Green Hill Solar Farm
EN010170

Outline Operational Environmental Management Plan
Revision A

Prepared by: Lanpro Services

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APFP Regulation 5(2)(q)

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.
	Section 10 (Hydrology, Flood Risk and Drainage)	Added clarification on drainage infrastructure and firewater containment, consistent with the Flood Risk Assessment and Drainage Strategy [EX1/GH6.3.10.1_A], Annex E [EX1/GH6.3.10.6_A], Annex J [EX1/GH6.3.10.11_A], and the Outline Battery Storage Safety Management Plan [EX1/GH7.7_A].	To ensure consistency with the Environment Agency's Relevant Representation (RR-1224 EA/WQ/08) and Applicant response Q8.0.8.
		Added new subsection on foul water and septic tank management, confirming sealed systems and EA permitting approach.	To reflect the Applicant's confirmed position in response Q8.0.12 and ensure alignment with the FRA [EX1/GH6.3.10.1_A] and Requirement 11 of the draft DCO [EX1/GH3.1_A].

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Report Prepared for: Green Hill Solar Farm

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Outline Operational Environmental Management Plan
Revision A

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1 Introduction

1.1 Overview and Purpose of the Document

1.1.1 Green Hill Solar Farm Limited (the Applicant) has prepared this Outline Operational Environmental Management Plan (OOEMP) in relation to an Application for a Development Consent Order (DCO) for the construction, operation, maintenance, and decommissioning of the Green Hill Solar Farm (the Scheme).

1.1.2 The aim of this OOEMP is to provide a clear and consistent approach to the control of operational activities within the Order limits. This document does not address construction or decommissioning activities, which are subject to separate environmental management plans and procedures. Please refer to the Outline Construction Environmental Management Plan (OCEMP) **[EX1/GH7.1_A]** and Outline Decommissioning Statement (ODS) **[EX1/7.3_A]** for further information.

1.1.3 Likely significant effects have been identified through the Environmental Impact Assessment (EIA) process and are reported in the topic chapters in Volume 1 of the Environmental Statement (ES) (Chapters 7 to 23) **[APP-037** to **APP-064]**. A range of 'standard' or best practice mitigation and operational management measures are accounted for in the assessments, and these will be implemented during operation of the Scheme. This OOEMP details these operational mitigation measures. It also sets out the monitoring activities designed to demonstrate that such mitigation measures are carried out, and that they are effective.

1.1.4 One or more detailed Operational Environmental Management Plans (OEMPs) will be prepared by the appointed Contractor(s) substantially in accordance with this OOEMP, as secured by Requirement of the DCO (see the Draft DCO **[EX1/GH3.1_A]** and will be submitted for approval by the relevant local planning authority or authorities in advance of starting the relevant phase of the construction works.

1.1.5 It is envisaged that detailed OEMPs may be prepared, approved and implemented for individual parts of the Scheme. It is recognised that there could be multiple OEMPs prepared in accordance with the parts of this OOEMP.

1.1.6 Each OEMP will be produced in line with this OOEMP following the grant of the DCO and would be approved by the relevant local planning authority or authorities in advance of the date of final commissioning for the relevant phase of the Scheme (in accordance with the relevant DCO Requirement). This OOEMP is designed with the objective of ensuring compliance with the relevant environmental legislation and mitigation measures set out within the ES. This document provides the likely structure of the detailed OEMP(s) and relevant preliminary information. It also indicates what additional information or controls might be included under each sub-section within each OEMP(s).

1.1.7 The key elements of this OOEMP include:

- An overview of the Scheme and associated operational programme;
- Identification of potential environmental effects;

- Proposed design and other mitigation measures to prevent or reduce potential adverse environment effects;
- Monitoring and reporting of effectiveness of mitigation measures; and
- Links to other complementary plans and procedures.

1.1.8 The appointed contractor(s) will be responsible for working in accordance with the environmental controls documented in the OOEMP and for the preparation and implementation of each OEMP.

1.1.9 Any additional licences, permits, or approvals that are required will be listed in the OEMPs.

1.2 The Order Limits

1.2.1 The Order limits comprise all land falling within the Application required for the construction, operation and maintenance, and decommissioning of the Scheme and are shown on the Location Plan **[APP-006]** and described in Volume 1 Chapter 3: The Development Site **[EX1/GH6.2.3_A]** of the ES.

1.2.2 The Order Limits cover an area of 1,441.4 hectares (ha) located within the administrative areas of the unitary authorities of North Northamptonshire Council, West Northamptonshire Council, and Milton Keynes City Council. The Scheme comprises nine distinct sites: Green Hill A, A.2, B, C, D, E, F, G, and BESS ('Site' or 'Sites') connected by the Cable Route Corridor to each other and to the Point of Connection (POC) at Grendon National Grid Substation.

1.3 The Scheme

1.3.1 The Scheme will comprise the construction, operation, maintenance and decommissioning of a solar photovoltaic (PV) electricity generating facility and Battery Energy Storage System (BESS) with a total capacity exceeding 50 MW. The solar array Sites, associated substations and energy storage are to be connected to the National Grid at a substation at Grendon. Further details on the Scheme are provided in Volume 1 Chapter 4: Scheme Description **[EX1/GH6.2.4_A]** of the ES.

1.3.2 The Sites accommodate ground mounted solar photovoltaic (PV) generating stations (incorporating the solar arrays); grid connection infrastructure and energy storage; and the Cable Route Corridor. The Scheme will comprise the construction, operation and maintenance, and decommissioning of a generating station (incorporating solar arrays) with a total capacity exceeding 50 megawatts (MW). The Scheme is defined as a NSIP under Sections 14(1)(a) and 15(2) of the Planning Act 2008 (Ref 1), as it is an onshore generating station in England with a capacity of more than 50 MW.

1.3.3 The Scheme currently has a grid connection date of 2029 although there is the potential that an earlier connection could be achieved. It is currently anticipated that construction works will commence, at the earliest, in Q4 2027 and will run to Q4 2029. The operational life of the Scheme will be no more than 60 years and decommissioning is estimated to commence no later than 2089.

2 Operational Environmental Management

2.1 Introduction

2.1.1 This section sets out the general Sites' arrangements for the operational phase of the Scheme.

2.2 Operational Activities

2.2.1 During the operational phase, general activity within the Scheme will be minimal and will be restricted principally to vegetation management, equipment maintenance and servicing, replacement and renewal of any components that fail, and monitoring. It is anticipated that maintenance and servicing would include the inspection, removal, reconstruction, refurbishment, or replacement of faulty or broken equipment to ensure the continued effective operation of the Scheme.

2.2.2 Across the 60-year lifetime of the Scheme, it is expected that alongside the regular maintenance of equipment, infrastructure such as panels and batteries will require replacement. As Scheme components approach the end of their design life, an evaluation will be conducted to determine if they require maintenance or replacement across the Scheme.

2.2.3 It is not expected that an extensive replacement of all components will be required across the entirety of the Scheme during one period; instead, the programme for replacement of equipment across the Scheme is anticipated be staged to maintain the electrical export to the National Grid.

2.2.4 The following assumptions have been considered:

- Solar PV Panels typically have a lifespan of up to 40 years or more, and it has been assumed that Solar PV Panels will be replaced once during the lifetime of the Scheme. The Solar PV Panels are anticipated to be replaced over a maximum 24 month period.
- The BESS and inverters could be replaced up to five times during the operational phase.
- No intrusive ground works will be required to replace Solar PV Panels or BESS.

2.2.5 If any abnormal loads are required for the replacement of equipment, consultation will be carried out and approvals will be sought from the relevant local planning and highways authorities.

2.2.6 Along the Cable Route operational activity will consist of routine inspections (schedule to be determined) and any reactive maintenance such as where a cable has been damaged.

2.2.7 The existing substation at Grendon will be managed and maintained by National Grid. The substations on the Sites will be managed and maintained by the Applicant / operator of the Site.

2.2.8 As stated in Volume 1 Chapter 13: Transport and Access **[APP-050]** of the ES, during the Scheme's operational phase, there are anticipated to be around five visits to each Site per month for maintenance purposes. These would typically be

made by light van or 4x4 type vehicles. The installed grid connection cables (within the Cable Route Corridor) will be located underground. Access may be required for inspection and maintenance, but this is only likely once or twice a year.

2.2.9 Welfare facilities will be required at the substations within each Site. Any wastewater will be removed via tanker to local wastewater treatment works.

2.3 Operation Programme

2.3.1 Operation of the Scheme is expected to start following construction, anticipated to be Q4 of 2029. The Scheme will operate for no more than 60 years, with decommissioning assumed for the purposes of the environmental impact assessment to be no later than 2089.

2.3.2 It is not expected that the replacement of all components will be required across the entirety of the Scheme during one period; instead, the programme for replacement of equipment across the Scheme is anticipated be staged to maintain the electrical export to the National Grid.

2.3.3 The following assumptions have been made regarding the equipment replacements needed at the Scheme:

- Solar PV Panels typically have a lifespan of up to 40 years or more, and it has been assumed that Solar PV Panels will be replaced once during the lifetime of the Scheme. The Solar PV Panels are anticipated to be replaced over a maximum 12 to 24 month period; and
- The BESS could be replaced up to five times during the operational phase.

2.4 Working Hours

2.4.1 The Sites will generally be unmanned during normal operation. Routine maintenance would be carried out as required Monday to Friday 07:00 – 18:00. Emergency maintenance would be carried out as and when needed.

2.4.2 Activities for the replacement of onsite infrastructure will be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays, which constitute the core working hours (excluding start-up and shut down works). However, some activities may be required outside of these times, such as for the delivery of abnormal loads. No on-site infrastructure replacement activities will take place on Bank Holidays and Public Holidays.

2.4.3 Replacement infrastructure deliveries by HGV will arrive between 09:30-16:30 where practicable. They will be coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00). In addition, worker shift patterns will be coordinated to avoid travel during the network peak hours of 08:00-09:00 and 17:00-18:00. These provisions are set out in **Table 3.7** below.

2.5 Control of Light

2.5.1 During operation, no part of the Scheme will be continuously lit. The use of motion detection security lighting to avoid permanent lighting will be utilised and a

sensitive lighting scheme will be developed ensuring inward distribution of light and avoiding light spill onto existing boundary features.

2.5.2 Lighting will be directed downward and away from boundaries.

2.5.3 Where lighting is required during infrastructure replacement activities, this will be for safety reasons, will be temporary in nature and predominately limited to the core working hours. Whilst the type of lighting to be used for infrastructure replacement activities has not been confirmed yet, the following principles will be adhered to:

- Use of focused directional fittings to minimise outward light spill and glare (e.g., hoods/ cowls which direct light below downwards) outside of the Sites; and
- Lighting to be directed towards the middle of the Sites rather than towards the boundaries.

2.6 Traffic Management

2.6.1 During infrastructure replacement activities, the appointed contractor(s) will ensure that the impacts from HGV traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable, by implementing the measures set out in **Table 3.7** below.

2.7 Off-site Delivery Routes

2.7.1 The Outline Operational Traffic Management Plan (OOTMP) **[EX1/GH7.25_A]** provides details of the designated routes for HGV movements and worker car movements during operation which are to be implemented during peak infrastructure replacement activities. It also details any measures designed to reduce travel during peak hours on the local road network.

2.8 Parking

2.8.1 During operation, parking on permeable gravel hardstanding will be provided within the operational compounds.

2.8.2 As set out in **Table 3.7** below, during infrastructure replacement activities, any temporary compounds will include parking areas as required.

2.8.3 Wheel washing facilities will be provided at each access. This will be located at the egress of each Site. A visual inspection of vehicles will be undertaken before they depart the Site, to ensure that they are not carrying debris onto the highway.

2.9 Recycling and Waste

2.9.1 In order to control the waste generated during site preparation and construction, the contractor(s) will separate the main waste streams on-site, prior to transport to an approved, licensed third party waste facility for recycling or disposal.

2.9.2 In accordance with the waste hierarchy (Ref 2), the Scheme will prioritise waste prevention, followed by preparation for reuse, recycling, and recovery, with landfill disposal as the last resort.

2.9.3 All waste to be removed from the Site will be undertaken by fully licensed waste carriers and taken to suitably licensed waste management facilities and managed in line with the requirements of the Waste (England and Wales) Regulations (2011) (Ref 3) and the Hazardous Waste (England and Wales) Regulations (2005) (as amended) (Ref 4).

2.10 Management of Vegetation Planting

2.10.1 An Outline Landscape and Ecological Management Plan (OLEMP) has been prepared and submitted as part of the Application **[EX1/GH7.4_A]**.

2.10.2 The OLEMP provides a framework for delivering the landscape strategy and the successful establishment and future management of proposed landscape works associated with the Scheme. It sets out the short and long-term measures and practices that will be implemented to establish, monitor and manage landscape, and ecology mitigation and enhancement (biodiversity net gain) measures embedded in the design.

2.10.3 The OLEMP sets out the measures proposed:

- To mitigate the effects of the Scheme on landscape, biodiversity, and heritage features;
- To enhance the biodiversity, landscape, and green infrastructure value of the Order limits; and
- To secure compliance with relevant national and local planning policies.

2.10.4 A detailed Landscape and Ecology Management Plan (LEMP) will be prepared in accordance with the Outline LEMP and will be submitted to and approved by the relevant local planning authority or authorities prior to construction. This will include provisions in respect of on-going maintenance and management of the landscape and ecology.

2.11 Panel Cleaning

2.11.1 The panel cleaning requirements for the Scheme can only be accurately determined once operational; therefore, to present a worst-case, a one-year cleaning cycle is assumed.

2.11.2 To prevent damage to panels and avoid voiding manufacturer warranties, only water will be used for cleaning, without any chemical products.

2.12 Security

2.12.1 The Sites will be subject to several security risk management threat assessments during the development, construction, operation, and ultimately decommissioning phases. These security risk management threat assessments are to be procured by the Applicant and conducted by Suitable Qualified and Experienced Persons (SQEP) and will determine security risks.

2.12.2 The Applicant recognises, and embraces, the symbiotic relationship between safety and security. The security arrangements to be present at the Site will therefore contribute to the overall safety of all who will, or may, enter the Site. The security arrangements will be SQEP reviewed at identified epochs

commensurate to the Security Risk rating and will further assess any changes in the Security Risk Management Threat Assessment.

2.12.3 The boundary of the Sites will be secured both by fencing and by the provision of Closed-Circuit Television (CCTV) equipment. Cameras would be placed on galvanised steel painted green poles with a maximum height of 3m. Perimeter fencing will be deer wire mesh and wooden post fencing with a maximum height of 2.5m. All new access tracks will be secured by gates, which will be set back from the public highway. Where existing access tracks are used that also provide access to residential properties, appropriate security measures will be put in place in consultation with the relevant property owner(s).

2.12.4 There will be palisade fencing around the substations and energy storage compound which will have a maximum height of 3m.

2.12.5 Other potential security measures to be included comprise:

- Detection systems such as beam break, image detection etc. to raise alarm when fence breached;
- Audio announcement when intruder detected to warn alarm triggered and police on way;
- Barriers/locked gates at main entrances to the Sites;
- Steel doors on substation buildings;
- Buried cables as much as practicable;
- Remote monitoring; and
- Alarm response contract with keyholder/security company.

2.13 Responding to Environmental Incidents and Emergencies

2.13.1 An emergency response plan will be developed in consultation with the relevant local authority emergency planning officer, emergency services including the local fire service, as well as the Environment Agency in relation to responding to flood warnings and events.

2.13.2 The plan will detail the procedures for responding to incidents and emergencies on site, and any reporting required.

3 Mitigation and Management

3.1 Purpose

3.1.1 This section of the OOEMP sets out the mitigation and management measures to be included as a minimum in the detailed OEMP(s). It also identifies where monitoring is proposed, to assess the effectiveness of the mitigation measures.

3.2 Committed Mitigation and Management Measures

Table 3.1: Climate Change

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Greenhouse gas emissions from the operational maintenance activities required during operation of Scheme Increased ambient temperature due to climate change	Regular planned maintenance of the Scheme will be conducted to optimise efficiency of the Scheme infrastructure. Increasing recyclability by segregating waste to be re-used and recycled where reasonably practicable. Operating the Scheme in such a way as to minimise the creation of waste and maximise the use of alternative materials with lower embodied carbon such as locally sourced products and materials with a higher recycled content. Encouraging the use of lower carbon modes of transport by identifying and communicating local bus connections and pedestrian and cycle access routes to/from the Scheme to all staff. Switching off vehicles and plant when not in use and ensuring vehicles conform to current UK emissions standards.	The overall responsibility will be with the Applicant. Specific responsibilities will be confirmed in the OEMP(s).

Table 3.2: Landscape and Visual Amenity

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Loss of existing landscape features (e.g., vegetation).	The OLEMP **[EX1/GH7.4_A]** sets out the measures proposed to mitigate the potential impacts and effects on landscape (and biodiversity) features, and to enhance the landscape and biodiversity value of the Order limits.	Refer to the OLEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Visibility of operational activities.	A detailed LEMP will be prepared in accordance with the principles of the OLEMP and will be submitted to and approved by the relevant planning authority or authorities. This will include measures to ensure landscape mitigation and enhancements are established and maintained into and throughout the operational phase. No visible lighting will be utilised at the Order limits perimeter. Motion sensing security lighting will be provided within substations and within the BESS to be used only for maintenance and security purposes. **Screening** Existing vegetation along the boundary of the Order limits will be retained and managed where practicable to ensure its continued presence and to aid the screening of low-level views into the Order limits.	

Table 3.3: Ecology and Biodiversity

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Impacts on biodiversity features during the operation of the Scheme.	The OLEMP **[EX1/GH7.4_A]**will prescribe how all habitats within the Sites are to be managed to maximise the benefits for biodiversity. A schedule of ecological monitoring requirements during the operational phase is also set out in the OLEMP to ensure the successful establishment of the proposed planting and to identify any remedial measures required. Measures in the OLEMP include: Vegetation clearance will be undertaken at an appropriate time of year so as to avoid incidental injuring or killing of reptiles and amphibians.	Refer to the OLEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	Avoidance of the nesting bird period (March to August inclusive) for any management of vegetated areas. Any management of vegetated areas or works that could cause disturbance to nesting birds within the nesting bird period should be checked for the presence of any nests by a suitably qualified ornithologist, prior to such works in line with legislative requirements. Depending on the type and timing of management activities required, if active nests are found (and depending upon the bird species and status of the nesting attempt) appropriate buffer zones may be required. The extent of the buffer zone will be based on advice then sought from an appropriately qualified ornithologist and the area monitored until the young birds have fledged. Reasonable avoidance measures for any management activities that have the potential to cause disturbance to badger setts or roosting bats, including appropriate buffers (of up to 30m) around any badger setts, or trees with suitability for roosting bats (a buffer of up to 15m). Advice should be sought from an appropriately qualified ecologist. Motion detection security lighting will be used to avoid permanent lighting and a sensitive lighting scheme will be developed ensuring inward distribution of light and avoiding light spill onto existing boundary features.	
Potential pollution from battery fire or replacement at Green Hill BESS;	The risk of a fire and measures to mitigate impacts in the event of a fire are detailed within the Outline Battery Storage Safety Management Plan (OBSSMP) **[EX1/GH7.7_A]**.	Refer to the OBSSMP.

Table 3.4: Hydrology, Flood Risk and Drainage

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
The following impacts may occur without adequate mitigation: - Impacts on water quality in waterbodies that may receive surface water runoff or be at risk of chemical spillages from supporting infrastructure for the Scheme (e.g., substations, battery stores, solar stations, local site offices and car parking etc.) and maintenance activities. - Potential for reduced chemical loading of watercourses associated with cessation of nitrate, pesticide, herbicide and insecticide applications on arable fields, or reduction in fine sediment/soil erosion, which would be beneficial. - Hydro morphological impacts to waterbodies including changes to physical form (for example where outfalls or watercourse crossings are required) which underpin habitats. - Impacts on flood risk from increased runoff from new impervious areas across the Sites.	**Drainage Strategy** A Drainage Strategy is included in the Application and outlines management of surface and foul water. Details are included in Environmental Statement Chapter 10: Hydrology, Flood Risk and Drainage **[EX1/GH6.2.10_A]** and the associated Appendices and Annexes **[EX1/GH6.3.10.1_A**, **EX1/GH6.3.10.6_A**, **EX1/GH6.3.10.11_A**, **APP-098** to **APP-107]**. The Drainage Strategy provides where necessary for the attenuation of surface water runoff from the operational Order limits, whilst minimising flood risk to the Scheme and surrounding areas. In accordance with planning policy guidance runoff from the Order limits requires attenuation where there is an increase in hardstanding areas to ensure no increase in surface water discharge rates and to provide water quality treatment of runoff water. The **Flood Risk Assessment and Drainage Strategy [EX1/GH6.3.10.1_A]** and associated Annexes, including **Annex E [EX1/GH6.3.10.6_A]** and **Annex J [EX1/GH6.3.10.11_A]**, together with the **OBSSMP [EX1/GH7.7_A]**, confirm that drainage infrastructure across the Scheme is designed to manage and, where necessary, contain potentially contaminated runoff or firewater during an incident. Drainage systems within BESS compounds will be impermeable, fully sealed and lined, incorporating isolation valves to enable containment and testing of any	Regular recording of compliance in a logbook. The OEMP will detail the frequency.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
- Potential impacts on hydrology as a result of the Scheme by changing the way water infiltrates into the ground. - Potential beneficial impacts on local waterbodies where local abstractions are made for spray irrigation and therefore need will reduce.	retained water. Following an incident, retained firewater will either be removed off-site by a licensed contractor or released under Environment Agency authorisation once tested and confirmed compliant. Inspection and maintenance of containment systems, isolation valves and associated impermeable drainage features will be undertaken to ensure long-term integrity and continued performance. Following any fire or spill event, the containment area will be inspected for damage and, where necessary, repaired or reinstated before the drainage system is returned to service, ensuring that full containment capacity is maintained. **Solar PV Panels** For fixed panels, the minimum height of the lowest part of the fixed solar panel units will be 0.4 m above ground level. Fixed panels may only be located within Flood Zone 1 areas. Tracker panels can be located in areas that are within Flood Zones 2 and 3 on the basis of the additional flood protection offered by their potential to be stowed horizontally. Tracker solar panel units will be mounted on raised frames minimum of 0.4 m above the surrounding ground level when on maximum rotation angle and will therefore be raised above surrounding ground levels and fitted with a tracking system. During times of flooding, solar panels may be	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	stowed by the tracking system algorithm onto a horizontal plane, to the minimum post height of 2.3 m above ground level. This ensures that all sensitive and electrical equipment on the solar panel is raised to a minimum of 2.3 m above ground level in the horizontal position. Other sensitive infrastructure will be located in Flood Zone 1 or raised a minimum of 600mm above the associated flood level. **Watercourse Buffers** Stand-off distances from waterbodies are: • EA Main Rivers, Ordinary Watercourses and Ditches – 8m • Other water bodies – 25m **Pollution Controls** The design of the Scheme has included measures to avoid and minimise the risk of water pollution during its operation. These include: • All hazardous materials including chemicals, cleaning agents and solvent containing products to be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	• Regular inspections and maintenance of all equipment will be undertaken in order to identify any leaks or damage early. Any panels which require maintenance / replacement will be removed before there is any leakage of chemicals from the sealed units. Any leaks will be dealt with in a way that is compliant with the prevailing environmental legislation. The detailed OEMP will include a regular schedule for visual inspection of the panels and all other equipment. • Cleaning of the panels will only be done using water. If any soiling remains on the panels they will be further cleaned with a soft cloth or brush. • A detailed Battery Storage Safety Management Plan will include measures to control pollution in the event of a BESS fire. **Resilience to Flooding** Regular inspection and maintenance of the drainage systems, Sustainable Drainage Systems (SuDS) and culverts will take place throughout the operational phase. This will be undertaken in accordance with good practice guidance. Details are included in Environmental Statement Chapter 10: Hydrology, Flood Risk and Drainage **[EX1/GH6.2.10_A].**	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	SuDS features will be utilised to ensure the surface water drainage strategy adequately attenuates and treats runoff from the Scheme, whilst minimising flood risk to the Order limits and surrounding areas. A management and maintenance team will be established to maintain SuDS features throughout the lifetime of the Scheme. Rainwater harvesting will be used for the fire suppression tanks/ponds where practicable and appropriate. All service cabling should be designed and installed to be flood resilient / water compatible. This should be achieved in accordance with appropriate design standards and best practise guidance. **Blockages** To manage blockages of drainage networks, a third-party management and maintenance team should be established to maintain the features throughout the lifetime of the Scheme. **Foul Water and Septic Tank Management** No foul connection to the public sewer is proposed. Foul water from welfare facilities will be managed using sealed septic tanks or package treatment plants designed in accordance with the Environment Agency's *General Binding Rules*. If an environmental permit is required, this will be	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	obtained from the Environment Agency at the detailed design stage.	

Table 3.5: Minerals

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Impacts on mineral resources from the Scheme design	The design of the Scheme has included measures to avoid and minimise the risk of exploitation of mineral resources during its operation. These include: • The layout of the Scheme incorporates the existing vehicular access between the mineral extraction allocation identified in the NM&WLP Policy 4 Site M2: Strixton - Bozeat and the A509. This access will be maintained for the life of the Scheme.	The overall responsibility will be with the Applicant. Specific responsibilities will be confirmed in the OEMP(s).

Table 3.6: Cultural Heritage

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Impacts on cultural heritage assets from security lighting, operational noise, associated traffic and glint and glare	The OLEMP **[EX1/GH7.4_A]** describes how existing and new habitats will be maintained during the first five years following implementation and managed in the long-term until decommissioning, including hedgerows and planting which provide screening. Where hedgerows require removal for visibility splays to facilitate temporary access routes these will be coppiced to just above ground level allowing for the necessary visibility splay. The trees can then be allowed to regenerate following completion of site works	Refer to the OLEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	and the removal of temporary access. Motion sensing security lighting will be used to avoid permanent lighting and a sensitive lighting scheme will be developed ensuring inward distribution of light and avoiding light spill on to existing boundary features. Measures to minimise impacts from noise and traffic during operation are provided in the relevant sections.	
Operation phase impacts upon buried archaeological assets.	It is not envisaged that any ground disturbance is required beyond that experienced during the construction phase. If ground disturbance is required beyond that caused during the construction phase than an appropriate archaeological mitigation strategy will be identified and agreed with the archaeological advisor(s) to the LPA(s) in advance of any required works (i.e. a written scheme of investigation (WSI)). No works relating to the solar development are permitted in the areas of no development during the operation phase. Where ecological mitigation is proposed this should not include any ground disturbance beyond baseline conditions (i.e. scrapes or ponds) and where practicable should look to minimise impacts caused by arable land usage (i.e. deep ploughing). If required, archaeological works will be undertaken by suitably qualified and experienced professional archaeological specialists. All archaeological works will be undertaken in line with national guidance (i.e. Historic England and CIfA guidance). If required, works will be monitored by The Archaeological Clerk of Works and/or the Archaeological Advisors to the LPAs will monitor the completion of works in accordance with an appropriate WSI.	Monitoring as required

Table 3.7: Transport and Access

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Vehicle movements during operation.	An Operational Traffic Management Plan will be put in place and should be referred to prior to operation. Maintaining access to all existing PRoW and the permissive paths within the Order limits, with no diversions or closures (any PRoW temporarily diverted during the construction phase will be reinstated during the operational phase) measures for maintenance of the PRoW and permissive paths is outlined in the Public Rights of Way and Permissive Paths Management Plan. Controlling areas where the internal maintenance route crosses any existing PRoW, the permissive paths or local access roads (such as by providing gates), permitting only operational traffic to utilise these internal routes within the Order limits. Operational traffic should give-way to other users (pedestrians and road users) when utilising the crossing points. Reduced speed limits and signage, will ensure safe movement around the Sites; and All new access tracks will be secured by gates, which will be set back from the public highway. Where existing access tracks are used that also provide access to residential properties, appropriate security measures will be put in place in consultation with the relevant property owner(s). A Replacement Activities Worker Travel Plan (RAWTP) will be drafted and implemented prior to major replacement periods, to encourage workers to travel to the Site via sustainable travel, where possible.	The overall responsibility will be with the Applicant. Specific responsibilities will be confirmed in the OEMP(s) and OTMP.
Management of permissive path.	The permissive path will be managed through: • A Public Rights of Way and Permissive Paths Management Plan **[EX1/GH7.10_A**]. • Displaying clear signage at the entrance to permissive path. Details of the signage for the path (which should include making clear the path is	The overall responsibility will be with the Applicant. Specific responsibilities will be confirmed in the OEMP(s).

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	a permissive path, with usage permitted by the landowner) will be agreed with the Host Authorities. • Regular maintenance, including annual closure for maintenance with appropriate signage/warnings. • The surfacing material (suggested grass) and width of the permissive path will be agreed in advance of operation with the Host Authorities.	

Table 3.8: Noise and Vibration

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Noise and vibration from operational equipment.	The results of the noise assessments have been used to inform the design of development layouts, as follows: • Where practicable, the distance from the nearest residential receptors to the substation and energy storage facility and onsite transformers and inverters has been maximised; • Where practicable, noise-emitting equipment has been placed away from sensitive receptors; • Where practicable, quieter items of plant have been selected; • Where required, manufacturer-supplied noise mitigation will be installed; • Where required, noise generating equipment will be enclosed / containerised; and.	The overall responsibility will be with the Applicant. Specific responsibilities will be confirmed in the OEMP(s).

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	• Where required, louvres and/or acoustic barriers will be included around inverters and BESS cooling fans. • Green Hill BESS layout includes a 1.5m high bund with a 2.4m high acoustic barrier on top. The acoustic barrier will have a minimum surface mass of 12 kg/m2 and be imperforate (i.e. no gaps or holes).	

Table 3.9: Glint and Glare

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Glint and Glare effects	Existing vegetation along the boundary of the Order limits will be retained and managed where practicable to ensure its continued presence and to aid the screening of low-level views into the Order limits.	Refer to the OLEMP.

Table 3.10: Air Quality

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
BESS Fire Emissions.	Measures included in the OBSSMP **[EX1/GH7.7_A**] include measures to limit human exposure to air pollution in the event of a fire such as: • Notification of potentially affected residents including advice on the health effects of smoke and ways to reduce exposure (e.g. close windows and stay indoors);	Refer to the OLEMP and OBSSMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	• Cancellation of outdoor events and potentially moving affected residents to a cleaner air location; and • Should there be a BESS fire in close proximity to the road, site operator to determine wind direction and fire service to close road if deemed necessary.	

Table 3.11: Socio-Economics, Tourism and Recreation

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Disruption to local residents, businesses and community facilities.	Primary mitigation measures are embedded within the Scheme, as set out in the respective chapters, to reduce operational effects (such as noise, air quality, transport, and landscape and visual) which in turn will mitigate the effects on the local community and existing facilities from a socio-economic and land use perspective. Measures to mitigate the effects of operational noise and vibration are outlined in Table 3.8. The potential to locate temporary workers, during periods of scheduled replacement activities, in either private rental accommodation or in temporary serviced accommodation to moderate the level of demand for temporary accommodation will be considered to mitigate impacts on accommodation demand for both residents, and visitors and tourists. Measures to mitigate the effects of landscape and visual amenity impacts from operation are outlined in Table 3.2. Measures to mitigate the effects of operational traffic are outlined in Table 3.7.	Refer to the OLEMP.

Table 3.12: Human Health

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Additional demand for primary healthcare resources due to temporary inbound workforce	Support will be provided for the temporary workforce to be directed to primary healthcare facilities with greatest capacity, when required during programmed replacement activities.	To be confirmed in the detailed OEMP(s)
Community apprehension and anxiety ahead of construction activities	Provision of a dedicated Community Liaison Manager ahead of and during peak infrastructure replacement activities, responsible for managing relationships with community groups, and elected members to ensure community concerns are being addressed and actioned by the operational contractors. This role should also be used as an intermediary between the construction contractors and members of the public for the provision of construction information, availability for consultation on construction activities, and for complaints or compliance issues to be raised.	To be confirmed in the detailed OEMP(s)
Amenity impacts on residential care home at Oakfield, Easton Maudit	No heavy machinery or storage of materials within 100 m of the property boundary, and a minimisation of working hours within the 100 m buffer. Maintain lines of communication between the operators of the Scheme and the care home to ensure any concerns can be addressed.	To be confirmed in the detailed OEMP(s)

Table 3.13: Arboriculture

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Soil compaction or damage to stem/branches during replacement activities.	Perimeter fencing (wooden post fencing with deer wire mesh to a height of 2.5m) will be installed and remain in situ during operation of the Sites. This will protect trees on the field boundaries of the Sites from operational impacts such as replacement activities; New tree and woodland planting are not proposed within the Cable Route Corridor where a permanent easement will be required, in open cut sections ensuring that future tree removal will not be required to remedy possible tree root interference with the cables; No new tree planting is proposed within the Veteran Tree Buffer Zones of identified veteran trees to ensure no future shading and resulting decline in the health and longevity of veteran trees; All tree pruning works will be undertaken by a professionally qualified and insured arborist working in accordance with British Standard 3998:2010 'Tree Work – Recommendations'; Replacement activities will be facilitated through use of Access Tracks installed during the construction of the Scheme, ensuring no additional root or canopy impacts to retained trees during replacement activities; and Permanent Access Points and visibility splays for the Sites will be the same as those used for construction, ensuring no additional tree removal or pruning during operation of the Sites. All maintenance and replacement activities near FF30-T2 will be supervised by an ACoW to ensure no machinery or materials enter the Veteran Tree Buffer Zone. This may be achieved through implementation of ground protection and/or Tree	To be confirmed in the detailed OEMP(s)

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	Protection Fencing around the Veteran Tree Buffer Zone during maintenance and replacement activities	

Table 3.14: Agricultural Circumstances

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Potential for surface soil compaction and disturbance in some areas due to maintenance work. For example, grassed access alleys traversed by light vehicles for Site maintenance could cause surface compaction in damp or wet soil conditions. If sheep grazing is used for vegetation management surface compaction can result if numbers grazing is too great in wet conditions. Surface compaction can cause run-off.	A Soil Management Plan (SMP), in accordance with the Outline Soil Management Plan **[APP-550]** will detail how the risk of causing surface compaction can be minimised and how to remove compaction if it has occurred. Examples include specification of vehicles used for any trafficking off access tracks, placement and movement of any livestock troughs and site inspection by a suitably experienced soil scientist to monitor for the emergence of any soil compaction issues. Maintenance work on solar arrays and equipment in relation to soil and land disturbance will be carried out in accordance with the Soil Management Plan. Any grazing of livestock will be in accordance with good practice guidance for livestock welfare.	Soil assessments and monitoring will be undertaken as detailed in the Outline Soil Management Plan.

Table 3.15: Ground Conditions and Contamination

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Potential for pollutants to enter the ground.	The design of the Scheme has included measures to avoid and minimise the risk of pollution to the ground and water during its operation. These include: • Regular inspections and maintenance of all equipment will be undertaken in order to identify any leaks or damage early. Any panels which require maintenance / replacement will be removed before there is any leakage of chemicals from the sealed units. Any leaks will be dealt with in a way that is compliant with the prevailing environmental legislation. The detailed OEMP(s) will include a regular schedule for visual inspection of the panels and all other infrastructure. • Bulk fuels and any chemicals used on the Sites will be stored appropriately, within an impervious bund of 110% of the volume of the container to reduce the potential for any contamination source in the event of a container failure / leak of battery fire and associated fire waters.	The Environmental Manager will regularly record compliance in a logbook. The OEMP will detail the frequency.
Battery Storage	Additional to this, the design of the has included measures to avoid and minimise the risk of battery storage contamination. These include: • A Battery Storage Safety Management Plan (BSSMP) will be implemented throughout the scheme to ensure the safe design, production, use, transportation, storage, and disposal of batteries. This approach will minimise risks	The Environmental Manager will regularly record compliance in a logbook. The OEMP will detail the frequency. Real-time monitoring systems will be installed to continuously track the performance of the solar panels and battery systems. These systems enable the early identification of any performance issues or

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	associated with batteries while complying with relevant standards. • The underground cables will employ high-quality, durable sheathing and insulation materials to protect the cables from physical damage, moisture, and corrosion, ensuring they can withstand harsh underground conditions. In areas of particular environmental significance or sensitivity, such as beneath the River Nene, bunded containment systems can be utilised as an additional protective measure. • Regular inspections and maintenance of battery storage systems and solar panels will be routinely undertaken to identify any signs of potential leakage, wear, or faults. This ensures early detection and rectification of issues, thereby minimising operational risks. Additionally, solar panels will undergo periodic cleaning using water to prevent environmental contamination and maintain optimal performance.	faults, helping to prevent more significant problems such as fires or equipment.
BESS Fires	Mitigation measures to manage potential risks associated with BESS fires: • A Battery Storage Safety Management Plan (BSSMP) will be implemented throughout the scheme to ensure the safe design, and disposal of batteries. This approach will minimise risks associated with batteries while complying with relevant standards.	Post-incident environmental monitoring will be conducted to ensure soil and water quality is not compromised.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	• Containment of hazardous substances. Battery storage units will be housed in fully contained systems, ensuring that release of chemicals or contaminated fire water is captured and prevented from leaching into the environment. • Fire suppression systems will prioritise the use of environmentally safer foams or fire waters, with containment measures in place to manage runoff. • In the event of a fire, hazardous materials from damaged battery systems will be managed through containment and cleanup protocols. • An emergency response plan will be implemented, detailing fire control procedures and environmental protection measures.	

Table 3.16: Major Accidents and Disasters

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Major Accident or Disasters	All works will be undertaken in accordance with relevant Health and Safety legislation and guidance. Details of fire, police, emergency services and hospitals will be publicised and included in the site induction. An OBSSMP has been produced for the Scheme **[EX1/GH7.7_A]** and will be referred to during operation to safely reduce and manage the risk of fire during operation. This will be updated and maintained as a 'live document' throughout	None Required

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	the operational phase of the Scheme. An Emergency Response Plan will be prepared to minimise risks from smoke that may accompany a toxic gas release. An appropriate risk assessment will be produced prior to construction to minimise the risk of major accidents during operation.	

Table 3.17: Other Environmental Matters

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
Light Pollution	During operation, no part of the Scheme will be continuously lit. The use of motion detection security lighting to avoid permanent lighting will be utilised and a sensitive lighting scheme will be developed ensuring inward distribution of light and avoiding light spill onto existing boundary features.	Refer to the OEMP.
Waste: Impacts of waste to the surrounding environment. Potential to impact on sensitive receptors (humans, wildlife, and controlled waters) if not stored and managed appropriately. Impacts on waste recycling and handling facility capacity.	The Scheme will prioritise waste prevention, followed by allowing for reuse, recycling, and recovery of equipment when it comes to replacement as part of the with landfill disposal as the last resort, in line with the waste hierarchy. A Waste Management Strategy will be developed as part of the OEMP to ensure operational waste is managed suitably, and that waste arisings are sent for handling at facilities within the waste local authorities that have capacity to do so without adversely impacting upon their capacity to handle waste arisings for all other waste streams in the authority area. All waste management will comply with relevant regulations, and waste will be transported by licensed hauliers to authorised waste management sites with the necessary permits for the consigned wastes.	Refer to the OEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements
	Materials requiring removal from the Order limits during operation would be transported using licensed carriers and records kept, detailing the types and quantities of waste moved and the destinations of this waste, in accordance with the relevant regulations. Infrastructure such as PV panels and battery storage units that need to be replaced during the operational phase, will be removed and recycled as far as practical and in accordance with legislation and guidance applicable at the time, or if more suitable at the time, sold for refurbishment and reuse. The Scheme is expected to generate waste from electrical and electronic equipment (WEEE) during both the operation and maintenance phases. These items will be recovered and recycled by an authorised reprocessor in compliance with the WEEE Regulations 2013. 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 phase. This will be secured through measures set out within the OEMP.	

References

Ref 1 Planning Act 2008, 2008 c.29. *(as amended)*

Ref 2 Department for Environment, Food & Rural Affairs, 2011. Waste Hierarchy Guidance. Available at: https://assets.publishing.service.gov.uk/media/5a795abde5274a2acd18c223/pb13530-waste-hierarchy-guidance.pdf.

Ref 3 Waste (England and Wales) Regulations 2011, SI 2011/988. Available at: https://www.legislation.gov.uk/uksi/2011/988/contents.

Ref 4 Hazardous Waste (England and Wales) Regulations 2005 (amended 2006), SI 2005/894. Available at: https://www.legislation.gov.uk/uksi/2005/894/contents.