

Green Hill Solar Farm Preliminary Environmental Information Report

Chapter 24 Other Environmental Matters

Prepared by: Lanpro Services

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24 Other Environmental Matters

24.1 Introduction

24.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the findings of the Environmental Impact Assessment (EIA) work undertaken to date concerning the potential impacts of the Scheme of Other Environmental Matters during the construction, operation and maintenance, and decommissioning phases. This chapter addresses other environmental topics that do not require individual chapters on the basis that they have either been scoped out of the ES. This chapter addresses:

- Light pollution;
- Waste production and management; and
- Telecommunications, utilities, and television.

24.1.2 For more details about the Scheme, refer to **Chapter 4: Scheme Description of this PEIR**.

24.2 Consultation

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

24.2.2 A summary of consultation and response to the Scoping Report are outlined below in **Table 22.1**.

Table 22.1: Summary of Consultation and Responses (Scoping Opinion)

Consultee and Date	Response	Outcome and any further steps anticipated
The Planning Inspectorate EIA Scoping Opinion 30th 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 will be assessed throughout the ES, and are referred to within this PEIR, in relevant chapters: 8: Landscape and Visual and 9: Ecology and Biodiversity.
The Planning Inspectorate EIA Scoping Opinion 30th August 2024	ID3.17.4: Waste: It is proposed to scope out a standalone chapter on waste as significant waste 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	Waste will be considered within the ES Other Environmental Matters chapter, and a preliminary assessment of waste impacts is set out in Section 22.4 of this chapter.



Consultee and Date	Response	Outcome and any further steps anticipated
	<p>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 methodology of recycling.</p> <p>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.</p>	
<p>The Planning Inspectorate EIA Scoping Opinion 30th August 2024</p>	<p>ID3.17.3: Telecommunications, utilities and television receptors</p> <p>It is proposed that a standalone chapter for these matters is scoped out.</p> <p>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 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.</p> <p>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.</p> <p>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 measures have been incorporated.</p> <p>On the basis of this information the Inspectorate agrees that a standalone chapter for these matters can be scoped out of further assessment.</p>	<p>Section 22.5 outlines the information on existing utilities, telecommunications and television receptors. This will be considered further within the ES.</p>



Consultee and Date	Response	Outcome and any further steps anticipated
Anglian Water	<p>Anglian Water provided a response within the Scoping Opinion stating that discussions of the following would be recommended:</p> <ul style="list-style-type: none"> • Impact of development on Anglian Water’s assets and the need for mitigation; • The design of the project to minimise interaction with Anglian Water assets / critical infrastructure and specifically to avoid the need for diversions which have associated carbon costs; • Requirement for potable and raw water supplies; • Requirement for water recycling (surface water/foul drainage) connections; • Confirmation of the project’s cumulative impacts (if any) with Anglian Water projects; and • Draft Protective Provisions. 	

24.3 Light Pollution

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

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, these are 07:00 – 18:00 Monday to Friday and 08:00 to 13:30 on Saturdays. The Outline Construction Environmental Management Plan (OCEMP) and Decommissioning Environmental Management Plan (DEMP) will detail principles to ensure potential impacts are minimised.

24.3.3 Permanent lighting is not required within the Solar Arrays for the operational phase. Motion sensing security lighting will be provided within substations and within the BESS to be used only for maintenance and security purposes. This will be set out and secured by the Outline Operational Environmental Management Plan (OEMP).

24.3.4 It is anticipated that temporary lighting may be required across the Solar Arrays 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 will be set out and secured by the OEMP.

Potential impacts

24.3.5 Use of artificial lighting across the Scheme has the potential to cause environmental effects in relation to ecology and landscape. Preliminary effects from light on ecology receptors have been identified in Section 9.1 of **Chapter 9: Ecology and Biodiversity**. Impacts on landscape and visual receptors will be assessed in **Chapter 8: Landscape and Visual** of the ES.

24.3.6 Within the CEMP, OEMP and DEMP, lighting control principles will be detailed to ensure potential impacts are minimised. Control measures to be considered across all phases of the Scheme include the consideration of the direction, duration, and orientation of lighting, ensuring inward distribution of light and avoiding light spill onto existing boundary features and that impacts are reduced on sensitive receptors. Standard good practice measures would be employed to minimise light spill, during construction, operation and decommissioning phases.

24.3.7 The ES will further detail the construction, operational and decommissioning lighting strategy within the Scheme, including details of directionality, intermittent lighting, and an assessment of



associated effects will be set out in the Ecology and Landscape and Visual Chapters and summarised the Other Environmental Effects Chapter. It will also describe any measures necessary to avoid or mitigate lighting effects.

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 consumption of materials (key construction materials only); and
- The generation and management of waste.

Legislation, Planning Policy and Guidance

The Environmental Protection Act 1990

24.4.3 The Environmental Protection Act (Ref.1) is the primary legislation which controls and regulates the safeguarding of resources, environmental pollution and protecting public health. It put measures in place to manage waste, addressing issues relating to air quality, land contamination, reducing pollution and water pollution.

The Environment Act 2021

24.4.4 The Environment Act (2021) (Ref.2) 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

24.4.5 The Environmental Permitting (England and Wales) Regulations (Ref.3) 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

24.4.6 The Waste (England and Wales) Regulations (Ref.4) 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)

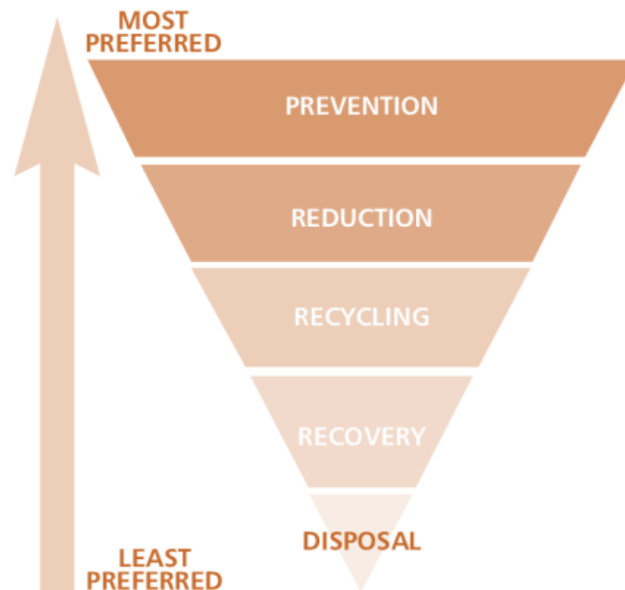
24.4.7 The Hazardous Waste (England and Wales) Regulations 2005, amended in 2006, (Ref.5) establish a comprehensive framework for managing hazardous waste. A set of regulations to control hazardous waste, ensuring its safe handling from all stages including production, transportation and the disposal of.

The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013

24.4.8 The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (Ref.6) 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



Figure 22.1 Waste Hierarchy (Ref.18)



24.4.9

24.4.10 The waste hierarchy will be applied throughout the lifetime of the Scheme during construction, operation (and maintenance) and decommissioning.

Policy Context

National Planning Policy

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

24.4.11 Overarching NPS EN-1 (Ref.7) 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.

24.4.12 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.’

24.4.13 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.

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

24.4.15 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.*

24.4.16 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

24.4.17 The National Planning Policy for Waste (NPPW) (Ref.8), 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

24.4.18 The Environmental Improvement Plan (Ref.9) 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

24.4.19 The Waste Management Plan (Ref.10) 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

24.4.20 A Green Future: Our 25 Year Plan to Improve the Environment (2018) (Ref.11) 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

24.4.21 Our Waste, Our Resources, A Strategy for England (Ref.12) 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.*

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

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

24.4.23 The Waste Prevention Programme for England: Maximising Resources, Minimising Waste 2023 (Ref.13) 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.*
- *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

24.4.24 Northamptonshire Minerals and Waste Local Plan (July 2017) (Ref.14) 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.

24.4.25 The Milton Keynes Waste Development Plan Document (Ref.15) outlines the strategy for managing waste in Milton Keynes from 2007 to 2026. It provides a framework for waste planning decisions.

24.4.26 The Bedford Borough Council Minerals and Waste Local Plan (Ref.16) 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.

Relevant Industry Guidance

24.4.27 The IEMA guide to: Materials and Waste in Environmental Impact Assessment – Guidance for a proportionate approach (2020) (Ref.17) 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.

24.4.28 Waste Duty of Care Code of Practice (Ref.18), this code 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.

24.4.29 Applying the Waste Hierarchy (produced under Reg 15(1) of the Waste (E&W) Regulations 2011) (Ref.18), ranks waste management options based on their environmental impact. It prioritizes 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

Study Area

- 24.4.30 In line with IEMA guidance, two Study Areas are proposed for materials and waste.
- **The Scheme** – comprising the scheme boundary and any areas required for temporary access, site compounds and other enabling activities;
 - **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.

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.*
 - **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.*
- 24.4.32 The impact assessment methodology outlined below has been determined in compliance with the guidance set out by IEMA (Ref.17).

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



Magnitude of Impacts

24.4.34 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.17) as detailed in **Table 24.3** and **Table 24.4** for both void capacity and landfill diversion.

Table 24.3: Criteria for Assessing Magnitude of Impacts (Void Capacity)

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

Table 24.4: 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

24.4.1 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 24.5: Criteria for Assessing the Significance of Effects

Sensitivity	Very High	High	Medium	Low	Negligible
Magnitude					
Major	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



24.4.2 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

24.4.3 The material and waste assessment has been undertaken on the basis of information available at the time of the assessment.

24.4.4 Material and waste estimates are based upon other similar Solar Nationally Significant Infrastructure Project (NSIP) schemes.

Baseline Conditions

Existing Baseline Conditions

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

24.4.6 The non-hazardous and inert landfill capacities (Ref.20) are as follows for the following sub-regions: Northamptonshire has 2.5 million m³, Bedfordshire has 6.5 million m³, and Buckinghamshire has 22.1 million m³. For hazardous merchant landfill, the void capacity in England is 9.6 million m³.

24.4.7 National non-hazardous construction and demolition waste recovery rate. In 2020, the UK generated 59.4 million tonnes of non-hazardous construction and demolition waste, of which 55 million tonnes was recovered. This represents a recovery rate of 92.6 %. The UK recovery rate from non-hazardous construction and demolition waste has remained at similar levels from 2010 to 2020 (Ref.21).

24.4.8 Data captured through operator returns outlined in the Northamptonshire Minerals and Waste Local Plan (Ref.14) 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*’.

24.4.9 The Milton Keynes Minerals and Waste Development Plan Document (Ref.15), outlines targets for recycling, recovery and overall diversion of waste from landfill, and sets annual tonnages of waste to be managed in each Waste Planning Authority area. The figures for Milton Keynes provide the benchmark for the capacity to be provided, specifically 60 to 65% for C&D and C&I waste by 2025.

24.4.10 There are no safeguarded waste sites located within the Scheme boundary, mineral safeguarding is outlined in **Chapter 11: Minerals**.

Future Baseline Conditions

24.4.11 There is no public information about changes to landfill capacity by the time the Scheme is built.

24.4.12 Inert landfill capacity is assumed to stay the same because predicting future capacity is unrealistic due to its cyclical nature. For non-inert landfill (including hazardous waste), forecasting suggests no space would be left, but this isn’t credible. If landfill is needed, new capacity will be approved. Thus, non-hazardous and hazardous landfill capacity is assumed to stay the same.

24.4.13 Forecasting non-hazardous and hazardous landfill capacity suggests no space would be left, but this isn’t a credible scenario. If landfill is needed, new capacity should be approved. Therefore, non-hazardous and hazardous landfill capacity is assumed to stay the same.

Embedded Mitigation Measures

24.4.14 In accordance with the waste hierarchy (Ref.18), the Scheme will prioritise waste prevention, followed by preparation for reuse, recycling, and recovery, with landfill disposal as the last resort, in accordance with the waste hierarchy.



- 24.4.15 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.
- 24.4.16 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.
- 24.4.17 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.

Construction Phase

- 24.4.18 The Scheme will aim to minimise and eliminate waste streams wherever possible. Opportunities for reusing material resources will be pursued. When reuse and prevention are not feasible, waste will be managed according to the waste hierarchy and detailed in the CEMP. The CEMP will incorporate industry-standard practices and control measures to address environmental impacts during construction, such as dust control and on-site material and waste management. The CEMP will be secured through DCO before the commencement of the construction phase.
- 24.4.19 Once appointed, details of the waste carriers and contractors for the Scheme, along with copies of their appropriate licenses, will be included in the outline Construction Resource Management Plan (CRMP) will be developed by the appointed contractor.

Operational Phase

- 24.4.20 During operation, the Scheme will prioritise waste prevention, followed by preparation for reuse, recycling, and recovery, with landfill disposal as the last resort, in line with the waste hierarchy. A Site Waste Management Plan (SWMP) will be developed as part of the OEMP. The SWMP, to be prepared before construction begins, will detail the efficient management, storage, and legal disposal of materials during the construction phase. 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.
- 24.4.21 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.
- 24.4.22 It is anticipated that the Scheme will generate Waste from Electrical and Electronic Equipment (WEEE) during both operation and maintenance phases, and a significant amount during decommissioning. 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, which will be detailed in the OEMP.

Decommissioning Phase

- 24.4.23 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 in paragraph 24.4.22 the Scheme is anticipated to generate WEEE however, recycling and recovering of these items will be detailed in the DEMP.
- 24.4.24 The decommissioning of the Scheme will adhere to the measures and procedures outlined in a DEMP, secured through the DCO. A Decommissioning Resource Management Plan (DRMP) will be developed by the appointed contractor and will set out how measures to manage the disposal of waste may be required in accordance with relevant legislative and policy requirements at the time of decommissioning.



Assessment of Likely Impacts and Effects

- 24.4.25 A preliminary assessment of potential waste streams and quantities arising from the Scheme has been considered. A detailed assessment of waste based on industry standards, activities and material requirements during the construction, operation and decommissioning phases will be completed to support the DCO Application following design refinement. The processing of these quantities will be considered in the assessment to identify whether any significant effects from the generation of waste are anticipated.
- 24.4.26 During the construction phase, it is likely 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.
- 24.4.27 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.
- 24.4.28 The PV modules, racks, inverters and other supporting equipment will be manufactured off-site 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 24.6**.
- 24.4.29 Large scale earthworks and demolition is not anticipated - and as a result it is not intended for large quantities of material to be removed from the Scheme.
- 24.4.30 A qualitative estimate on the volume of waste materials is made in **Table 24.6** given the information that is known at this stage. The anticipated volumes of waste generated during the Construction Phase of the Scheme will be set out in the ES, once the design of the Scheme is fully developed.

Table 24.6 Estimated Waste associated with the Construction Phase

Waste	Destination	Estimated Volume
Paint	Authorised recycling or landfill	Limited
Solvents	Authorised recycling or landfill	Limited
Chemical cans and containers	Authorised recycling or landfill	Limited
Cardboard	Authorised recycling or landfill	Moderate - anticipated to be from packaging
Woods	Authorised recycling or landfill	Moderate - anticipated to be from packaging
Plastic	Authorised recycling or landfill	Moderate - anticipated to be from packaging
Metal	Authorised recycling or recovery	Limited



- 24.4.31 All waste transported offsite will be taken to the appropriately licensed sites for the relevant materials. The operators receiving any waste materials resulting from the Scheme will be subject to their own consenting procedures which are applicable at the time of the construction stage. Any waste created through the construction phase will be required to be removed from the Site and disposed of in line with lawful requirements.
- 24.4.32 Where any of the equipment that is removed from the Sites still has an ongoing lifespan, the equipment will be removed and reused in their current form. Where there is no ongoing lifespan, they will be taken from Sites and then disposed of at a suitable waste recycling centre.
- 24.4.33 Any reusable waste materials that are generated as part of the Scheme such as soil which is excavated from trenches, roads, compound areas and foundations will be re-used wherever possible.
- 24.4.34 Consideration of potential effects associated with wastewater disposal from welfare facilities is outlined in **Chapter 10: Hydrology, Flood Risk and Drainage**.
- 24.4.35 **Chapter 22: Ground Conditions and Contamination** will consider any potential effects of the Scheme on historic landfills.
- 24.4.36 There may be a requirement to remove some soils from the Scheme for treatment or disposal, if it is found to be contaminated and cannot be treated on site. Any toxic and hazardous material will also be required to be dealt with by an authorised carrier and by a suitably qualified contractor as necessary, ensuring no cross contamination with ‘clean’ materials. With the use of appropriate control measures (as set out in the CEMP) no significant effects are anticipated at this stage.
- 24.4.37 An assessment on the capacity of waste management infrastructure in the vicinity of the Scheme will be undertaken ahead of the DCO application submission. The likely anticipated waste stream quantities will be included to determine the likely effects caused on the receptors. At this stage with the information that is available and considering similar type and scale of schemes, the potential for a slight adverse effect during construction has been identified.

Operational phase

General Maintenance Activities

- 24.4.38 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).
- 24.4.39 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.

Replacement Activities

- 24.4.40 Across the 60-year lifetime of the scheme, it is expected that alongside the regular maintenance of equipment, infrastructure such as panel and batteries will require replacement. This is anticipated to be every 20 or 40 years, considering this it is likely panels will require replacement once and batteries twice over the 60 years but will subject to the operator’s discrepancy.



- 24.4.41 Details relating to an expected programme of replacement equipment is being developed and will be reported within the ES. Further, the programme for maintenance and the replacement of equipment across the Scheme should naturally be staged such that this is not concurrent across all Sites.
- 24.4.42 When these components need to be replaced several decades from now, there will likely be even more recycling or recovery opportunities. This is due to the anticipated growth in the market driven by the increasing number of PV installations. Any electrical waste will be disposed in accordance with the Waste from Electrical and Electronic Equipment (WEEE) regulations, minimising the environmental impact of the replacement of any elements of the Project.
- 24.4.43 A full description of waste arising during the operational phase will be provided in the ES. Considering the approaches to similar type and scale of Schemes, the waste impacts will be long term however considering embedded mitigation measures and good and best practice waste recovery and likely recycle opportunities the magnitude of impact is neutral.

Decommissioning Phase

- 24.4.44 The decommissioning phase of the Scheme will include the removal of all equipment, except the underground cables connecting the Sites to the grid connection point, and the reinstatement of the land returned to the landowners. The Decommissioning Environmental Management Plan (DEMP) will allow for the Scheme to be decommissioned in accordance with best practice and guidance at the time, and currently this is to leave the cables in situ.
- 24.4.45 The main decommissioning wastes associated with the Scheme are expected to be as follows:
- Solar panels and their associated mounting structures;
 - Breaking up of concrete foundation/bases;
 - Rubble from any access tracks within the Sites;
 - Electrical equipment including batteries, cables and inverters;
 - Welfare facility waste; and
 - Waste metals and wood.
- 24.4.46 Standard good practice for waste management will be implemented during decommissioning and outlined within the DEMP. As noted previously, the contractor will be required to seek to reduce waste and reuse any of the decommissioned items as far as possible to reduce the waste going to landfill.
- 24.4.47 Prior to decommissioning, opportunities to minimise waste as far as possible will be explored. Possibilities to re-use, recycle or recover materials will be explored before resorting to landfill options. There is a new industry emerging for recycling solar panels. This will be explored, in addition to any resale of any operational panels. Further details will be provided in the ES that is submitted with the DCO application.
- 24.4.48 If any hazardous materials need to be removed from the Scheme during decommissioning, suitably qualified contractors will be appointed to decommission and remove any items, as necessary. The type of hazardous materials that may form part of the Scheme include lithium-ion batteries and transformer oil.
- 24.4.49 An assessment on the capacity of waste management infrastructure in the vicinity of the Scheme will be undertaken ahead of the DCO application submission. The likely anticipated waste stream quantities will be included to determine the likely effects caused on the receptors. At the decommissioning phase the Scheme will produce additional waste than at the construction phase due to the equipment that will need to be removed. At this stage with the information that is available, and the unknowns around the process and level of recycling processes which will be available at the time of decommissioning a slight adverse effect is anticipated.



Additional Mitigation Measures

24.4.50 At this stage, no additional mitigation measures for the Scheme are considered to be required given that no significant adverse effects are expected. However, this will be investigated further within the ES.

Residual Effects

24.4.51 Based on the preliminary information currently available, it is anticipated that through the use of mitigation measures as suggested above (e.g use of suitably qualified contractors, recycling and reuse waste wherever possible) that there will not be any significant residual effects. A full assessment will be included in the ES that is submitted with the DCO application.

Cumulative effects

Cumulative Effects

24.4.52 A long list of cumulative developments is provided in **Volume 3, Appendix 2.2** of the PEIR. This list will be refined in due course through consultation with statutory consultees and will be presented and assessed in the ES.

24.4.53 Depending on construction dates, there may be cumulative waste effects as multiple construction projects can put pressure on waste management facilities. It is anticipated this will be managed sufficiently through the implementation of management plans including the SWMP within the CEMP, OEMP and DEMP and effects from volumes of waste are not expected to be significant.

24.4.54 It is assumed that each of the cumulative developments will also be considering and implementing the waste hierarchy as per requirements set out in The Waste (England and Wales) Regulations 2011 (Ref.18).

In-Combination Effects

24.4.55 The in-combination effect interaction is the effect over and above the individual effects assessed in other chapters and is described as the difference between the change caused to a receptor from one effect alone and the change caused to the receptor from all effects combined.

24.4.56 The review of other topics assessments has concluded that there is no potential for significant effect interactions on waste receptors as a result of the Scheme.

24.5 Telecommunications, Utilities and Television

24.5.1 Effects relating to existing infrastructure are not environmental effects and there is no requirement to include an assessment of these effects under the EIA Regulations. However, given the nature of solar park developments, they have the potential to affect existing utility infrastructure above and below ground.

24.5.2 There is no other legislation, policy or guidance specifically related to telecommunications, television reception, and utilities.

24.5.3 There are several telecoms and utility services within the Scheme boundary. The telecommunications and utilities companies provide a large number of properties including residences, business and schools within the local area, which also benefit from access to television connections.

24.5.4 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).

Potential impacts

- 24.5.5 Underground and overhead telecommunication and utility services have been identified across Green Hill A to G and Green Hill BESS and the Cable Route Search Area through a desk-based mapping exercise drawing on information provided by all relevant utility providers. Discussions will take place with these providers through the design stages of this project has helped to ensure legal, safe, and practical off-set distances to utilities have been actively integrated into the Scheme design. Where possible, in the first instance, design will be considered to avoid interference with the existing infrastructure of the providers. Locations of utilities have furthermore been confirmed on Site through topographical and geophysical surveys.
- 24.5.6 No likely significant effects on utilities are predicted as a result of the operational phase of the Scheme.
- 24.5.7 The survey and agreed off-set distance information will be fed into the CEMP to ensure construction work is carried out such that impacts on services are minimised. Where direct conflict is anticipated, such as is of greater likelihood along the Scheme's cable routes, the crossing of utilities will be carried out in direct collaboration with the relevant utility provider. The Scheme is therefore anticipated not to have any significant effects on telecommunications services and utilities.
- 24.5.8 The Scheme design is of a generally low height across the development area, with the tallest elements (up to a maximum 13m 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.
- 24.5.9 During the decommissioning phase of the projects, the cables are to stay in situ. There is likely to be no significant effect to telecommunications and utilities due to the cables being severed of operational activities.

Mitigation Measures

- 24.5.10 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 via 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 DCO.
- 24.5.11 Furthermore, where the proposed Cable Routes cross telecommunication 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 ensure construction impacts will be kept to a minimum.
- 24.5.12 Following the application of the mitigation measures outlined above, the Scheme is not expected to have any adverse impacts on telecommunication, television, or utilities.



Cumulative effects

- 24.5.13 It is expected that the other solar developments included within the cumulative schemes identified would also have no effect on telecommunications and television reception and would adhere to the same mitigation as set out above to reduce the risk of damaging utilities. All developments will be managed through a CEMP and would include mitigation measures to reduce the risk of damaging utilities during construction. Therefore, no likely significant cumulative effects are expected on telecommunications, television reception, or utilities.



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