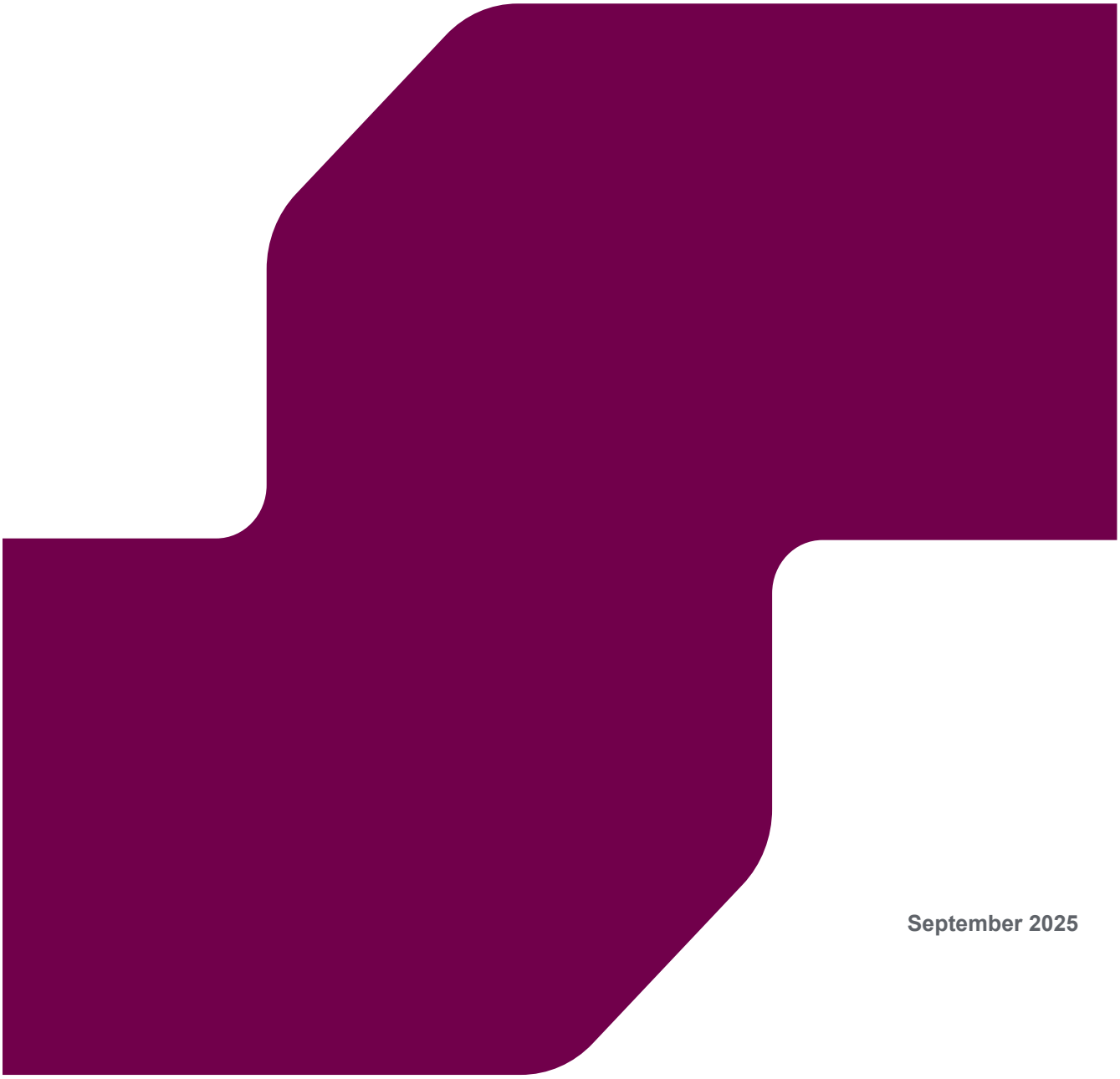
HEOLDDU SOLAR FARM

ENVIRONMENTAL STATEMENT

Chapter 2: Project Description



September 2025

Document status					
Version	**Purpose**	**Authored**	**Reviewed**	**Approved**	**Date**
01	Draft	RPS	Heolddu Solar Park Ltd	RPS	Sept 2025

Approval for issue	
RPS	September 2025

Prepared by:	**Prepared for:**
RPS	**Heolddu Solar Park Ltd.**

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Glossary

Term	Meaning
Baseline	The status of the environment without the development in place.
Cumulative Effects	The combined effect of the Heolddu Solar Farm in combination with the effects from other proposed developments, on the same receptor or resource.
Effect	The term used to express the consequence of an impact. The significance of effect is determined by correlating magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Proposed Development	Construction and operation of a solar photovoltaic electricity generating station ('solar farm') and associated ancillary development, including a 132kV substation, with landscape and environmental enhancements.
Study Area	This is an area which is defined for each environmental topic which includes the Site as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
The Site	The land within the red line boundary depicted on Volume 2, Figure 1.1 which comprises the area to accomodate development.
Solar Area East	The land within the red line boundary depicted on Volume 2, Figure 1.2 which comprises the eastern parcel of the Site.
Solar Area West	The land within the red line boundary depicted on Volume 2, Figure 1.3 which comprises the western parcel of the Site.
The Applicant	Heolddu Solar Farm Limited, a registered company of Qualitas Energy.

Abbreviations/ Acronyms

Abbreviation	Meaning
AC	Alternating current
CCC	Carmarthenshire County Council
CCTV	Closed-Circuit Television
CDM	Construction Design and Management
CEMP	Construction Environmental Management Plan
CTMP	Construction Traffic Management Plan
DC	Direct current

Abbreviation	Meaning
DNO	District Network Operator
DNS	Developments of National Significance
EIA	Environmental Impact Assessment
ES	Environmental Statement
FCA	Flood Consequences Assessment
HSE	Health and Safety Executive
HV	High voltage
IEMA	Institute of Environmental Management and Assessment
LEDS	Landscape and Ecological Design Scheme
LPA	Local Planning Authority
LV	Low voltage
MAFF	Ministry for Agriculture and Fisheries
NRW	Natural Resources Wales
NTS	Non-Technical Summary
PAC	Pre Application Consultation
PEDW	Planning and Environment Decisions Wales
PPW	Planning Policy Wales
PRoW	Public Rights of Way
PV	Photovoltaic
RHL	Registered Historic Landscape
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
SLA	Special Landscape Area
TAN	Technical Advice Note
UK	United Kingdom
WEEE	Waste Electrical and Electronic Equipment
WG	Welsh Government

Units

Unit	Description
H	Height
KV	Kilovolt
L	Length
MW	Megawatt
W	Width

2 PROJECT DESCRIPTION

2.1 Introduction

2.1.1 This chapter of the ES provides a description of the Heolddu Solar Farm (referred to as the "Proposed Development"). This chapter of the ES provides the following:

- A brief description of the Proposed Development Site, as defined by the red line boundary in **Volume 2, Figure 1.1** of the ES (referred to as the "Site") and its surrounding environs. Detailed descriptions of the environmental baseline at the Site are provided in the relevant topic chapters within the ES.

2.2 A description of the Proposed Development, including a summary of the key components of infrastructure, a description of the activities associated with their construction, operation and maintenance and decommissioning and the parameters which form the basis for the assessment provided in this ES.

2.3 Details of the measures to avoid, reduce, or offset any adverse environmental effect, which are embedded as part of the Proposed Development design. Details of these measures are provided in this chapter and are set out in each topic chapter, where applicable.

2.1.1 This chapter, together with the topic chapters, provides the data required to identify and assess the main and likely significant effects of the Proposed Development in accordance with Regulation 17 and Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (referred to as the 'EIA Regulations').

2.2 The Site and Surrounding Area

Site Location

2.2.1 The Site extends to 81.78 hectares (ha) and is located wholly within the administrative boundary of Carmarthenshire County Council (CCC). The Site is set within a rural, farmed landscape 1km to the east of Ferryside. Kidwelly is 4.0 km to the south. Smaller settlements within a 5.0 km radius of the Site include the villages of Llandyfaelog, Broadway, Llansaint, Saint Ishmael and Broadlay.

2.2.2 The location and geographic extent of the Site is provided in **Volume 2, Figure 1.1: Site Location Plan**.

2.2.3 The Site comprises:

- Solar Area West – comprising Field 1 to Field 15.
- Solar Area East – comprising Field 16 to Field 26, including the proposed connection to the existing overhead powerline.
- Underground cable route connecting the Solar Area East and Solar Area West routing along an unnamed highway.

- Construction access routing for Solar Area East, extending southwards from Carmarthen Road to Field 24.

2.2.4 Solar Area West extends to 54.66 hectares and is south-westerly facing, whilst Solar Area East extends to 25.09 hectares and is south-easterly facing. The underground cable route covers 0.48 hectares and the construction access route covers 1.55 ha.

Baseline Environment

2.2.5 Solar Area West consists of fifteen fields (1-15), mainly flat and separated from each other by post and wire fencing or mature hedgerows, the latter also forming the Site boundaries. The majority of the Site is currently used for agricultural grazing purposes. The land is well screened from the surrounding landscape and views by existing mature boundary vegetation with small areas of woodland running along the northern edges of Fields 4, 5, 7 and 9, dissecting the Site and the existing Maesmawr Farm. Existing agricultural vehicle accesses are present between fields within Solar Area West. An existing Public Right of Way (PRoW) runs along an east-west alignment close to the northern boundary of Solar Area West (PRoW 62/12/4).

2.2.6 Solar Area East consists of eleven fields (16-26) some of which, due to the surrounding topography and their hillside location, are more visible in the landscape than Solar Area West. Like Solar Area West, field boundaries are primarily characterised by mature hedgerows and areas of woodland are present to the east and to the boundaries of Fields 20, 21 and 22. An existing stream runs through the eastern part of Solar Area East, bisecting Field 20 and Field 21. A small pond is present in Field 24 and a number of relic hedgerows are present within the northern part of Solar Area East.

2.2.7 Over half of the Site was previously subject to planning permission for solar development in 2015 as detailed in **Table 2.1** below. It is understood that this permission was not implemented as a result of grid connection constraints.

Site Planning History

2.2.8 The Site lies within the local planning authority (LPA) of CCC. The LPA online records include the following historic planning applications of relevance:

Table 2.1 Site Planning History

Application Ref.	Address	Description of Development	Decision	Decision Date	Distance from Proposed Develop-ment
W/32171	Land at Bryncoch, Ferryside, SA17 5YD	Proposed 19 MW solar photovoltaic park complete with all necessary inverters,	Approved	8 Sept 2015	Partly within the Site (comprising approx 57% of the Site).

Application Ref.	Address	Description of Development	Decision	Decision Date	Distance from Proposed Develop-ment
		switchgear, transformer, security fence, infra-red cctv, and all necessary ancillary works,			

2.3 Planning Policy Context

2.3.1 As the Site lies within the administrative boundary of CCC, the Development Plan for the purposes of Section 38(6) of the Planning and Compulsory Purchase Act 2004 comprises of:

- Future Wales: The National Plan 2040 published February 2021; and
- Carmarthenshire Local Development Plan 2006 – 2021 adopted December 2014 (the 'LDP').

2.3.2 CCC is also at an advanced stage of preparing the Carmarthenshire Revised Local Development Plan 2018 – 2033. Until this is adopted, it does not form part of the Development Plan, however, the emerging policy has been considered in the preparation of the DNS application and in the Planning Statement.

2.3.3 The LDP Proposals Map and Constraints Map indicate the Site is not allocated for any specific use. However, it is affected either in whole or in part by the following environmental designations:

- Tywi Valley Registered Historic Landscape (RHL) which encompasses Solar Area West.
- Public Right of Way (PRoW) 62/12/1, 62/12/4 and 62/12/3 crossing the centre of Solar Area West, running broadly in an east-west direction, along the existing field boundaries.

2.4 Key components of the Proposed Development

2.4.1 The Proposed Development comprises the development of a solar farm, including associated ancillary infrastructure and development, temporary construction laydown areas and landscape and environmental enhancements on land at Maesmawr and Treforris Fawr Farm, Ferryside, Carmarthenshire. The Proposed Development has an operational lifetime of 40 years. At the expiry of consent or end of the Proposed Development's useful life, the Proposed Development would be decommissioned and the Site returned to its current agricultural use.

The Proposed Development comprises the following key components, which are further described in this chapter of the ES:

- Solar panels and frames
- Inverters and transformers
- District Network Operator (DNO) and Customer Substation Compound
- A Spare Parts Container
- Underground Cabling to connect Solar Area West to the Point of Connection (PoC)
- Internal access tracks
- Highway access, including temporary construction access
- Watercourse crossing to enable access to the substation compound via the DNO access route
- Temporary construction compounds
- Fencing and CCTV
- Lighting
- Landscape and biodiversity enhancements
- Permanent diversion of PRoW 62/12/4
- Surface water drainage

2.4.2 The location and geographic extent of the key components of the Proposed Development is provided in **Volume 2, Figure 2.1: Site Layout Plan**.

2.4.3 Where practicable, the design and layout of the Proposed Development, including the key components set out above have been amended in response to identified design and/or environmental constraints. The design and layout of the Proposed Development may be further amended in response to feedback received as part of the PAC stage of the DNS application process. Justification for the location of the Proposed Development, including the design and environmental constraints considered as part of the iterative design process is provided in **Volume 1, Chapter 3: Design Evolution and Alternatives**.

Solar Panels and Frames

2.4.4 Solar panels, also known as photovoltaic (PV) panels , are made up of cells, which convert the light energy from daylight into electrical energy. Bifacial technology has been selected for installation to maximise the yield of the Proposed Development during its operational phase.

2.4.5 The solar panels will be attached to mounting structures which together form PV tables (or modules). The PV tables will be fixed to pile driven galvanised steel posts. The mounting structures are typically made of galvanised steel or aluminium alloy coating and will have a rough matt finish, rather than a polished finish. The base of the mounting structures are thin 'H' or 'C' shapes, thus they have very little impact on the ground and do not require any prior excavation. The mounting structures are driven to a depth of a minimum of 2.0 to 3.0 m depending on ground conditions. When the Site is decommissioned, the mounting structures are simply pulled out from the ground causing minimal ground disturbance.

2.4.6 The frames will allow the panels to be positioned at an angle of between 20-25 degrees from the horizontal axis and orientated to the south, typically the height of a panel will be up to approximately 3.0m to the top of the panel frame on level ground, including up to approximately 0.8m of ground clearance to enable maintenance access and continued sheep grazing below the PV modules.

2.4.7 A solar panel array comprises multiple rows of PV tables running east to west. Between each row of solar panels there would be a gap of approximately 2.0-6.0 m to avoid overshadowing from one solar row to another. A 2.0 m distance is assessed within this ES as a worst-case scenario.

2.4.8 The PV tables will be set back from the Site boundaries to allow for landscaping and screen planting, perimeter security fencing, CCTV coverage, access tracks and maintenance access, as well as to accommodate ecological receptors as necessary. Where access tracks are not proposed between the PV tables and the Site boundaries, the PV tables would be sited a minimum of 15 m from hedgerow boundaries (with larger distances proposed in some areas, up to 20 m and 30 m). PV tables have been sited within the Site to avoid any vegetation removal requirement associated with this element of the Proposed Development.

2.4.9 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.2: Solar Panel Section**

Inverters and Transformers

2.4.10 The inverters are required to convert the Direct Current (DC) electricity generated by the solar panels, to Alternating Current (AC) which is compatible with the wider UK grid network. From the inverters, the electricity flows to a transformer which 'steps-up' the voltage of the electricity from low voltage (LV) to medium voltage (MV) before it reaches the substation.

2.4.11 The Applicant has committed to central inverter technology as a consequence of early noise surveys and modelling. Central inverters would be situated in pairs at regular intervals throughout the Site. The inverters comprise containerised units, measuring up to approximately 3.0 m long (L), 2.0 m wide (W) and 2.2 m high (H) (including the base). 10 inverters are required.

2.4.12 The proposed transformers will be up to approximately 5.4 m (L), 2.2 m (W) and 2.5 m (H) (including the base), these are an 'open air' design, surrounded by a fence and will be finished in green or white colour. The selected technology is a Twin Skid Compact Solution which contains one transformer station and two central inverters in a single compact outdoor skid. Therefore, there are 5 transformers and 10 inverters across the Site. The inverters, transformers and switchgear substations will be sited on a hardcore base.

2.4.13 The transformers will be contained within bunds which will hold a total capacity of greater than 110% of the oil contained in the transformer.

2.4.14 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.3: Inverter Plan and Sections**
- **Volume 2, Figure 2.4: Transformer Plan and Sections**

District Network Operator (DNO) and Customer Substation Compound

2.4.15 All electricity from across the solar panels will collect at a substation located within Solar Area East within the DNO and Customer Substation Compound.

2.4.16 The electricity will be fed into the National Grid electricity network at the Point of Connection (PoC) via 132KV cable down droppers to be installed on the existing pylon together with cable anchors and a circuit breakers bay (with disconnectors). The compound will accommodate the DNO substation and the customer substation.

2.4.17 The compound will measure up to approximately 68.5 m long (L) and 26.5 m wide (W). The maximum height of infrastructure within the compound will be up to 10.0 m high (H) where the cable anchors are mounted. The compound will be enclosed by a 2.4 m palisade fence which would typically comprise galvanised steel silver or coated in a matt olive green or brown.

2.4.18 To accommodate the substation compound, ground reprofiling will be necessary to ensure a level platform is achieved. Cut and fill operations will be employed to create a platform and a cut and fill plan has been developed which demonstrates the requirement for a total cut of 1,217 m^2 and a total fill of 1,453 m^2. Accordingly, there will be no requirement to export surplus material off-site. It is anticipated that fill requirement can be achieved through the use of Site-won materials.

2.4.19 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.5: 132kV Substation Plan**
- **Volume 2, Figure 2.6: 132kV Substation Section**

- **Volume 2, Figure 2.7: Perimeter Fenceline and Security Gate Section**
- **Volume 2, Figure 2.8: Cut and Fill Assessment**

DNO and Customer Control Room

2.4.20 A control room is required to enable remote monitoring and control of the solar farm. There will be one customer control room and one DNO control room both located adjacent (external to) to the DNO and Customer Substation Compound. These buildings will provide daily information/data in relation to the operation of the solar farm. During a solar farm's operation, data communication is vital to facilitate information flow from equipment such as inverters to a central control centre and alert the Applicant and/or the DNO to any potential operational issues with the solar farm or substation.

2.4.21 The customer control room is typically up to approximately 10.3 m (L) x 4.0 m (W) and 3.3 m (H) (including the base). The DNO control room is typically up to approximately 10.4 m (L) x 4.6m (W) and 3.3 m (H) (including the base) and would likely be colour olive green, brown or stone coloured in accordance with regional colour guidelines.

2.4.22 Adjacent to the DNO and Customer Control Room compound will be a standalone communications tower. The communications tower will measure up to approximately 15.2 m (H) (including the base).

2.4.23 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.7: Perimeter Fenceline and Security Gate**
- **Volume 2, Figure 2.9: Customer Control Room Plan and Sections**
- **Volume 2, Figure 2.10: DNO Control Room Plan and Sections**
- **Volume 2, Figure 2.11: Communications Tower Section**

Spare Parts Container

2.4.24 It is proposed that one permanent spares container will be located within the Site to store miscellaneous spare parts. This unit will measure approximately 12.2m (L) x 2.5m (W) x 2.5m (H) and would likely be coloured dark green, mid-to-dark grey or brown.

2.4.25 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.12: Spare Parts Container Plan and Sections**

Cabling

2.4.26 All of the cabling within the solar panel areas will be laid underground via surface dug trenches of up to approximately 1.0 m deep and 50 cm wide and backfilled. These will utilise existing access tracks wherever practicable, particularly where sensitive habitats or archaeology are potentially present.

2.4.27 Underground cables will be laid between Solar Area West and Solar Area East to connect Solar Area West to the PoC. It is anticipated that the cable route will be laid via surface dug trenches and backfilled along the public highway. Cabling works will be conducted during the construction working hours.

2.4.28 Road closures will be required to enable the installation of the cable within the highway. Appropriate mitigations are set out in the Outline CTMP (**Volume 3, Appendix 4.3**) which include phased installation and/or installation of metal plates. Alternative access routes are also set out in the Outline CTMP in the event that road closures prevent access to residential properties or farmsteads.

Internal Access Tracks

2.4.29 The on-site access tracks would be required to facilitate the construction of the Proposed Development in addition to repair and maintenance activities during the operational phase. As such, these on-site access tracks would form a permanent feature of the Proposed Development. As identified on **Volume 2, Figure 2.1,** a dedicated access track is necessary to maintain access to the DNO equipment.

2.4.30 The maximum width of the on-site access tracks would be 4.5 m and the depth excavated would be up to 50 cm. The construction of the on-site access tracks would require the removal and appropriate storage of surface vegetation and topsoil together with the laying of a recycled aggregate sub-base surfaced with crushed stone (suitable engineering material such as high quality crushed aggregate). This surface provides a stable platform, whilst maintaining the drainage properties of the underlying soils.

2.4.31 Internal access tracks have been designed to utilise existing gaps in field boundaries as far as practicable to reduce the need for hedgerow removal. As detailed in **Volume 3, Appendix 5.2: Tree Survey and Arboricultural Impact Assessment**, a total of 18 m of hedgerow removal is required to facilitate internal access tracks within Solar Area East and a total of 19 m of hedgerow removal is required to facilitate internal access tracks within Solar Area West. This requirement has been mitigated through the provision of more than 1 km of new hedgerow across the Site, as detailed in the Landscape and Ecological Design Scheme (**Volume 3, Appendix 2.1**).

2.4.32 For further information, refer to the following information:

- **Volume 2, Figure 2.16: Internal Access Track Section**

Watercourse Crossing (Field 20 and Field 21)

2.4.33 A suitable crossing solution is necessary to accommodate access via the DNO access track to the substation compound. The access track will route from Field 20 to Field 21 across an existing wooded area and stream. An engineering solution will confirmed prior to the submission of the DNS application, however, at this stage, a commitment has been made to utilising an existing gap between the trees. It is anticipated that the engineering solution will be in the form of a span bridge that will be installed bank-to-bank across the watercourse. The necessary land drainage consent will be obtained prior to the commencement of development.

Highway Access, including Temporary Construction Access

2.4.34 The main strategic route in the vicinity of the Site is the A484 towards Kidwelly routing south from the A48 at Carmarthen. This route provides connection from the M4 at Pontardulais.

2.4.35 Several access points will be used for the construction, operation and maintenance and decommissioning of the Proposed Development. Existing field accesses would be upgraded as part of the Proposed Development to enable access, avoiding the need to establish new gaps within field boundaries. **Table 2.2** below details the proposed Site accesses.

Table 2.2: Proposed Site Accesses

Access	Location	Temporary / Permanent
Access 1	Solar Area East (Field 24)	Temporary (construction phase only)
Access 2	Solar Area East (Field 19)	Permanent (construction, operation and decommissioning phases)
Access 3	Solar Area West (Field 11)	Permanent (construction, operation and decommissioning phases)
Access 4	Solar Area West (Field 13)	Permanent (construction, operation and decommissioning phases)
Access 5	Solar Area West (Field 9)	Permanent (construction, operation and decommissioning phases)

Access 1

2.4.36 Access 1 would be the primary construction access for the Proposed Development. The access will be temporary and to be utilised for the construction phase only. At the end of construction, the access will be removed and the land reinstated.

2.4.37 Access 1 is located to the north of Solar Area East along Carmarthen Road and currently serves as an existing field access. To enable construction vehicles to move through this access, a new 4.5 m wide track will be established which will require approximately 7.6m of hedgerow removal to the west of the access and 3.0m of hedgerow removal to the east of the access. It is proposed that once this access is decommissioned, the hedgerow that has been removed to accommodate this access will be reinstated.

Access 2

2.4.38 Access 2 is located along the southern boundary of Solar Area East, along Llandyfaelog Road, and currently serves as an existing field access (Field 19).

2.4.39 Access 2 will be established as a permanent 4.5 m access to accommodate vehicles during all stages of the Proposed Development which would require the removal of approximately 27.0m of hedgerow to the west of the access and approximately 26.5m of hedgerow to the east of the access.

2.4.40 This access is located closest to the temporary construction compound in Solar Area East (Field 19) and therefore has been identified as the most appropriate access for construction staff to use to access the temporary construction compound in Solar Area East. This access has also been designed to accommodate access for the Abnormal Indivisible Load.

Access 3

2.4.41 Access 3 is located on the boundary of Solar Area West, along Ferryside Road, and currently serves as an existing field access to Field 11. Access 2 will be established as a permanent 4.5 m access to accommodate vehicles during all stages of the Proposed Development.

2.4.42 During construction, Access 3 will be used as access for construction staff and tractor and trailer / light vehicle access to the temporary construction compound in Solar Area West (Field 11).

2.4.43 To accommodate the access, two sections of hedgerow measuring 6.0m and 8.7m in length would need to be removed / trimmed back to the east of the access. In addition, Access 3 crosses a small ditch channel that runs broadly east-west along the southern boundary of Field 19. A suitable span crossing will be installed to prevent any restriction on the flow of the channel.

Access 4

2.4.44 Access 4 is located on the boundary of Solar Area West, along Ferryside Road, and currently serves as an existing field access. Access 4 will be established as a permanent 4.5 m access to accommodate vehicles during all stages of the Proposed Development.

2.4.45 During construction, this access would be utilised by tractor and trailers / light goods vehicles to deliver materials from the temporary construction compound in Solar Area West to the northern parcel of Solar Area West.

2.4.46 To accommodate a 4.5 m access, approximately 2.6m of hedgerow would be required to be removed to the east of the access.

Access 5

2.4.47 Access 5 is located on the eastern boundary of Solar Area West, along Carmarthen Road, and currently serves as an existing field access. Access 5 will be established as a permanent 4.5 m access to accommodate vehicles during all stages of the Proposed Development.

2.4.48 During construction, this access would be utilised by tractor and trailers / light goods vehicles to deliver materials from the temporary construction compound in Solar Area West to the southern parcel of Solar Area West.

2.4.49 To accommodate a 4.5 m access, approximately 8.9m of hedgerow would be required to be removed to the northeast of the access.

Temporary construction compounds

2.4.50 The Proposed Development would require two temporary compounds to facilitate construction, one located in Solar Area West (Field 11) and one located in Solar Area East (Field 19). The temporary construction compounds will accommodate site offices, welfare facilities, storage areas, staff and construction vehicle parking and re-fuelling areas.

2.4.51 The construction of the temporary construction compounds would require the removal and appropriate storage of the surface vegetation and topsoil and the laying of a geotextile material surfaced with crushed stone (suitable engineering material such as high quality crushed aggregate). This surface provides a stable platform, whilst maintaining the drainage properties of the underlying soils. The temporary construction compounds would then be surrounded by a security fence (e.g. heras type fencing) throughout the construction phase. The security fence would measure up to approximately 2 m in height.

2.4.52 Following construction of the Proposed Development, the temporary construction compounds would be reinstated. This would comprise the removal of any temporary structures followed by laying the stored topsoil over the underlying crushed stone. This area would then either be re-seeded using a seed-mix appropriate to the area or, where practicable, reinstated using stored surface vegetation (e.g. turf).

2.4.53 For further information, refer to the following information:

- Site Location Plan – Temporary Construction Compounds

Perimeter Fencing and CCTV

2.4.54 The Proposed Development will be secured by perimeter fencing. This will be deer fencing with wooden posts at circa 3.5 m intervals. The fence will be approximately 2.4 m high with small mammal gates fitted at appropriate points to enable free access into and out of the Site. The perimeter security fencing will function to restrict unauthorised access into the Site and to deter theft or vandalism. Deer fencing has been selected due to its relative visual permeability and minimal impact on natural surface water flows. A minimum distance of 3.0 m will be maintained between the security fencing and the solar arrays. Gates will be located at each of the access points to the highway around the Site. Gates will be galvanised steel and up to approximately 2.4 m high.

2.4.55 CCTV cameras will be positioned around the periphery of the Site. These will be up to approximately 3.0 m high on galvanised steel posts and will be directed into the solar panel areas. They will use passive infra-red technology, thereby avoiding the need for lighting. These will enable remote surveillance of the Site.

2.4.56 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.13: Perimeter Fenceline and Gate**
- **Volume 2, Figure 2.14: CCTV Camera Section**

Lighting

2.4.57 During construction, temporary task lighting may be required dependent upon the time of year and weather conditions. This will only be used as necessary and any necessary task lighting will not be illuminated permanently.

2.4.58 Lighting will be installed within the substation compound. Lighting will only be used intermittently either in the event of an emergency or associated with the undertaking of routine maintenance activities which are anticipated to be up to once a month. During standard operation, there is no requirement for the Site to be permanently lit.

Landscape and biodiversity enhancements

2.4.59 Landscape and ecological mitigation is embedded in the overall design and has been formulated to reduce potential landscape, visual and wildlife impacts as far as practicable and maximise enhancement of landscape features, landscape character and biodiversity of the Site.

2.4.60 A LEDS has been prepared and is included at **Volume 3, Appendix 2.1**. A Typical Planting Palette is also included. The landscape and ecology proposals include the following measures:

- Internal and boundary hedgerow reinforcement and reinstatement appropriate to the pastural fields that would improve the Site's existing field structure, enhancing biodiversity and habitats for local wildlife and providing additional screening of the Proposed Development within views and the wider landscape. This measure will be implemented within the majority of fields within both Solar Area East and Solar Area West.
- Grassland enhancement for ground nesting birds during the spring / summer and wading birds during the winter – to comprise lowland meadow with varied sward heights. This measure will be implemented within the majority of fields within both Solar Area East and Solar Area West.
- Woodland edge scrub planting is proposed adjacent to existing areas of established woodland to improve connectivity and integration within the Site. This measure will be implemented within Fields 20 and 26 in Solar Area East.

- Structural woodland planting is proposed for the landscape treatment, where space allows and to help screen views of the solar panels and enhance the wooded character within the Site. This measure will be implemented within Fields 20 and 26 in Solar Area East and Field 13 in Solar Area West.

- New areas of wildflower and tussocky grassland will be created. Various meadow grassland mixes are proposed for different habitat creation that include a tussocky grassland for grazing beneath the solar panels, woodland meadow for the connectivity of areas adjacent to existing woodland, wetland meadow of wet areas and a wildflower meadow.

- Wetland restoration within Solar Area West (Field 24) to provide habitat for wading birds and to provide enhanced carbon sequestration within the Site.

Permanent diversion of PRoW 62/12/4

2.4.61 PRoW 62/12/4 and 62/12/3 route broadly east-west through Solar Area West. PRoW 62/12/1 provides onward connection to the wider network.

2.4.62 As part of the Proposed Development, an approximately 410 m long section of existing PRoW 62/12/4 will be permanently diverted along a different alignment that routes along the northern boundary of Field 4, Field 7 and Field 9. A PRoW Diversion Order is sought as a secondary consent to permit the proposed re-alignment. **Volume 2, Figure 2.15** shows the length and extent of PRoW 62/12/4 together with its proposed re-alignment. An assessment of the impact of this change is detailed in Volume 1, Chapter 5: Landscape and Visual.

Appearance and Design

2.4.63 The Proposed Development is low-lying in nature, and the infrastructure is typically lower in height than the existing mature trees and hedgerows within and around the Site. The infrastructure will be a more modern and obvious influence on the landscape compared to the current agricultural use of the site.

2.4.64 The Proposed Development would be removed at the end of its 40 years life enabling the Site to return to its former agricultural character and appearance.

Glint and Glare

2.4.65 The Proposed Development will cause a minimal amount of potential for redirection of light in terms of glint and glare via the surface of the panels. Any effects in terms of glint and glare would be localised and not of a magnitude that would be significant in environmental terms. As such, consideration of these effects has been scoped out of the ES as a specific chapter. This approach was confirmed as acceptable in the Scoping Direction (**Volume 3, Appendix 1.2**) which states that PEDW is supportive of the inclusion of a Glint and Glare Assessment which is contained within **Volume 3, Appendix 5.3**.

Surface Water Drainage

2.4.66 A Flood Consequences Assessment and Conceptual Drainage Strategy has been produced and is included at **Volume 3, Appendix 10.1**. Details of surface water management are contained within the Flood Consequences Assessment (FCA) and summarised below.

2.4.67 SuDS techniques include filter strips, swales and attenuation for ancillary features, which are proposed via gravel basins in which infrastructure will be located upon. Access tracks will be constructed out of MOT Type 3 permeable aggregate.

2.4.68 Solar panel arrays are designed in such a way to prevent surface water sheeting off panels and potentially causing erosion. Panels are designed to allow surface water to drip off, landing onto filter strips below.

2.4.69 All ancillary features will be placed on a gravel or concrete sub-base sized to accommodate the 100 year + 20% climate change critical storm event.

2.4.70 The detailed operational drainage design will be developed pre-construction with the objective of achieving drainage of the land to the present level.

Summary of key parameters

Table 2.3: Key parameters of the Proposed Development

Element of Development	Key Parameter for EIA
Site area	81.78 hectares
Solar Area West	54.66 hectares
Solar Area East	25.09 hectares
Area covered by infrastructure, including solar arrays, inverters, transformers, a spares container, the substation compound and control rooms.	0.026 hectares
Areas of landscape and wildlife enhancements	10.4 hectares
Maximum height of solar panels	Up to 3.0 m
Central inverters	10no. central inverters measuring 3.0 m (L) x 2.0 m (W) x 2.2 m (H).
Transformers	5no. transformers measuring 5.4 m (L), 2.2 m (W) and 2.5 m (H) arranged as a twin skid compact solution comprising one transformer station to two central inverters.
Substation compound and communications tower	Compound enclosed by 2.4 m pallisade fence measuring 68.5 m (L) and 26.5 m

Element of Development	Key Parameter for EIA
	(W). Maximum height of infrastructure within the compound up to 10.0 m (H). Communications tower up to approximately 15.2 m (H) (including the base).
DNO and Customer Control Room	It is anticipated that there will be one customer control room measuring approximately 10.3 m (L) x 4.0 m (W) and 3.3 m (H) (including the base). It is anticipated that there will be one DNO control room measuring 10.4 m (L) x 4.6 m (W) and 3.3 m (H) (including the base).
Spares container	It is anticipated that there will be one spares container measuring approximately 12.2 m (L) x 2.5 m (W) x 2.5 m (H).
Security fencing and gates	Perimeter deer fencing with wooden posts at circa 3.5 m intervals with gates located at each of the access points. Gates and security fencing up to 2.4 m high. Each gate will be approximately and 6.0 m wide.
Lighting and CCTV	No permanent lighting. Some temporary task lighting may be required during construction and to complete routine maintenance activities (up to once per month). CCTV cameras mounted on galvanised steel posts approximately 3.0 m high directed into the solar panel areas.
Cabling	Laid underground via surface dug trenches of up to approximately 1.0 m deep and 50 cm wide and backfilled utilising existing access tracks wherever practicable.
Communications tower	Up to approximately 15.2 m high.

2.5 Mitigation measures

Embedded Mitigation

2.5.1 Embedded mitigation consists of measures that have been incorporated into the design of development to prevent, reduce or offset any significant effects upon a receptor.

2.5.2 Embedded mitigation developed through the EIA process has been incorporated into the construction, operation and maintenance, and decommissioning of the

Proposed Development in order to avoid and reduce the potential environmental impacts as far as it is practical to do so.

2.5.3 The design has inherently implemented a range of embedded mitigation measures to reduce and minimise impacts to the environment, examples include but are not limited to:

Table 2.4: Embedded Mitigation

Topic	Mitigation Measure	How will the measure be secured
Landscape and visual	Implementation of the LEDS (**Volume 3, Appendix 2.1**) detailing measures to ensure the long term management of existing and proposed planting on the Site.	Adherence to the approved LEDS (**Volume 3, Appendix 2.1**).
Biodiversity	Implementation of the LEDS (**Volume 3, Appendix 2.1**) detailing measures to ensure the long term management of existing and proposed habitats on the Site.	Adherence to the approved LEDS (**Volume 3, Appendix 2.1**).
Soils	Implementation of the outline Soil Resource Management Plan (**Volume 3, Appendix 7.2**) detailing measures to ensure the appropriate handling of soils.	Adherence to the approved outline Soil Resource Management Plan (**Volume 3, Appendix 7.2**).
Historic Environment	Layout of the Proposed Development to avoid areas of known archaeological potential (as identified through the geophysical survey), built heritage receptors and historic landscape views. Implementation of controls on construction to ensure preservation of below ground archaeology in situ or preservation by record as set out in the outline CEMP (**Volume 3, Appendix 4.4**) and **Volume 1, Chapter 8: Cultural Heritage.**	Adherence to the approved plans. Adherence to the approved outline CEMP (**Volume 3, Appendix 4.4**).
Hydrology, Hydrogeology and Ground Conditions	Implementation of the Conceptual Drainage Strategy (**Volume 3, Appendix 10.1**) to manage the discharge of any excess water from the Site.	Adherence to the approved Conceptual Drainage Strategy.
Noise	Location of inverters away from sensitive receptors and Implementation of the outline CEMP (**Volume 3, Appendix 4.4**)	Adherence to the approved outline CEMP (**Volume 3, Appendix 4.4**).

	to manage noise generated during construction.	
Construction environmental management	Implementation of the outline CEMP (**Volume 3, Appendix 4.4**) to include measures to control the responsible re-use, recycling or disposal of construction waste and pollution prevention measures to control dust, noise and other pollution sources.	Adherence to the approved outline CEMP (**Volume 3, Appendix 4.4**).
Transport	Implementation of the outline CTMP (**Volume 3, Appendix 4.3**) to control construction activities and movement of traffic to and from the Site in order to reduce the impact on the environment and local road network as far as practicable during the construction period of the Proposed Development.	Adherence to the approved outline CTMP (**Volume 3, Appendix 4.3**).

2.5.4 Mitigation measures are also detailed within the relevant sections of the individual topic chapters within the ES (see **Volume 1, Chapters 5 to 10**).

2.6 Construction Phase

2.6.1 The specific techniques, timings and phasing to be adopted during construction of the Proposed Development have not yet been determined at this stage in the DNS application process. However, for the purposes of the EIA, the worst-case maximum parameters have been identified and assessed with respect to the construction phase.

Indicative Phasing of Construction Works

2.6.2 The timing of construction and phasing of construction works would be dependent on securing planning permission for the DNS application and the discharge of subsequent planning conditions. Therefore, at this stage in the DNS application process, the dates for construction of the Proposed Development remain indicative.

2.6.3 The construction phase of the Proposed Development is anticipated to commence in 2027. The total duration of the construction phase would be 12 months.

2.6.4 Prior to the commencement of construction, there may be some advanced enabling works required. These may include surveys and studies required to inform the final design of the Proposed Development.

Construction working hours

2.6.5 Normal construction working hours would be between 08:00 and 18:00 hours Monday to Friday, with limited construction activities on Saturdays between 08:00 and 13:30 hours. No construction activities would take place on a Sundays or Bank Holidays.

2.6.6 Up to an hour before and after the normal construction working hours, the following activities may be undertaken

- Arrival and departure of the workforce at the Site and movement around the Site that does not require the use of plant;
- Site inspections and safety checks; and
- Site housekeeping that does not require the use of plant.

2.6.7 These hours would be subject to agreement with the LPA. In the event that works are required outside of these hours in exceptional circumstances, this would be agreed with the LPA prior to commencement of the activity as far as practicable.

Construction Staff

2.6.8 The number of workers on-site would vary depending on the construction activities. It is anticipated that a peak workforce of approximately 60 to 70 staff members per day would be required to facilitate construction of the Proposed Development.

Construction Access

2.6.9 As set out above, the following construction accesses will be utilised:

- Access 1 – Solar Area East (Field 24) which will provide the primary construction access.
- Access 2 – Solar Area East (Field 19) which will provide access to the temporary construction compound in Solar Area East.
- Access 3 – Solar Area West (Field 11) which will provide access for construction staff and tractor and trailer / light vehicle access to the temporary construction compound in Solar Area West.
- Access 4 – Solar Area West (Field 13) which will provide access for tractor and trailers / light goods vehicles to deliver materials from the temporary construction compound in Solar Area West to the northern parcel of Solar Area West.
- Access 5 – Solar Area West (Field 9) which will provide access for tractor and trailers / light goods vehicles to deliver materials from the temporary construction compound in Solar Area West to the southern parcel of Solar Area West.

2.6.10 During construction, no HGVs will utilise Access 4 or Access 5, as they do not provide access to either construction compounds. There will be limited movements generated at these accesses, with no vehicles other than tractor / trailer / light goods vehicles using these accesses.

2.6.11 Further detail in respect of access to the Site is detailed at **Volume 3, Appendix 4.2: Access Strategy**.

2.6.12 Construction traffic will be directed to the Site according to the controls set out in the Outline CTMP (**Volume 3, Appendix 4.3**) which includes detail of delivery routes and any associated parking or management of construction traffic.

Construction Vehicles

2.6.13 The type of construction vehicles would be selected by the contractor prior to and during the construction phase. However, the following vehicles would typically be used during construction:

- Excavators;
- Cranes: Required for assembly and erection;
- Low loaders: Required for transport of construction equipment and plant;
- Concrete lorries;
- Tipper lorries; and
- Construction staff vehicles.

Construction Plant and Equipment

2.6.14 The majority of materials and plant delivery is to be transported to the Site via articulated and rigid HGVs. **Table 2.5** provides a summary of the plant and equipment required for the construction phase together with the likely vehicle requirement:

Table 2.5: Construction Plant and Equipment

Item	Vehicle Type
Solar Panels	Rigid / Articulated HGV
Mounting System	Rigid HGV
Prefabricated Buildings	Articulated / Rigid HGV
Unloading Buildings	Mobile Crane
Cables	Rigid / Articulated HGV
Fencing	Rigid HGV
Small Deliveries	Rigid HGV
Plant Delivery	10t-20t HGV (normally Rigid HGV)
132kV Transformer	Abnormal Indivisible Load (AIL)

2.6.15 The construction of the Proposed Development is expected to generate an Abnormal Indivisible Load, which is associated with the transportation of the 33kV / 132kV transformer to the DNO substation within Solar Area East. The precise

nature of the Abnormal Indivisible Load and routeing to the Site would be agreed with CCC prior to work commencing on Site

2.7 Operation and Maintenance Phase

2.7.1 Operation of the Proposed Development is anticipated to commence in 2027 and end in 2068. As such, the operational lifetime of the Proposed Development is 40 years.

2.7.2 The facility is expected to have no full-time equivalent staff during the operation. However, access would be required for staff to undertake inspection, maintenance, repairs and make adjustments. For the vast majority of the time, the facility would be controlled remotely.

2.7.3 Maintenance visits will be undertaken at regular intervals throughout the lifetime of the Proposed Development. There will be occasional visits throughout the year (typically between once per quarter / once per month) made by 4x4 vehicles and panel van vehicles for maintenance and cleaning purposes.

2.8 Decommissioning Phase

2.8.1 At the expiry of consent or end of the Proposed Development's useful life (40 years), the Proposed Development would be decommissioned. The works required for decommissioning of the Proposed Development would be similar in nature to those required during construction and are anticipated to commence in 2068 and take up to approximately one year to complete.

2.8.2 For the purposes of the EIA, the potential impacts and mitigation requirements during the decommissioning phase are assumed to similar to that of construction of the Proposed Development.

2.8.3 At least six months prior to the commencement of decommissioning works, a Decommissioning Strategy will be prepared and submitted to CCC for approval. It is anticipated that this will be a requirement of any consent issued. The Decommissioning Strategy will set out how the solar arrays and associated infrastructure will be removed, and land restored or reinstated upon completion of decommissioning works.

2.8.4 All waste and material generated during decommissioning of the Proposed Development would be recycled, re-used or disposed of at an approved landfill location in accordance with the Decommissioning Strategy.

2.9 Environmental Management

Construction Environmental Management

2.9.1 An Outline CTMP and an Outline CEMP (provided at **Volume 3, Appendix 4.3** and **Appendix 4.4**) provide the framework and requirements for managing the construction activities and movement of traffic to and from the Site in order to reduce the impact on the environment and local road network as far as practicable during the construction period of the Proposed Development.

2.9.2 The Outline CEMP sets out the key management measures that contractors would be required to adopt and implement. These measures have been developed based on those identified during the EIA process and set out in the topic chapters of this ES. They include strategies and control measures for managing the potential environmental effects of construction and limiting disturbance from construction activities as far as reasonably practicable. The Outline CEMP will set out measures to control impacts in relation to the following:

- Traffic
- Noise
- Materials and Waste
- Biodiversity
- Hydrology
- Dust
- Storage
- Safety and Security

2.9.3 For Materials and Soils Management, the Outline Soils Resource Management Plan (**Volume 3, Appendix 7.2**) provides detail on the soil stripping programme - volumes and types of soils affected; soil handling techniques and procedure; size, location, construction, management, and period of soil storage.

2.9.4 This Outline CEMP would form the basis of more detailed plans and method statements, included in a detailed CEMP to be prepared during the pre-construction period once a Principal Contractor has been appointed. The final detailed CEMP would be prepared and submitted to CCC for approval, the process for which would be secured by way of a planning condition.

Use of Natural Resources

2.9.5 The construction process would take into account the principles of good practice in soil handling and restoration set out in the following documents, wherever possible, to reduce the possibility of damage to soil materials during the construction process:

- Ministry of Agriculture, Fisheries and Food (MAFF) (2000) Soil Handling Guide; and
- Department for Food and Rural Affairs (Defra) (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (including the Toolbox Talks).

2.9.6 An outline Soil Resource Management Plan has been prepared and is provided at **Volume 3, Appendix 7.2**. The Proposed Development will be constructed,

operated and decommissioned in accordance with the measures contained within the outline Soil Resource Management Plan.

2.9.7 The EIA Regulations also refer to the use of land and biodiversity resources. Further details are provided in **Volume 1, Chapter 6: Biodiversity** of the ES.

Construction Drainage

2.9.8 During the construction phase of the Proposed Development, temporary drainage mitigation techniques would be used, including, but not limited to, runoff interceptor channels installed prior to the construction of the operational drainage design so that discharge from the Site is controlled in quality and volume during construction.

2.9.9 The construction drainage system would be designed so that any runoff produced would be treated before being discharged to the surrounding environment. This may include the use of settling tanks and/or ponds to remove sediment, temporary interceptors, and hydraulic brakes. Any drainage service runs would be surrounded by appropriate granular bedding material to reduce any potential leaks from infiltrating into the below groundwater body. Monitoring would be undertaken and any damage to the temporary drainage network would be repaired/replaced.

Waste Management

2.9.10 Construction, operation and maintenance and decommissioning of the Proposed Development will generate general waste, municipal and hazardous waste. Therefore, to reduce the environmental impact of waste and promote suitable waste management, the waste hierarchy approach will be adopted during each phase of the Proposed Development. A summary of the waste hierarchy approach is presented in **Diagram 2.1** below, which has been taken from the Department for Environment, Food & Rural Affairs (Defra) Guidance on applying the Waste Hierarchy (Defra, 2011).

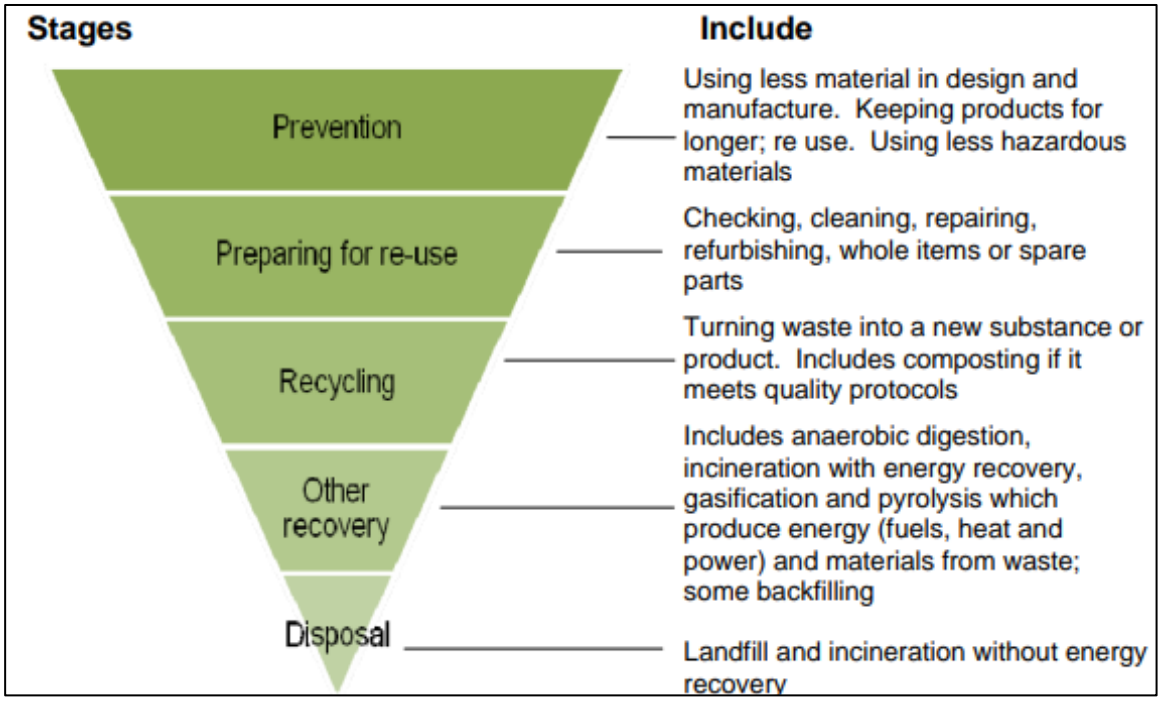

Diagram 2.1: Waste hierarchy (Defra, 2011)

Construction Waste

2.9.11 Site waste generated during construction of the Proposed Development would typically comprise materials generated during excavation or earthworks, such as surface vegetation, soil, stone and rock. However, excavated materials would be re-used on-site where these deemed suitable for re-use (e.g. as fill materials).

2.9.12 Site waste management measures will be set out in the detailed CEMP prior to the commencement of construction of the Proposed Development. The CEMP will set out how waste generated during construction of the Proposed Development will be managed, including the safe, efficient and lawful disposal of site waste. The measures included in the CEMP will address the following:

- Waste identification and segregation: the detailed CEMP will identify the type and quantities of waste to be generated during construction of the Proposed Development and describe how these are to be separated to facilitate effective disposal and recycling;

- Waste reduction and management: the detailed CEMP will include practices to minimise waste generation, such as using materials efficiently and avoiding over-ordering, and set out how each type of waste will be managed, including the re-use, recycling, recovery and disposal methods to be used;

- Compliance and training: the detailed CEMP will ensure all waste management activities comply with relevant regulations and legal requirements and set out procedures for training workers on effective site waste management practices, including the importance of reducing waste;

- Environmental protection: the detailed CEMP will set out measures required to avoid or reduce potential environmental impacts associated with construction waste, including the identification, storage and disposal of hazardous waste and maintaining a clean and organised site to prevent waste accumulation;

- Monitoring and reporting: the detailed CEMP will establish the procedure for tracking waste management activities and reporting and non-compliance issues, including nomination of approved person(s) responsible for site waste management; and

- Health and safety: the detailed CEMP will address any health and safety concerns relating to the handling and disposal of construction waste.

2.9.13 The measures to be included in the detailed CEMP will ensure that waste generated during construction of the Proposed Development is kept to a minimum and does not result in unnecessary pressure on local waste management infrastructure, either alone or cumulatively with other nearby developments.

Operational Waste

2.9.14 On the basis that the Proposed Development does not require regular onsite staff, waste generated during the operational phase would be limited to repair and maintenance activities. Waste produced during the operation and maintenance of the Proposed Development would typically comprise materials required for maintenance activities (e.g. oils, lubricants), old components, packaging waste (e.g. cardboard, plastic, metal) and general waste produced by personnel on-site (e.g. food wrappers, bottles).

2.9.15 Waste generated during operation and maintenance of the Proposed Development would be managed in a similar way to construction waste, including adherence to the waste hierarchy and measures to be set out in the CEMP.

Decommissioning Waste

2.9.16 A solar farm is a temporary and fully reversible use, unlike housing for example, with equipment removed from Site at the end of the installation's operational life (approximately 40 years). The methods used in construction (limited concrete) mean that remediation works following the removal of the panels and associated infrastructure are relatively minor and will return the Site to its previous agricultural use.

2.9.17 A suitable decommissioning plan will be prepared prior to decommissioning of the Proposed Development in accordance with the latest legislation.

2.9.18 During decommissioning all infrastructure included in the solar farm will be dismantled and removed from the Site, as follows:

- Solar Panels – the solar panels will be unscrewed from the mounting frames and packaged either to send to a solar recycling depot, or if they are still operational they may be sold as second hand. Since January 2014, PV panels in the UK have been covered by the WEEE Regulations, which require recycling of the panels at the end of their operational life. The Applicant is a member of the PV Cycle UK take back scheme for this purpose.

- Mounting Frames – the mounting frame horizontal poles will be removed and the piles will be pulled from the ground, the dismantled framework will be bundled and taken for recycling. Because of the slim line 'H' shape of the piles, they will not leave holes like fence posts and therefore only minimal soil back filling is likely to be required, if any.

- Cables – the cable trenches will be reopened, with the top soil set aside, and the cables and ducts will be removed. As the cables are removed, the trenches will be backfilled with the soil that has been set aside. The cables will be bundled and taken for recycling or sale to a scrap metal yard, and the ducts will be disposed of at an approved landfill. Where appropriate, some of the cables may be cut at a point where they are sufficiently buried and decommissioned in situ. This will be applicable for cables at a depth of 1.2 m below ground level.

- Associated Equipment – the inverters, transformers, battery and switchgear cabinets / housing will all be removed from the sites using a crane and HGVs for transportation. They can then be broken down off-site, and any reusable parts salvaged for second hand or scrap metal sale, with the remainder disposed of at an approved landfill. The granular bases will be removed with the surplus material either be on-sold to aggregate suppliers or disposed of at an approved landfill. The area where concrete has been removed will then be backfilled with good quality soil.

- Safety and Security – the fencing and CCTV equipment will be removed from the sites and sold on as second hand for reuse. Any holes left by the fence posts and poles will be backfilled with soil.

2.9.19 Following removal of all infrastructure from the Site, and backfilling with soil of any areas requiring it, the Site will be harrowed and seeded in grass, where required. The swales will either be in-filled by new topsoil that will be brought to the Site, or retained in place if the landowner considers it will provide an on-going benefit to the land.

2.9.20 The potential impacts during decommissioning are similar to construction, and therefore similar mitigation and management measures will be implemented during the decommissioning phase.

2.9.21 The approach to the assessment across topic chapters has assumed that impacts associated with decommissioning would be equal to or less than those experienced during construction of the Proposed Development. Further detail is set out in the topic chapters.

Sustainability

2.9.22 This section outlines the effects of the Proposed Development on sustainability factors such as energy demand, waste, use of natural resources and residues and emissions.

2.9.23 The Welsh Government (WG) has formally committed Wales to legally binding targets to deliver the goal of net-zero emissions, with the Climate Change Committee recommending the following targets[1] that the Proposed Development will contribute to:

- Carbon Budget 2 (2021-25): 37% average reduction

- Carbon Budget 3 (2026-30): 58% average reduction

- 2030 target: 63% reduction

[1] https://www.gov.wales/sites/default/files/publications/2021-10/net-zero-wales-summary-document.pdf

- 2040 target: 89% reduction
- 2050 target: 100% reduction (net zero).

2.9.24 The Proposed Development will also contribute to cost-effective energy generation and energy security with limited governmental subsidy and will, therefore, provide socio-economic and community benefits. Notably, the design of the Proposed Development will allow an efficient dual use of the land for renewable energy generation and agriculture.

2.10 Vulnerability to Accidents and Disasters

2.10.1 The EIA Regulations state that an EIA must identify, describe and assess, in an appropriate manner, the direct and indirect likely significant effects arising from the vulnerability of the Proposed Development to risks of major accidents or disasters. Vulnerability of the Proposed Development to major accidents introduced by the location should be considered as well as risks that are an inherent characteristic of the Proposed Development.

2.10.2 The objective of such an assessment is to establish whether the Proposed Development increases risks to existing receptors or increases the sensitivity of those receptors to the consequences of the hazard. For example, by introducing new links/pathways between a possible hazard and a receptor.

2.10.3 Solar photovoltaic technology is a relatively benign and safe form of electricity generation with very low risk of accident or disaster and will not have a significant environmental effect in this regard.

2.10.4 The Proposed Development will be enclosed by appropriately designed security fencing and monitored by CCTV, which will lower the risk of unauthorised access and accidents.

2.10.5 For further information, refer to the following information:

- **Volume 2, Figure 2.1: Site Layout Plan**
- **Volume 2, Figure 2.13: Perimeter Fenceline and Gate**
- **Volume 2, Figure 2.14: CCTV Camera Section**

Traffic

2.10.6 The Site will be accessed in accordance with the Access Strategy (**Volume 3, Appendix 4.2**) which demonstrates that safe access and egress can be achieved. The preliminary access designs have been prepared in accordance with the relevant standards for highways safety.

Flood Risk

2.10.7 The evaluation of flood risk associated with the Proposed Development is provided within **Volume 1, Chapter 10: Hydrology, Hydrogeology and Ground**

Conditions of the ES and Vol**ume 3, Appendix 10.1: Flood Consequence and Drainage Assessment** of the ES.

Accidental pollution

2.10.8 The impact of accidental pollution or contamination on the quality of groundwater, surface water, watercourses and ecology and are addressed within the following topic chapters:

- **Volume 1, Chapter 6: Biodiversity**.
- **Volume 1, Chapter 10: Hydrology, Hydrogeology and Ground Conditions**.

Health and Safety

Construction Staff

2.10.9 The construction of the Proposed Development will be undertaken in accordance with the following primary health and safety legislation and regulations:

- The Health and Safety at Work Act 1974: this requires employers to ensure the health, safety, and welfare of their employees at work, and establishes the Health and Safety Executive (HSE) to enforce these regulations;
- The Management of Health and Safety and Work Regulations 1999: this requires employers to assess and manage health and safety risks in the workplace, ensuring a safe and healthy environment for employees; and
- The Construction (Design and Management) (CDM) Regulations 2015: require those involved in construction projects to plan and manage health, safety, and welfare from the start to the finish of the project.

2.10.10 As required under the CDM Regulations 2015, a Health and Safety Plan setting out the health and safety procedures to be adhered to by construction staff will be prepared and submitted prior to the commencement of construction of the Proposed Development.

2.10.11 Overall, the Proposed Development is not of a type to give rise to potential for any unusual accidents or disasters during its construction phase. Therefore, construction legislation and good practice would be sufficient to control risks to an acceptable level.

2.11 References

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