Peartree Hill Solar Farm

Environmental Statement

Volume 1

Chapter 3: Proposed Development Description

Revision ~~2~~3 (tracked)

Planning Act 2008

Infrastructure Planning

(Applications: Prescribed Forms

and Procedure) Regulations 2009 –

Regulation 5(2)(a)

Application Document Ref: EN010157/APP/6.1

~~September~~October 2025

Prepared by RSK on behalf of RWE Renewables UK Solar and Storage LTD

Contents

3 Proposed Development Description

3.1 Introduction

3.1.1 This chapter of the Environmental Statement (ES) provides a detailed description of the Proposed Development. It also outlines details of the proposed mitigation measures for the construction, operation (including maintenance) and decommissioning of the Proposed Development. This information is used to inform the environmental factor assessments which are detailed in **ES Volume 2, Chapters 6 to 14 [EN010157/APP/6.2]**.

3.1.2 The extent of the Order Limits, the area within which the Proposed Development will be located, is shown in **ES Volume 3, Figure 1.1: Order Limits and Administrative Boundaries [EN010157/APP/6.3]**.

3.1.3 This chapter is supported by the following figures presented in **ES Volume 3 [EN010157/APP/6.3]**:

- **Figure 1.1: Order Limits and Administrative Boundaries**
- **Figure 3.1: Indicative Operational Layout Plan**
- **Figure 3.2: Heights Parameters Zonal Plan**
- **Figure 3.3: Indicative HDD Crossing Points**
- **Figure 3.4: Indicative Environmental Masterplan**
- **Figure 3.5: Indicative Construction Layout Plan**
- **Figure 3.6: Indicative Culvert Crossing Points**

3.2 The Order Limits

3.2.1 The Order Limits for the Proposed Development, which constitute the maximum extent of land anticipated to be acquired or used for the construction, operation (including maintenance) and decommissioning of the Proposed Development, are shown in **ES Volume 3, Figure 1.1: Order Limits and Administrative Boundaries [EN010157/APP/6.3]**. The Proposed Development encompasses an area of approximately 891 hectares and is made up of five Land Areas (B – F), interconnecting cables between the Land Areas, and the grid connection cable route which connects the Proposed Development to the existing National Grid Creyke Beck Substation. The Land Areas, interconnecting cable routes and the grid connection cable route are shown in **ES Volume 3, Figure 1.2: Land Areas and Cable Routes Plan with Field Numbering System [EN010157/APP/6.3]**.

3.2.2 The **Land Plans [EN010157/APP/2.4]** identify those areas of land needed to be used:

- Green identifies land proposed for temporary possession;
- Blue identifies land proposed for permanent acquisition of rights or imposition of restrictive covenants and to be used temporarily; and
- Red identifies land to be permanently acquired.

3.2.3 The Proposed Development has been subject to ongoing design development and the Order Limits have been refined in response to environmental and technical factors as identified as part of the Environmental Impact Assessment (EIA) process, as well as consultation responses. This process has ensured that the Order Limits only include land which is required to deliver the Proposed Development and any essential mitigation.

3.3 Programme

3.3.1 Subject to obtaining development consent, the earliest that construction is expected to start is Q3 2026. Construction is anticipated to be 24 months and to be phased, with Land Areas B-F constructed in stages. The assumption is that no more than two Land Areas would be constructed concurrently. Construction of the grid connection cable route would occur at the same time as the Land Areas. The duration of construction of each Land Area is anticipated to be up to 8 months. For the cable route it is anticipated to be up to 10 months.

3.3.2 The earliest that the Proposed Development could be connected to the national electricity network and be operational is Q3 2028. The operational life of the Proposed Development is expected to be 40 years.

3.3.3 Decommissioning must commence no later than 40 years following the date of final commissioning and is anticipated to take between 18 and 24 months, and to be undertaken in phases.

3.4 Description of the Proposed Development

3.4.1 The principal components of the Proposed Development include:

- Solar photovoltaic (PV) modules and associated mounting structures (groupings of solar PV modules are referred to as ‘arrays’);
- On-site supporting equipment including inverters, transformers, direct current (DC)-DC converters and switchgear;

- A battery energy storage system (BESS) including batteries and associated enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure;
- Two on-site 132 kV substations, including transformers, switchgear, circuit breakers, control equipment buildings, control functions, material storage, parking, as well as wider monitoring and maintenance equipment;
- Low voltage and 33 kV interconnecting cabling within and between the Land Areas to connect the solar PV modules together and to transmit electricity from the solar PV modules and BESS to one of the two on-site 132 kV substations;
- 132 kV underground cables (two 132 kV export cables) connecting the on-site substations to the National Grid Creyke Beck Substation;
- Works at the National Grid Creyke Beck Substation to facilitate the connection of the 132 kV underground cabling into the substation;
- Associated infrastructure including access tracks, parking, security measures, gates and fencing, lighting, drainage infrastructure, storage containers, earthworks, surface water management, maintenance and welfare facilities, security cabins and any other works identified as necessary to enable the development;
- Highways works to facilitate access for construction vehicles, comprising passing places where necessary to ensure that heavy goods vehicles (HGVs) can be safely accommodated amongst existing traffic, new or improved site accesses and visibility splays;
- A series of new permissive paths connecting to the existing public right of way network;
- Environmental mitigation and enhancement measures, including landscaping, habitat management, biodiversity enhancement and amenity improvements; and,
- Temporary development during the construction phase of the Proposed Development including construction compounds, parking and laydown areas.

3.4.2 The works which the Proposed Development will be comprised of are described in Schedule 1 to the **Draft Development Consent Order (DCO) [EN010157/APP/3.1]**, where the 'authorised development' is divided into 'work numbers'. Full details of the works proposed are set out in Schedule 1 to the **Draft DCO [EN010157/APP/3.1]** and are shown on the **Works Plans [EN010157/APP/2.2]**.

3.5 Proposed Development parameters

3.5.1 The design of the Proposed Development has been refined throughout the EIA process. This iterative design has taken into account and considered comments made during consultation, including in response to the Preliminary Environmental Information Report (PEIR). **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** describes how feedback and environmental impacts have informed the design of the Proposed Development and consideration of alternative sites/designs, as well as outlining the reasons for selecting the proposed design over other alternatives considered.

3.5.2 This ES chapter provides an indicative design and envisaged construction methodology. It is recognised that parts of the Proposed Development design and construction methodology, as consented, may be subject to further refinement and optimisation prior to and during construction.

3.5.3 In order to maintain flexibility in the design, the Applicant has used the 'Rochdale Envelope' approach in assessing the impacts of the Proposed Development within the maximum (or minimum where appropriate) parameters set out in this ES, as detailed in **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]**. The Planning Inspectorate's Advice Note Nine 'Rochdale Envelope' **[Ref. 3-1]** provides specific guidance to applicants on the degree of flexibility that could be considered appropriate under the Planning Act 2008 (PA 2008) regime **[Ref. 3-2]**.

3.5.4 In particular, the Advice Note outlines that:

- *"the DCO application documents should explain the need for, and the timescales associated with, the flexibility sought, and this should be established within clearly defined parameters;*
- *the clearly defined parameters established for the Proposed Development must be sufficiently detailed to enable a proper assessment of the likely significant environmental effects and to allow for the identification of necessary mitigation, if necessary, within a range of possibilities;*
- *the assessments in the ES should be consistent with the clearly defined parameters and ensure a robust assessment of the likely significant effects;*
- *the DCO must not permit the Proposed Development to extend beyond the clearly defined parameters which have been requested and assessed. The Secretary of State (SoS) may choose to impose requirements to ensure that the Proposed Development is constrained in this way; and*
- *the more detailed the DCO application is, the easier it will be to ensure compliance with the Regulations"*

3.5.5 The Rochdale Envelope is an acknowledged way of dealing with an application comprising EIA development where details of a project have not been fully resolved by the time the application is submitted. The term is used to describe those elements of a scheme that have not yet been finalised, but can be accommodated within certain limits and parameters, allowing the likely significant environmental effects of a project to be presented in an ES as a 'worst case'. It also provides the opportunity to assess aspects of a development where the detailed design is to be developed by an applicant and approved by the determining authority under a development consent order requirement.

3.5.6 Furthermore, such flexibility may be useful where a slight change in the design or capacity of the Proposed Development is anticipated, but not yet certain. Therefore, it may be possible that a particular element of the design will be subject to ongoing technological advancements. It will be important that a lack of flexibility in the DCO Application does not unduly hinder the Applicant's ability to consider and adopt such future technological advancements. This is of particular importance due to the ever-evolving technology and speed of product development within solar PV module and energy storage technology markets.

3.5.7 The design parameters for each element of the Proposed Development are detailed within the following sections and secured within the **Design Parameters Document [EN010157/APP/5.8].** These have been used to inform the assessment detailed within this ES.

3.5.8 In addition to parameters, the **Draft DCO [EN010157/APP/3.1]** includes a limit of deviation article for the authorised development. The **Works Plans [EN010157/APP/2.2]** show the limits of deviation for each work. Works can only be undertaken outside of these limits if it can be demonstrated to the Secretary of States satisfaction, following consultation with East Riding of Yorkshire Council that any deviation would not give rise to any materially new or materially different environmental effects in comparison to those reported in the ES. This is needed to provide some flexibility to the Proposed Development to adopt to future technical advancements.

3.5.9 The indicative operational layout of the solar PV development, in line with the parameters set out below is shown on **ES Volume 3**, **Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**. **ES Volume 3, Figure 3.2: Heights Parameters Zonal Plan [EN010157/APP/6.3]** provides the anticipated maximum height parameter within each field of the Land Areas.

3.5.10 The following sections provide a description of the different elements of the Proposed Development along with the design parameters that have been assessed within this ES. Each environmental factor/topic has assessed the design considered to be the likely worst-case scenario for that discipline to

determine the potential for significant effects and identify suitable mitigation measures.

Ground mounted solar PV generating station

3.5.11 Solar panels generate electrical power by using a solar PV module to convert sun light into DC electricity. Individual solar PV modules, more commonly known as solar panels, contain several PV cells wired and encapsulated by tempered glass. Solar PV modules are sealed for weatherproofing and held together by a metal frame in a mountable unit.

3.5.12 Solar PV modules are fixed to mounting structures in groups known as 'strings'. The exact number and arrangement of modules depends on a range of factors including the size of the system, its location, and the direction in which the solar panels are installed. As technology and equipment are evolving, some flexibility in design is required to accommodate technology advances.

3.5.13 Individual solar PV modules are typically 2m by 1m in width and length and can vary in height. However, as solar PV modules are rapidly developing due to innovation in technology and processing techniques for the PV cells, the dimensions of the solar PV modules available at the time of construction may vary. The ES therefore considers a height parameter which represents the worst-case scenario in terms of identifying potential environmental effects.

3.5.14 The solar PV modules would be installed either as fixed arrays or as tracking arrays (which adjust the position of the solar PV modules to track the sun throughout the day). Flexibility is sought within this DCO Application to deliver either of these technology options and each environmental factor assessment chapter (**ES Volume 2, Chapters 6-14 [EN010157/APP/6.2]**) has assessed the worst case technology for their respective disciplines to ensure a reasonable worst case envelope of effects.

3.5.15 The solar PV modules would be separated with a minimum row separation space of 4m. The spacing between the rows would vary across the Land Areas to minimise effects of overshadowing and to ensure optimal efficiency. **Table 3-1** provides a summary of the solar PV module design parameters used for this ES.

Table 3-1: Overview of fixed and tracking solar PV module parameters

	Fixed	Tracking
Description	Rows of solar PV modules aligned in east-west rows with panels facing south	Rows of solar PV modules mounted on a metal tracking system aligned in north-south rows with panels rotating east-west

	Fixed	Tracking
Angle	+/- 10° to 30°	+/- 60°
Orientation	South	Tracks east to west across the day
Separation distance	Approximately 4m to 12m between rows	Approximately 4m to 6m between rows
Height	Maximum height of 3m Minimum height of the lowest part of the panel would be 0.8m	Maximum height of 3m, which would vary throughout the day Minimum height of the lowest part of the panel would be 0.8m
Mounting structure	The mounting structure for the solar PV modules is a metal frame (usually anodised aluminium alloy) securely fixed to the ground and supported by galvanized steel poles, which are typically driven into the ground to a maximum depth of 2m. Where further work identifies the need for archaeological protection, an alternative mounting structure will be proposed, in the form of ballast slabs which sit on the surface rather than penetrating the ground.	

On-site supporting equipment

3.5.16 A range of equipment is required to support the solar PV modules to convert the electrical power generated, manage this power and export power onto the national grid. The electrical output from the solar PV modules would be exported by low voltage cabling to shipping container style storage units, which would contain an inverter, transformer, switchgear and BESS. The function of each of these elements are as follows:

- Inverter units which house the inverters, transformers and auxiliary equipment. The inverters are used to convert the DC generated by the solar PV modules into alternating current (AC) that can be exported to the national electricity network. The transformers monitor, increase and control the voltage of the electricity produced before it reaches the two on-site substations
- DC-DC converter units which stabilise the voltage from the solar PV modules to the batteries
- The BESS would comprise containerised battery energy storage systems
- Switchgear are the combination of electrical disconnector switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energise equipment to allow work to be done and to clear faults downstream

3.5.17 The BESS, inverters and DC-DC converters will be arranged together, known as 'hybrid packs'. Each hybrid pack would comprise four BESS units, one inverter and four DC-DC converters arranged as shown in the **Indicative Layouts and Cross Sections Plans [EN010157/APP/2.10]** across a gravel base that comprises a footprint of 13m by 22m. Indicative locations of the hybrid packs are shown on **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**.

3.5.18 There will be stand-alone switchgear containers spread across the Land Areas.

3.5.19 The BESS is likely to consist of lithium-ion batteries housed in shipping container-style structures. BESS is designed to provide peak generation and grid balancing services to the electricity grid. The ability to store energy on-site is required to store surplus electricity produced and provide grid balancing services by allowing excess electricity generated from the solar PV modules to be stored and dispatched as required. The BESS may also be capable of importing electricity from the national electricity network to store electricity in order to export this electricity to the national electricity network at peak times. Each BESS container unit would measure up to 6.5m in length and 2.5m in width and up to 3.5m in height. The BESS would require associated heating, ventilation and cooling (HVAC) systems to ensure efficiency of the batteries and these systems would be integrated within the individual containers.

3.5.20 The Proposed Development would utilise up to seven switchgears to control, protect and isolate electrical currents and equipment. Switchgears allow parts of the solar PV system to be de-energised safely, allowing routine maintenance or faults to be identified and work undertaken. It is anticipated that the switchgears would be housed in shipping-style containers.

3.5.21 There will be up to 40 weather masts across the Site, with each standing up to 5m in height.

3.5.22 **Table 3-2** provides an overview of the parameters of the Proposed Development's on-site supporting equipment.

Table 3-2: Overview of on-site supporting equipment parameters for assessment

Component	Parameter type	Parameters
BESS	Dimensions and height of one BESS container	Height: 3.5m Length: 6.5m Width: 2.5m
	Colour	Light grey, white, dark green or similar
	Foundations	BESS units will be raised on concrete pads or plinths above a gravel base.

Component	Parameter type	Parameters
Inverters	Type of inverter	Central inverters are to be distributed at regular intervals amongst the solar PV modules, contained within the 'hybrid packs'.
	Dimensions of central inverters	Height: 3.5m Length: 12.5m Width: 2.5m
	Number of central inverters	Up to 84 central inverters (if used across the entire Site)
	Colour of independent inverters, transformers and switchgear	Light grey, white, dark green or similar
DC-DC Converters	Dimensions	Height: 2.3m Length: 1.8m Width: 0.9m
	Colour	Light grey, white, dark green or similar
	Number of DC-DC converters	Up to 336 DC-DC converters
Hybrid pack	Dimensions of hybrid pack	Each hybrid pack would be comprised of four BESS units, one inverter and four DC-DC converters across a gravel base that comprises a footprint of 13m x 22m Height: 3.5m
	Number of hybrid packs	Up to 84 hybrid packs
Switchgear	Dimensions of switchgear	Height: 3m Length: 12.5m Width: 2.5m
	Number of switchgears	7 switchgears
	Colour	Grey
Weather mast	Maximum height of masts	5m
	Number of masts	Up to 40 across the Site

On-site substations

3.5.23 Two on-site substations would receive the electricity from the solar PV modules and hybrid packs and step up the voltage from 33 kV to 132 kV ready to be exported to the National Grid Creyke Beck Substation via the 132 kV cables.

3.5.24 The substations would house electrical equipment such as transformers, switchgear and metering equipment. Each substation will also contain a switchroom building and storage unit.

3.5.25 The two on-site substations would be located within Land Areas C (Project Substation East) and E (Project Substation West), as shown in **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**.

3.5.26 The on-site substations would be sized as 180 megavolt-amperes (MVA). The substation compounds would be up to 60m in length and 110m in width. The equipment within the substations would have a maximum height of 15m (this would only relate to a communications tower, with the maximum height of the other equipment within the substation being up to 7m).

3.5.27 **Table 3-3** provides an overview of the on-site substation parameters.

Table 3-3: Overview of on-site substation parameters for assessment

Component	Parameter type	Parameters
On-site substation	Two on-site substations sized as 180 MVA	Height (communications tower): 15m Height (electrical equipment): 7m Length: 60m Width: 110m

Cabling

3.5.28 Cables would be required to connect the solar PV modules to the on-site inverters, switchgear, and BESS, as well as from the Land Areas to the two on-site substations, and onwards to the National Grid Creyke Beck Substation.

Interconnecting cables

3.5.29 Cabling from the solar PV modules to the combiner boxes would be installed above ground and fixed to the mounting structure of the modules, with a small section placed underground where it leaves the modules and connects to the hybrid packs.

3.5.30 33 kV cables are required to connect the hybrid packs and switchgears to the two on-site substations. These cables would be buried underground.

3.5.31 There are several separate sections of underground cabling proposed between Land Areas, labelled as per the below and shown on **ES Volume 3, Figure 1.2: Land Areas and Cable Routes Plan with Field Numbering System [EN010157/APP/6.3]**:

- Cable B-B;
- Cable C-D (this cable route would also contain the 132 kV cable to connect the on-site substation in Land Area C to the National Grid Creyke Beck Substation);

- Cable E-E (this cable route would also contain the 132 kV cable to connect the on-site substation in Land Area C to the National Grid Creyke Beck Substation); and
- Cable E-F.

3.5.32 Data cables (typically fibre optic) would be installed, typically alongside electrical cables in order to allow for monitoring during operation and maintenance, such as the collection of solar data from devices known as pyranometers.

3.5.33 The interconnecting cable trenches will be up to 1.2m in width and up to 1.6m in depth. The construction working width for these would be up to 15m.

3.5.34 Cable ploughing will be utilised where ground conditions and other site factors allow however, for the purposes of the EIA, it has been assumed that open cut trenching will take place as a worst-case scenario. The underground cabling would be located in existing gaps in hedgerows wherever practicable. In identified archaeologically sensitive areas, cables will be installed to avoid or minimise disturbance below ground level.

3.5.35 In instances where open cut or cable plough cannot be used, for example when crossing a public road or large drainage ditch, alternative methods, such as horizontal directional drilling (HDD), would be used. The areas requiring HDD are identified on **ES Volume 3, Figure 3.3: Indicative HDD Crossing Points [EN010157/APP/6.3]**.

3.5.36 Where HDD would be used, the launch/reception pits required for crossings would be a maximum of 7m by 3m in area and 1.5m in depth to allow space for the necessary equipment. The launch/reception pits will not be located within 20m of a bank of a watercourse, 50m of railway infrastructure, or 10m of a highway verge.

Grid connection cable to National Grid Creyke Beck Substation

3.5.37 The Proposed Development would connect to the National Grid Creyke Beck Substation, located approximately 5.6km south-west of the southern extent of the Land Areas by underground cabling. The cable route is set out in **ES Volume 3, Figure 1.1: Order Limits and Administrative Boundaries [EN010157/APP/6.3]**.

3.5.38 The underground cabling would comprise two 132 kV cables plus associated cabling such as a bare copper earth cable and fibre optic cable. The maximum dimension of the cable trench required to install the cabling would be 1.6m deep by 1.5m wide.

3.5.39 The 132 kV cables will be installed via both open cut trenches and through HDD. The open cut sections of underground cabling would be located in existing gaps in hedgerows wherever practicable. The areas requiring HDD are identified on **ES Volume 3, Figure 3.3: Indicative HDD Crossing Points [EN010157/APP/6.3]**.

3.5.40 Where HDD would be used, the launch/reception pits required for crossings would be a maximum of 7m by 3m in area and 1.5m in depth to allow space for the necessary equipment. The launch/reception pits will not be located within 20m of a bank of a watercourse, 50m of railway infrastructure, or 10m of a highway verge.

3.5.41 **Table 3-4** provides an overview of the underground cabling parameters.

Table 3-4: Overview of underground cabling parameters for assessment

Component	Parameter type	Parameters
Interconnecting cables	Type	Low voltage and 33 kV
	Cable dimensions	Trench width: 1.2m Trench depth: 1.6m
	Construction working width	Width: 15m
Grid connection cable route	Type	132 kV
	Cable dimensions	Trench width: 1.5m Trench depth: 1.6m
	Construction working width	Width: 30m
HDD Works	HDD Depth	Minimum depth of 7m below the River Hull Minimum depth of 7m below the railway line Minimum depth of 5m below any public highways
	HDD launch and reception pits	7m by 3m

3.5.42 The Proposed Development will not involve the installation of overhead cabling.

Modifications and connections to the national electricity network

3.5.43 National Grid Electricity Transmission owns the land in Creyke Beck Substation, part of which is leased to Northern Power Grid for their operations as the Distribution Network Operator (DNO).

3.5.44 The Proposed Development has a connection agreement with Northern Power Grid, which would require a new 132 kV circuit breaker and associated switchgear equipment and cable to be installed at National Grid Creyke Beck Substation. This would enable the connection between the Substation and the Proposed Development. These works form part of the Proposed Development. However, it is expected that Northern Power Grid would carry out these works.

3.5.45 National Grid Electricity Transmission are proposing further reinforcement works at National Grid Creyke Beck Substation comprising an extension of the Substation and installation of additional 400 kV/132 kV Super Grid Transformers and associated equipment. These works are part of a wider reinforcement of the National Grid Electricity Transmission network and are not directly related to the Proposed Development. For this reason, they do not form part of the Proposed Development.

Ancillary infrastructure works

Fencing and security

3.5.46 A perimeter security fence would be installed to enclose the operational areas of the Proposed Development. The fence is likely to be either a wire-mesh or deer fence, measuring up to 2m in height. The fence would be designed in such a way to allow small animals to pass through the Proposed Development and would also be gated to allow access to and from the Proposed Development.

3.5.47 Palisade security fencing would be installed around the perimeter of the on-site substation compounds. Palisade fencing is made of steel rails attached to horizontal-running rails, connected to vertical steel joints. The fencing would be up to 2.4m in height.

3.5.48 Pole-mounted, infrared security detection cameras would be mounted on poles of a maximum of 3m in height located within the perimeter fence. It is anticipated that these cameras would have motion detection technology for recording and would be pointed directly within the Proposed Development and away from any land outside of the Proposed Development.

3.5.49 Infrared sensor triggered security lighting would be required around key electrical infrastructure. No areas of the Proposed Development would be continuously lit. The lighting design would seek to limit any impact on sensitive receptors and will be designed with reference to the Institute of Lighting Professionals (ILP) Guidance Notes (in particular GN08/23: Bats and Artificial Lighting at Night **[Ref. 3-3]**, which was produced in collaboration with the Bat Conservation Trust (BCT), and GN01/21: The Reduction of Obtrusive Light **[Ref. 3-4]**) insofar as it is reasonably practicable.

3.5.50 **Table 3-5** provides an overview of the fencing and security parameters.

Table 3-5: Overview of fencing and security parameters for assessment

Component	Parameter type	Parameters
Fencing	Type	The perimeter security fence will be either a wire-mesh or deer fence. Palisade security fencing will be made of steel rails attached to horizontal-running rails, connected to vertical steel joints.
	Maximum height	Perimeter security fencing Height: 2m Palisade security fencing Height: 2.4m
Security	Type	Pole mounted closed CCTV systems
	Maximum height	Height: 3m
	Depth of CCTV pole (BGL)	1m
	Camera position	1m from fence line

Drainage

3.5.51 The solar PV modules would not increase the impermeable area and therefore are not anticipated to increase the volume of surface water runoff.

3.5.52 Further detail on the drainage strategy is provided in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**.

Internal access tracks

3.5.53 Access to and within the Proposed Development during operation would be required for maintenance. A series of access tracks for each Land Area are proposed and further detail on the access points onto the local highways network is provided in **Table 3-7**.

3.5.54 The internal access tracks would be constructed of permeable materials such as gravel or crushed concrete to allow water to filtrate through and maintain greenfield runoff rates. These would have a width of up to 4m, other than the access tracks to the on-site substations which would have a width of up to 4.5m to meet the specifications of the DNO. These measures are secured within the **Design Parameters Document [EN010157/APP/5.8]**.

3.5.55 A plan showing the sections of the internal access tracks is shown on **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**.

3.5.56 **Table 3-6** provides an overview of the internal access tracks parameters.

Table 3-6: Overview of internal access tracks parameters for assessment

Component	Parameter type	Parameters
Access	Access gates	Height: 2m Width: 7m
	Internal access tracks	Width: 4m Width 4.5m (Leading to the on-site substations)
	Material	Permeable materials

Landscaping and biodiversity mitigation and enhancement

3.5.57 The Proposed Development design will include landscaping, habitat management and ecological mitigation/enhancement, which will be refined as the design progresses. Indicative areas for planting and for ecological mitigation and enhancement are shown on **ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]**. Management of habitat creation and enhancement strategies will last throughout the whole operational life of the Proposed Development, as detailed in the **Outline Landscape and Ecological Management Plan (Outline LEMP) [EN010157/APP/7.5]**.

3.5.58 The existing hedgerows, woodland and field margins would be retained as part of the Proposed Development as much as possible, with the exception of gaps required for new access points, visibility at turnings, new passing places and for the installation of cabling. Existing agricultural tracks and field margins would be used for access points where reasonably practicable and the width of any new gaps, if required, would be kept to a minimum.

3.5.59 The design incorporates a minimum offset of 10m from all retained woodland, hedgerows and individual trees, where reasonably practicable, to ensure there is a sufficient distance from the proposed above ground infrastructure to allow habitat connectivity, biodiversity and landscape improvements. This offset increases to 15m from any ancient woodland. Other than at access tracks, as detailed in the following paragraph, the design incorporates a minimum offset of 15m from any veteran trees. These offsets are secured in the **Outline LEMP [EN010157/APP/7.5]**.

3.5.60 There are two veteran trees adjacent to the Order Limits in locations where access routes are proposed, as shown on **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. For one of these, adjacent to Carr Lane (Long Riston), no highways improvement or other works are proposed within its root protection area (RPA). For the other, adjacent to Carr Lane (Arnold), there is a proposed passing place located on the opposite side of the carriageway, at the edge of its RPA. Where it is not possible to retain a 15m offset from any works, tree protection fencing will be installed prior to works

commencing. Tree protection fencing must be positioned along the road edge nearest the tree to protect the soft verge and the roots within it. For further details, see **ES Volume 4, Appendix 7.11: Arboricultural Impact Assessment [EN010157/APP/6.4]**. These measures are secured in the **Outline Construction Environmental Management Plan CEMP** [**EN010157/APP/7.2**].

3.5.61 Landscaping, including new hedgerow and tree planting is proposed to avoid or minimise significant environmental effects. The proposed location and scale of planting, shown in **ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]**, has taken into consideration the landscape character of each field of the Proposed Development by allowing views to remain open where planting would not be appropriate. As detailed in the **Outline LEMP [EN010157/APP/7.5]**, planting, including mitigation planting, will be delivered from the earliest feasible stages of the Proposed Development in order to maximise biodiversity value, screening and other environmental benefits.

3.5.62 The planting type would be decided on each species' ability to be resilient to the impacts of climate change and comprise majority native (and of local provenance) species. Planting is expected to include a mixture of conifers and broadleaf plants as per habitat enhancement requirements. A mixture of different native species of scrub will be used wherever woodland planting is not viable. Low plants will be used in buffer zones and near hedgerows in order to minimise impact on landscape views. Species of grass will also be used to create plots of short grassland between the solar PV modules. Plant species will be appropriately chosen for sections above underground utilities in order to avoid root damage. Further details on the above measures are set out in the **Outline LEMP [EN010157/APP/7.5]**.

Recreation and amenity improvements

3.5.63 The Proposed Development will include recreation and amenity improvements. These will be designed to retain and enhance recreational connectivity across the Proposed Development, as set out within the **Outline LEMP [EN010157/APP/7.5]**.

3.5.64 The Proposed Development will include several new permissive paths, approximately 12.6km in total length, within the Order Limits, as detailed below:

- New permissive path, approximately 476m in length, creating a loop around Field B2, connecting to the existing Riston Footpath No. 2 at the north western and south western points of the field;
- New permissive path, approximately 306m in length, connecting Carr Lane to the existing Riston Footpath No. 2, along the north of Field B8;
- New permissive path circuit, approximately 9.6km in length, around a number of fields in Land Area D and E and providing a link to the

existing Tickton Footpath No. 6. This circuit includes a loop around Field D18 and Field E6, both of which have been set aside for ecological enhancement. The circuit of permissive paths within Land Areas D and E will be made available for horse riding;

- New permissive path, approximately 2.1km in length, running along the eastern boundary of Field F6, through the area set aside for ecological enhancement in F9, F10 and F14, connecting with the existing Wawne Footpath No. 1 to the south of Field F16; and

3.5.65 New permissive path, approximately 290m in length, running along the eastern boundary of Field C8.The permissive paths are restricted to the Land Areas as this land will remain in control of the Applicant for the lifetime of the Proposed Development.

3.5.66 **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]** illustrates the new permissive paths.

3.6 Construction

Construction Programme

3.6.1 Subject to obtaining development consent, the earliest construction start is expected to be Q3 2026. Construction is anticipated to be 24 months, with the peak period of construction activity anticipated to be during 2027.

3.6.2 Q3 2028 is the earliest date that the Proposed Development could be completed in readiness for connection to the national electricity network.

3.6.3 The final programme will depend on the detailed layout design. The Land Areas and interconnecting cable routes would be constructed in a phased approach; however, it is possible that there would be some overlap of works across the Land Areas, which has been used to inform the ES assessments. Works on each Land Area are anticipated to take up to eight months each while the works on the grid connection cable route connecting the on-site substations to the National Grid Creyke Beck Substation is anticipated to take up to 10 months. The indicative construction layout is shown at **ES Volume 3, Figure 3.5: Indicative Construction Layout Plan [EN010157/APP/6.3]**.

3.6.4 As described in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**, construction traffic flow calculations are based on the indicative phased approach to construction (see **Section 3.3** of this chapter), with an assumption that two Land Areas would be constructed simultaneously across several 4 or 5 month periods in order to assess the worst case scenarios. The

exception being the first 4 months of construction for Land Area B and the final 4 months for Land Area F, at which point each Land Area is the sole Land Area being constructed at that time. The phasing is indicative at this stage.

3.6.5 The indicative construction phases are as follows:

- Phase 1: Land Area B;
- Phase 2: Land Areas B & C;
- Phase 3: Land Areas C & D and grid connection cable route;
- Phase 4: Land Areas D & E and grid connection cable route;
- Phase 5: Land Areas E & F and grid connection cable route; and
- Phase 6: Land Area F.

Construction Activities

3.6.6 The types of construction activities that would be required to construct the Proposed Development comprise (not necessarily in order) are described below:

Preparatory works

- Establishment of and/or works to site access points;
- Installation of any temporary/permanent culverts under watercourses/ditches;
- Installation of temporary span bridges;
- Stripping of topsoil, trenching (if required), storage and capping of soil;
- Construction of any access tracks and laydown areas within the Site;
- Establishment of construction compounds;
- Establishment of mobilisation areas, running tracks and temporary construction compounds for cable installation;
- Erection of security fencing around the Site perimeter, as well as access gates;
- Installation of security measures such as CCTV;
- Delivery of plant and machinery to the Site; and
- Delivery of materials to enable the first phases of construction.

Construction of Proposed Development infrastructure

- Solar PV module installation;
- Installation of solar PV module support structures;
- Mounting of solar PV modules;

- Installation of supporting infrastructure, including inverters, transformers, DC-DC converters and switchgear;
- Installation of the BESS;
- Construction of the two on-site substations, including groundworks, foundations and installation of electrical components;
- Installation of storage containers;
- Installation of construction drainage with pumping (if required); and
- Site establishment and habitat creation.

Cable installation

- Site preparation;
- Set up of temporary construction compounds;
- Stripping of topsoil in sections;
- Trenching and installation of cabling;
- Cable joint installation;
- Implementation of crossing methodologies for watercourses, roads and railway, where required (e.g. HDD); and
- Reinstatement works where necessary.

Culverts/Span Bridges

3.6.7 A number of the proposed access tracks within the Land Areas will utilise existing culvert crossings and/or bridge structures. For the purposes of the assessment, 19 locations are assumed to require either the installation of a temporary span bridge or reinforcement or widening of the existing culvert/bridge structure. To ensure a worst case scenario has been assessed, it has been assumed that all existing crossings will require culverting with an extension to each existing structure. The crossings over minor watercourses, which are likely to be wet for much of the year, would be facilitated by box culverts. These would be fitted with a mammal shelf and the bed substrate would match that of the watercourse within the vicinity of the crossing. The crossing of the Holderness Drain connecting Land Area E will require a temporary span bridge to support the construction phase.

3.6.8 Further detail on watercourse crossings is contained within **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4].**

3.6.9 **ES Volume 3, Figure 3.6: Indicative Culvert Crossing Points [EN010157/APP/6.3]** identifies each of the proposed culvert locations.

HDD Works

3.6.10 The sections of the cables that will be installed via HDD will require launch and reception pits to be installed along the HDD section of the route. Launch and reception pits will be sited at minimum offsets from watercourses, railways and roads (as per the distances set out in **Table 3-4** above and within the **Design Parameters Document [EN010157/APP/5.8])**. For the purposes of assessment, a maximum of 22 HDD crossings are assumed within the Land Areas, Interconnecting and Grid Connection Cable Corridors.

3.6.11 The areas requiring HDD crossings are shown in **ES Volume 3, Figure 3.3 Indicative HDD Crossing Points [EN010157/APP/6.3]**.

Construction Access

3.6.12 Access into each of the Land Areas and the grid connection cable route from the local highway network would be required to facilitate construction. The **Outline Construction Traffic Management Plan [EN010157/APP/7.7]** includes measures to control the delivery of materials and staff onto the Site during the construction phase of the Proposed Development

3.6.13 Staff are anticipated to arrive to site either by car or van, by shuttle bus (picking up and dropping off staff from the local area), or by car/van share (picking up and dropping off by other staff). Staff would travel to the main compound in the Land Area in which they are working and will be transported around the Site by shuttle bus along the internal access tracks.

3.6.14 It is envisaged that HGV trips, particularly those delivering solar PV modules, would originate at Hull docks on the Humber. Delivery of other machinery and equipment would most likely arrive via Hull or Beverley. The main routes to the site by HGVs would therefore be via the A1035 and A165.

3.6.15 Vehicles would access Land Areas B and C via the A165, either from the north via the A1035 at the White Cross Roundabout or from Hull to the south. From the A165, Carr Lane (Long Riston) would be used to access Land Area B, while Arnold Lane West, Black Tup Lane and Carr Lane (Arnold) would be used to access Land Area C. Land Area B (west of Monk Dike) would also be accessed via internal access tracks through Land Area D. Land Areas D and E would be accessed directly off the A1035. For Land Area F, vehicles would leave the A1035 at Routh to access the Land Areas via Meaux Lane/Meaux Road. The grid connection cable route would be accessed via the A1174, Long Lane and either Park Lane or Dunswell Road.

3.6.16 Access points would utilise existing accesses wherever possible, as shown in **ES Volume 3, Figure 3.5: Indicative Construction Layout Plan [EN010157/APP/6.3]** and summarised in **Table 3-7**.

Table 3-7: Land area access points during construction

Area	Access point
Land Area B	1 no. access point from the east side of A165 Whitecross Road 2 no. access point from west side of A165 Whitecross Road: one via Carr Lane (Long Riston) to access land to the east of Monk Dike and one to access Cable B-B only. 1 no. access via Land Area D, i.e. via access points from east side of Meaux Lane (see 'Land Area D' row below) and then internal access tracks in Land Area D – to access land to the west of Monk Dike
Land Area C	1 no. access point from west side of A165 via Arnold Lane West, Black Tup Lane and Carr Lane (Arnold)
Land Area D	1 no. access point from the south side of A1035 2 no. access points from east side of Meaux Lane 1 no. access point from west side of Meaux Lane
Land Area E	1 no. access point from the south side of A1035 Access via Land Area D, i.e. via access points from west side of Meaux Lane (see 'Land Area D' row above) and then internal access tracks in Land Area D
Land Area F	1 no. access point from west side of Meaux Road 1 no. access point from east side of Meaux Road
Grid Connection (cable route to National Grid Creyke Beck substation)	2 no. access points located on the north and south sides of A1174 Hull Road 2 no. access points on the north and south side of Long Lane 1 no. access point on Park Lane

3.6.17 Proposed access routes to the Land Areas have been assessed using swept path analysis to assess whether they are sufficient to accommodate articulated HGVs (16.5m length). This is the worst-case vehicle anticipated to access the site, as there are no abnormal loads expected. Subsequently, improvements to field accesses and highways have been identified and included in the development of the design. Further detail on this is included within **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

3.6.18 A number of roads have been identified where it may be necessary to construct passing places for HGVs accessing the Site (see **ES Volume 4, Appendix 14.1: Transport Appendix [EN010157/APP/6.4]**). Passing places would be located on sections of public highways currently considered too narrow (less than 5.5m) for passing vehicles and HGVs. It is anticipated that these will be accommodated

within the highway extent where reasonably practicable. The sections of road where passing places may be required are as follows:

- Carr Lane (Long Riston);
- Carr Lane (Arnold);
- Arnold Lane West (Arnold/Long Riston);
- Meaux Lane (Meaux); and
- Meaux Road (Meaux).

3.6.19 Several bends in the road on Meaux Lane would be widened to enable two HGVs to pass simultaneously. Existing accesses off the A165 and off Black Tup Lane would be widened to accommodate HGVs. The Access and Highway Mitigation Plans are presented in Appendix G in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

3.6.20 In places, vegetation removal would be necessary to enable access or to provide sufficient visibility splays, as shown on Appendix G in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**. Where vegetation removal/pruning is required for access and/or visibility splays, the works should be limited to the required amount to achieve the appropriate access/visibility. Pruning of vegetation will be preferred over removal wherever possible. Further details can be found in the **Outline LEMP [EN010157/APP/7.5]**.

3.6.21 Where passing places result in the loss of hedgerows, replacement planting will be provided, as set out in the **Outline LEMP [EN010157/APP/7.5]**.

Construction Traffic Management

3.6.22 A Construction Traffic Management Plan would be secured pursuant to the DCO as a requirement and will be in substantial accordance with the **Outline Construction Traffic Management Plan [EN010157/APP/7.7]** submitted in support of this DCO Application. The **Outline Construction Traffic Management Plan [EN010157/APP/7.7]** includes the following types of measures to control the delivery of materials and staff onto the Site during the construction phase of the Proposed Development:

- Access and parking arrangements for site personnel, contractors and visitor arrangements for delivery and removal of materials;
- Arrangements for loading, unloading and storage of plant and materials;
- A scheme for routing and control of traffic associated with the construction and temporary signage during the construction phase;
- Implementation programme including the proposed construction period and hours of operation; and,

- Details of any additional management measures, including details of wheel washing facilities and condition surveys.

Temporary Construction Compounds

3.6.23 Temporary compounds will be established before commencement of the main construction works for the storage of materials, plant and equipment. There are expected to be up to 19~~7~~ temporary construction compounds, which would be located across each Land Area (B to F). This would mean that construction activities and the use of the compound(s) in each Land Area is kept to a shorter period of time compared with all construction activities being based from a single, main compound.

3.6.24 Of the 19~~7~~ construction compounds, seven are anticipated to be 'main' compounds and the remaining 12~~0~~ 'satellite' compounds. Main compounds would be located near to entrance points and workers would be bused from these locations to the satellite compounds that are closer to the work sites. It is expected that there would be one main compound within each Land Area, except for Land Areas B and D, which would each contain two main compounds.

3.6.25 A plan which presents the construction compounds is provided in **ES Volume 3, Figure 3.5: Indicative Construction Layout Plan [EN010157/APP/6.3]**.

3.6.26 The main compounds are expected to have a footprint of up to 6000m^2. The satellite compounds are expected to have a footprint of up to 3000m^2.

3.6.27 The compounds would include hardstanding areas, construction worker welfare facilities, a site office, car parking, wheel wash area, plant and machinery storage, HGV/delivery turning area and waste storage areas. Details will be provided in a Construction Environmental Management Plan which would be secured pursuant to the DCO as a requirement and will be in substantial accordance with the **Outline CEMP [EN010157/APP/7.2]** submitted in support of this DCO Application.

3.6.28 The compounds would include manually operated lighting systems to ensure safety and security. Any live construction areas would be closed to the public throughout the construction phase. Site security staff would patrol the construction areas, in addition to hazard warning signs and CCTV. The Applicant is also considering the inclusion of an EV charging point alongside the main construction compounds.

3.6.29 The compounds will be converted to solar PV or landscaping at the end of their use.

Mitigation of Construction Effects

3.6.30 A Construction Environmental Management Plan would be secured pursuant to the DCO as a requirement and will be in substantial accordance with the **Outline CEMP [EN010157/APP/7.2]** submitted in support of this DCO Application. The **Outline CEMP [EN010157/APP/7.2]** describes the framework of mitigation measures identified in the ES to be followed during the construction phase of the Proposed Development.

3.6.31 The **Outline CEMP [EN010157/APP/7.2]** includes information on the following:

- Use of land for temporary laydown areas, accommodation etc.;
- Noise and vibration;
- Construction lighting;
- Utilities diversion;
- Dust generation;
- Pollution prevention;
- Run off and drainage; and
- Waste generation.

3.6.32 The Construction Environmental Management Plan will be produced by the appointed Principal Contractor and agreed with East Riding of Yorkshire Council following grant of the development consent and prior to the start of construction (secured pursuant to the DCO as a requirement). This will identify the procedures to be adhered to and managed by the Principal Contractor throughout the construction phase of the Proposed Development.

3.6.33 A Soil Management Plan will be secured pursuant to the DCO as a requirement and will be in substantial accordance with the **Outline Soil Management Plan [EN010157/APP/7.8]** submitted in support of this DCO Application. The **Outline Soil Management Plan [EN010157/APP/7.8]** includes the principles of best practice to maintain the physical properties of the soil on-site during the construction phase.

Management of Public Rights of Way during Construction

3.6.34 All public rights of way would be kept open during construction as far as is practicable and safe. Where it would not be practicable and safe, there may be a requirement for some public rights of way to be temporarily managed or closed for a short duration. More detail on the effects of construction on public rights of way users can be found in **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]**.

3.6.35 An **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** has been submitted in support of this DCO Application.

Management of water and waste during construction

3.6.36 The Proposed Development is expected to generate waste during the construction phase including general construction waste, comprising packaging waste from materials, construction materials from enabling works and general waste from the construction worker welfare facilities.

3.6.37 A Site Waste Management Plan will be secured pursuant to the DCO as a requirement and will be in substantial accordance with the **Outline Site Waste Management Plan [EN010157/APP/7.10]** submitted in support of the DCO Application. This would include measures to manage construction waste. The Site Waste Management Plan and Construction Environmental Management Plan would be implemented by the Principal Contractor to manage the waste arisings and implement the waste hierarchy to ensure as much construction waste is avoided, reused and recycled to reduce the amount of waste that would require disposal.

3.6.38 All waste to be removed from the Site would be undertaken by fully licenced waste carriers and licenced waste facilities.

3.6.39 Water will be required during construction to support welfare facilities onsite and other uses. The water will be transported to site by road from an existing nearby licenced water abstraction source and stored on site in tanks. Self-contained portable welfare units which store foul/wastewater for collection/emptying by specialist licenced contractors will be used.

Utilities

3.6.40 It is known that there are existing utilities located within the Site such as Northern Gas Network (NGN) pipelines and Northern Power Grid (NPG) overhead cables. The Applicant is currently in correspondence with asset owners with regards to any interface between the Proposed Development and existing assets. The **Draft DCO [EN010157/APP/3.1]** sets out Protective Provisions for the protection of electricity, gas, water and sewerage undertakers, as well as for operators of electronics communications code networks. In developing the design of the Proposed Development, the Applicant has avoided the placement of solar PV modules directly above or within the easements of utilities infrastructure as illustrated in **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**.

3.6.41 Within the design of the Proposed Development, the Applicant has also taken into consideration the onshore cable connection elements of the proposed

Dogger Bank South project and is in discussions with the promotors of the Dogger Bank D project (SSE Renewables) and the promoters of the Continental Link Multi-Purpose Interconnector project (National Grid Ventures) with regards to any potential interfaces there may be with the Proposed Development.

Construction staff and working hours

3.6.42 Working hours on-site would be from 07:00 until 19:00 Monday to Friday and 07:00 until 12:00 on Saturday. No working would take place on Sundays or Bank Holidays unless necessary and agreed with East Riding of Yorkshire Council. The construction working hours are set out in the **Outline CEMP [EN010157/APP/7.2]**.

3.6.43 It is anticipated that a maximum of 350 workers would be on-site during the peak construction period (assumed to be when two Land Areas and the grid connection cable route are being constructed concurrently). For the purposes of the assessment, it has been assumed that there would be an average of 250 workers on-site per day as the worst-case scenario.

3.6.44 A Travel Plan, appended to the **Outline Construction Traffic Management Plan [EN010157/APP/7.7]** which is submitted with this DCO Application, sets out strategies to encourage the use of sustainable transport for the construction workforce.

3.7 Operation

Operational Life

3.7.1 The operational life of the Proposed Development is 40 years, which is secured pursuant to the DCO as a requirement**.**

Operational phase activities

3.7.2 During the operational (including maintenance) phase of the Proposed Development, on-site activities would be limited and restricted to maintenance activities and grazing. Maintenance activities would include:

- Regular visual inspection of all infrastructure;
- Regular scheduled inspections and testing of equipment;
- Replacement of consumable items (e.g., inverter filters);
- Cleaning of solar PV modules, if required;
- Repair or replacement of solar modules or other components, if damaged;

- Delivery of spare parts, replacement equipment items and consumables;
- Water management (e.g., inspection and clearing of gravel beds); and
- Vegetation management (e.g., cut back of grass, hedges, trees).

3.7.3 Along the routes of the grid connection cable route and interconnecting cables, operational activity will consist of routine inspections (schedule to be determined) and any reactive maintenance such as where a cable has been damaged.

Operational staff and working hours

3.7.4 It is anticipated that there will be approximately four permanent staff employed during the operational phase, who will be based on Site. Additional staffing/visitors such as maintenance workers and deliveries will be as needed. Details on the anticipated number of operational workers and working hours can be found in the **Outline Operational Environmental Management Plan (Outline OEMP) [EN010157/APP/7.3]**.

Operational site access

3.7.5 Access to the Site from the local highway network would be required during the operational phase to allow for ongoing maintenance activities. The operational phase is not anticipated to generate a significant number of trips. More detail on this is provided within **ES Volume 4, Appendix 14.2: Transport Assessment [EN010157/APP/6.4]**.

3.7.6 Access to the solar PV development during operation is anticipated to be via the same routes and access points as during construction, except for the western extent of Land Area E, which will be accessed via Weel. These operational access points are shown in the **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**.

3.7.7 Internal access tracks, established during construction, would be used by operational staff, where reasonably practicable, to cross the Land Areas. This is set out within the **Outline OEMP [EN010157/APP/7.3]**.

Mitigation of operational effects

3.7.8 The operational and maintenance activities will be undertaken in accordance with the **Outline OEMP [EN010157/APP/7.3]**. This sets out the principles and outlines measures that will be employed during the operation of the Proposed Development to control and minimise impacts on the environment, including measures to control the following types of activities:

- Working hours;
- Lighting
- Parking;
- Security;
- Monitoring and maintenance of electrical equipment (including cleaning of Solar PV modules);
- Storage of materials;
- Vegetation management;
- Management of permissive paths;
- Noise limits; and
- Management of waste.

3.7.9 The **Outline Soil Management Plan [EN010157/APP/7.8]** includes the principles of best practice to maintain the physical properties of the soil on-site during the operational (including maintenance) phase, with the aim of restoring the land to its pre-construction condition at the end of the lifetime of the Proposed Development, where reasonably practicable.

Battery safety

3.7.10 An **Outline Battery Safety Management Plan [EN010157/APP/7.6]** sets out the approach to be taken to manage the safety of the BESS in accordance with regulatory requirements, guidance, and good industry practice. The **Outline Battery Safety Management Plan [EN010157/APP/7.6]** will address aspects such as safety, design, operation, and the strategy for firefighting and emergency planning.

Environment enhancement during operation

3.7.11 A programme of environmental enhancements will be established during the construction phase of the Proposed Development. The **Outline LEMP [EN010157/APP/7.5]** sets out the principles for how the environmental enhancements will be managed throughout the operational (including maintenance) phase, following the completion of construction.

3.8 Decommissioning

Decommissioning Programme

3.8.1 As previously outlined, the operational life of the Proposed Development is 40 years. After which, the Proposed Development will require decommissioning.

3.8.2 Decommissioning is anticipated to take between 18 and 24 months, to be undertaken in phases.

3.8.3 The process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules and on-site supporting equipment, to be recycled or disposed of in accordance with industry best practices at that time. It is anticipated at this stage that underground cabling would be left in-situ to avoid unnecessary ground disturbance. Any proposals to leave certain infrastructure, for example access tracks, would be discussed and agreed with landowners as part of the decommissioning process. If on-site substations are to be retained at the request of the DNO, this will be subject to further discussions and agreements/approvals as necessary.

Mitigation of decommissioning effects

3.8.4 At the time that decommissioning would take place, the regulatory framework, good industry practices and the future baseline could have altered. A Decommissioning Environmental Management Plan would be secured pursuant to the DCO as a requirement, to be prepared in advance of the commencement of decommissioning works and will be in substantial accordance with the **Outline Decommissioning Environmental Management Plan (Outline DEMP) [EN010157/APP/7.4]**. The Decommissioning Environmental Management Plan would be subject to the approval of the local planning authority at the time of decommissioning.

3.8.5 The decommissioning effects have been addressed within **ES Volume 2, Chapters 6 to 15 [EN010157/APP/6.2]**. However, there can be a high degree of uncertainty regarding decommissioning as engineering approaches and technologies will evolve over the operational life of the Proposed Development, and assumptions have therefore been made where appropriate.

3.8.6 The **Outline DEMP [EN010157/APP/7.4]** sets out the principles to be followed in the decommissioning phase of the Proposed Development, taking account of good industry practice, its obligations to landowners under the relevant agreements and all relevant statutory requirements, including details regarding:

- Arboricultural management;
- Traffic management;
- Materials management; and
- Waste management.

Use of Decommissioned materials

3.8.7 The use of decommissioned materials would follow the waste hierarchy such that they would be reused where reasonably practicable before recycling and disposal were considered. This approach is set out in the **Outline Site Waste Management Plan [EN010157/APP/7.10]** submitted in support of this DCO Application. Up to 99% of materials in a solar PV module are recyclable, with organisations around the UK specialising in solar panel recycling in line with the Waste Electrical and Electrical Equipment Regulations 2013 **[Ref. 3-5].**

3.9 Embedded (primary) mitigation measures

3.9.1 For the purposes of this ES, embedded (primary) mitigation measures are considered to be an inherent part of the Proposed Development to avoid or prevent adverse environmental effects. Further detail on embedded (primary) mitigation is presented in **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]**.

3.9.2 The embedded (primary) mitigation measures relevant to each environmental factor are detailed in **ES Volume 2, Chapters 6 to 14 [EN010157/APP/6.2]**. The mechanism by which the measures are to be secured and implemented and the party responsible for their delivery is outlined within **ES Volume 4, Commitments Register [EN010157/APP/6.4]**.

3.10 References

- **Ref. 3-1** The Planning Inspectorate. Advice Note Nine: Rochdale Envelope (2018). Available online: https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope
- **Ref. 3-2** Planning Act 2008. Available online: https://www.legislation.gov.uk/ukpga/2008/29/section/14
- **Ref. 3-3** Institute of Lighting Professionals. Guidance Note 8: Bats and Artificial Lighting at Night (2023). Available online: https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/
- **Ref. 3-4** Institute of Lighting Professionals. Guidance Note 1: The Reduction of Obtrusive Light (2021). Available online: https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2021/

- **Ref. 3-5** Waste Electrical and Electrical Equipment Regulations 2013. Available online: https://www.legislation.gov.uk/uksi/2013/3113/contents/made

RWE Renewables UK Limited
Windmill Hill Business Park,
Whitehill Way,
Swindon,
Wiltshire,
England,
SN5 6PB
www.rwe.com