting healthy communities aims to promote the health and wellbeing of communities through improving access to the countryside, sport and recreation facilities and to promote active and healthy lifestyles through the enhancement of walking and cycling. New developments will also need to ensure that the integrity of communities is maintained, and social cohesion is promoted.

b. **Policy S2**: Addressing Climate change and Flood Risk states that proposals that shape future development and seek to mitigate and adapt to climate change should be integrated into proposals. The Council will require that all development is safe, taking into account its expected life span and appropriate mitigation measures are identified, secured and implemented.

Chelmsford Climate Action Plan (2020)

15.2.30 The Chelmsford Climate Action Plan (Ref 15-12) was published in 2020 and set out actions and recommendations to implement measures to lower energy consumption, reduce pollution, and improve air quality. The following target is broadly relevant to health and wellbeing:

a. **Target 5**: Implementing measures to lower energy consumption, ensure the most efficient use of water resource, reduce pollution and improve air quality.

Braintree District Council Local Plan, Section 1 (2021)

15.2.31 Section 1 of the Braintree District Local Plan (Ref 15-13) was adopted in February 2021 and provides a guide to growth in the district to 2033. The following policy is relevant to health and wellbeing:

a. **Policy SP 5**: "*Require new development to maximise its positive contribution in creating healthy communities and minimise its negative health impacts, both in avoidance and mitigation, as far as is practicable*."

Braintree District Council Local Plan, Section 2 (2017)

15.2.32 The Draft Local Plan Section 2 (Ref 15-14) is awaiting to be adopted. The following policy is relevant to health and wellbeing:

a. **Policy LPP 52**: "*Development proposals will be required to assess their impact upon health and wellbeing, the capacity of existing health services and facilities, and the promotion of health improvement activities*."

15.3 Assessment Assumptions and Limitations

15.3.1 This assessment is based on the Design Principles. The conclusions of this assessment are therefore also relevant to the Concept Design, which falls within the flexibility allowed in the application by the Design Principles.

15.3.2 The traffic flows and non-road mobile machinery are based on a worst-case scenario of all infrastructure being built to its maximum Design Principles, which may slightly overestimate the number of vehicles and equipment.

15.3.3 It has been assumed for the purpose of the assessment that the Battery Energy Storage System (BESS) will be built out in a single phase, which is considered the worst-case in terms of road traffic numbers and operational noise. Should the BESS construction be phased, it is not considered likely to change the conclusions of this assessment (e.g., the construction noise of Phase 2 would be the same or less than the operational noise).

15.3.4 The noise methodology requires specific locations to be modelled for operational phase noise sources, which has been achieved by modelling the Concept Design and adding an additional 25 Balance of Solar System (BoSS)/Solar Station locations with centralised inverters (the noisier type of inverters) (and at maximum heights allowed by the application), to ensure the maximum number of equipment allowed by the Design Principles has been assessed. Where lateral movements of the BoSS is allowed by the Rochdale Envelope and Works Plans, the noise levels are controlled by a requirement to the DCO to demonstrate the Scheme on the Solar Farm Site achieves or betters the predicted noise levels at sensitive receptors in the ES, therefore setting the magnitude of impact and significance of effect at the level presented in this chapter. As a result, effects for any scheme built within the Design Principles and in accordance with Works Plans and the DCO requirements, wouldn't have a worse effect than assessed using the Concept Design based approach taken here.

15.3.5 Should the final, detailed design have fewer BoSS locations and a smaller area of BESS than allowed in the Design Principles, and more solar PV or habitat/landscape areas (as allowed by the Design Principles and Works Plans), (and given the DCO requirement) it is not expected to change the conclusions of this assessment.

15.3.6 This assessment has also considered the socio-economic assessment (***Chapter 12: Socio-economics and Land Use*** of the ES **[EN010118/APP/6.1])**, which has assessed the Design Principles to determine impacts on land use, PRoW, and communities. The estimated

employment numbers have been based on the Design Principles, and is within the confidence level associated with the predicted number of roles expected for the Concept Design (which is similar in nature, scale and size to the Design Principles and would therefore employ similar numbers of people to the Design Principles).

15.3.7 This assessment is based on professional judgement and considers both the adverse and the beneficial impacts that the Scheme will have on the surrounding receptors. It provides an indication of human health and well-being effects on people and the local community.

15.3.8 Community resources (as set out in Section 15.6) are mentioned expressly in the environmental baseline only where they contribute to the local context or where they may be affected by the Scheme. Information in the baseline related to demographics and the health profile of the population in the study area uses the most up to date available sources in each context. For data on ethnicity and qualifications the most recent data at ward-level is ten years old from the 2011 Census yet it provides the most robust evidence base for this data at this geography.

15.3.9 In advance of a detailed construction programme which will be prepared following granting of the DCO, all temporary effects during construction are assessed as occurring simultaneously and for the entire 24-month programme. The same is assumed for decommissioning. Whilst a phased construction or decommissioning programme may be possible, the approach taken to assuming a 24-month duration means that the likely 'worst-case' is assessed. This may result in the overestimation of predicted adverse health effects but is considered a robust approach to the assessment. Should the construction phase be extended or delivered in phases the predicted effects would be the same or less than those outlined in this chapter.

15.3.10 Decommissioning is assessed as occurring after 40 years of operation and for the purposes of this assessment is treated as taking place no earlier than 2066 based on a 40-year design life. It is possible that the scheme will be operational for a longer period of time and it is also possible that certain elements of the Scheme may be decommissioned prior to the end of the 40-year period. Should parts of the Scheme be decommissioned in advance of the main decommissioning phase the predicted effects would be the same or less than those outlined in this chapter. The assessment of a 24-month decommissioning period therefore represents a realistic worst case.

15.4 Assessment Methodology

Introduction

15.4.1 There is no consolidated methodology or practice for the assessment of effects on human health. Best practice principles are provided in NHS England's Healthy Urban Development Unit's Rapid Health Impact Assessment (HIA) Toolkit 2019 (Ref 15-15) and forms the basis of the approach adopted to assess impacts on health and wellbeing in this chapter.

In addition, consideration has been given to the Health and Wellbeing checklist of the Wales Health Impact Assessment Support Unit (WHIASU) (2017) (Ref 15-16) to help with the identification of which health determinants are relevant. Based on this, the impacts of the Scheme on human health are assessed qualitatively using professional judgement, best practice, and draw upon other assessments within the ES and therefore, the assessment does not follow the methodology outlined in ***Chapter 5: EIA Methodology*** of this ES **[EN010118/APP/6.1]**. The methodology for the assessment is outlined below.

15.4.2 This qualitative assessment of human health effects considers the following health and well-being determinants[1] of relevance:

a. Access to healthcare services and other social infrastructure;

b. Air quality, noise and neighbourhood amenity;

c. Accessibility and active travel;

d. Access to work and training; and

e. Social cohesion and neighbourhoods.

15.4.3 The assessment has considered the potential consequences for health and wellbeing from the construction, operation, and decommissioning phases of the Scheme and draws upon the information and conclusions reported within the traffic and transport assessment (***Chapter 13: Transport and Access***), the noise and vibration assessment (***Chapter 11: Noise and Vibration***), the air quality assessment (***Chapter 14: Air Quality***), and the socio-economics assessment (***Chapter: 12: Socio-Economics and Land Use***) of this ES **[EN010118/APP/6.1]**.

15.4.4 A qualitative assessment of human health has been undertaken, with evidence provided to support the conclusions. The assessment of human health effects describes the likely qualitative health outcomes. When describing the impact on each health determinant, where possible, we identify the duration of the change and the population exposed to this.

15.4.5 There is no accepted definition of significance for health effects. The description of the changes to health determinants, the characteristics and sensitivity of the receptor population, and the likelihood of negative or positive health effects has been undertaken in accordance with HUDU and WHIASU guidance. The description provides information to inform stakeholders and decision makers of the likely direction of change in terms of health and mental health outcomes. Therefore, in line with current knowledge and methods of assessment, the consideration of health outcomes reports effects as being positive, negative, or neutral, rather than indicating a level of significance.

[1] A comprehensive set of human health and well-being determinants is listed in the London Healthy Urban Development Unit (HUDU) Rapid Health Impact Assessment Tool Fourth Edition 2019 (Ref 15-15) which is generally considered as a best practice tool to use when undertaking health and well-being impact assessments.

15.4.6 The potential health effects during construction, operation, and decommissioning are described using the criteria as outlined in **Table 15-1**. Where an impact is identified, actions have been proposed to mitigate any negative impact on health, or to realise opportunities to create health benefits. It should be noted that in many cases, mitigation is embedded within the Scheme and the implementation of this is an underlying assumption of the assessment (see Section 15.7).

Table 15-1: Human health impact categories

Impact Category	*Impact Symbol*	*Description*
Positive	+	A beneficial impact is identified
Neutral	0	No discernible health impact is identified
Negative	-	An adverse impact is identified
Uncertain	?	Where uncertainty exists as to the overall impact

Study Area

15.4.7 The Order limits is located within the District Council administrative areas of Chelmsford and Braintree, in the county of Essex. ***Chapter 2: The Scheme*** of this ES **[EN010118/APP/6.1]** provides a detailed account of the Order limits and its surroundings, which mainly consists of agricultural fields under arable production, some small parcels of pasture, interspersed with individual trees, hedgerows, tree belts (linear), small woodland blocks and farm access tracks.

15.4.8 The study area for the assessment of human health takes account of those set for the related environmental assessments. As such the study area is set at within 2km of the Order limits based on this being applicable to the assessment of local amenities and community facilities in Socio-Economics and Land Use (***Chapter 12: Socio-Economics and Land Use*** of this ES**;** this area being the greatest extent of those other assessments considered. It should be noted, however, that it is not always possible to determine the catchment area for community facilities. Residents of an area may utilise facilities located within different districts, counties, or regions without regard for statutory boundaries.

Sources of Information

15.4.9 The following assessment seeks to establish the potential human health effects and assesses these against the current baseline conditions at the Order Limits and in the surrounding area.

15.4.10 Baseline data illustrating the existing conditions surrounding the Order Limits has been collected through a desk-based research exercise using publicly available sources, documents, and web-based applications. These sources include:

a. ONS Census 2011 (Ref 15-19);

b. Mid-Year Population Estimates (Ref 15-18);

c. Annual Population Survey (Ref 15-20);

d. Indices of Multiple Deprivation (Ref 15-21);

e. Public Health England; Health Profiles (Ref 15-23); and

f. ONS Claimant Count (Ref 15-22).

15.5 Stakeholder Engagement

15.5.1 The Scoping Report proposed that an appropriate signposting of health effects would be provided within the ES. Following statutory consultation, it was decided a specific chapter on Human Health would be provided in the ES. **Table 15-2** outlines the main matters raised within the Scoping Opinion and during Statutory Consultation and explains how these have been addressed through the ES.

Table 15-2: Main matters raised during consultation

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter
Scoping Opinion: Inspectorate's comments	The Applicant should take into account any in-combination impacts from EMF associated with the with existing infrastructure (e.g. the 400kV overhead line crossing the application site). Any impacts from ground conditions on the health of construction/ maintenance/ decommissioning workers should be assessed where significant effects are likely. Appropriate cross-referencing and explanation should also be made to the Flood Risk, Drainage and Surface Water ES aspect chapter in terms of potential impacts to drinking water supplies.	The 132kV cables used in the Scheme and 400kV grid connection cables are now proposed to be underground. Therefore, the potential sources of EMF are removed. The assessment of ground conditions is addressed in ***Chapter 16: Other Environmental Topics*** of this ES **[EN010118/APP/6.1].** The risk to workers from ground conditions on site through construction, maintenance and decommissioning is considered to be very low to low. Mitigation measures are identified in the Phase 1 PRA report at ***Appendix 16A***.	***Chapter 9: Water Environment*** of this ES **[EN010118/APP/ 6.1]**, provides further information on the impacts on water supply.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter
		Chapter 9: Water Environment of this ES **[EN010118/APP/6.16.1]**, notes that impacts on public water supplies have been scoped out of the assessment. It states that bottled water will be provided to workers during construction and decommissioning, and that seeing as there will be only eight permanent workers on site during the operation phase, the impact on water supply will be negligible.	
Chelmsford County Council (CCC)	CCC consider that the proposal has potential to affect fear of crime. The siting of 3-metre-high solar arrays, plus mitigation in close proximity to long and uninterrupted channels of footpaths has potential to create a tunnelling effect, harmful to the user experience of the Public Rights of Way. Consultation should be had with Essex Police to ensure that the proposals 'Design Out Crime' and provide safe access along the Public Rights of Way and any other areas that may be affected by the proposal.	Essex Police have been consulted and proposals to help improve the safety of footpaths on the site. In response to the perceived safety concerns of the footpaths, and in line with the information provided in ***Chapter 13: Transport and Access*** of this ES **[EN010118/APP/6.1]**, the PRoW and permissive paths will be a minimum 1.5m wide for footpaths and 3.0m for bridleways, with at least 5m either side of the centreline of the PRoW or permissive path that will remain undeveloped outside of the solar PV fence line. This will ensure a 10m wide passageway will be maintained on all routes.	Further detail on the assessment of the effect on PRoW users in relation to human health and well-being is given in Table 15-6 and **Table 15-8**.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter
Essex Fire and Rescue	It was requested that water and adequate firefighting equipment be available on site to enable firefighting/ cooling. It was also requested that clarity on access road suitability be provided, as well as rendezvous points installed to ensure adequate space for firefighting appliances.	As set out in the Outline Battery Safety Management Plan (BSMP) [**EN010118/APP/7.6**], four 110,000 litre tanks have been added to the layout of the Scheme to ensure a supply of water is immediately available and contains a minimum of four hours of firefighting water. An emergency store with spare hard suction hoses for fire water tanks, spare hoses and other safety equipment has also been included in the design. The Outline BSMP also outlines that two rendezvous points will be included to ensure safe rendezvous in all wind conditions. The site entrance from the public highway and the internal access track has been designed to be suitable for use by standard HGVs.	Further details of safety measures in the event of a fire are included in the Outline BSMP
Essex Police	It is noted and welcomed that health and wellbeing is enhanced within the proposal with the retention of several public footpaths and tracks with supplementary paths and extensions to existing footpaths being added. The following needs to be considered to encourage use of this network of footpaths: Fear of crime; if footpaths running through the arrays of panels are too narrow or have restricted	In response to the perceived safety concerns of the footpaths, and in line with the information provided in ***Chapter 13: Transport and Access*** of this ES, the PRoW and permissive paths will be a minimum 1.5m wide for footpaths and 3.0m for bridleways, with at least 5m either side of the centreline of the PRoW or permissive path that will remain undeveloped outside	Further detail on the assessment of the effect on PRoW users in relation to human health and well-being is given in Table 15-6 and **Table 15-8**.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter
	visibility splays especially where they turn, there is the potential for the user to feel closed in and unable to evaluate potential risk, reducing the desire to use the footpaths and open space available. Boundary fencing as well as providing a symbolic boundary, needs to provide security to prevent possible access for those with criminal intent or the potential of innocent access by children and pets. If crime is not deterred by risk commensurate measures, then those using footpaths are at risk from individuals involved within criminal activities. The same considerations made when constructing Longfield need to be made when decommissioning.	of the solar PV fence line. This will ensure a 10m wide passageway will be maintained on all routes. All pathways, including temporary diversions and the establishment of a new permissive route, will be maintained. The Outline CEMP **[EN010118/APP/7.10]**, Outline OEMP **[EN010118/APP/7.11]**, and Decommissioning Strategy **[EN010118/APP/7.12]**. present measures to ensure that human health is maintained throughout construction, operation, and decommissioning. These measures aim to manage noise and air quality at sensitive receptors, reduce disruption to Public Rights of Way, severance to businesses and community facilities, resulting from increased traffic volumes. These measures will be adhered to throughout construction, operation, and decommissioning.	
NHS Mid and South Essex Sustainability and Transformation Partnership	The preliminary environmental information report identifies that up to 600 workers will be required for the construction phase of the development and that the construction period is anticipated to last 24 months. The presence of	It is anticipated that approximately 45% of the workforce will be sourced from a catchment area of up to a 60-minute travel time from the Order limits, in which case it is anticipated that these workers will	Further detail on the assessment of the impacts of the Scheme on access to local healthcare facilities given in **Table 15-4**.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter
	this large number of workers in the area is likely to impact healthcare provision and should be assessed and mitigated. Similarly, the impacts of the decommissioning phase should also be assessed and mitigated.	already be registered with relevant primary healthcare providers, and thus would not represent additional demand for primary healthcare locally. In addition, as detailed in ***Chapter 12: Socio-Economics and Land Use*** in a worst-case scenario that the remaining workforce requires accommodation during the construction and decommissioning phases, it is anticipated that accommodation will be sought across the catchment area of a 60-minute drive time in which case the demand for primary healthcare services is unlikely to be concentrated in a single area.	
NHS Mid and South Essex Sustainability and Transformation Partnership	Demand for healthcare services created by construction workers should be examined in the assessment. Consideration should be given to the impact of construction traffic on emergency ambulances, routine passenger transport ambulances, and healthcare workers' access to healthcare facilities and their ability to move between them.	It is anticipated that approximately 45% of the workforce will be sourced from a catchment area of up to a 60-minute travel time from the Order limits, in which case it is anticipated that these workers will already be registered with relevant primary healthcare providers, and thus would not represent additional demand for primary healthcare locally. In addition, as detailed in ***Chapter 12: Socio-Economics and Land Use***, in a worst-case scenario that the remaining workforce	Further detail on the assessment of the impacts of the Scheme on access to local healthcare facilities given in **Table 15-4**.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter
		requires accommodation during the construction and decommissioning phases, it is anticipated that accommodation will be sought across the catchment area of a 60-minute drive time in which case the demand for primary healthcare services is unlikely to be concentrated in a single area. As detailed within ***Chapter 13: Transport and Access*****,** the existing road network is expected to remain within capacity at all times during the construction period. Therefore, emergency ambulances, routine passenger transport ambulances and healthcare workers are unlikely to be affected by the increase in traffic associated with the Scheme.	

15.6 Baseline Conditions

Introduction

15.6.1 In order to assess the potential effects of the Scheme, the environmental conditions, resources and receptors that currently exist within the Order limits and in the surrounding area have been identified. These are known as baseline conditions.

15.6.2 This section is split into two parts. It first presents a description of the local area, including local residential properties, community resources and relevant commercial premises. The analysis is in Sections 15.6.4 to 15.6.27 and draws upon the baseline analysis provided in ***Chapter 12: Socio-Economics and Land Use***.

15.6.3 It then presents a human health profile of the local population, using data from Public Health England and other relevant sources. This is provided in Section 15.6.28 to 15.6.39.

The Local Area

15.6.4 ***Chapter 12: Socio Economics and Land Use*** provides a review of the local area as part of its baseline analysis. This section summarises receptors identified as part of that review which are relevant to the health assessment, including residential properties, community facilities, and recreational routes such as PRoW.

Order limits

15.6.5 The Order limits consists of agricultural land containing some ecological features, farm access tracks, footpaths and abutted by local transport roads. The landscape features immediately surrounding the Order limits comprise a number of villages, including Fuller Street approximately 300m to the north, Gamble's Green and Terling (500m and 1.1km respectively) to the east, Boreham 500m to the south-west, Hatfield Peverel 1.5km to the south-east and the city of Chelmsford 5.7km to the south-west. Boreham Road runs north to south along the western edge of the Order limits. The A12 and B1137 lie to the south and south-west of the Order limits, along with the railway line connecting Chelmsford and Witham. The A12 and the railway line also form the southern edge of the Order limits boundary.

15.6.6 Across the remainder of the surrounding area, Terling Road, Terling Hall Road and Boreham Road are the main north to south transport routes, providing access between the villages. Noakes Farm Road and Waltham Road provide west to east access, with Noakes Farm Road also crossing the Order limits boundary. Braintree Road is the main road network to the north, extending between Terling and Fuller Street.

15.6.7 The Bulls Lodge Substation Site is located within the south-west of the Order limits. This is in close proximity to the quarry operated by Hanson Quarry Products Europe Ltd.

Residential Properties

15.6.8 The study area is mostly rural and relatively sparsely populated. There are a few individual residential properties within close proximity of the Order limits, some of which are within 10m of the Order limits boundary along Terling Hall Road and Waltham Road. The closest cluster of residential properties is located 160m away from the Order limits boundary, on Braintree Road near Fuller Street. There are also a few residential properties located 200m west of the Order limits on Fairstead Hall Road.

15.6.9 The substation at Bulls Lodge is 500m away from the village of Boreham where the closest residential properties are located.

Community Resources

15.6.10 There are a selection of community facilities and recreational facilities located within 2km of the Scheme. The text below sets out these and their distances from the Order limits.

15.6.11 The village of Terling, 1.1km to the east of the site, has two Churches (Terling URC Church and All Saints Terling Church), along with a village hall and a primary school (Terling Church of England Primary School). Further community resources include Terling Cricket Club and a playground and a public house (The Rayleigh Arms).

15.6.12 The village of Boreham, 500m to the south of the Order limits, contains three public houses (The Lion Inn, Six Bells and Queens Head), a church (St. Andrews Church), Boreham Village Hall, a convenience store (Co-op Food), and Boreham Post Office. There is also a nursery (Little Hedgehogs Day Nursery) and a primary school (Boreham Primary School).

15.6.13 In Hatfield Peverel, 1.5km to the south east, there are a further five public houses (The Wheatsheaf, The Cross Keys, Duke of Wellington, The Swan Inn, and William Boosey), two churches (Hatfield Peverel Methodist Church and St Andrew's Parish Church), Hatfield Peverel Cricket Club, Hatfield Peverel Sports Club and Strutt Memorial Recreation Ground. There are also two schools (St Andrews Junior School and Hatfield Peverel Infant School), a nursery, and Hatfield Peverel Village Hall and Community Club.

15.6.14 Fuller Street village is 300m north of the Order limits and contains a public house (The Square and Compasses), and along Boreham Road there is a church (St Mary's Church, approximately 650m to the north west) and public house (The Dog and Gun) on the border of the Order limits.

Healthcare Facilities

15.6.15 The Scheme falls within the NHS Mid Essex Clinical Commissioning Group (CCG). This CCG comprises of 44-member General Practitioner (GP) practices and serves 392,000 patients (Ref 15-17).

15.6.16 The nearest GP surgery to the Order limits is the Laurels Surgery, Boreham which is approximately 900m to the south of Bulls Lodge Substation. There are three other GPs within 3km of the Order limits: North Chelmsford NHS Healthcare Centre, Chelmsford (2.1km from the substation) Sidney House Surgery, Hatfield Peverel (2.2km), and Mountbatten House Surgery, Chelmsford (3.1km form the substation). The nearest dentist is Hatfield Peverel Dental Surgery, Hatfield Peverel, 2.3km from the Order limits. The nearest hospital is Springfield Hospital, located approximately 3.7km away from the substation.

Non-motorised user (NMU) Facilities

15.6.17 **Figure 13-3** in ***Chapter 13: Transport and Access*** presents the location of NMU facilities located near to the Scheme. The below sets out NMU facilities which are relevant to the health assessment.

15.6.18 The Scheme will be located on agricultural land where there are several PRoW on or abutting the Scheme.

15.6.19 There are two PRoW located south of Sandy Wood adjacent to the Order limits boundary. Two footpaths (113_11 footpath and 221_30 footpath) run from Braintree Road and intersect the Order limits boundary adjacent to Sandy Wood.

15.6.20 One PRoW intersects the Order limits through Scarlet Wood (221_53/113_33 footpath). The footpath runs from Boreham Road to the west of the Order limits to the east towards Terling Hall Road crossing through Scarlet Wood.

15.6.21 There is one PRoW situated west of the Order limits near Boreham Road and starting from Noakes Lane. Footpath 113_25 runs from Noakes Lane towards the east to Noakes Farm Road.

15.6.22 There is one PRoW situated within the eastern boundary of the Order limits near Waltham Road. PRoW 113_30 footpath runs from Ringer's Woods along Rolls Farm Lane towards Waltham Road to the east of the Order limits.

15.6.23 There are three PRoW moving further south-west of the Order limits connecting Ringer's Wood to Stocks Farm. Three PRoW (213_5 footpath, 213_4 footpath and 113_32 footpath) connect Ringer's Wood in the north-east towards Stocks Farm and Boreham Road.

15.6.24 There is one PRoW situated south of the Order limits near Waltham Road. Footpath 213_18 connects with Waltham Road to the west intersecting a section of the Order limits passing through Kenwood House.

15.6.25 There are four PRoW situated in the southern boundary of the Order limits near Waltham Road and the Bulls Lodge Substation. Two PRoW (213_19 footpath and 213_20 footpath) run from Waltham Road towards the southern boundary of the Order limits. Two PRoW on the west of Waltham Road intersect the cabling route to Bulls Lodge Substation (213_21 footpath and 213_17 footpath).

15.6.26 These PRoW are predominantly used for recreational purposes and form part of a wide network of PRoW in the surrounding area providing residents with alternative routes.

15.6.27 A national cycle network route (NCN 50) runs within 500m of the Order limits along parts of Braintree Road and Terling Hall Road.

Health Profile

15.6.28 This section provides a human health profile of the study area, focusing on key determinants of health relevant to the assessment criteria provided within the Healthy Urban Development Unit (HUDU)/NHS England guidance (Ref 15-15).

15.6.29 The Scheme is located within three wards: Boreham and The Leighs (within Chelmsford Local Authority), Black Notley and Terling, and Hatfield Peverel (both within Braintree Local Authority). This section presents the data for the

three wards and compares them with the wider county (Essex), the region (East of England), and England as a whole (or England and Wales where appropriate). Where data is not available at a ward level, it is indicated in the text which areas represent the study area.

Population and Demographics

15.6.30 According to the Office for National Statistics Mid-Year Population Estimates (Ref 15-18) there are approximately 14,800 people living in the study area in 2019.

15.6.31 The population of the study area is slightly older when compared to the wider region and the rest of the country. In the three wards, the proportion of people aged 65 and over is 21.6% which is slightly higher than the East of England (19.6%) and the rest of England and Wales (18.3%). The share of people of working age (defined by the ONS as people aged between 16 and 64) in the study area is approximately 59.1%. This is slightly lower than Essex (60.5%), the East of England (61%) and England and Wales as a whole (62%).

15.6.32 Approximately 96.7% of residents in these local authorities identify ethnically as white (Ref 15-19). This is higher than the proportion of people identified ethnically as white in Essex (94.3%), and notably higher than recorded across the East of England (90.8%) and England and Wales (86%). The next largest ethnic groups in the study area are Asian/British Asian who make-up 1.5% of the population, and mixed/multiple ethnic who made up 1.1% of residents.

Qualifications and Economic Activity

15.6.33 Approximately 25.9% of residents aged 16 and above in the study area hold a degree-level qualification (NVQ Level 4+). This is higher than the rest of Essex (23%), broadly in line with the East of England (25.7%), but below the proportion for England and Wales (27.2%) (Ref 15-19). 20.9% of residents over 16 in the study area do not have any qualifications. This is a lower proportion than in Essex (23.9%), the East of England (22.5%) and England and Wales (22.7%).

15.6.34 The wider area has a comparatively high level of economic activity, with 85.1% of 16-64-year olds economically active across Braintree (87.6%) and Chelmsford (83.1%) between January and December 2020. This is compared to 78.9% in Essex, 80.4% in the East of England and 79.3% in England and Wales. Whilst the unemployment data for Braintree is unavailable, the unemployment rate in Chelmsford in 2020 (2.8%) is lower than recorded for both Essex (3.6%), the East of England (4%) and England and Wales (4.7%) (Ref 15-20).

Deprivation

15.6.35 Based on the 2019 Indices of Multiple Deprivation (IMD) (Ref 15-21) Braintree is ranked as the 203rd most deprived local authority in England out of 317. Chelmsford is less deprived, with a ranking of 260. Within

Chelmsford, one lower super output areas (LSOAs[2]) was in the top decile in England for deprivation, compared to two LSOAs in Braintree in the top decile.

15.6.36 Analysis of claimant counts shows that welfare claimants constituted only 5.2% of working age residents across Braintree and Chelmsford in 2020, which is notably lower than the proportion in the East of England (5.7%) and England and Wales proportion (6.5%) (Ref 15-22).

Health and Wellbeing

15.6.37 Based on the 2011 Census data (Ref 15-19), 3.9% of the population in the three wards reported bad or very bad health. This is lower than Essex (4.8%), the East of England (4.6%), and England and Wales (5.6%). Similarly, the proportion of the population in the study area which identified themselves as having a long-term health problem or disability which limited their day-to-day activities was also lower (6.5%) than the in Essex (7.7%), the East of England (7.4%) and England and Wales (8.5%).

15.6.38 Indicators deemed relevant to likely human health impacts of the Scheme have been identified from Public Health England data (Ref 15-23). They are shown in **Table 15-3** with some of these statistics summarised in the below text.

Table 15-3: Human Health profile of local authorities, county, region and England

Indicator	*Braintree*	*Chelmsford*	*Essex*	*East of England*	*England*
Percentage of physical active adults (%)	65.1%	71.1%	67.6%	67.3%	66.4%
Mortality rate from all cardiovascular diseases (per 100,000 population under 75)	57.6	50.4	60.7	62.9	70.4
Mortality rate from cancer (per 100,000 population under 75)	121.6	119	126.1	122.6	129.2
Adults classed as overweight or obese (%)	61.2%	59.8%	63.8%	62.3%	62.8%
Proportion of Obese children (year 6) (%)	19.4%	19.2%	19.5%	19.1%	21%
Killed and seriously injured (KSI) casualties on England's roads	53.4	52.4	54.3	46.7	42.6

[2] Lower Layer Super Output Areas are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales. Lower Layer Super Output Areas are built from groups of contiguous Output Areas and have been automatically generated to be as consistent in population size as possible, and typically contain from four to six 'Output Areas.'

Indicator	*Braintree*	*Chelmsford*	*Essex*	*East of England*	*England*
(2016-18) (per 100,000 population)					

Source: Public Health England (2020); Health indicators

15.6.39 The data shows that Braintree has a lower proportion of active adults (65.1%) compared with Essex (67.6%), the East of England (67.6%), England (66.4%), and much lower than Chelmsford (71.1%). While both Braintree and Chelmsford have fewer Killed and Seriously Injured (KSI) casualties per 100,000 on their roads (55.4 and 52.4 respectively) than Essex (54.3), this is still notably higher than the East of England (46.7) and England (42.6). Chelmsford (50.4) has a notably lower mortality rate per 100,000 from all cardiovascular diseases than Braintree (57.6). Both these rates are also lower than the rates in Essex (60.7) and the East of England (62.9) and are notably lower than the rest of England (70.4) (Ref 15-23).

Future Baseline

15.6.40 The future baseline is anticipated to be the same as the existing baseline for human health impacts. Community facilities may open and close; however, the exact details of this cannot be known in advance. Therefore, it is not expected that there will be any perceptible changes to the local human health baseline assessment and the Scheme has therefore been assessed against current baseline conditions.

15.7 Embedded Design Mitigation

15.7.1 Primary mitigation measures are embedded within the Scheme, as set out in the respective chapters, to reduce other operational effects (such as noise, air quality and transport) which in turn will mitigate the effects on the local community and existing facilities from a human health perspective.

15.7.2 The health assessment is presented in **Table 15-4** to **Table 15-8**. Where there are assessed to be negative health impacts in the assessment, the implementation of additional mitigation measures has been considered in order to avoid or minimise the human health impact are identified.

15.8 Assessment of Likely Impacts and Effects

15.8.1 **Table 15-4** to **Table 15-8** below set out the potential health and wellbeing impacts associated with the Scheme during construction, once the Scheme is complete and operational, and during decommissioning. The potential health and mental health impacts are described in accordance with the methodology set out in Section 15.4.

15.8.2 In the below tables the term ‘n/a’ indicates that an assessment of the health criteria was not applicable to a particular phase.

Table 15-4 Access to Healthcare Services and Other Social Infrastructure

Assessment Criteria	Relevant to the proposed development?	Details and Evidence	Potential Health Impact	Further Action or Mitigation Recommended
Does the proposal assess the impact on healthcare services?	Yes	**During construction** As identified in the baseline, there are four GPs located within 3km of the Scheme (in Boreham, Chelmsford, and Hatfield Peverel). The nearest hospital is in Chelmsford to the south west of the Scheme. It is anticipated that approximately 45% of the workforce will be sourced from a catchment area of up to a 60-minute travel time from the Order limits, in which case it is anticipated that these workers will already be registered with relevant primary healthcare providers, and thus would not represent additional demand for primary healthcare locally. As detailed in ***Chapter 12: Socio-Economics and Land Use*****,** in a worst-case scenario that the remaining workforce requires accommodation during the construction and decommissioning phases, it is anticipated that accommodation will be sought across the catchment area of a 60-minute drive time in which case the demand for primary healthcare services is unlikely to be concentrated in a single area. Residents of properties in the villages surrounding the Scheme attempting to access these healthcare facilities are likely to use the same strategic roads (including Waltham Road, Terling Hall Road, Boreham Road, and B1137) as construction traffic associated with the Scheme and workers attempting to access the Order limits. The presence of this additional traffic is not likely to affect local residents' ability to access healthcare facilities, as the existing road network is expected to remain within capacity at all times during the construction period, without any considerable changes in journey time. For the same reason, emergency ambulances, routine passenger transport ambulances and healthcare workers are also unlikely to be affected by the increase in traffic during the construction phase. This is in part due to measures in the Outline Construction Traffic Management Plan (CTMP) (***Appendix 13B: Construction Traffic Management Plan*** of this ES **[EN010118/APP/6.2])** which will introduce measures to manage construction traffic resulting from the Scheme in order to limit any potential disruptions and implications on the wider transport network, as well as for the existing road users. There will be temporary traffic management, such as a lane closure, on Waltham Road for a short duration during construction.	0 during construction 0 during operation 0 during decommissioning	**During construction** None required **During operation** None required **During decommissioning** None required.

		There are not anticipated to be any road closures as part of the construction phase. There is expected to be a maximum 126 two-way vehicle trips during the morning peak hour (07:00-08:00) and 94 two-way vehicle trips during the evening peak hour (18:00-19:00). The greatest increase in traffic flow is expected on Cranham Road during the evening peak hour, where there will be a 16% increase in traffic which is below the future baseline traffic flows (without the Scheme) for the evening peak hour and thus representing a relatively modest increase in flows. A lower number of additional trips is expected during the traditional network weekday peak hours of 08:00-09:00 and 17:00-18:00, representing 32 two-way vehicle trips during each of these periods (**Chapter 13: Transport and Access**). Therefore, the potential health impact on access to healthcare services during the construction period is assessed to be neutral. **During operation** During the operational phase, there are expected to be eight full time staff working within the Order limits per day. Therefore, the Scheme will generate very low levels of traffic and it will not impact local residents' ability to access healthcare facilities. Therefore, the potential health impact on access to healthcare facilities during operation is assessed to be neutral. **During decommissioning** Traffic flow cannot be accurately forecasted for over 40 years into the future, however the Scheme's impact on local residents' ability to access healthcare facilities in the decommissioning phase is expected to be the same or less as during construction, based on the expected similar number of trips and duration of these phases. The Decommissioning Strategy provides the outline mitigation measures to be adhered to during decommissioning. This will be updated and finalised prior to the decommissioning phase. The potential health effect on access to healthcare facilities during the decommissioning period is assessed to be neutral.		
Does the proposal assess the capacity,	Yes	**During construction** There is one primary school in Terling, one primary school in Boreham and a primary school and a junior school in Hatfield Peverel. Local residents are likely to travel to Boreham and Hatfield Peverel to access basic services and to	0 during construction 0 during operation	**During construction** None required

location and accessibility of other social infrastructure, e.g. schools, social care and community facilities?	Chelmsford to the south-west which has a wider range of services including a shopping centre. It is anticipated that workers will either already live within the local area or will live temporarily within the area in temporary accommodation such as hotels. Therefore, they will not move to the local area with their families for the duration of the two-year construction period, and that the capacity of social infrastructure will not be impacted. Residents of villages and single residential properties surrounding the Scheme are likely to use the same strategic roads (including Waltham Road, Terling Hall Road, Boreham road, and B1137) as construction traffic associated with the Scheme and workers attempting to access the Order limits. However, the presence of this additional traffic is not likely to affect local residents' ability to access this social infrastructure. This is because the existing road network is expected to remain within operating capacity at all times during the construction period and there are not expected to be any considerable changes in journey time for existing users of any of the strategic roads in the study area. The implementation of the Outline CTMP (***Appendix 13B: Construction Traffic Management Plan*****)** will introduce measure to manage construction traffic resulting from the Scheme at peak hours in order to limit any potential disruptions and implications on the wider transport network, as well as for the existing road users. There is expected to be a maximum of 126 two-way vehicle trips during the morning peak hour (07:00-08:00) and 94 two-way vehicle trips during the evening peak hour (18:00-19:00). A lower number of additional trips is expected during the traditional network weekday peak hours of 08:00-09:00 and 17:00-18:00, representing 32 two-way vehicle trips during each of these periods (***Chapter 13: Transport and Access***). There will be temporary traffic management, such as a lane closure, on Waltham Road for a short duration during construction. There are not anticipated to be any road closures as part of the construction phase. Therefore, the potential health impact on access to social infrastructure during the construction period is assessed to be neutral. **During operation** During the operational phase, there are expected to be eight full time staff working within the Order limits per day. Therefore, the Scheme will generate very low levels of traffic and it will not impact local residents' ability to access social infrastructure. Similarly, there would be no impact on capacity of services because either the workers would already live in the local area or such a small number of	0 during decommissioning	**During operation** None required **During decommissioning** None required.

new residents could have no discernible impact on the capacity of services based on potential demand. Therefore, the potential health impact on access to social infrastructure during operation is assessed to be neutral.

During decommissioning

Traffic flow cannot be accurately forecasted for over 40 years into the future, however the Scheme's impact on local residents' ability to access social infrastructure in the decommissioning phase is expected to be the same as during construction, based on the expected similar number of trips and duration of these phases. A Decommissioning Strategy has been prepared which provides the outline mitigation measures to be adhered to during decommissioning. This will be updated and finalised prior to the decommissioning phase. As for construction, it is anticipated that workers will either already live within the local area or will live temporarily within the area in temporary accommodation such as hotels. Therefore, they will not move to the local area with their families for the duration of the two-year construction period, and that the capacity of social infrastructure will not be impacted. The potential health effect on access to healthcare facilities during the decommissioning period is therefore assessed to be neutral.

Table 15-5 Air Quality, Noise and Neighbourhood Amenity

Assessment Criteria	Relevant to the proposed development ?	Details and Evidence	Potential Health Impact	Further Action or Mitigation Recommended
Does the proposal minimise construction impacts such as dust, noise, vibration and odours?	Yes	**During construction** An assessment of the risk of dust and particulate matter impacts during the construction stage is provided in the ***Chapter 14: Air Quality*** of the Environmental Statement (ES) **[EN010118/APP/6.1]**. The assessment concludes that construction and earthworks activities will result in dust emitted in an area up to 350m away from the Order limits. This area includes between 25-30 residential dwellings within 20m of the Order limits, with approximately 150 additional receptors distributed within the remaining dust risk assessment zones. This area also includes a number of NMU	0 during construction n/a during operation 0 during decommissioning	**During construction** None required **During operation** n/a **During decommissioning**

facilities including PRoW. However, due to low background particulate matter concentrations in the area, the distance to receptors, and the effectiveness of good industry practice control measures, the impact of these dust emissions is assessed to have a low risk to human health without mitigation, and a negligible risk when mitigation measures are taken. Such mitigation measures to reduce dust from the construction stage are outlined in the Outline Construction Environmental Management Plan (CEMP) **[EN010118/APP/7.10].**

An assessment of the impact of construction of the Scheme on noise and vibration is provided in ***Chapter 11: Noise and Vibration*** of the ES **[EN010118/APP6.1]**. The assessment states that there will be negligible to minor adverse impacts on surrounding receptors arising from the construction of the Scheme. It states that any periods of regular high construction noise levels experienced at a receptor would not exceed one month The Outline Construction Environmental Management Plan (CEMP) outlines measures to mitigate and minimise the adverse noise effects during construction. Where on-site works are required to be conducted outside of the core working hours, they will comply with any restrictions agreed with the relevant planning authorities, in particular regarding the control of noise and traffic. Compliance with these noise limits will ensure adverse noise effects are unlikely.

The above assessments conclude that when the measures set out to control dust and noise are followed, there is likely to be minimal impacts on surrounding receptors and the potential health impact is assessed to be neutral. No discernible health or mental health impact is identified.

During operation

Not applicable as assessment criteria refers to construction impacts.

During decommissioning

A Decommissioning Strategy has been prepared which provides the outline mitigation measures to be adhered to during decommissioning. This will be updated and finalised prior to the decommissioning phase. Assessments of the impact of decommissioning of the Scheme on air quality and noise is provided in ***Chapter 14: Air Quality*** and ***Chapter 11: Noise and Vibration*** respectively. The assessments conclude that the impact of

None required.

		decommissioning of the Scheme is likely to be similar to the construction period. Therefore, the Scheme will result in dust emissions which are assessed to have a low risk to human health. It will have negligible to minor adverse noise and vibration impacts on surrounding residential properties which will be mitigated through the measures outlined in the Decommissioning Strategy. Overall, there is likely to be no discernible health or mental health impacts on surrounding receptors, as per the construction phase, and the potential health impact is assessed to be neutral.		
Does the proposal minimise air pollution caused by traffic and energy facilities?	Yes	**During construction** Not applicable as assessment criteria refers to operation impacts. **During operation** An assessment of the risk of dust and particulate matter impacts during the operation stage is provided in the ***Chapter 14: Air Quality***. It is anticipated that there will be up to eight permanent (on-site) operational jobs. Traffic generation from operational staff is not expected to induce significant changes to traffic flows on the local road network. Therefore, the Scheme is not anticipated to have a significant impact on local air quality and the effect during this phase will therefore be negligible. Overall, there is likely to be no discernible health impacts on the surrounding receptors from air pollution during the operational phase, and the potential health impact is assessed to be neutral. **During decommissioning** Not applicable as assessment criteria refers to operation impacts.	N/a during construction 0 during operation N/a during decommissioning	**During construction** None required **During operation** None required **During decommissioning** None required.
Does the proposal minimise noise pollution caused by traffic and commercial uses?		**During construction** Not applicable as assessment criteria refers to operation impacts. **During operation** An assessment of the impact of operation of the Scheme on noise levels is provided in ***Chapter 11: Noise and Vibration***. The assessment states that	N/a during construction 0 during operation	**During construction** None required **During operation**

noise from operation during the night-time/early morning at 24 of the 28 local receptors is predicted to be above background levels but was assessed to have a **minor adverse** effect (**not significant**). At the remaining four local receptors, operational noise during these times was not assessed to exceed background levels and therefore has **negligible** effect (**not significant**). Noise from operation during the day at seven receptors is assessed to be below background levels therefore has a negligible effect. At all other receptors, noise levels are predicted to be above the background levels but are assessed to have a **minor adverse** effect (**not significant**). The design of the Scheme includes embedded mitigation measures to minimise adverse noise effects. These include distancing inverters away from sensitive receptors and locating the BESS compound in an area away from large concentrations of receptors, as well as towards the A12 where existing ambient noise levels are higher (such that noise emissions from the BESS are less impactful). Acoustic barriers will also be placed around inverters within 200m of residential properties which will provide at least 10 dB of attenuation to noise emissions from inverters. The Outline OEMP [**EN010118/APP/7.11**] outlines mitigation and enhancement measures to ensure adverse noise effects from operational equipment are managed. Therefore, potential health and mental health impact during the operational phase on local residents is assessed to be neutral due to the non-significant effects. **During decommissioning** Not applicable as assessment criteria refers to operation impacts.	N/a during decommissioning	None required **During decommissioning** None required.

Table 15-6 Accessibility and Active Travel

Assessment Criteria	Relevant to the proposed development?	Details and Evidence	Potential Health Impact	Further Action or Mitigation Recommended
Does the proposal prioritise and encourage walking (such as through shared spaces)?	Yes	**During construction** The majority of the PRoW within the Order limits will be retained during the construction phase and there will be a number of diversions where necessary. Temporary diversions of PRoW 213_21, 213_17 (northern option only), 213_20 (southern option only), and 213_19 are planned during cable installation. These routes are used by local residents. The diversions will cause temporary disruption to users, but the negligible length of the diversions in place would be unlikely to have significant effects on journey times and is unlikely to discourage users from traveling along these routes. It is not anticipated that any PRoW will be permanently closed during the construction period. Roads bordering the Order limits, including Boreham Road, Waltham Road and Terling Hall Road, which pass through agricultural fields and that offer amenity value may also be used by NMUs for recreation. Added traffic from the construction period may discourage NMUs travelling along these routes. The Outline Public Rights of Way Management Plan of this ES, (Appendix 13C of the ES **[EN010118/APP/6.2]**) details measures to help reduce the impact from construction on the use of PRoWs. Therefore, there are a number of temporary impacts on NMU facilities in the study area that may discourage use by NMUs during construction. This will result in a potential health and mental health impact during construction which is assessed to be negative. **During operation** During the operational phase, all of the PRoW located within the Scheme that are diverted during the construction phase will be re-opened. Some routes previously surrounded by agricultural fields will now border the Scheme. This could lead to impacts on the amenity value of these resources to their users,	- during construction + during operation - during decommissioning	**During construction** The Outline Public Rights of Way Management Plan proposes measures to mitigate and manage effects on the use of PRoW including: a. Maintaining access to PRoW during the construction phase, including retention of the minimum legal widths for PRoW users (e.g., 1.5m for footpaths and 3.0m for bridleways); b. Providing temporary localised diversion routes where necessary, i.e.,

however, the impact is not considered to be enough to lead to a reduction in the number of users along the routes.

Two new permissive footpaths will also be created and connected to the existing PRoW network. One is to the north-east of the Order limits, connecting Sandy Wood and PRoW 113_33, and the other is to the north west of the Order limits, connecting Boreham road to Terling Hall Road and access towards PRoW 213_4 near Ringer's Wood. These permissive footpaths will provide a safe route for local residents and will improve connections between existing PRoW in the area, resulting in some reduction to local journey lengths. As these paths will be maintained throughout the duration of the scheme, the provision of these new routes could encourage active travel within the local population, increasing participation in physical activity and providing mental health benefits.

All PRoW and permissive paths will be a minimum 1.5m wide for footpaths and 3.0m for bridleways, with at least 5m either side of the centreline of the PRoW or permissive path that will remain undeveloped outside of the solar PV fence line. This will ensure a 10m wide passageway will be maintained on all routes to improve safety.

The re-opening of the facilities impacted in the construction phase, as well as the addition of new NMU facilities will offer amenity value and reduce journey times for local residents. This is likely to encourage NMUs into the study area, and therefore the potential health or mental health impact during the operational phase is assessed to be positive.

During decommissioning

During the decommissioning phase, the Scheme would be dismantled, and the infrastructure will be removed. A Decommissioning Strategy has been prepared which provides the outline mitigation measures to be adhered to during decommissioning. This will be updated and finalised prior to the decommissioning phase. It is expected that the same NMU facilities which were impacted in the construction period will be impacted again in the decommissioning period. The same diversions will be put in place to mitigate these impacts. Also, the new permissive routes that will be in place for the lifetime of the Scheme will be removed during decommissioning by the landowner. Overall, there are a number of temporary impacts on NMU facilities in the study area that may discourage use by NMUs during decommissioning.

when the cable route is installed, to avoid any PRoW closures;

c. Providing sufficient protection/ separation between existing PRoW and the proposed construction route where necessary; and
d. Managing areas where the internal construction route crosses any existing PRoW, by maximising visibility between construction vehicles and other users (pedestrians and cyclists), implementing traffic management e.g., advised signage to advise other

This will result in a potential health and mental health impact during decommissioning which is assessed to be negative.

users of the works, as well as manned controls at each crossing point (marshals/ banksmen), with a default priority that construction traffic will give-way to other users. This includes several PRoW crossing points.

During operation

None required

During decommissioning

The same mitigation measures identified for the construction phase will be followed during the decommissioning phase.

Table 15-7 Access to Work and Training

Assessment Criteria	Relevant to the proposed development?	Details and Evidence	Potential Health Impact	Further Action or Mitigation Recommended
Does the proposal provide access to local employment and training opportunities, including temporary construction and permanent end-use jobs?	Yes	**During construction** An assessment of the number of jobs created during the construction phase is provided in ***Chapter: 12: Socio-Economics and Land Use***. The Applicant estimates that the Scheme will support, on average, approximately 380 full-time employment construction jobs per annum. Once leakage, displacement and multiplier effects have been accounted for, this number rises to 428 total net jobs per annum during the construction period of the Scheme. Of these, 192 jobs per annum will be expected to be taken up by residents within 60 minutes of the Order limits. The Applicant will also make a skills and education contribution. This will assist and encourage local people to access apprenticeships and training. The potential health and mental health impact during construction is therefore assessed to be positive. **During operation** There are currently eight existing jobs within the Order limits, all relating to agricultural activities. The Applicant has estimated that eight jobs will be directly generated by the Scheme when operational, which will potentially provide some local employment opportunities in permanent jobs. When existing employment activity is accounted for, the total net employment generated would be unchanged and the health impact is assessed to be neutral. **During decommissioning** A Decommissioning Strategy has been prepared which provides the outline mitigation measures to be adhered to during decommissioning. This will be updated and finalised prior to the decommissioning phase. An assessment of the number of jobs created during the decommissioning period is provided in ***Chapter: 12: Socio-Economics and Land Use***. The assessment concludes that the impact of decommissioning of the Scheme is likely to be similar to the	+ during construction 0 during operation + during decommissioning	**During construction** None required **During operation** None required **During decommissioning** None required.

		construction period. Therefore, the Scheme is expected to support, on average, 428 total net jobs per annum during the decommissioning period. Of these 192 jobs per annum will be expected to be taken-up by residents within 60 minutes of the Scheme. The potential health and mental health impact during decommissioning is assessed to be positive.		
Does the proposal include opportunities for work for local people via local procurement arrangements?	Yes	**During construction** An assessment of the number of jobs created during the construction phase is provided in ***Chapter: 12: Socio-Economics and Land Use.*** The Applicant estimates that the Scheme will support, on average, approximately 380 full-time employment construction jobs per annum. Once leakage, displacement and multiplier effects have been accounted for, this number rises to 428 total net jobs per annum during the construction period of the Scheme. Of these, 192 jobs per annum will be expected to be taken up by residents within 60 minutes of the Order limits. A local Skills and Employment Plan will be prepared as part of the Scheme. This will set out measures that the Applicant will implement in order to advertise and promote employment opportunities associated with the Scheme in construction and operation locally. The Applicant will also make a skills and education contribution. This will assist and encourage local people to access apprenticeships and training. Therefore, the potential health and mental health impact during construction is assessed to be positive. **During operation** There will be a net no change to the employment on the site. Further enhancements include the provision of a local Skills and Employment Plan will be prepared as part of the Scheme. This will set out measures that the Applicant will implement in order to advertise and promote employment opportunities associated with the Scheme in construction and operation locally. The Applicant will also make a skills and education contribution. This will assist and encourage local people to access apprenticeships and training. The potential health and mental health impact during operation is therefore assessed to be positive.	+ during construction +during operation + during decommissioning	**During construction** None required **During operation** None required **During decommissioning** None required

During decommissioning

A Decommissioning Strategy has been prepared which provides the outline mitigation measures to be adhered to during decommissioning. This will be updated and finalised prior to the decommissioning phase. An assessment of the number of jobs created during the decommissioning period is provided in ***Chapter: 12: Socio-Economics and Land Use***. The assessment concludes that the impact of decommissioning of the Scheme is likely to be similar to the construction period. Therefore, the Scheme is expected to support, on average, 428 total net jobs per annum during the decommissioning period. Of these 192 jobs per annum will be expected to be taken-up by residents within 60 minutes of the Scheme. The potential health and mental health impact during decommissioning is assessed to be positive.

Table 15-8 Social Cohesion and Lifetime Neighbourhoods

Assessment Criteria	Relevant to the proposed development?	Details and Evidence	Potential Health Impact	Further Action or Mitigation Recommended
Does the proposal connect with existing communities, i.e., layout and movement which avoids physical barriers and severance, and land uses	Yes	**During construction** Construction of the Scheme will result in temporary disruption to NMU facilities that are used to travel between different communities in the study area. While there are no large settlements within the study area, it is likely that NMU routes will be used to travel between clusters of houses around the Order limits. Temporary diversions of PRoW 213_21, 213_17 (northern option only), 213_20 (southern option only), and 213_19 are planned during cable installation. These diversions will cause temporary disruption to users, but the negligible length of the diversions in place would be unlikely to have significant effects on journey times and is unlikely to discourage users from traveling along these routes. All PRoW will maintain the relevant legal	- during construction + during operation - during decommissioning	**During construction** The Outline Public Rights of Way Management Plan proposes measures to mitigate and manage effects on the use of PRoW including; a. Maintaining access to PRoW during the construction phase, including retention of the minimum legal widths for

and spaces which encourage social interaction?

minimum width to avoid creating tunnelling and ensuring safety within what will be mostly open areas.

Roads bordering the Order limits, including Boreham Road, Waltham Road and Terling Hall Road, may also be used by NMUs to travel between small settlements. Added traffic from the construction period may discourage NMUs traveling along these routes. The Outline Public Rights of Way Management Plan details measures to help reduce the impact from construction on the use of PRoWs.

Therefore, there are a number of temporary impacts on NMU facilities in the study area that may discourage use by NMUs. This will result in a potential health and mental health impact during construction which is assessed to be negative.

During operation

During the operational phase, all of the PRoW located within the Scheme that are diverted during the construction phase will be re-opened. All PRoW and permissive paths will be a minimum 1.5m wide for footpaths and 3.0m for bridleways, with at least 5m either side of the centreline of the PRoW or permissive path that will remain undeveloped outside of the solar PV fence line. This will ensure a 10m wide passageway will be maintained on all routes to improve safety. Two new permissive footpaths will also be created and connected to the existing PRoW network. One is to the north-east of the Order limits, connecting Sandy Wood and PRoW 113_33, and the other is to the north west of the Order limits, connecting Boreham road to Terling Hall Road and access towards PRoW 213_4 near Ringer's Wood. These permissive footpaths will provide a safe route for local residents and will improve connections between existing PRoW in the area, resulting in some reduction to local journey lengths between settlements. However, as they are not a formal right of way, access is not guaranteed at all times.

Due to the nature of the Scheme, it does not include spaces which encourage social interaction.

Overall, the re-opening of the NMU facilities impacted in the construction phase, as well as the addition of new permissive footpaths will reduce journey times between settlements. This is likely to encourage NMUs in the

PRoW users (e.g., 1.5m for footpaths and 3.0m for bridleways);

b. Providing temporary localised diversion routes where necessary, i.e., when the cable route is installed, to avoid any PRoW closures;

c. Providing sufficient protection/ separation between existing PRoW and the proposed construction route where necessary; and

d. Managing areas where the internal construction route crosses any existing PRoW, by maximising visibility between construction vehicles and other users (pedestrians and cyclists), implementing traffic management e.g., advanced signage to advise other users of the works, as well as manned controls at each crossing point (marshals/ banksmen), with a default priority that construction

study area and therefore the potential health and mental health impact during the operational phase is assessed to be positive.

During decommissioning

It is expected that the same NMU facilities which were impacted in the construction period will be impacted again in the decommissioning period. The same diversions will be put in place to mitigate these impacts. Also, the permissive paths created during the operation phase will be removed during the decommissioning phase. The Outline Public Rights of Way Management Plan details measures to help reduce the impact from construction on the use of PRoWs.

Therefore, there is the same potential for NMUs in the study area to be discouraged from travelling between settlements. The potential health and mental health impact during the decommissioning phase is as assessed for the construction phase, which is assessed to be negative.

traffic will give-way to other users. This includes several PRoW crossing points.

During operation

None required

During decommissioning

The same mitigation measures identified for the construction phase will be followed during the decommissioning phase

Summary of likely impacts and effects

15.8.3 This assessment has followed the 'HUDU Rapid Health Impact Assessment Matrix' and has assessed the principal health benefits and disbenefits to residents of the local community, including:

a. **Access to Healthcare Services and other Social Infrastructure** – it is unlikely that there will be any severance between local residents and the healthcare facilities or other social infrastructure which they use during the construction, operation, or decommissioning phase. This is because neither the additional construction/decommissioning traffic flow nor the traffic flow generated during the operational phase will exceed the future baseline traffic flows (without the scheme). No road closures are anticipated at any point during the Scheme's lifespan.

b. **Air Quality, Noise and Neighbourhood Amenity** – the assessment does not identify any significant negative impacts on the amenity of residents. Air particulate concentrations will remain low on account of the low background levels and good industry practice control measures, and noise levels from all phases of the Scheme are not anticipated to lead to any impacts on health or mental health where embedded design mitigation measures and further mitigation measures as outlined in the CEMP, OEMP and Decommissioning Strategy are followed.

c. **Accessibility and Active Travel** - during the construction phase, the Scheme will result in temporary impacts on a number of NMU facilities in the study area. The Scheme will provide diversions for each of these routes, however the negligible length of the diversions in place would have only a small effect on journey times and is unlikely to discourage users from traveling along these routes. The construction phase is assessed to have a negative health and mental health impact due to this small change. During the operational phase, the Scheme will provide additional NMU for mitigation facilities which may improve journey times for some NMUs, leading to an expected positive health and mental health impact. The decommissioning phase would be expected to have a similar impact on NMU facilities in the study area, with temporary closures of PRoW, as well as removing the permissive paths following the operation phase. The Scheme is therefore expected to lead to a negative, temporary health impact during the decommissioning phase.

d. **Access to Work and Training** – the construction phase of the Scheme will support 428 total net jobs per annum, with 192 jobs per annum being taken up by residents within 60 minutes of the Order limits. The decommissioning phase expected to support the same number of jobs, and local jobs, as the construction phase. During these periods the Scheme is therefore expected to lead to a positive health and mental health impact on access to work and training. During the operation

phase, the scheme is assessed to have a neutral impact on access to work as there will be a net zero provision of jobs as a result of the Scheme. Prior to the commencement of construction of the Scheme, a local Skills and Employment Plan will be prepared. This will set out measures that the Applicant will implement in order to advertise and promote employment opportunities associated with the Scheme in construction and operation locally. The Applicant will also make a skills and education contribution. This will assist and encourage local people to access apprenticeships and training.

e. **Social Cohesion and Lifetime Neighbourhoods** – during the construction phase, the Scheme will result in temporary impacts on a number of NMU facilities in the study area. The Scheme will provide diversions for each of these routes, however the negligible length of the diversions in place would have only a minor effect on journey times between communities and is unlikely to discourage users from traveling along these routes. The construction phase is assessed to have a negative effect health and mental health impact. During the operational phase, the Scheme will provide additional NMU facilities which may improve journey times between communities for some NMUs. The Scheme is therefore expected to lead to a positive health and mental health impact during the operational phase. The decommissioning phase would be expected to have a similar impact on NMU facilities in the study area, with temporary closures of PRoWs, as well as potentially removing the permissive paths following the operation phase. The Scheme is therefore expected to lead to a negative health impact during the decommissioning phase.

15.9 Additional Monitoring, Mitigation and Enhancement Measures

15.9.1 No additional mitigation was deemed necessary, above the embedded mitigation.

15.10 Cumulative Effects

15.10.1 This section assesses the potential effects of the Scheme in combination with the potential effects of other development schemes (referred to as 'cumulative schemes') within the surrounding area, as listed within ***Chapter 5: EIA Methodology*** of the ES **[EN010118/APP/6.1].**

15.10.2 The assessment of 'Access to Healthcare Services and other Social Infrastructure' is inherently cumulative as the traffic data which the assessment is based on already includes the change in traffic generated by other cumulative developments.

15.10.3 The assessment of potential effects on 'Accessibility and Active Travel' considers both physical changes to NMU infrastructure in the vicinity of the Order limits as well as changes to the environment that NMUs are exposed to. Cumulative effects on NMUs are difficult to quantify as from a physical

infrastructure perspective, changes to NMU provision as a result of developing new housing in the vicinity of the Scheme at Beaulieu Station Hub is not known at this stage. From an NMU environment perspective, changes in traffic flows have already been assessed as part *of* ***Chapter 13: Transport and Access*** and in the assessment presented within this chapter and are therefore inherent as part of the assessment presented in this chapter. It is therefore concluded that the potential cumulative effects on NMUs will be the same as is the case for the Scheme when assessed in isolation.

15.10.4 For 'Access to Work and Training', the construction phases of the Scheme and the other cumulative developments would both be expected to generate employment. In the absence of commercially sensitive information relating to the construction costs of each of the cumulative schemes, it is not possible to make a quantitative assessment of the employment likely to be generated from the construction stage of the other development schemes. It is expected that there would be a cumulative beneficial effect on construction related employment within the local area.

15.10.5 Similarly, once the cumulative developments are built there will be new commercial, retail and leisure space created that will provide further opportunities for residents to access work and training in the local area. The new employment space would provide job opportunities for existing and new residents to the area, resulting in a cumulative beneficial effect for the local community.

15.10.6 For 'Air Quality, Noise and Neighbourhood Amenity', there are no anticipated cumulative effects on air quality, however there are some cumulative noise effects during the construction and operation phases of the Scheme. There are other cumulative developments within 500m of the Order limits adjacent to the site to the west, and west of Bulls Lodge Substation. The precise scale of additional noise effects will be dependent on the exact works taking place at each location at any one time; however, compliance with the mitigation measures detailed within the CEMP, OEMP, and Decommissioning Strategy will reduce these effects as far as possible. It is considered that any overlapping of construction or decommissioning phases between the Scheme and cumulative developments would not result in any in-combination cumulative effects at common noise-sensitive receptors. This is based on the distances between key project components within the Order limits and cumulative developments, as well as any requirements for other developments to implement best practicable means (BPM) to mitigate noise effects. It is also expected that any operational noise emissions from nearby developments will be designed to achieve appropriate operational noise limits so as not to contribute additional noise to the area and that there will be no cumulative operational effects at common noise-sensitive receptors.

15.11 References

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