Green Hill Solar Farm

EN010170

Environmental Statement

Chapter 24: Other Environmental Matters

Revision A (Tracked)

Prepared by: Lanpro

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Schedule of Changes

Revision	Section Reference	Description of Changes	Reason for Revision
A	[cover]	Updated to Revision A	As required for submission at Deadline 1.
	[throughout]	Updates to document references	As required for submission at Deadline 1.
	p.19	Clarification on study area.	Applicant due diligence
	pgs.36, 39-41 and 43	Update on cumulative impacts in relation to waste	Applicant due diligence for consistency with other emerging projects.
	p.47	Update on cumulative impacts in relation to Telecommunication, Utilities and Television	Applicant due diligence for consistency with other emerging projects.

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Issue Sheet

Report Prepared for: Green Hill Solar Farm

~~DCO Submission~~
Deadline 1

Environmental Statement
Chapter 24: Other Environmental Matters
Revision A

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24 Other Environmental Matters

24.1 Introduction

24.1.1 This chapter presents the findings of the Environmental Impact Assessment (EIA) concerning the other environmental matters of the Scheme during the construction, operation and maintenance, and decommissioning phases.

24.1.2 The following aspects will be addressed:

- Light pollution (Section 24.3);
- Waste production and management (Section 24.4); and
- Telecommunications, utilities and television (Section 24.5).

24.1.3 For project description details, please refer to Chapter 4: Scheme Description ~~[EN010170/APP~~Revision A **[EX1/GH6.2.4_A]** of this Environmental Statement (ES).

24.1.4 This chapter has been prepared by Lanpro (see Statement of Competence **[~~EN010170/~~APP~~/GH6.3.1.1~~-065]**).

24.1.5 Where relevant, the legislation and guidance, baseline conditions, assessment methodology and mitigation measures are outlined in the following sections for each topic.

24.1.6 For the topics covered in this chapter, the assessments of potential effects do not follow the approach and methodology outlined in Chapter 2: EIA Process and Methodology **[~~EN010152/~~APP~~/GH6.2.2~~-039]**. The purpose of this chapter is to provide a high-level assessment of other environmental topics where a full chapter adhering to the Chapter 2: EIA Process and Methodology **[~~EN010170/~~APP~~/GH6.2.2~~-039]** is not considered necessary. Within this chapter, the alternative methodology used is clearly outlined for each topic.

24.1.7 This chapter is supported by the following tables:

- **Table 24.1: Relevant Scoping Opinion Comments**
- **Table 24.2: Statutory Consultation Comments**
- **Table 24.3: Criteria for Assessing Sensitivity of Receptors**
- **Table 24.4: Criteria for Assessing Magnitude of Impacts (Void Capacity)**
- **Table 24.5: Criteria for Assessing Magnitude of Impacts (Landfill Diversion)**
- **Table 24.6:Criteria for Assessing the Significance of Effects**
- **Table 24.7: Recovery rates for key construction materials**
- **Table 24.8: Anticipated waste streams from the construction phase**

- **Table 24.9: Operational Replacement Rates**
- **Table 24.10: Waste Arising from Decommissioning**

24.2 Consultation

Scoping Opinion

24.2.1 An EIA Scoping Report was submitted to the Planning Inspectorate (PINS) in July 2024 (Ref 24.1), with a formal request for a Scoping Opinion. PINS subsequently issued the Scoping Opinion on 30 August 2024.

Table 24.1: Relevant Scoping Opinion Comments

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
The Planning Inspectorate EIA Scoping Opinion 30 August 2024	ID3.17.1: Light Pollution The Inspectorate is content that a standalone quantitative lighting assessment can be scoped out on the basis that lighting impacts will be considered in the Landscape and Visual and Ecology chapters of the ES and will include consideration of potential impacts of directional and intermittent lighting and describe mitigation measures as required. This should include impacts of night-time lighting. The Inspectorate notes that an OCEMP and ODEMP will be submitted with the DCO application and will include a lighting strategy intended to minimise light spill to receptors. Cross-reference should be made from the ES to the relevant measures contained within the management plans.	Light pollution matters have been assessed within the ES.	Light pollution is considered in Section 24.3 of this chapter and is referred to in Chapter 8: Landscape and Visual **[~~EN010170/~~APP~~/GH6.2.8]~~ -045]** and Chapter 9: Ecology and Biodiversity **[~~EN010170/APP~~**Revision A **[EX1/GH6.2.9_A]**.
The Planning Inspectorate	ID3.17.4: Waste It is proposed to scope out a standalone chapter on waste as significant waste	Waste matters have been assessed within the ES.	Waste is considered in Section 24.4 of this chapter.

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
EIA Scoping Opinion 30 August 2024	impacts are not anticipated during either construction, operation or decommissioning. This is on the basis that the following information will be provided with the DCO application, as stated: estimates by type and quantity of expected residues and emissions and waste produced during the construction and operational phases; an OCEMP which will include measures to minimise waste, such as a waste hierarchy, and set out site management procedures such as waste management, recycling opportunities, and off-site disposal; and a Site Waste Management Plan (SWMP). The replacement of the solar panels and batteries during operation will be considered in the ES within the assessment of operational impacts of the Proposed Development. Currently, it is anticipated that "almost all" of the solar panels will be capable of being recycled and reused, in line with best practice guidance at the time of decommissioning. The Inspectorate notes that there is no commitment made that the panels will be recycled at decommissioning and no evidence to support the viability and/or	The assessment considers waste associated with construction, operation and maintenance and decommissioning. It is considered that waste Emissions associated with waste are considered in the Chapter 7: Climate Change **[~~EN010170/~~APP~~/GH6.2.7~~-044]**.	

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	methodology of recycling. The Inspectorate agrees that a standalone waste chapter may be scoped out, on the basis that potential impacts during construction, operation and decommissioning (to the extent possible at the time) will be considered within the relevant chapters of the ES. This should include potential cumulative impacts. The measures proposed to divert waste arisings from the waste chain should be outlined in the ES and explicit cross reference made to the relevant measures set out in the related management plans. An assessment of effects should be provided in the event that it is concluded that significant effects are likely to occur and additional mitigation measures proposed and secured.		
The Planning Inspectorate EIA Scoping Opinion 30 August 2024	ID3.17.3: Telecommunications, utilities and television receptors It is proposed that a standalone chapter for these matters is scoped out. It is identified that a number of cables, pylons and pipelines cross the Sites and Cable Route Search Area. Significant effects are considered unlikely as discussions with relevant landowners	Section 22.5 of this chapter outlines the information on existing utilities, telecommunications and television receptors. The Crossing Schedule identifies numerous telecommunication and utility services that intersect the Order Limits,	Section 22.5 of this chapter. The Crossing Schedule supports this DCO Application [~~EN010170/~~**APP**~~/GH7.18~~-562].

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	and undertakers to identify assets have begun and will be concluded prior to submission of the DCO application so that setbacks and safeguarding distances and measures will be incorporated into the parameters of the Proposed Development. The Applicant is referred to the information in Anglian Water's (AW's) response (contained in Appendix 2 of this Opinion) in respect of the location on the application site of their assets. The Cable Corridor will be designed to reduce intersections with preexisting telecommunications and utilities. A 'Crossing Schedule' will identify where the proposed cables would cross existing utilities and telecommunications infrastructure and the OCEMP submitted with the application will contain measures designed to control construction of the Cable Corridor. Information on existing utilities will be contained within the 'Other Environmental Matters' chapter of the ES, which will describe how the Proposed Development would impact upon these utilities and where appropriate avoidance or mitigation	including those that need to be crossed by the Cable Route Corridor. Protective provisions for the benefit of statutory undertakers and electronic communications network code operators will be included in the draft DCO **~~[EN010170/APP~~** Revision A **[EX1/GH3.1_A]**.	

Consultee and Date	Comment	How has the comment been addressed	Location of response in chapter
	measures have been incorporated. On the basis of this information the Inspectorate agrees that a standalone chapter for these matters can be scoped out of further assessment.		

Statutory Consultation

24.2.2 Further consultation in response to formal pre-application engagement was undertaken through the Preliminary Environmental Information Report (PEIR). **Table 24.2** outlines the statutory consultation responses relating to Other Environmental Matters and how these have been addressed through the ES.

24.2.3 Responses to the Statutory Consultation are outlined in the Consultation Report **~~[EN010170/APP~~**Revision A **[EX1/GH5.1_A]**.

Table 24.2: Statutory Consultation Comments

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
19 December 2024 Anglian Water	AWS agrees that the scheme can affect existing utilities (24.1.5). AWS has not been party to the assessment of the existing utility's location or design evolution (24.1.7) and as a consequence cannot confirm that all AWS assets have been mapped and assessed, that the required standoff distances including for safe access have been provided or support the scheme layout. AWS does not agree that there are no adverse impacts on utilities including AWS assets.	Mitigation measures for existing utilities have been considered and embedded mitigation measures are discussed. The Applicant is engaging with Anglian Water on the Schemes interaction with AWS utilities. A meeting was held in May 2025 to discuss the Scheme, Anglian Water apparatus	Section 24.5 of this chapter.

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
		and protective provisions.	
18 December 2024 Bedford Borough Council	23.4.1 (Waste): Further to that raise elsewhere in this response relating to replacement of PV panels and batteries during the Operational Phase (Replacement Phase), the Promotor's Strategy (Waste) needs more clarity/ conviction. Currently, a potential significant contribution to the waste that this Proposed Development will create is too generically worded. Of significant concern is how a Condition, s106 and/or other agreement can be agreed between Parties to ensure that such plans/regulations (Proposer - Site Waste Management Plan, Waste from Electrical and Electronic Equipment Regulations, Operational Environmental Management Plan, Outline Decommissioning Statement, et al) are monitored, regulated, and enforceable by a Local Planning Authority and/or that a Local Planning Authority has the resources and expertise inhouse to monitor any such management plans. It is suggested that the Promotor reverts on this matter.	Operational replacement has been considered within this chapter. The DCO application contains adequate measures to address waste and secure controls. This includes an OCEMP, OOEMP, ODS. These documents outline waste management measures, with further details also outlined in Section 24.4 of this Chapter. Any additional requirements outside of this structure would be unnecessary. The Local Planning Authority has an approval role in relation to these document. In addition, the DCO is enforceable by the Local Planning Authority.	Section 24.4 of this chapter.
Health and Safety Executive	It is noted the MAH Site is located within the "Cable Route Search Area". The Applicant should make contact with the below	The Crossing Schedule identifies numerous telecommunicatio	The Crossing Schedule supports this DCO Application and outlines

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
18 November 2024	operator, to inform an assessment of whether or not the proposed development is vulnerable to a possible major accident: • HSE Ref #0306 operated by Coleman UK Plc, Holcot Land, Sywell, NN6 0BN There are also several major accident hazard pipelines that the proposed development crosses, operated by Cadent Gas Ltd: • HSE Ref # 6933 (Stretton Lane / Wootton, Transco ref. 1207) • HSE Ref # 6934 (Mears Ashby / Wellingborough, Transco ref: 1208) • HSE Ref # 6935 (Mears Ashby / Harpole, Transco ref: 1209) It is noted the pipelines fall within 'Site E.1 & Site E.2' and the 'Cable Route Search Area'. Since the works will entail underground cabling and access routes, HSE strongly recommends that at the earliest opportunity, the applicant liaises with the pipeline operators above	n and utility services that intersect the Order Limits, including those that need to be crossed by the Cable Route Corridor. Protective provisions for the benefit of statutory undertakers and electronic communications network code operators will be included in the draft DCO ~~[EN010170/APP~~ Revision A **[EX1/GH3.1_A]**.	[~~EN010170/~~**APP**~~/GH7.18~~-**562**].
North Northamptonshire Council December 2024	Lighting 22.2 It is noted that lighting is only required during construction and decommissioning phase and not whilst the solar farm would be operational. The CEMP and decommissioning statement are proposed to cover reducing the impacts and	**Lighting** Lighting matters have been assessed within the ES. **Waste** Supporting documents have	Light pollution is considered in Section 24.3 of this chapter and is referred to in chapters: 8: Landscape and Visual [~~EN010170/~~**APP**~~/GH6.2.8~~-**045**] and 9: Ecology and Biodiversity ~~[EN010170/APP~~Revis

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	they will be submitted with the DCO application. Lighting will need to be addressed in other chapters of the ES too (ecology and landscape for example). NNC have no further comment on lighting at this time. 22.3 Waste It is noted that any waste produced will be appropriately managed and that various documents to be submitted with the DCO application will cover this (CEMP, a Site Waste Management Plan (SWMP), OEMP etc). The decommissioning statement and the decommissioning resource management plan (DRMP) will address waste when the land is returned to its former use. Until these documents are produced, NNC cannot comment further. 22.4 Telecommunications, Utilities and Television Receptors As mentioned in the PEIR solar developments have the potential to affect existing utility infrastructure above and below ground within the Sites and Cable Route Search Area. It is noted that extensive mapping has been undertaken and offsets from existing infrastructure to the Scheme will be incorporated into the layouts. NNC have no further comments at this stage.	been submitted alongside this application including Outline Construction Environmental Management Plan (OCEMP); Outline Operational Environmental Management Plan (OOEMP); Outline and Decommissioning Statement (ODS). These documents outline waste management measures, with further details also outlined in Section 24.4 of this Chapter. Telecommunications, Utilities and Television Receptors To identify any existing infrastructure constraints, a desk-based study has been completed. Consultation with relevant telecommunication and utilities providers is a routine part of development and will include water, gas, and electricity utilities	ion A [**EX1/GH6.2.9_A**]. Telecommunication and existing utilities is considered in Section 24.5 of this chapter.

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
	22.5 Cadent Gas provided NNC with comments regarding pipelines. Cadent Gas would like to see the Cadent High and intermediate pressure gas assets/pipelines that will be affected by the DCO application included in surveys. Cadent hold deeds of grant on the gas infrastructure and no development is permitted inside any easement without written permission. They would need to see the individual sections and fields where the gas assets were affected andwould need to know what mitigation would be planned in relation to Direct Current (DC) interference to pipeline cathodic protection systems as this does not appear to have been covered in the PEIR. 22.6 Cadent Gas provided plans that they are referring to at Appendix A (Cadent Gas Plans).	providers, as well as telecommunicatio n providers, as appropriate. The Crossing Schedule identifies numerous telecommunicatio n and utility services that intersect the Order Limits, including those that need to be crossed by the Cable Route Corridor. Mitigation measures are outlined within this Chapter including the consideration of protective provisions for the benefit of statutory undertakers and electronic communications network code operators will be included in the draft DCO [~~EN010170/APP~~EX1/GH3.1_A].	

24.3 Light Pollution

24.3.1 Standard good practice measures will be employed to minimise light spill, including glare during the construction, operation and maintenance and decommissioning phases of the Scheme.

24.3.2 Lighting will be required during the construction and decommissioning phases for safety reasons but will be temporary in nature and predominately limited to the core working hours, as set out within Chapter 4: Scheme Description **~~[EN010170/APP~~**Revision A **[EX1/GH6.2.4_A].** These are 07:00 to 18:00 Monday to Friday and 08:00 to 13:30 on Saturdays. Construction temporary lighting, in the form of task specific and fixed 'general' lighting, may be required during core working hours during months with reduced daylight hours.

24.3.3 However, some activities may be required outside of these times (such as the arrival and departure of construction workers, the delivery of abnormal loads, night-time working for cable construction works in public highways or HDD activities), focussed task specific lighting provided where this is not possible e.g. HDD drilling operations. The Outline Construction Environmental Management Plan (OCEMP) **~~[EN010170/APP~~**Revision A **[EX1/GH7.1_A]** and Outline Decommissioning Statement (ODS) **~~[EN010170/APP~~**Revision A **[EX1/GH7.3_A]** detail principles including the use of focused directional fittings and directing lighting towards the Site rather than outwards to minimise outward spill.

24.3.4 During the operational phase, no part of the Scheme will be continuously lit. Permanent lighting is not required within the solar arrays for the operational phase. Motion sensing security lighting will be provided within substations and the BESS to be used only for maintenance and security purposes. This is outlined within and secured by the Outline Operational Environmental Management Plan (OOEMP) **~~[EN010170/APP~~**Revision A **[EX1/GH7.2_A]**.

24.3.5 It is anticipated that temporary lighting may be required across the Sites for replacement activities during the operational phase, which will not be a permanent fixture. Lighting will be minimised to that required for safe operations and standard good practice measures will be employed to minimise light spill which are further detailed within the OOEMP **~~[EN010170/APP~~**Revision A **[EX1/GH7.2_A]**.

24.4 Waste Production and Management

24.4.1 This section discusses the expected waste streams during each phase of the Scheme.

24.4.2 For the purpose of this assessment, materials and waste comprise:

- The generation and management of waste.

Legislation, Planning Policy and Guidance

24.4.3 This section provides an overview of the legislation, planning policy and guidance against which the Scheme will be considered for Waste.

Legislation

The Environmental Protection Act 1990

24.4.4 The Environmental Protection Act (Ref 24.2) is the primary legislation which controls and regulates the safeguarding of resources, environmental pollution and protecting public health. It puts measures in place to manage waste, addressing issues relating to air quality, land contamination, reducing pollution and water pollution.

The Environment Act 2021

24.4.5 The Environment Act (2021) (Ref 24.3) is legislation that makes provisions for environmental protection and also outlines the priority for waste reduction and resource efficiency. The Act promotes circular economy by encouraging recycling and reducing waste.

The Environmental Permitting (England and Wales) Regulations 2016

24.4.6 The Environmental Permitting (England and Wales) Regulations (Ref 24.4) aim to streamline and consolidate the permitting system for activities that could harm human health or the environment. A set of regulations introduced to set out laws of environmental protection to manage activities that have the potential to cause harm to the environment.

The Waste (England and Wales) Regulations 2011

24.4.7 The Waste (England and Wales) Regulations (Ref 24.5) transposes the Waste Framework Directive into national law via the Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019.

The Hazardous Waste Regulations (England and Wales) 2005 (amended 2006)

24.4.8 The Hazardous Waste (England and Wales) Regulations 2005, amended in 2006, (Ref 24.6) establish a comprehensive framework for managing hazardous waste. A set of regulations to control hazardous waste, ensuring its safe handling from all stages including production, transportation and the disposal of.

The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013

24.4.9 The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (Ref 24.7) aim to reduce the amount of electrical and electronic waste going to landfill and improve the recovery and recycling rates of these products. These regulations are part of the broader effort to promote a circular economy by ensuring that valuable materials are recovered and reused, reducing the environmental impact of electronic waste. The waste hierarchy will be applied throughout the lifetime of the Scheme during construction, operation (and maintenance) and decommissioning.

Planning Policy

National Planning Policy

National Policy Statement (NPS) for Energy (EN-1)

24.4.10 Overarching NPS EN-1 (Ref 24.8) sets out in Section 5.15 Resource and Waste Management the strategy that should be taken regarding reducing the amount of waste being produced where possible and by trying to use it as a resource.

24.4.11 Paragraph 5.15.1 states that "*Government policy on hazardous and non-hazardous waste is intended to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Where this is not possible and disposal is required as a last resort, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health*."

24.4.12 It is acknowledged that Paragraph 5.15.2 states "*Sustainable waste management is implemented through the waste hierarchy, which sets out the priorities that must be applied when managing waste. These are (in order):*

- *Prevention;*
- *Preparing for reuse;*
- *Recycling;*
- *Other recovery, including energy recovery; and*
- *Disposal."*

24.4.13 Paragraphs 5.15.6 to 5.15.13 outline the considerations for an applicant assessment and paragraphs 5.15.14 to 5.15.19 outline the considerations for Secretary of State decision making.

24.4.14 Paragraph 5.15.15 states that The Secretary of State should be satisfied that:

- *"Any such waste will be properly managed, both on-site and off-site.*
- *The waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area.*
- *Adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent for recovery or disposal, except where that is the best overall environmental outcome."*

24.4.15 It goes on to further state that applicants should seek to minimise the volume of waste produced and the volume of waste sent to disposal. Good practice construction management should be followed in relation to storing of materials in an adequate and protected place on site to prevent waste generation.

The National Planning Policy for Waste (NPPW) 2014

24.4.16 The National Planning Policy for Waste (NPPW) (Ref 24.9), published in 2014, outlines the UK government's approach to waste management planning. The waste management framework in England guides on how to reduce and minimise the environmental impact via sustainable waste management facilities.

Environmental Improvement Plan 2023

24.4.17 The Environmental Improvement Plan (Ref 24.10) is the first revision of the 25 Year Environment Plan, mandated by the Environment Act 2021. It outlines specific targets, commitments, and actions to achieve the 10 goals set out in the 25 Year Environment Plan, reinforcing the long-term vision for environmental health and sustainability.

The Waste Management Plan for England 2021

24.4.18 The Waste Management Plan (Ref 24.11) for England provides an overview of the current waste management in England. The plan aligned with the requirements of the Waste (England and Wales) Regulations 2011 consolidating existing waste management policies into a single national plan without introducing new policies.

A Green Future: Our 25 Year Plan to Improve the Environment 2018

24.4.19 A Green Future: Our 25 Year Plan to Improve the Environment (2018) (Ref 24.12) outlines the UK government's long-term strategy to enhance the natural environment within a generation. The plan includes several goals including 'minimising waste' which includes:

- Working towards our ambition of zero avoidable waste by 2050;
- Working to a target of eliminating avoidable plastic waste by end of 2042;
- Meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones;
- Seeking to eliminate waste crime and illegal waste sites over the lifetime of this Plan, prioritising those of highest risk. Delivering a substantial reduction in litter and littering behaviour; and
- Significantly reducing and where possible preventing all kinds of marine plastic pollution – in particular material that came originally from land.

Our Waste, Our Resources, A Strategy for England 2018

24.4.20 Our Waste, Our Resources, A Strategy for England (Ref 24.13) outlines the UK government's approach to managing waste and resources sustainably. The strategy aims to minimise waste, promote resource efficiency, and transition towards a circular economy. Chapter 3 focuses on 'resource recovery and waste management' which addresses the following:

- Improve recycling rates by ensuring a consistent set of dry recyclable materials is collected from all households and businesses;
- Improve working arrangements between and better support performance of local authorities;
- Address barriers to the use of recycled materials; and
- Encourage waste producers and managers to implement the waste hierarchy in respect of hazardous waste.

24.4.21 The strategy aligns with the broader goals of the 25 Year Environment Plan.

The Waste Prevention Programme for England: Maximising Resources, Minimising Waste 2023.

24.4.22 The Waste Prevention Programme for England: Maximising Resources, Minimising Waste 2023 (Ref 24.14) outlines the government's strategy to manage resources and reduce waste, aiming to transition towards a circular economy. The waste prevention programme outlines the approach to achieving the second strategic principle of the Resources and Waste Strategy: preventing waste from occurring initially and managing it more effectively when it does highlighting the following key themes:

- Designing out waste: Including ecodesign and consumer information requirements, and Extended Producer Responsibility schemes;
- Systems and services: Including collection and take-back services, encouraging reuse, repair, leasing businesses and facilities; and
- Data and information: including materials databases, product passports (sets of data, unique to the specific product that can be accessed online and give detailed information on, for example, contained materials, components and history, to support improved outcomes such as higher quality recycling) and voluntary corporate reporting.

Local Planning Policy

24.4.23 Northamptonshire Minerals and Waste Local Plan (July 2017) (Ref 24.15) sets out the key principles of waste management in the County up to 2031. The policies in the Local Plan focus on the provision of waste facilities.

24.4.24 The Milton Keynes Waste Development Plan Document (Ref 24.16) outlines the strategy for managing waste in Milton Keynes from 2007 to 2026. It provides a framework for waste planning decisions.

24.4.25 The Bedford Borough Council Minerals and Waste Local Plan (Ref 24.17) is a strategic policy document that guides the extraction of minerals and

the management of waste within Bedford Borough, Central Bedfordshire, and Luton Borough Councils.

Guidance

24.4.26 The IEMA guide to: Materials and Waste in Environmental Impact Assessment – Guidance for a proportionate approach (2020) (Ref 24.18) provides a clear framework for determining the methodology for assessing waste impacts. This includes defining the area of influence subject to study, applying sensitivity criteria, and defining how to assess the magnitude of impacts. As a result, this guidance has been incorporated into the assessment in the rest of this chapter.

24.4.27 Waste Duty of Care Code of Practice (Ref 24.19) provides practical guidance on how to meet waste duty of care requirements in England. It applies to anyone who produces, carries, keeps, treats, disposes of, or has control of waste. The main goal is to ensure waste is managed safely and responsibly and only handled by authorised businesses.

24.4.28 The Waste Hierarchy (produced under Reg 15(1) of the Waste (E&W) Regulations 2011) (Ref 24.20) ranks waste management options based on their environmental impact. It prioritises preventing waste first, followed by preparing for reuse, recycling, recovery, and lastly, disposal (e.g., landfill). This hierarchy is designed to minimize waste and its environmental footprint.

Assessment Methodology and Significance Criteria

24.4.29 The methodologies described in the following section have been developed in line with the relevant guidance for assessing potential significant effects.

Study Area

24.4.30 In line with IEMA guidance (Ref 24.18), two Study Areas are proposed for materials and waste.

- **The Scheme** – comprising the Order Limits and any areas required for temporary access, site compounds and other enabling activities; and
- The **expansive Study Area** – extends to the ~~availability of construction materials, and~~ capacity of waste management infrastructure and remaining landfill void within North Northamptonshire, West Northamptonshire, Milton Keynes and Bedfordshire Borough Councils ~~and~~ across the following regions East Midlands~~,~~ and Southeast ~~-~~England. The East Midlands and Southeast England is used for the waste Study Area recognising the fact that waste may not always be managed in the Waste Planning Authority where it is generated and may instead be managed at the regional level.

Impact Assessment Methodology

24.4.31 The IEMA guidance offers two methods to assess waste effects and both methods:

- **Void Capacity** - The magnitude of impact from waste is assessed by determining the percentage of the remaining landfill void capacity that will be depleted by waste produced during the construction and/or operation phases of the development. In a worst case, where landfill sensitivity is very high, a significant effect would occur at a magnitude of minor.
- **Landfill Diversion** - Developments are compared to a good practice landfill diversion rate of 90%. In applying this method, the waste assessment should take into account the size, nature and expected capability of developments to minimise waste in construction and/or operation. significant effect would occur at a magnitude of moderate which is a landfill diversion of less than 60%.

24.4.32 The impact assessment methodology outlined below has been determined in compliance with the guidance set out by IEMA (Ref 24.18).

Sensitivity of Receptors

24.4.33 The sensitivity of waste receptors is based upon the relative importance of the receptors, and their ability to respond and adapt to the anticipated level of change. These are defined by the assessed baseline conditions.

Table 24.3: Criteria for Assessing Sensitivity of Receptors

Sensitivity	Definition
Very high	Over the defined study period the future baseline (without development of the Scheme), of regional recycling handling and landfill void capacity is: expected to reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand.
High	Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to reduce considerably: by 6-10% as a result of wastes forecast.
Medium	Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to reduce noticeably: by 1-5% as a result of wastes forecast.
Low	Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to reduce minimally: by <1% as a result of wastes forecast.
Negligible	Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and

Sensitivity	Definition
	landfill void capacity is expected to remain unchanged, or is expected to increase through a committed change in capacity.

24.4.34 The sensitivity of waste relates to the availability of landfill capacity in the absence of the Scheme. For the purposes of this assessment, the sensitivity of the waste receptor is classified as '**very high**'.

24.4.35 This sensitivity is based on the lack of publicly available data regarding potential changes in landfill capacity during the construction, operation, and decommissioning phases of the Scheme. A precautionary worst-case scenario has been adopted, assuming no change in current landfill capacity, while recognising that a substantial reduction in available void space remains a risk. However, a complete absence of landfill void space is considered unrealistic, as outlined in the future baseline scenario.

Magnitude of Impacts

24.4.36 In determining the anticipated magnitude of impact, the criteria for each level of magnitude has been determined in compliance with the guidance set out by IEMA (Ref 24.18) as detailed in **Table 24.4** and **Table 24.5** for both void capacity and landfill diversion.

Table 24.4: Criteria for Assessing Magnitude of Impacts (Void Capacity)

Magnitude	Definition (Non-Hazardous Waste)	Definition (Hazardous Waste)
Major	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by >10%.	Waste generated by the development will reduce landfill void capacity baseline by >1%.
Moderate	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by 6-10%.	Waste generated by the development will reduce landfill void capacity baseline by 0.5-1%.
Minor	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by 1-5%.	Waste generated by the development will reduce landfill void capacity baseline by 0.1-0.5%.
Negligible	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by <1%.	Waste generated by the development will reduce landfill void capacity baseline by <0.1%.
No change	Zero waste generation and disposal from the development.	Zero waste generation and disposal from the development.

Inserted Cells

Table 24.5: Criteria for Assessing Magnitude of Impacts (Landfill Diversion)

Magnitude	Definition
Major	Less than 30% landfill diversion (i.e. over 70% to sent to landfill)
Moderate	30 to 59% landfill diversion.
Minor	60 to 89% landfill diversion.
Negligible	90 to 99% landfill diversion.
No change	100% landfill diversion.

Assessment of Significance

24.4.37 The significance of any environmental effects is determined by the interaction of the magnitude of any impacts and the sensitivity of the receptor and can be beneficial or adverse.

Table 24.6:Criteria for Assessing the Significance of Effects

Sensitivity / Magnitude	Very High	High	Medium	Low	Negligible
Major	Very Large	Large or very large	Moderate or large	Slight or moderate	Slight
Moderate	Large or very large	Moderate or large	Moderate	Slight	Neutral or slight
Minor	Moderate or large	Slight or moderate	Slight	Neutral or slight	Neutral or slight
Negligible	Slight	Slight	Neutral or slight	Neutral or slight	Neutral
No change	Neutral	Neutral	Neutral	Neutral	Neutral

24.4.38 Where the level of effects have been determined in accordance with professional judgment to be of a moderate or greater level of effect, these are deemed to be "significant effects". In accordance with the IEMA Guidelines, all effects with regard to consumption of materials and waste are deemed to be adverse effects.

Assessment Assumptions and Limitations

24.4.39 The methodology for waste production and management has considered the following assumptions:

- The waste assessment has been undertaken on the basis of information available at the time of the assessment; and
- Waste estimates are based upon other similar Nationally Significant Infrastructure Project (NSIP) schemes.

Baseline Conditions

Existing Baseline Conditions

24.4.40 The majority of the Scheme is currently in agricultural use and the existing waste arisings are assumed to be low.

Landfill Capacity

24.4.41 Merchant landfills are operated for commercial purposes, accepting waste from construction projects and businesses. These landfills are considered the baseline. Some non-hazardous landfills include a Stable Non-Reactive Hazardous Waste (SNRHW) cell, such as for asbestos. SNRHW cells typically make up only a small portion of the overall capacity. Therefore, for assessment purposes, non-hazardous landfills with SNRHW cells are treated the same as non-hazardous landfills.

24.4.42 Across North Northamptonshire, West Northamptonshire, Milton Keynes, and Bedford, there are 24 landfills (Ref 24.22). Among these, 13 are inert landfills with a combined capacity of 2,506,949 m^3, and 10 are non-hazardous landfills with around 9,518,052m^3 remaining. Additionally, there is one hazardous merchant landfill in North Northamptonshire with a capacity of 2,000,000m^3.

24.4.43 The East Midlands region (including West Northamptonshire, North Northamptonshire, and Bedford) has a total inert and non-hazardous landfill capacity of 48,997,443m^3, and Hazardous capacity of 2,000,000 m^3, while the South East region (including Milton Keynes) holds 45,785,~~225 m~~225m^3 of inert and non-hazardous landfill capacity and also contains 232,776 m^3 of hazardous landfill capacity. Overall, the total for the regions for Inert and Non-Hazardous Landfill Capacity is 94,782,668 m^3 and 2,232,776 m^3 for Hazardous Landfill Capacity.

Waste Management

24.4.44 Data captured through operator returns outlined in the Northamptonshire Minerals and Waste Local Plan (Ref 24.15) indicates that of the '*total arisings (municipal, C&I, CD&E and hazardous wastes) for Northamptonshire around 80% was treated or disposed of within the county with the remainder exported to surrounding authorities*'.

24.4.45 Standard, good, and best practice recovery rates by material are provided by WRAP (Waste and Resources Action Programme) (Ref 24.23). WRAP offers guidelines and benchmarks to help businesses and local authorities improve their recycling and waste management practices. These rates are designed to optimize the recovery of materials and reduce waste sent to landfill. Recovery rates for key construction materials and other construction wastes relevant to the Scheme are provided in **Table 24.7.**

Table 24.7: Recovery rates for key construction materials

Material	Standard Practice Recovery (%)	Good Practice Recovery (%)	Best Practice Recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical Equipment	Limited Information Available	70	95
Cement	Limited Information Available	75	95
Liquids and Oils	100	75	95
Hazardous	50	100	100

24.4.46 In 2022, the UK generated 63 million tonnes of non-hazardous construction and demolition waste, of which 59.4 million tonnes was recovered. This represents a recovery rate of 94.3%. The UK recovery rate from non-hazardous construction and demolition waste has remained at similar levels from 2010 to 2020 (Ref 24.24).

24.4.47 In 2023, 64.8% of UK packaging waste was recycled, up from 62.4% in 2022. In 2020, it is estimated that the UK generated 59.4 million tonnes of non-hazardous construction and demolition (C&D) waste, of which 55.0 million tonnes was recovered (Ref 24.25).

Historic and Authorised Landfills

24.4.48 There are no historic or authorised landfills identified within the Order Limits, as outlined in the Environment Agency's Permitted Waste Sites, Authorised Landfill Site Boundaries or Historic Landfill Sites datasets.

24.4.49 An area of historical landfill associated with Sywell Range, comprising inert fill, is situated approximately 900 meters north-west of Green Hill C at its closest point. The second historical landfill is associated with inert infill from the Earls Barton Quarry, located north-east of the Green Hill

BESS. The Cable Route Corridor is approximately 175 meters south-west of this landfill area at its nearest point.

24.4.50 Consideration to historic and authorised landfills are further provided in Chapter 22: Ground Condition and Contamination **[~~EN010170/APP~~**Revision A **[EX1/GH6.2.22_A]**.

Waste Targets

24.4.51 The Milton Keynes Minerals and Waste Development Plan Document (Ref 24.16) outlines targets for recycling, recovery, and overall diversion of waste from landfill, setting annual tonnages of waste to be managed in each Waste Planning Authority area. For Milton Keynes, the benchmark for capacity is set at 60% to 65% for construction and demolition (C&D) and commercial and industrial (C&I) waste by 2025.

24.4.52 The Minerals and Waste Local Plan 2014, for Bedford Borough, Central Bedfordshire, and Luton Borough Council (Ref 24.17), sets out waste strategy policy WSP 1. This policy requires sufficient capacity for waste recovery in the Plan area, including the landfilling of pre-treated residual waste from London, to achieve the following diversion and recovery targets: recovery of at least 50% of municipal solid waste by 2013, 70% by 2015, and 75% by 2020. Additionally, recovery of at least 72% of commercial and industrial waste by 2013, and 75% by 2015.

24.4.53 Northamptonshire's waste management targets, as outlined in the Northamptonshire Joint Municipal Waste Management Strategy, include achieving a household waste recycling (including composting) rate of 48% by 2012/13, 52% by 2015/16, and 56% by 2019/20. Additionally, they aim to meet the annual landfill allowances required by the Waste and Emissions Trading Act 2003 (Ref 24.15).

Future Baseline Conditions

24.4.54 This section considers changes to the baseline conditions, described above, that might occur in the absence of the Scheme and during the time period over which the Scheme would be in place. The future baseline scenarios are set out in Chapter 2: EIA Process and Methodology **[~~EN010170/~~APP~~/GH6.2.2~~-039]**.

24.4.55 There is no publicly available information about changes to landfill capacity by the time the Scheme is built.

24.4.56 Landfill capacity is assumed to stay the same because predicting future capacity is unrealistic due to its cyclical nature. Forecasting suggests no space would be left, but this isn't credible. If landfill is required in the future, it is assumed that new capacity will be approved. It is the waste authorities duty to manage and ensure that there is sufficient landfill capacity as required. Therefore, non-hazardous and hazardous landfill capacity is assumed to stay the same.

Embedded Mitigation Measures

24.4.57 In accordance with the waste hierarchy (Ref 24.19), the Scheme will prioritise waste prevention, followed by preparation for reuse, recycling,

and recovery, with landfill disposal as the last resort.

24.4.58 The nature of the waste to be produced during construction, operation and decommissioning will mean it will be managed by appropriately permitted carriers and facilities in line with the appropriate environmental permits and requirements.

24.4.59 All waste management will comply with relevant industry regulations and legislation. All waste transported off-site will be delivered to appropriately licensed receivers. Operators receiving waste materials from the Scheme will follow their own consenting procedures.

24.4.60 Through iterative and detailed assessments, potential impacts will be evaluated, and mitigation opportunities will be further refined to prevent or reduce impacts as much as possible. This proactive approach aims to minimise potential adverse impacts from the beginning.

24.4.61 The way that potential environmental impacts have been or will be prevented, avoided or mitigated to reduce impacts to a minimum through design and/or management of the Scheme is outlined in this section and will be taken into account as part of the assessment of the potential effects. Proposed environmental enhancements are also described where relevant.

Construction Phase

24.4.62 The Scheme design incorporates embedded mitigation through the predominant use of pre-fabrication. This approach reduces on-site construction waste, with waste produced during unit manufacturing being managed by the companies producing the solar PV units, mounting structures, energy storage/battery units, temporary construction site office units, and cabling. Consequently, most of the on-site construction waste is packaging. Although some waste is generated during the pre-fabrication phase, it is significantly less compared to on-site fabrication, as accepted by the IEMA Guidance (Ref 24.18).

24.4.63 The Scheme will minimise and eliminate waste streams wherever possible, pursuing opportunities for reusing material resources. When reuse and prevention are not feasible, waste will be managed according to the waste hierarchy and detailed in the OCEMP ~~[EN010170/APP~~Revision A **[EX1/GH7.1_A]**. The OCEMP includes industry-standard practices and control measures to address environmental impacts during construction, such as on-site material and waste management. These measures, identified in the OCEMP ~~[EN010170/APP~~Revision A **[EX1/GH7.1_A]**, include the separation of main waste streams on-site before transport to approved, licensed third-party waste facilities for recycling or disposal.

24.4.64 The Site Waste Management Plan (SWMP~~),~~) is to be prepared before construction begins, the SWMP will detail the efficient management, storage, and legal disposal of materials during the construction phase in line with the measures set out in the OCEMP. It will also outline the aims, objectives, and ongoing management responsibilities, including practices

for management and storage, and set targets for waste reduction, landfill diversion, and reuse. Once appointed, details of the waste carriers and contractors for the Scheme, along with copies of their appropriate licenses, will be included in the SWMP.

24.4.65 A Construction Resource Management Plan (CRMP) will be prepared by the appointed contractor, outlining the strategic approach to planning, coordinating, and managing the labour, materials and equipment.

24.4.66 The location and consolidation of the main construction compound and welfare facilities on each of the Sites will help minimise the amount of excavation and construction waste required for hardstanding for access, material storage, and welfare unit placement. Consolidating welfare units at a single location on each Site also helps reduce construction waste, wastewater, and electricity use. The provision of pre-fabricated welfare units and construction site offices further reduces construction and demolition waste generated by the Scheme. Similarly, the battery energy storage system consists of modular units that can be grouped into standard shipping container-sized payloads and transported in their finished state to the Site, eliminating the need for construction and packing waste for these elements.

Operational Phase

24.4.67 During the operational phase, the Scheme will adhere to the waste hierarchy by prioritising waste prevention, followed by the reuse, recycling, and recovery of equipment during the replacement of components. Landfill disposal will be considered only as a last resort. A Waste Management Strategy will be developed and agreed with the authority prior to commencement of the operation (including maintenance) as part of the detailed OEMP ~~**[EN010170/APP/GH7.2]**~~.

24.4.68 All waste management will comply with relevant regulations, and waste will be transported by licensed hauliers to authorized waste management sites with the necessary permits for the consigned wastes.

24.4.69 The Scheme is expected to generate waste from electrical and electronic equipment (WEEE) during both the operation and maintenance phases, and during decommissioning phase. This includes photovoltaic panels~~, batteries, substation equipment~~, and smaller quantities from supporting electrical infrastructure. These items will be recovered and recycled by an authorised reprocessor in compliance with the WEEE Regulations 2013 (Ref 24.7). To ensure this is done according to “Best Available Treatment Recovery and Recycling Techniques,” a list of up-to-date authorised reprocessors should be established prior to the operational phase of the Scheme and kept up-to-date throughout the operation and decommissioning phases. This will be secured through measures set out within the OEMP.

24.4.70 Batteries must be separated from WEEE streams so they can be recovered, recycled, or disposed of in accordance with the Waste Batteries and Accumulators Regulations 2009. This is most likely to be

undertaken by the battery manufacturer or supplier. This requirement will be secured ahead of Scheme operation in the OEMP to ensure it is undertaken as legally required throughout the operational lifetime and decommissioning of the Scheme.

Decommissioning Phase

24.4.71 During decommissioning, solar panels and related built infrastructure, ancillary infrastructure, substations, and energy storage will be removed, recycled, recovered, or disposed of in accordance with good practice and market conditions at that time. As outlined above, the Scheme is anticipated to generate WEEE; however, the recycling and recovery of these items is detailed in the ODS.

24.4.72 The decommissioning of the Scheme will adhere to the measures and procedures outlined in the ODS **~~[EN010170/APP~~**Revision A **[EX1/GH7.3_A]**, secured through the Development Consent Order (DCO). A Decommissioning Resource Management Plan (DRMP) will be developed by the appointed contractor and will set out how to manage the disposal of waste in accordance with relevant legislative and policy requirements at the time of decommissioning.

24.4.73 The OOEMP **~~[EN010170/APP~~**Revision A **[EX1/GH7.2_A]** and the ODS **~~[EN010170/APP~~**Revision A **[EX1/GH7.3_A]** state that the Applicant is committed to maximising the recycling and reuse of Scheme components at the end of their life. There are already organisations around the UK and Europe specialising in solar recycling, such as PV Cycle and the European Recycling Platform. These organisations work with solar developers to minimise electrical waste and recycle old panels in line with the WEEE Regulations. Additionally, companies like SECONDSOL offer a marketplace service for buying and selling second-hand Solar PV modules and equipment, where there is still a good level of life remaining. PV modules that have developed faults or damage can also be refurbished and repowered by specialist companies and manufacturers, then resold or reinstalled. The Applicant will adhere to the industry good practice outlined in Solar Power Europe's Lifecycle Quality Best Practice Guidance.

Assessment of Impacts and Effects

Construction Phase

24.4.74 During the construction phase, it is likely that waste will arise from the following streams:

- General waste from site offices and welfare facilities;
- Packaging waste from incoming materials; and
- Other waste from construction of fencing, access roads and other supporting infrastructure.

24.4.75 Construction activities associated with the Scheme are extensive and are anticipated to be undertaken over a 24-month construction period.

Construction waste generated across the Sites and the connecting Cable Route Corridor have all been assessed in this section. These activities include, but are not limited to, the below. The volumes also referenced are precautionary and a worst-case scenario, which is considered to reflect the project design envelope approach. The main construction activities associated with the Scheme are as follows:

- Piling of steel frame mounting systems in rows across the Sites;
- Mounting of the solar panels onto the frame system;
- Digging of trenches for laying of underground electrical cables;
- Creation of concrete foundation/bases as required for structures such as substations;
- Creation of access tracks within the Scheme;
- Installation of mesh and timber post fencing and palisade fencing; and
- Installation of CCTV camera poles.

24.4.76 The PV modules, racks, inverters and other supporting equipment will be manufactured offsite to the specified sizes, and wastage during installation is expected to be minimal. The majority of the construction equipment will be delivered to site for assembly, installation and connection. The types of waste streams associated with the removal of waste material during construction are summarised below in **Table 24.8**.

24.4.77 Sewage waste generated during construction has been estimated at 16,015.90m^3. Any wastewater generated from welfare facilities will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

24.4.78 Employee activity will generate a minimal amount of commercial, food and sewage waste. Commercial and food waste will be managed by appropriate permitted waste carriers and taken to facilities in line with environmental permits and requirements.

24.4.79 Large-scale earthworks and demolition are not anticipated, so it is not expected that large quantities of material will need to be removed from the Scheme. Given the relatively flat area within the Order Limits, significant earthworks are unlikely, and there should not be a large surplus or shortfall of fill material requiring export or import. It is expected that all materials removed during cable trenching activities or the creation of working or laydown/compound areas will be reinstated, with no need for material import or export. While the potential for generating some surplus excavated material cannot be entirely ruled out, the quantities involved would be insignificant in the context of regional landfill capacity.

24.4.80 **Table 24.8** summarises the anticipated waste streams from construction.

Table 24.8: Anticipated waste streams from the construction phase

Waste Type	Estimated Waste Quantity (tonnes)	Estimated Waste Quantity (m3)	Recyclable / Recoverable
General waste from site offices and welfare facilities	Minimal	Minimal	Yes
Waste from the maintenance of construction vehicles	Minimal	Minimal	Yes
Hazardous waste (e.g. chemicals, batteries, solvents, oils, aerosols etc.)	Minimal	Minimal	Yes
Vegetation	Minimal	Minimal	Yes
Packaging Materials			
Pallet Wood	41,967	9,353	Yes
Polyurethane Foam pad for cushioning between modules	209	8,709	Yes
Paper and Board	5,804	9,674	Yes
Corner pieces and edge spacers made of HDPE	4	159	Yes
Pallet Nails	1.8	-	Yes
Packaging Materials Total	**47,985.8 ~~tonnes~~**	**27,895**	
Cable Drum Materials			
DC Cable Drum	80.8	201.5	Yes
Grounding cables - 50 sq.mm	61.3	152.9	Yes
LV cables (3x240)	250.4	624.9	Yes
MV cables (1x185)	20.3	50.7	Yes
Cable Drum Materials Total	**412.8 ~~tonnes~~**	**1,030**	
Total Estimated Waste	**48,398.6**	**28,925**	

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24.4.81 Excavated material is excluded from the construction waste estimates and from the calculation of the overall waste recovery rate. This is because, where feasible, such material will be reused on-site and therefore not classified as waste. In accordance with the waste hierarchy and the objective of minimising waste generation, uncontaminated excavated soil and stones are not included in recovery targets. This approach aligns with UK government guidance (Ref 24.28), which recognises that such materials, when reused on-site, are not considered waste and should not be factored into landfill or recovery calculations.

24.4.82 All waste transported offsite will be taken to appropriately licensed sites for the relevant materials. The operators receiving any waste materials from the Scheme will be subject to their own consenting procedures applicable at the time of the construction stage. Any waste created during the construction phase will need to be removed from the Sites and disposed of in accordance with legal requirements.

24.4.83 Any reusable waste materials generated as part of the Scheme, such as soil excavated from trenches, roads, compound areas, and foundations, will be reused wherever possible.

24.4.84 Consideration of potential effects associated with wastewater disposal from welfare facilities is outlined in Chapter 10: Hydrology, Flood Risk and Drainage **~~[EN010170/APP~~**Revision A **[EX1/GH6.2.10_A]**.

24.4.85 Chapter 22: Ground Conditions and Contamination **~~[EN010170/APP~~**Revision A **[EX1/GH6.2.22_A]** will consider any potential effects of the Scheme on historic landfills.

24.4.86 Estimated volumes and potential streams of construction waste, in addition to estimated water and electricity usage, have been used within the ES Chapter 7: Climate Change **[~~EN010170/~~APP~~/GH6.2.7~~-044]** to establish the Greenhous Gas emissions associated with~~-~~ the construction of the Scheme.

24.4.87 An assessment of construction traffic effects, including the removal of waste from the Site, is provided in Chapter 13: Transport and Access **[~~EN010170/~~APP~~/GH6.2.13~~-050]**.

24.4.88 There may be a requirement to remove some soils from the Scheme for treatment or disposal if they are found to be contaminated and cannot be treated on site. Any toxic and hazardous materials will also need to be handled by an authorised carrier and a suitably qualified contractor, ensuring no cross-contamination with 'clean' materials. With the use of appropriate control measures (as set out in the OCEMP **[~~EN010170/APP~~EX1/GH7.~~3~~1_A]**), no significant effects are anticipated at this stage.

24.4.89 Ground material excavated is usually stored on site or reused if suitable for bedding of cables, ground compaction, and cut/fill operations during site grading. However, if the excavated ground material is unsuitable for reuse or storage on site, it will need to be moved to an approved landfill and categorized as waste.

Significance of Effects

Void Capacity

24.4.90 With the embedded mitigation measures in place, the overall quantities of construction waste disposed of to landfill are anticipated to be below 1% of regional inert and non-hazardous landfill capacity (~~between~~ 94,782,668m^3 ~~respectively)~~) and less than 0.1% of ~~national~~the regional hazardous landfill capacity (2,232,776m^3). Therefore, the magnitude of impact is negligible at a very high sensitivity, and the effect is ~~neutral/~~slight adverse, which is considered to be not significant.

Landfill Diversion

24.4.91 As set out in **Table 24.7** good practice waste recovery (landfill diversion) for the Scheme is likely to be above 90% for the majority of construction wastes. For example, packaging materials such as pallet wood, paper, and foam typically achieve recovery rates of up to 85–95% under good practice. Cable drum materials, while more variable, can reach recovery rates of up to 50%, depending on material separation and recycling infrastructure. Although some miscellaneous and hazardous waste streams have more limited recovery potential, their quantities are minimal. Therefore, with the implementation of good practices to maximise waste recovery the magnitude of impact is negligible at a very high sensitivity, and the effect is slight adverse, which is considered to be not significant.

Operational Phase

24.4.92 As set out in Chapter 4: Scheme Description ~~**[EN010170/APP/GH6**~~Revision A **[EX1GH6.2.4_A]** during operation and maintenance there are expected to be up to 15 permanent Full Time Equivalent staff members (FTE). The short-term workforce required to deliver the peak replacement scenario of all Solar PV Panels and BESS infrastructure is assessed as requiring a full-time workforce of 182 FTE employees, with a peak month requiring up to 412 gross on-site workers.

24.4.93 All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them. Waste generated from maintenance activities, such as component replacement during the Scheme's operation and maintenance, will be managed similarly to waste from the Scheme's final decommissioning.

General Maintenance Activities

24.4.94 The Sites will be unmanned with personnel monitoring the Scheme remotely. Waste arising during the operation phase from routine inspection and maintenance activities is expected to be substantially less than during the construction and decommissioning phases and could include the following:

- Waste metals;

- Equipment that requires replacing, such as solar panels;
- Waste associated with maintenance; and
- General waste (paper, cardboard, wood).

24.4.95 Waste generated from daily operations will include waste from welfare facilities and general waste such as paper, cardboard, and wood.

24.4.96 During the operational phase of the Scheme, waste arisings associated with general maintenance activities are expected to be minimal and, as they will be considered to be commercial waste this will be managed by appropriately permitted carriers and facilities in line with the appropriate environmental permits and requirements. It is assumed that the local waste infrastructure has the capacity for this. As such it is anticipated at this time, general activities will result in limited amounts of waste.

24.4.97 During this phase of the Scheme, the predominant source of waste is related to the removal of expired or broken equipment that cannot be repaired, and packing material required for replacement material. Waste electrical or electronic equipment (WEEE) arising from the operation and maintenance of the Scheme is anticipated to be limited to worn or broken photovoltaic panels, as these are identified as WEEE under Schedule 4 of the WEEE Regulations 2013. These are not likely to be more than negligible quantities of hazardous materials and will recycled where practical.

24.4.98 It is likely that solar PV module waste generated during the Scheme's operation, maintenance, and decommissioning will be managed by specialist regional or national recycling facilities. These facilities are expected to develop in response to the demand generated by the UK-wide solar panel industry. The capacity of these facilities is not expected to be influenced by other non-solar farm projects in the surrounding area, as they will only manage solar panel waste.

24.4.99 There are several companies which provide recycling services for solar panels. The company 'Recycle Solar' reports that 90% of the glass and 95% of the semiconductor materials in end-of-life solar panels can be recovered for use in new panels (Ref 24.26).

24.4.100 The UK market for Lithium-ion (Li-ion) battery recycling is developing, driven by the rapid increase in electric vehicles and other Li-ion battery users. Several new investments have been announced, and an 80% recovery rate is reported (Ref 24.27).

24.4.101 It is expected that greater private sector waste companies will develop facilities to meet market demands. This market growth is expected to be driven by the increasing number of photovoltaic installations, which are being implemented as part of the Government's initiative to achieve net zero emissions. Currently, solar panel waste generation is low, resulting in limited demand for facilities and available capacity. Therefore, it is expected that facilities for reusing, recycling, or recovering end-of-life solar panels will be developed as the waste stream demand increases. The Waste Electrical and Electronic Equipment (WEEE) Regulations

(Ref 24.7) require those who place solar panels on the market to finance the costs of collection, treatment, recovery, and environmentally sound disposal.

24.4.102 Wastewater generated during operation relates to a single welfare facility at each substation site. This is likely to consist of a septic tank arrangement. All wastewater will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

24.4.103 It is anticipated that 6.55m^3 of pallet wood and 6.78m^3 of paper and cardboard will be used per year during the operational phase. During operation, waste generation arising from general maintenance activities is expected to be negligible, since PV modules and other components do not generate any waste as part of the energy production process.

Replacement Activities

24.4.104 Over the 60-year lifespan of the scheme, it is expected that, in addition to regular equipment maintenance, infrastructure such as panels and batteries will need to be replaced (see **Table 24.9**). Panels are anticipated to be replaced once, while batteries may need replacement up to five times during the Scheme's lifetime, subject to the operator's discretion.

Table 24.9: Operational Replacement Rates

Waste Type	Indicative Design Life	Recyclable / Recoverable
Solar PV Panels	Every 30 years. Once during the Scheme's lifespan.	Recyclable
Transformers	Every 30 years. Once during the Scheme's lifespan. * Only to be carried out if required for performance or health and safety reasons.	Recyclable
Batteries	Every 10 years. Five times during the Scheme's lifespan.	Recyclable
Inverters	Every 10 years. Five times during the Scheme's lifespan.	Recyclable

24.4.105 Equipment that requires replacement during the operational phase will be managed in line with the waste hierarchy and in accordance with legislation in force at the time, with materials re-used or recycled wherever possible (as secured by the OEMP). Any electrical waste produced by the Scheme will be disposed of in accordance with the

Waste from Electrical and Electronic Equipment (WEEE) regulations, minimising the environmental impact of replacing any Schemes elements.

24.4.106 As outlined in **Table 24.9** It is expected all the solar PV panels will be replaced once during the Scheme's operational life, which would equate to approximately 16,200 m³ of solar panel waste.

24.4.107 It is expected that the batteries could be replaced up to five times during the Scheme's operational life; this would equate to approximately 34,000 m³ of BESS waste at each replacement, based on BESS at Green Hill C as well as Green Hill BESS. The final layout of the BESS compound will be determined during detailed design. The precise number of individual battery storage containers will depend upon the level of power capacity and duration of energy storage that the Scheme will require.

~~24.4.106~~24.4.108 While technology may have improved, as a conservative approach, it has been assumed that the waste during replacement for packaging and materials associated with equipment will be the same as during the construction phase.

~~24.4.107~~24.4.109 During the replacement phase, all components identified in **Table 24.9** are expected to be fully recyclable, with greater opportunities for recycling anticipated by year 30. Furthermore, the volume of packaging waste associated with component delivery is anticipated to be significantly lower than the packaging materials associated with the construction phase, as the core infrastructure such as mounting systems will already be in place. Considering future recycling opportunities and appropriate storage and handling measures in place during the operational phase, waste arisings are therefore not anticipated to result in a significant effect.

~~24.4.108~~24.4.110 Currently, recycling routes for component replacement waste are generally available and it is anticipated that recycling opportunities will increase in the future, driven by the expanding market for solar PV installations. Waste materials requiring removal from the Site would be transported using licensed carriers and records kept, detailing the types and quantities of waste moved and the destinations, in accordance with the relevant regulations. Trip generation associated with the operation and replacement phase of the Scheme is further discussed in Chapter 13: Transport and Access [**~~EN010170/~~APP/~~GH6.2.13~~-050**].

Significance of Effects

Void Capacity

~~24.4.109 The recent DCO approvals for the Cottam and West Burton Solar Farms have been used as a reference point for estimating future waste volumes. Following a similar methodology applied to other NSIPs, it is anticipated that waste generation will decrease significantly compared to the construction phase. Based on this, it is estimated that around 91,173 tonnes of packing material will be generated annually.~~

24.4.11024.4.111 Given the anticipated future trend towards increased recyclability of infrastructure and the embedded mitigation measures outlined within the OEMP, the overall quantities of operational waste are expected to be below 1% of regional inert and non-hazardous landfill capacity, and less than 0.1% of national hazardous landfill capacity. Therefore, the magnitude of impact is negligible at a very high sensitivity, and the effect is neutral/slight adverse, which is considered to be not significant.

Landfill Diversion

24.4.11124.4.112 Based on the replacement component recyclability presented in **Table 24.9**, waste generated from the operation and maintenance phase is primarily diverted from landfill and managed through recycling. Furthermore, packaging materials such as pallet wood, paper, and foam typically achieve recovery rates of up to 85–95%. Consequently, the magnitude of impact is negligible (more than 90%) at a very high sensitivity.

24.4.11224.4.113 Therefore, with the implementation of good practices to maximise waste recovery the magnitude of impact is negligible at a very high sensitivity, and the effect is slight adverse, which is considered to be not significant.

Decommissioning Phase

24.4.11324.4.114 The decommissioning phase of the Scheme will involve the removal of all equipment (except for the underground cables connecting the Sites to the grid connection point,), and the reinstatement of the land to the landowners. The ODS will ensure the Scheme is decommissioned in accordance with best practices and guidance at the time, which currently includes leaving the cables in situ.

24.4.11424.4.115 The main decommissioning wastes associated with the Scheme are expected to include:

- Solar panels and their associated mounting structures;
- Breaking up of concrete foundations/bases;
- Rubble from any access tracks within the Sites;
- Electrical equipment, including batteries, cables, and inverters;
- Welfare facility waste; and
- Waste metals and wood.

24.4.11524.4.116 As described in Chapter 4: Scheme Description **[EN010170/APP**Revision A **[EX1/GH6.2.4_A]**, the Scheme will be decommissioned at the end of its operation and maintenance phase, expected to be 60 years after construction is completed. It is not possible to identify specific waste management routes or facilities at this stage, as these are likely to change over such a timescale.

24.4.11624.4.117 Prior to decommissioning, opportunities to minimise waste will be explored. Possibilities for reusing, recycling, or recovering materials will be considered before resorting to landfill options. The emerging industry for recycling solar panels will be explored, along with any resale of operational panels.

24.4.11724.4.118 The Solar PV modules, related components, substations, ancillary infrastructure, and the BESS will be removed and recycled or disposed of in accordance with good practice and market conditions at that time. The waste management method and key procedures will be set out in a final Decommissioning Environmental Management Plan. Standard good practices for waste management will be implemented during decommissioning and outlined within the ODS. The contractor will be required to minimise waste and reuse decommissioned items as much as possible to reduce landfill waste.

24.4.11824.4.119 The types of waste streams associated with the removal of waste material during decommissioning are summarised below in **Table 24.10**. A qualitative estimate on the volume of waste materials is made in **Table 24.10** given the information that is known at this stage.

Table 24.10: Waste Arising from Decommissioning

Waste Type	Recyclable / Recoverable	Recovery Rate (%)
Metal	Authorised recycling or landfill	Standard: 95 Good: 100 Best:100
Concrete Rubble	Concrete and any other foundation materials shall be taken to an appropriate facility for recycling and reuse.	Standard: 75 Good: 95 Best:100
Solar PV Panels and mounting structures	Panels will be reused/recycled in accordance with best practice guidance/legislation at the time of decommissioning.	Standard: Limited Information Available Good: 70 Best: 95
Transformers Batteries Inverters	Materials will be reused/recycled in accordance with best practice guidance/legislation at the time of decommissioning. Components shall be taken to an appropriate facility for recycling.	
Cables	Taken to an appropriate facility for recycling.	

24.4.11924.4.120 As set out in the ODS **[EN010170/APP**Revision A **[EX1/GH7.3_A]**, the Applicant is committed to maximise recycling and reuse of the Scheme components at the end of their life.

24.4.12024.4.121 If any hazardous materials need to be removed during decommissioning, suitably qualified contractors will be appointed to handle and remove these items. Hazardous materials may include lithium-ion batteries and transformer oil.

24.4.12124.4.122 As with construction activities, all wastewater and sewage from construction will be stored on-site and removed by tanker to an approved wastewater and sewage treatment centre. This is not expected to give rise to significant effects and is not considered further.

24.4.12224.4.123 The Scheme is anticipated to generate substantial WEEE during decommissioning, including photovoltaic panels, batteries, and substation equipment, as well as smaller quantities of WEEE from supporting electrical infrastructure. The Scheme includes "large-scale fixed installations" as defined in the WEEE Regulations 2013, such as transformers within substations, which are excluded from the regulations. These will need to be removed and dismantled by authorised competent specialists during decommissioning. The recovery, recycling, or disposal of any part of large-scale fixed installations should be undertaken in accordance with the Waste Hierarchy.

Table 24.11 Estimated Decommissioning Waste

Waste Type	Estimated Waste Quantity (tonnes)	Estimated Waste Quantity (m3)	Recyclable / Recoverable
General waste from site offices and welfare facilities	Minimal		Yes
Waste from the maintenance of construction vehicles	Minimal		Yes
Hazardous waste (e.g. chemicals, solvents, oils, aerosols etc.)	Minimal		Yes
Vegetation	Minimal		Yes
Concrete and Aggregates	92,400	61,000	Yes
PV Mounting Structures – Metal	15,000	6,000	Yes
Solar PV Panels	37,900	16,200	Yes
BESS	29,000	34,000	Yes

Transformers, Inverters and Switchgear	1,100	3,100	Yes
Total inert and non-hazardous waste	**175,400**	**120,300**	
Total hazardous waste	Minimal		

~~24.4.123~~24.4.124 As outlined in 24.4.4 – 24.4.25 above, there are already organisations around the UK and Europe specialising in solar recycling, such as Recycle Solar, PV Cycle and the European Recycling Platform.

~~24.4.124~~24.4.125 Waste materials transported off-site will be delivered to a licensed waste disposal site. Currently, there are no baseline estimates for capacity at county recycling and landfill sites for the estimated earliest decommissioning period of 2089-2091. Therefore, the sensitivity of these receptors cannot be accurately determined. For this assessment, it is assumed that sensitivity levels in 2089 are the same as those in 2024. Technological advancements in recycling, reuse, and waste treatment may also change the outcomes compared to current technology.

Significance of Effects

Void Capacity

~~24.4.125~~24.4.126 As the decommissioning activities associated with the Scheme will occur far into the future, more than 65 years from the date of writing this report; there is uncertainty over the total estimate of waste that will be produced, the available technology and opportunities for recovery.

~~24.4.126 Waste generated during decommissioning is anticipated to be similar to or less than that estimated for construction. The environmental effects assessment represents a reasonable worst-case scenario. For this assessment, decommissioning is estimated to have a similar magnitude of impact as construction, with the same assumptions about the proportion of waste going to recycling versus landfill. However, it is acknowledged, that within 60 years the opportunities for reuse and recycling will be greater.~~

24.4.127 With the embedded mitigation measures in place, as set out in the ODS **~~[EN010170/APP~~**Revision A **[EX1/GH7.3_A]** the overall quantities of ~~operational~~decommissioning waste are expected to be below 1% of regional inert and non-hazardous landfill capacity, and less than 0.1% of ~~national~~regional hazardous landfill capacity. Therefore, the magnitude of impact is negligible at a very high sensitivity, and the effect is neutral/slight adverse, which is considered to be not significant~~.~~

Landfill Diversion

24.4.12724.4.128 As outlined in **Table 24.10**, the high recyclability of replacement components indicates that the majority of waste generated during the Scheme's decommissioning phase will be diverted from landfill and managed through established recycling pathways.

24.4.12824.4.129 **Table 24.10** also demonstrates that, under good practice scenarios, recovery rates for construction-related waste are expected to exceed 90%. With ongoing advancements in recycling technologies and infrastructure, these rates are anticipated to improve further over time, enhancing the Scheme's ability to divert from landfill.

24.4.12924.4.130 Based on the replacement component recyclability presented in **Table 24.10**, waste generated from the decommissioning of the Scheme will likely be diverted from landfill and managed through recycling.

24.4.13024.4.131 Given the high potential for landfill diversion and the Scheme's alignment with best practice waste management, the magnitude of environmental impact is considered negligible (with recovery rates exceeding 90%) at a very high sensitivity. As a result, the overall effect is classified as slight adverse and is deemed not significant.

Additional Mitigation Measures

24.4.13124.4.132 A detailed CEMP, OEMP, and ODS will all be secured through requirements of the DCO, to be approved prior to the commencement of construction, operation and decommissioning phases respectively. Each of these documents will be substantially in compliance with their "outline" counterparts [**EN010170/APPEX1/GH7.1 to EN010170/APP A, EX1/GH7.2 A** and **EX1/GH7.3 A**] submitted as part of this DCO application. The Scheme will seek to minimise and design out waste streams where possible.

24.4.13224.4.133 As no significant materials and waste effects have been identified, no further or additional mitigation or monitoring of significant effects is proposed.

Residual Effects

24.4.13324.4.134 As no significant effects were identified in the assessment, the residual effects remain as outlined in the assessment. All effects are not significant.

Cumulative Effects

24.4.135 A list of cumulative projects can be found in Appendix 25.1 **[APP-188]** of the ES. A summary of cumulative effects are listed within Chapter 25: Cumulative Effects and Effect Interactions **[APP-062]** of this ES.

24.4.136 Each cumulative development listed within Appendix 25.1 **[APP-188]** is anticipated to produce waste during both construction and operational phases, with only a few expected to generate waste during decommissioning, as non-renewable developments, such as residential or industrial, will not require decommissioning.

24.4.137 As previously noted, waste will be generated throughout the lifecycle of the Scheme. The cumulative developments assessment considers the additional effects resulting from the Scheme in combination with the effects resulting from other similar developments, for the purposes of this assessment, this will consider other renewable projects taken together, that are listed below.

- Grendon Lakes (NW/23/00360/FUL): Development of battery energy storage system (BESS) with associated infrastructure including; access, drainage and landscaping.
- Kettering Energy Park (NK/2024/0613): EIA Scoping Opinion for development of energy infrastructure, structures to accommodate advanced agricultural systems and new employment floorspace and associated works.

24.4.138 Due to variations in workforce size and the scale of construction, operational, and decommissioning activities, precise waste volumes from other local solar schemes are currently unknown. Nevertheless, these volumes are anticipated to be relatively low and manageable, given the availability of suitable waste management facilities within the Expansive Study Area. For non-hazardous waste, the East Midlands and South East regions are considered as the Study Area, acknowledging that waste is not always managed within the Waste Planning Authority where it is generated and may instead be handled at a regional level.

24.4.139 It is assumed that each cumulative development will implement project-specific waste management strategies, such as Site Waste Management Plans (SWMPs), to ensure effective waste handling, in line with the waste hierarchy and applicable legislation aimed at avoiding and minimising waste.

Construction Phase

24.4.140 While multiple projects may be under construction simultaneously, it is assumed that planning requirements for all projects will include measures to minimise waste and divert it from landfill. These measures help reduce overall reliance on landfill disposal.

24.4.141 It is expected that waste impacts from all developments will be effectively managed through SWMPs and other plans, such as CEMPs. Given the temporary nature of construction activities and the implementation of mitigation measures, the Scheme together with the cumulative developments are unlikely to result in significant impacts on landfill or treatment capacity. Therefore, cumulative waste volumes during construction are not anticipated to have a significant effect.

Operational Phase

24.4.142 Waste generated during the majority of the operational phase of the Scheme will be minimal. Additionally, operational waste, particularly during equipment replacement, is unlikely to coincide across other developments, as lifespans for renewable developments will vary. This

staggered replacement schedule and likely implementation of management plans reduces the potential for cumulative impacts. As a result, cumulative impacts on landfill or treatment capacity from operational waste streams are expected to be not significant.

Decommissioning Phase

24.4.143 It is unlikely that the Scheme's decommissioning will align with that of other developments.

24.4.144 Decommissioning activities for renewable developments will generate WEEE, including solar PV panels and other electrical infrastructure. These materials will be recovered and recycled by authorised reprocessors in accordance with the Waste Electrical and Electronic Equipment Regulations 2013. Batteries are to be recovered, recycled, or disposed of in accordance with the Waste Batteries and Accumulators Regulations 2009.

24.4.145 As previously mentioned, several organisations in the UK and Europe such as Recycle Solar, PV Cycle, and the European Recycling Platform specialise in solar recycling. With growing market demand, recycling infrastructure is expected to evolve to accommodate increasing volumes of end-of-life WEEE. At the time of decommissioning, an up-to-date list of authorised reprocessors will be maintained to ensure compliance with Best Available Treatment, Recovery, and Recycling Techniques.

24.4.146 Although current recycling market capacity is limited and comprehensive data is lacking, it is anticipated that capacity will expand over the next 20 to 40 years to meet the needs of the renewable energy sector.

24.4.147 Provided that waste is managed in accordance with established plans and regulations, no significant cumulative effects are expected during the construction, operational, or decommissioning phases of the Scheme.

24.5 Telecommunication, Utilities and Television

24.5.1 The construction of the Scheme can have the potential to affect existing below ground utility infrastructure, for example, through 'cable strike' when piling the Solar PV Mounting Structures or excavating the cable trenches.

Legislation and Planning Policy

24.5.2 Effects related to existing infrastructure are not considered environmental effects and do not require assessment under the EIA Regulations. However, due to the nature of solar farm developments, there is potential to impact existing utility infrastructure both above and below ground. This is addressed through the measures outlined below.

24.5.3 There is no specific legislation, policy, or guidance related to the assessment of Telecommunications and Utilities.

Study Area

24.5.4 The Study Area for Telecommunications and Utilities is the Site, as potential interactions with existing infrastructure are expected to be confined to the Order Limits.

Assessment Methodology

24.5.5 To identify any existing infrastructure constraints, a desk-based study has been completed. Consultation with relevant telecommunication and utilities providers is a routine part of development and will include water, gas, and electricity utilities providers, as well as telecommunication providers, as appropriate. Information obtained from these consultations has informed the Scheme design where possible. Engagement with relevant provider is ongoing to ensure appropriate protective provisions to ensure the protection of apparatus wherever existing infrastructure may be affected by the Scheme.

Baseline

24.5.6 The telecommunications and utilities companies provide services to a large number of properties including residences, business and schools within the local area, which also benefit from access to television connections.

24.5.7 There are several telecoms and utility services within the Order Limits. The telecommunications and utilities providers identified across the Scheme include the following:

- National Grid Electricity Distribution – East (Electricity);
- Northern Gas Networks (Gas);
- Cadent (Gas);
- ESP (Gas);
- GTC (Gas);
- BT Openreach (Telecoms);
- EXA (Comms);
- Gigaclear (Telecoms);
- Lumen (Telecoms);
- Virgin Media (Telecoms);
- Vodafone (Telecoms);
- Zayo (Telecoms); and
- Anglian Water (Water and Sewerage).

Embedded Mitigation

24.5.8 The following embedded mitigation measures have been incorporated into the Scheme design to identify and manage utilities interactions. These include the following precautionary measures:

- Locating the Scheme outside of utilities' protected zones, where practicable;
- Above-ground infrastructure located with adequate offsets from existing telecommunications and utility infrastructure;
- Use of topographical data alongside mapping provided by telecommunication and utilities providers to ensure underground and overground utilities are adequately offset;
- The use of ground penetrating radar before excavation to identify any unknown utilities;
- Infrastructure that crosses the Scheme is mapped and will avoided through the detailed design; and
- Consultation and agreement of construction/demobilisation methods will be undertaken prior to works commencing (this would be covered by the protective provisions included in the DCO).

24.5.9 During all phases of the Scheme there will be safe working beneath any overhead lines, including, for example, ensuring adequate clearances are in place when plant and equipment are being moved beneath overhead lines, and limiting any planting beneath overhead lines to low growing species. In advance of construction, the Applicant will liaise will all utility providers with assets in the area in regard to construction timelines, construction activities, proximity to assets and construction management measures that will be in place to manage any impacts to utilities.

24.5.10 Furthermore, where the proposed Cable Route Corridor crosses telecommunications and utilities, the cables will be laid so that the utilities are crossed at 90° where possible and will be suitably offset where running parallel. This will reduce operational impacts to the existing utility cables.

Potential impacts

24.5.11 Underground and overhead telecommunication and utility services have been identified across Green Hill A to G and Green Hill BESS and the Cable Route Corridor through a desk-based mapping exercise drawing on information provided by all relevant utility providers. Locations of utilities have furthermore been confirmed on Site through topographical and geophysical surveys.

24.5.12 The design of the Scheme has been informed by topographical and geophysical survey data, alongside mapping provided by telecommunication and utilities providers to ensure underground and overground utilities are adequately offset from. This will ensure safe working procedures can be maintained, access can be provided for utility maintenance, and crucially, construction impacts can be mitigated against. The measures set out in the final CEMP, to be secured as a requirement of the DCO, will aim to ensure impacts on telecommunication and utilities can be minimised. In addition, protective

provisions for the benefit of statutory undertakers and electronic communications network code operators will be included in the draft DCO **~~[EN010170/APP~~**Revision A **[EX1/GH3.1_A]**.

24.5.13 Above-ground infrastructure on the Sites has been positioned to maintain required offsets from existing telecommunications and utility infrastructure, ensuring clear access and minimizing potential conflicts such as damage from piling, excavation, or compaction. Where infrastructure is connected by low or mid voltage cabling (up to 33kV), the routing will minimize the number of crossings of existing services. Trenching for low or mid voltage cabling will be shallow, with a depth of up to 0.4m below the surface. Installation of cabling up to 33kV will follow the mitigation measures outlined in the OCEMP **~~[EN010170/APP~~**Revision A **[EX1/GH7.1_A]**.

24.5.14 The Crossing Schedule **[~~EN010170/~~APP~~/GH7.18~~-562]** identifies numerous telecommunication and utility services that need to be crossed by the Cable Route Corridor. Each crossing includes the intended crossing technique options. Any interaction with existing apparatus above or below ground should be conducted in accordance with the required safety measures as directed by the apparatus owner or operator. These measures will help manage the risk of damage to telecommunications and utilities.

24.5.15 High voltage cabling across the Sites and the 400kV grid connection to Grendon Substation will be laid over a distance of approximately 31.4km. Trenching and horizontal directional drilling activities to lay these cables will need to consider the significant number of existing telecommunications and utility services that interact with the Cable Route Corridor. When crossing existing buried utilities or apparatus, the maximum depth of the dug cable trench is 2m below the level of the existing apparatus.

24.5.16 In summary, the survey and agreed offset distance information will be incorporated into the OCEMP **~~[EN010170/APP~~**Revision A **[EX1/GH7.1_A]** and the resultant detailed CEMP to ensure construction work minimises impacts on services. Where direct interaction is anticipated, particularly along the Scheme's Cable Route Corridor, utility crossings will be carried out in direct collaboration with the relevant utilities provider.

24.5.17 The Scheme design is of a generally low height across the development area, with the tallest elements (up to a maximum 12.5m in height) form part of the 400kV substation. As a result, the Scheme is not anticipated to impact on the reception of radio and television in residences, business, and other users.

24.5.18 During the decommissioning phase of the Scheme, the most environmentally acceptable option is considered to leave the cables in situ, as this avoids disturbing the overlying land, habitats, and neighbouring communities. The decommissioning of the cabling including and grid connection cables will depend on government policy

and best practices at the time. Alternatively, the cables can be removed by opening the ground at regular intervals and pulling the cables through to the extraction point, thus avoiding the need to excavate the entire length of the Cable Route Corridor. In this case, the work would be carried out within the footprint excavated during construction. There is likely to be no significant effect on telecommunications and utilities due to the cessation of operational activities.

24.5.19 The measures are set out within the OCEMP **~~[EN010170/APP~~**Revision A **[EX1/GH7.1_A]**, and ODS **~~[EN010170/APP~~**Revision A [**EX1/GH7.3_A**] will reduce the likelihood of effects on utilities during construction and decommissioning. Furthermore, protective provisions will be agreed with statutory undertakers and included in the DCO.

24.5.20 No likely significant effects are expected on telecommunication, television, or utilities are predicted as a result of the construction, operation or decommissioning of the Scheme, following the application of the mitigation measures.

Cumulative Effects

24.5.21 It is anticipated that the other developments identified within the cumulative schemes will have no impact on telecommunication, utilities and television. It is assumed that the other developments will agree and implement appropriate mitigation with relevant providers to reduce the risk of damaging utilities. As a result, no significant cumulative effects are expected on telecommunications, television reception, or utility infrastructure.

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