Environmental Statement

Non-Technical Summary

Bodelwyddan Solar and Energy Storage

September 2025

Prepared for:
Bodelwyddan Solar and Energy Storage Ltd

Prepared by:
Stantec UK Ltd

Project Number:
333101605

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
1	Draft	CD	08/25	CD	09/25	KH	09/25
2	Final	CD	09/25	CD	09/25	KH	09/25

The conclusions in the Report titled **Bodelwyddan Solar and Energy Storage Environmental Statement Non-Technical Summary** are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Client (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: *C Dreyer*
Signature
Cameron Dreyer
Printed Name

Reviewed by: *C Dawkins*
Signature
Christina Dawkins
Printed Name

Approved by: *K Herman*
Signature
Kevin Herman
Printed Name

1 Introduction

1.1 Overview

1.1.1 This document provides a non-technical summary (NTS) of the Environmental Statement (ES) that has been prepared in relation to the planning application for the Bodelwyddan Solar and Energy Storage project.

1.1.2 Bodelwyddan Solar & Energy Storage Limited (the Applicant) are applying for a Development of National Significance (DNS) application on land near Bodelwyddan, North Wales (referred to as the Site).

> **Development of National Significance (DNS)** a type of planning application for large infrastructure projects within Wales.

1.1.3 This DNS application seeks consent for the following Proposed Development:

"Construction, operation and decommissioning of a proposed solar photovoltaic (PV) electricity generating system and battery energy storage system (BESS), associated solar arrays, inverters, transformers, substations and ancillary buildings, accesses, internal access tracks, landscaping and biodiversity, fencing/CCTV, cabling and associated ancillary development".

Formatted: Font: Italic

1.1.4 The Proposed Development will have an operational lifespan of 40 years, after which it will be fully decommissioned and this would be secured via a planning condition.

> **Decommissioning** is the closure and subsequent removal of all equipment associated with the solar PV electricity generating system and BESS at the end of its lifespan to restore the land to its previous state.

> **Solar PV electricity generating system** is composed of solar panels that make up a solar array and combined with other equipment to use energy from the sSun to generate electricity.

> **BESS** can store excess energy generated from the Solar PV eElectricity gGenerating sSystem and from other sources to be released when demand for electricity is high or when their production of energy from the Solar PV system and other sources ~~is~~ are low.

> **Transformers** and **Inverters** are components that manage the flow of electric power by converting the current or changing the voltage. These are generally housed together in a containerised unit, known as a **Power Conversion Unit**

Formatted: Font: Bold

> **Substations** convert electricity from different voltages, connect different power sources together and perform numerous tasks to keep electricity moving between the source and the consumer.

> **Ancillary development** refers to minor structures or uses that are secondary to the main development or use of development but is directly related to it.

1.1.5 The Site is situated within the administrative areas of Denbighshire County Council (DCC) and Conwy County Borough Council (CCBC).

1.1.6 An Environmental Statement (ES) has been prepared to support the planning application. An ES is the report of an Environmental Impact Assessment (EIA) carried out as required by national law known as the "EIA Regulations"[1]. EIA is the process by which development proposals deemed likely to have significant environmental effects are appraised. This document is the Non-Technical Summary (NTS) of the ES and summarises the content and conclusions of the ES in non-technical terms.

1.2 Key Terms

1.2.1 For ease of reference, the following terms have been used throughout this document:

- The '**Applicant**' – Bodelwyddan Solar & Energy Storage Limited;
- The '**Proposed Development**' – the planning application for Bodelwyddan Solar and BESS for which full planning permission is being sought as a DNS;
- The '**Site**' – the total site area being developed, which includes the Solar Site, BESS Site and Cable Corridor;
- The '**Solar Site**' – the site area being developed for the solar PV panels, inverters, switchroom and ancillary development;
- The '**BESS Site**' – the site area being developed for the BESS units, inverters, transformer and substation and ancillary development;
- '**Cable Corridor**' – the area where underground electrical cables will be laid to connect the Solar Site to the BESS Site and subsequently into the Bodelwyddan Substation;
- '**DCC'** – Denbighshire County Council, the local planning authority; and
- **'CCBC'** – Conwy County Borough Council, the local planning authority.

1.3 Report Structure

1.3.1 The ES is made up of two volumes. Volume 1 of the ES comprises 16 Chapters and is supported by numerous Figures and Tables. Volume 2 of the ES contains all the Technical Appendices that support the ES.

1.3.2 The structure of the ES is set out in **Table 1** below:

Table 1: ES Structure

Chapter No.	Chapter Title	Description
Volume 1 - Chapters and supporting figures		
1	Introduction	Introduction to the ES, EIA requirements, details of project team, ES organisation and availability.
2	EIA Assessment Methodology	Methods used to prepare each chapter, description of ES structure and content, generic significance criteria, scoping and consultation.

[1] SI 2017/567

Chapter No.	Chapter Title	Description
3	Site and Development Description	Site description and details of the Proposed Development. Summary of effects with respect to climate change, energy and sustainability.
4	Alternatives and Design Evolution	Outline of the main alternatives considered by the Applicant.
5	Construction Methodology and Phasing	Details of anticipated construction programme and construction methodology for the Proposed Development.
6	Flood Risk and Water Resources	Assessment of likely significant effects of the Proposed Development on flood risk and water resources.
7	Archaeology	Assessment of likely significant effects of the Proposed Development on potential buried archaeology
8	Climate Change	Assessment of likely significant effects of the Proposed Development on Climate Change.
9	Ground Conditions and Contaminated Land	Assessment of likely significant effects of the Proposed Development on Ground Conditions.
10	Biodiversity	Assessment of the effects of the Proposed Development with respect to Biodiversity.
11	Landscape and Visual	Assessment of the effects of the Proposed Development with respect to Landscape character and features and Views.
12	Built Heritage	Assessment of the effects of the Proposed Development with respect to above ground heritage assets.
13	Other Issues Considered	Assessment of the effects of the Proposed Development with respect to topics scoped into the ES but not contained within their own Chapter.
14	Impact Interactions	Assessment of the potential for the potential of impact interactions between each topic chapter of the ES.
15	Schedule of Mitigation and Monitoring	Summary of the mitigation and monitoring measures proposed throughout the ES to avoid significant adverse effects and enhance beneficial effects.
16	Statement of Significance	Summary of the conclusions of the ES.
Standalone Document	Non-Technical Summary	Summary of the ES in non-technical language.
Volume 2 – Appendices		
Technical Appendices		Technical data and reports to support the chapters in Volume 1.

2 Assessment Method

2.1 Overview

2.1.1 EIA is a procedure used to assess the likely significant effects of a Proposed Development on the environment. The results are written into an ES which, in this case, is submitted to Planning and Environment Decisions Wales (PEDW) alongside the DNS planning application. PEDW is a part of the Welsh Government and manage planning applications relating to large infrastructure developments. The ES provides the decision making authority (in this case PEDW) with sufficient information about the potential environmental effects of the Proposed Development during its construction, operation and decommissioning before a decision on the application is made. Likewise, it provides sufficient information to the relevant local planning authorities (LPA) (in this case DCC and CBBC) to inform the Local Impact Report(s) (LIR) which detail the likely impacts of the Proposed Development on the respective LPA areas, which are then provided to PEDW as part of the DNS process.

2.1.2 In general terms the main stages in the EIA are as follows:

- **Scoping** – determining the extent of issues to be considered in the assessment and reported in the ES;
- **Establishing Baseline** – drawing together and reviewing existing available data and undertaking surveys to determine the existing and future baseline conditions;
- **Assessment and Iteration** – assessing likely significant effects of development, evaluating alternatives, providing feedback to design team on potential adverse impacts, modifying development or imposing parameters, incorporating mitigation, assessing effects of mitigated development;
- **Preparation of the ES**; and
- **Consultation on the ES** and **decision making**.

2.2 EIA Scope

2.2.1 An ES should focus on the likely significant effects of the Proposed Development on the environment during the construction, operational and decommissioning phases. A request for an EIA Scoping Opinion including an EIA Scoping Report was submitted to PEDW on 19th December 2024. This ES has been prepared to fulfil the requirements of the Scoping Opinion which was received on 28th February 2025. The following technical disciplines have been included in the EIA, although not all are their own chapters within the ES:

- Population and Human Health;
- Flood Risk and Water Resources;
- Archaeology;
- Climate Change;
- Ground Conditions and Contaminated Land;
- Agricultural Land;
- Material Assets and Waste;

- Major Accidents and Disasters;
- Biodiversity;
- Landscape and Visual
- Built Heritage;
- Utilities; and
- Electromagnetic Fields

2.2.2 Multiple plans and reports are appended to the ES, to be read alongside the ES where required including application drawings, correspondence with Statutory Consultees, supporting technical information, surveys and assessments.

2.3 Consultation and Stakeholder Engagement

2.3.1 A key role of the EIA process is to ensure consultation has taken place with Statutory Consultees and other relevant stakeholders.

> **Statutory Consultees:** Organisations and bodies which local planning authorities are legally required to consult before reaching a decision on relevant planning applications, e.g. ~~the Environment Agency~~Natural Resources Wales. Consultation with other relevant stakeholders is not legally required but is recommended.

2.3.2 In addition to consultation with PEDW, consultation has been undertaken with the following organisations as part of the EIA process:

- Denbighshire County Council;
- Conwy County Borough Council;
- Natural Resources Wales;
- Cadw;
- Heneb;
- Soil Policy & Agricultural Land Planning Unit;
- Department for Economy and Infrastructure;
- Environmental Public Health Service Wales;
- North Wales Fire and Rescue Service; and
- SP Energy Networks.

2.3.3 In addition to the above, the Applicant has engaged with the local community during the non-statutory consultation stage including consultation events and home-visits with residents of properties adjacent to the Site, in addition to early stakeholder engagement with local MS' and Town Councils. The submitted Interim Consultation Report details the early engagement and non-statutory consultation process that has taken place to date, the key issues raised by the local community and stakeholders during the process, and how the Applicant has responded,

or intends to respond, to them. The Interim Consultation Report will then be updated following statutory consultation and a Consultation Report with details of the statutory consultation process and how the issues have been taken into account as the Proposed Development is finalised ahead of formal submission of the DNS application later this year.

2.4 EIA Assessment

2.4.1 The ES predicts what the significance of each environmental effect would be. Effects have been assessed against the significance criteria provided in Table 2. Specific significance criteria have been prepared for each specialist topic, based on the generic criteria (or the generic criteria referred to), for adverse and beneficial effects after Primary mitigation and enhancement measures have been applied.

2.4.2 The two principal criteria for determining significance of an environmental effect are the magnitude of the effect and the sensitivity of the receptor, in addition the likelihood of the effect occurring is also considered as appropriate.

> **Receptor:** The specific component of the environment that could be adversely affected.

2.4.3 The approach to assessing and assigning significance to an environmental effect has relied upon such factors as consideration of the EIA Regulations, guidelines, standards or codes of practice, the advice and views of statutory consultees and other interested parties, and professional judgement.

2.4.4 For the purposes of undertaking the assessment in accordance with the EIA Regulations, effects determined to be moderate or greater are considered significant in EIA terms.

Table 2: Generic Significance Criteria

	Significance Level	Criteria
Significant	Minor	Only adverse effects are assigned this level of significance as they represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites and features of international, national or regional importance. A change at a regional or borough scale site or feature may also enter this category.
	Major	These effects are likely to be important considerations at a local or borough scale but, if adverse, are potential concerns to the project and may become key factors in the decision-making process.
	Moderate	These effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Not significant	Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
	Negligible	No effect or effect which is negligible or beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.

2.5 Mitigation Measures

2.5.1 The incorporation of mitigation measures, which are measures to avoid minimise or compensate for adverse effects, is an integral part of the design and EIA processes. Mitigation measures include:

- **Primary mitigation** – measures which are designed to be a characteristic of the scheme.
- **Secondary (additional) mitigation** – measures which require further activity to be achieved, and do not form a characteristic of the scheme.
- **Tertiary mitigation** - actions that would occur with or without input from the EIA feeding into the design process (normally grouped together with primary mitigation).

2.5.2 Measures to enhance the Site have also been included within the design of the Proposed Development such as habitat creation. Further mitigation measures and opportunities for environmental enhancement have also been identified through the EIA process. A hierarchy of methods of mitigation significant adverse effects have been followed, these are, in order of preference:

- **Avoidance** – designing a Proposed Development in such a way that avoids effects on the environment;
- **Reduction** – design the development or employ construction methodologies such that significant effects identified are reduced;
- **Compensation** – providing off-site enhancement in order to compensate for where onsite mitigation has not been possible; and
- **Enhancement** - opportunities that the Proposed Development may provide to enhance the local and wider environment.

2.6 Cumulative Effects

2.6.1 An EIA must assess the likely significant effects of the Proposed Development that may arise cumulatively (when combined with) other major development that have already been granted planning permission or are under construction in the local area. This is part of the Town and County Planning Act (Wales) (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations'), that state that 'existing and / or approved' developments should be considered within an EIA review of 'approved developments' was undertaken to identify major applications within DCC and CCBC. The initial list of developments was refined following consultation with DCC and CCBC. Cumulative effects have been assessed and reported within each topic.

3 The Site and the Proposed Development

3.1 The Site

3.1.1 The Site measures approximately 183.77 hectares (ha) in total. It comprises two separate sites for different parts of the Proposed Development, namely the Solar Site and the BESS Site. The Site also includes a Cable Corridor which connects the Solar Site with the BESS Site.

Solar Site

3.1.2 The Solar Site is located to the northwest of Bodelwyddan, to the north and south of Rhuddlan Road. The Solar Site measures approximately 168.95 ha in total however the 'developable area' is approximately 132.5ha (78% of the overall Solar Site), with the rest of the land proposed for improvements to the landscaping and ecology.

3.1.3 The Solar Site is split up into six parcels of land, which are indicated on the Proposed Site Layout Plan (Solar Site) (Ref.02).

3.1.4 There is an existing operational solar farm, which was consented in 2015 (Conwy LPA ref. 0/40999), directly next to the Solar Site. The scheme originally included a number of fields within the Solar Site, however these were not built out. The precedent for solar development in this specific area and within the Solar Site itself has therefore already been established.

BESS Site

3.1.5 The BESS Site is located south of south of the St Asaph Business Park and directly adjacent to the west of Bodelwyddan substation. The BESS Site measures approximately 6.52 ha in total however the 'developable area' (i.e. the substation and BESS compounds) is approximately 2.2ha (23% of the overall BESS Site), with the remainder of the land proposed for landscaping and ecology enhancements.

3.1.6 High voltage overhead lines run through the eastern part of the BESS Site and pylons are also located to the east and south of the BESS Site.

> **High Voltage Overhead Lines and Pylons** are structures used to transmit electrical energy. The pylons are the large steel structures that hold up the overhead lines

Cable Corridor

3.1.7 The Cable Corridor is approximately 8km in length and 10m wide with a total area of 8.29 ha. It links the various Solar Site parcels together in addition to linking the Solar Site with the BESS Site and to the adjacent Point of Connection (PoC) at Bodelwyddan substation.

> **Point of Connection (PoC)** is the point at which electrical cables are connected into a substation to distribute the electrical energy

3.1.8

3.2 Site Context and Constraints

3.2.1 Based on the Predictive Agricultural Land Classification (ALC) Maps for Wales, the Site is mainly classified as Grade 3 land (good to moderate quality agricultural land) under the ALC system as defined in paragraph 3.58 of Planning Policy Wales (PPW). The ALC soil survey

carried out on the Site confirmed that 93.2% of the Solar Site is Grade 3b or 'Other' land i.e. not Best and Most Versatile (BMV) and only 6.8% as Grade 3a land is BMV. The entirety of the BESS Site is Grade 3b land which is not BMV.

> See: Agricultural Land Classification: protecting the best and most versatile agricultural land for more information

3.2.2 The Solar Site almost entirely falls within the Development Advice Map (DAM) zone C1, meaning it is an area of floodplain that benefits from the presence of flood defences. The BESS Site is located in DAM zone A, therefore at little or no risk of flooding from main rivers or the sea.

> See: Development Advice Maps (DAM) | DataMapWales for more information

3.2.3 The Site does not contain, nor is it adjacent to, any statutory or non-statutory environmental designations including National Parks, Special Areas of Conservation (SACs), Special Protection Areas (SPA), Ramsar Sites or Site of Special Scientific Interest (SSSI). The Site is not within or near to the Green Wedge. A Green Wedge are local designations which esentially have the same purpose as green belts.

> **Environmental designations** apply to areas of land or water with either local, regional, or international value to the natural environment that requires protection and enhancement. This includes internationally protected sites such as a Special Area of Conservation (SAC) and nationally protected sites such as a Site of Special Scientific Interest (SSSI).

3.2.4 Traerth Pensarn SSSI and Liverpool Bay / Bae Lerpwl Special Protection Area (SPA) lie approximately 3.1 kilometres (km) to the northeast and 2.1km to the north of the Solar Site respectively.

3.2.5 There are 31 Wildlife Sites and one Local Nature Reserve present within 2 km of the Solar Site including two within the Site boundary, and there are 11 Wildlife Sites within 2 km of the BESS Site.

3.2.6 Two Registered Landscapes of Outstanding Historic Interest are located to the south and south-east, around 1 km and 4 km from the Site respectively.

3.2.7 There are no Public Rights of Way (PRoW) within the Site, however there is a PRoW adjacent to the east of the Solar Site.

3.2.8 The North Pilgrims Way is the closest promoted route to the Site, around 1 km south-east. Offa's Dyke and the Wales Coastal Path (<2 km north). National Cycle Routes 84 and 5 are located approximately <2 km east and north, respectively.

3.2.9 There are no designated historic assets within the Site, which include Scheduled Monuments, Listed Buildings or Conservation Areas. The nearest Listed Building is a Grade II Listed Building located 70 m east and west of the Solar Site boundary. St George's Well is the closest Scheduled Monument, around 330 m south of the Site.There are no non-designated heritage assets within the Site.

3.2.10 The Cable Corridor (which is entirely underground) partly extends through Kinmel Grade II* Registered Historic Park and Garden.

> **Designated Historic Assets** *are properties or areas designated for its of special historic value, that are given legal protection.* See: Designated Heritage Assets - Coverage and content - UK HER Manual - Knowledge Hub for more information

3.3 Description of the Proposed Development

3.3.1 For a planning application where EIA is required, the description of the Proposed Development must be sufficient to enable the requirements of the EIA Regulations to be fulfilled, and in particular, to enable the potential significant effects of the Proposed Development to be identified.

3.3.2 The description for the Proposed Development is:

'Construction, operation and decommissioning of a proposed solar photovoltaic (PV) electricity generating system and battery energy storage system (BESS), associated solar arrays, inverters, transformers, substations and ancillary buildings, accesses, internal access tracks, landscaping and biodiversity, fencing/CCTV, cabling and associated ancillary development'

Solar PV panels and mounting structures

3.3.3 The solar PV panels will convert sunlight / daylight into electrical current. It is proposed to use solar tracker panels which move with the direction of the sun.

3.3.4 The solar panels will be aligned in rows in a north-south direction and will tilt east and west.

3.3.5 The Proposed Development will utilise solar panels that are confirmed to be free from per- and polyfluoroalkyl substances (PFAS). PFAS are a group of synthetic chemicals known for their persistence in the environment and potential to leach over time due to wear and tear which can have damaging effects on the environment.

> **Solar Irradiance** is the amount of power, measured in per unit area, received from the Sun in the form of electromagnetic radiation which indicates how much solar power is shining down at a specific time.

Solar inverters and transformers

3.3.6 Inverters convert direct current (DC) generated by the solar PV panels into alternating current (AC). Transformers then convert low voltage output from the inverters to a higher voltage which is more suitable for electric distribution.

> **Direct and Alternating Current:** A direct current only flows in one direction whereas an alternative current regularly changes direction which means less energy is lost when travelling over long distances making it better for electricity transmission.

3.3.7 Inverters and transformers are proposed to be within containerised units throughout the Solar Site (similar in scale to a standard 20 foot shipping container).

Switchroom

3.3.8 A switchroom would accommodate all the electrical equipment to control, monitor and connect the power from the Solar Site to the network. This is also proposed to be within a containerised unit (similar in scale to a 40 foot shipping container).

3.3.9 The inverters, switchroom and solar panels would be connected by underground electrical cables within the Solar Site.

Battery energy storage systems (BESS), transformer and ancillary buildings

3.3.10 The BESS would help with efficient management of the energy created by the Solar Site and assist in balancing the electricity grid. The BESS would be utilised to reinforce the power generated by the solar farm and other renewable generation assets, storing energy at times of low demand, and releasing to the grid in periods of higher demand or when solar irradiance is lower.

Cable route and Point of Connection

3.3.11 The Cable Corridor (approx. 10m wide) represents the area of land within which the underground electrical cables will be laid which are likely to be within trenches approximately 750mm wide. These cables will link the various Solar Site parcels together in addition to linking the Solar Site with the BESS Site and to the adjacent Point of Connection (PoC) at Bodelwyddan substation.

Fencing, gates, CCTV and internal access tracks

3.3.12 The Proposed Development would be secured with fencing to prevent theft and criminal damage and as a health and safety requirement during both the construction, operational and decommissioning phases.

3.3.13 At the Solar Site, a deer wire and mesh fence is proposed to allow sheep to graze securely amongst the solar arrays. There will also be small gaps at ground level to allow wildlife access for foraging.

3.3.14 At the BESS Site, a weldmesh fence is proposed around the BESS and substation compounds, and a palisade fence is proposed around the substation/transformer. Vehicle gates are included for maintenance access.

3.3.15 Both the Solar and BESS Sites will be monitored by CCTV or infra-red cameras for security purposes, which will only monitor inside the Site and not any surrounding public or private land.

Access

3.3.16 Vehicle access to the Solar Site is proposed to be taken from Rhuddlan Road at five proposed access points of which two are primary accesses and three are alternative secondary accesses. Three access points are to be taken from the northern side of Rhuddlan Road, and two are to be taken from the southern side of Rhuddlan Road. Existing field accesses are utilised for all except for the creation of one of the the primary accesses.

3.3.17 Vehicle access to the BESS Site is to be taken from the unnamed carriageway that runs south of Glascoed Road (B5381).

3.3.18 Internal access tracks (compacted crushed stone) are proposed at both the Solar and BESS Sites for maintenance vehicles during the operational stage.

Landscaping and biodiversity enhancements

3.3.19 The Proposed Development will deliver significant landscaping and biodiversity benefits at the Site secured through the Landscape and Ecology Strategy,(document ref 3.0.5) including:

3.3.20 an Ecological Mitigation and Enhancement Area which is a dedicated 10ha ecological haven, specifically designed with wildlife ponds, scrapes and bird crops / fallow land on rotation, to support breeding and foraging habitats for farmland and wetland birds such as skylark, teal, and other farmland and migratory species.

3.3.21 enhancement of agricultural land to meadow grassland;

3.3.22 ditch restoration and wetland habitat creation;

3.3.23 enhanced and proposed hedgerow and tree planting; and

3.3.24 barn owl boxes and tit/woodpecker boxes, and hibernacula for amphibians and reptiles.

3.3.25 The table below provides details of the approximate number of new trees, areas of woodland copses and lengths of enhanced and new hedgerow.

	Solar Site	BESS Site
New Trees (No)	127	33
Hedgerow Enhancement (m)	1,000	1,265
New hedgerow (m)	8,081	123
Woodland Groups/Copse (m2)	9,202	N/A

Drainage and water storage tank

3.3.26 A drainage strategy for the Site will be submitted as part of the planning application to detail how water will drain across the Site.

3.3.27 There will be a water tank, holding around 228,000 litres of water on the BESS Site.

3.4 Construction

Duration and Working Hours

3.4.1 The estimated construction period for the Proposed Development is 12-24 months. Should the project receive consent, then a more detailed programme will be developed once a contractor for the project is appointed.

3.4.2 Normal construction hours will be between 07.00 and 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays. There will be no working on Sundays or Public Holidays.

Waste Management

3.4.3 The construction works will be undertaken in accordance with legal requirements, and it is proposed that waste will be minimised in line with the waste hierarchy, avoiding waste during construction, diverting as much waste as possible from final disposal to more sustainable waste management options (e.g. composting). Construction waste will be recycled where possible.

3.5 Operation and Maintenance

3.5.1 The Proposed Development would have an operational lifespan of 40 years and therefore a ‘time-limited’ consent is sought. During operation, periodic maintenance activities such as

servicing equipment and management of the vegetation on Site will be undertaken. Maintenance across the Site is likely to be infrequent.

3.6 Decommissioning

3.6.1 Following the 40 years of operation, the Proposed Development will be fully decommissioned and the Site returned to its current agricultural use, and this would be secured by a legally binding planning condition. All equipment will be removed and either recycled or disposed of accordingly.

3.6.2 Details of measures to be taken during the decommissioning phase are included within the submitted Outline Decommissioning Environmental Management Plan (oDEMP).

3.6.3 An Outline Soil Management Plan (oSMP) describes the decommissioning works and the replacement of soils following removal of the bases and tracks within the Site. Following decommissioning the limited areas disturbed will be restored back to their original soil profile and quality.

> **Outline DEMP:** A document ~~generally submitted to the Local Planning Authority~~ that outlines how the developer of the Proposed Development will minimise negative environmental impacts during the decommissioning phase. If consent is granted, then a full detailed DEMP would be prepared in accordance with the Outline DEMP for submission to the Local Planning Authority for approval prior to decommissioning.

3.6.4

4 Alternatives and Design Evolution

4.1 Introduction

4.1.1 The EIA Regulations for Wales require an ES to outline any alternatives that have been studied by the Developer and explain the choice made with a comparison of environmental effects.

4.2 The 'Do Nothing' Alternative

4.2.1 The 'Do Nothing' alternative means leaving the Site in its current use. In this scenario, there would be a continuation of agricultural uses at the Site whereby intensive arable uses would continue to result in a reduction in soil quality and structure, in addition to emissions from with agricultural vehicles and equipment.

4.2.2 The generation of solar energy and battery storage are key elements towards the UK and Wales achieving Net Zero, in line with their respective legislative commitments. The 'do nothing' alternative would result in no change to current emissions levels, and therefore would not contribute to reducing the overall concentration of greenhouse gases in the atmosphere.

Net Zero is the balance of the amount of greenhouse gases being emitted into the atmosphere with the amount being actively removed to reduce the impact on climate change.

Net Zero Target: The UK has a target to achieve Net Zero by 2050 (a 100% reduction in greenhouse gas emissions compared to 1990 levels), which is legally binding and which the UK Government must meet as a matter of law. The UK is required to reduce greenhouse gas emissions by 78% by 2035 compared to 1990 levels (also binding in law).

Formatted: Font: Bold

4.3 Consideration of Alternative Location & Uses

4.3.1 The starting point for any renewable energy generation project is identifying a part of the national grid where there is available grid capacity for a connection. This requirement places a locational restriction on site selection that limits the number of appropriate sites for larger scale renewable energy projects, as well as their distance from this available grid capacity. There is currently a shortage of viable grid connections across the UK.

4.3.2 The Site selection was undertaken with regard to a number of planning policy, environmental and technical criteria such as land availability, environmental designations, agricultural land classification, topography and proximity to local residents.

4.3.3 The starting point for any renewable energy generation project is identifying a part of the national grid where there is available grid capacity for a connection. This requirement places a locational restriction on site selection that limits the number of appropriate sites for larger scale renewable energy projects, as well as their distance from this available grid capacity. There is currently a shortage of viable grid connections across the UK.

Grid Capacity refers to how much power the system can both deliver through providing electricity and accepting electricity generated.

4.3.4 It is also essential for the Proposed Development to be located near a PoC to reduce costs of infrastructure, limit the loss of power through transmission and make integration into the grid simpler.

5 Construction Methodology and Phasing

5.1 Overview

5.1.1 Each environmental discipline within the ES has set out key construction mitigation measures within their technical chapter which has been identified as Primary Mitigation measures. Mitigation measures that cannot be defined at this stage has been identified as Secondary Mitigation that will be secured as planning condition(s) of the planning permission; either securing compliance with the relevant documents or drawings submitted with this application or requiring further details to be submitted for later approval by the LPA.

5.2 Construction Management and Programme

5.2.1 Construction is anticipated to start in late 2027 to early 2028 based on predicted timescales. The construction phase is expected to take around 12-24 months. The operational phase of the Proposed Development will then be 40 years followed by decommissioning.

5.2.2 Construction activities and deliveries will be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:00 on Saturdays. No construction vehicle movements will be permitted during peak hours. No construction activities or deliveries will occur on Sundays or on Public Holidays.

5.2.3 During the construction phase, temporary construction compounds will be required to facilitate construction. At the Solar Site, there are two compounds; north of Rhuddlan Road and south of Rhuddlan Road, both of which are near to the main construction access points to minimise heavy good vehicles (HGV) traffic within the Site. At the BESS Site, a single compound is proposed in the southern part of the BESS Site.

5.2.4 Key construction activities will include:

- Site establishment and enabling works for construction, including the erection of perimeter fencing and implementing any required ecological/environmental protection measures;
- Implementation of temporary construction facilities, temporary security measures and creating the internal access road;
- Deliveries and construction of the solar farm, including the installation of mounting framework, solar panels, inverters, switchroom and ancillary infrastructure;
- Deliveries and construction of BESS infrastructure, transformer and other ancillary infrastructure;
- Digging trenches, creating cable ducting and backfilling trenches to connect the Solar Site to the BESS Site and to the PoC at Bodelwyddan substation;
- Testing of the Solar and BESS equipment; and
- Landscaping and biodiversity enhancements including any planting.

Cable Ducting refers to a system of channels designed to house and protect cables.

5.2.5 The management of environmental effects associated with the construction of the Proposed Development are presented in outline form in the submitted Outline Construction Management Plan (oCEMP). A detailed version of this CEMP would then be submitted for future approval by the LPA via a planning condition prior to commencement of development, should consent by granted.

> **CEMP:** A document generally submitted to the Local Planning Authority that outlines how the developer of the Proposed Development will minimise negative environmental impacts during the construction phase.

5.3 Construction Traffic

5.3.1 The routes that vehicles will take and the access points they will use are defined in the submitted Outline Construction Traffic Management Plan (oCTMP). A detailed CTMP would then be submitted for future approval by the LPA via a planning condition prior to commencement of development, should consent by granted. This will ensure that vehicle movements are spread throughout the day avoiding the peak hours on the highway network and use the most appropriate routes reducing adverse effects.

5.3.2 Construction access to the Site is anticipated to be provided from Rhuddlan Road to the Solar Site and the B5381 (Glascoed Road) for the BESS Site although this is still to be finalised.

5.3.3 Based on current vehicle number predictions, there is likely to be minimal impact on the local highway network because of the limited receptors.

5.4 Construction Noise

5.4.1 Construction noise is generally not regarded as being a key issue in the planning process other than where it is likely to be high in level and likely to continue for very long periods. For the Proposed Development, although the construction phase would likely extend over several months in respect to the whole Site, the nature of the construction works will be dispersed which would mean that the impact on individual existing sensitive receptors (residential properties) would be for much shorter periods.

5.4.2 The construction works for the Solar and BESS Sites would primarily consist of installation of solar panels, battery energy storage units, substations and other ancillary units along with access routes. It is considered that these works would be relatively small in scale and as such would be unlikely to result in noise or vibration levels that are significant over a long period.

5.4.3 For the Cable Corridor, 'Best Practicable Means' and best practice advice provided in BS 5228-1:2009+A1:2014 will be employed to ensure any existing sensitive receptors in the vicinity of the cable corridor will not be exposed to significant levels of noise or vibration over long periods.

5.5 Construction Waste

5.5.1 During construction, measures will be put into place to minimise waste and increase opportunities for recycling where possible. This will all be managed by the CEMP. Good design will also minimise construction waste in line with the Waste Hierarchy.

5.6 Materials and Natural Resource Usage

5.6.1 The main materials used for the construction of the Proposed Development will include silicon, aggregate, steel, aluminium and timber. Electrical equipment required will likely be delivered to the Site in containers.

Aggregate: A material comprised of coarse to fine substances including sand, gravel and crushed stone. It is often used to provide strength and stability to concrete.

5.6.2 Where possible, materials and resources will be sourced locally.

5.7 Decommissioning

5.7.1 All solar and BESS infrastructure will be removed during the decommissioning of the Proposed Development after its 40-year lifespan in which it will operate. The materials removed will be recycled and disposed of according to both good practice measures and any relevant legislation at the time.

5.7.2 The decommissioning will likely involve installation of loading and packing compounds, dismantling of panels, removal of panel support structures, removal of CCTV and any fencing, removal of piles from the substation, battery units and inverters, removal of cables across the Site and removal of internal roads. The Site will be returned to its current use as agricultural land.

6 Flood Risk and Water Resources

6.1 Introduction

6.1.1 The ES assessed the likely significant effects of the Proposed Development flood risk and water resources. This Chapter in the ES has been prepared by Calibro Consultants.

6.2 Baseline Conditions

> **Baseline Conditions:** The current environmental conditions of the Site based on desk studies and site surveys.

6.2.1 The majority of the Solar Site is flat and low-lying around at around 4 - 4.2 m above ordnance datum (AOD). A small part along the southern boundary of the Solar Site rises slightly to around 5.5 – 6.5 m AOD. The BESS Site is much higher up at approximately 48 m AOD.

> **Above Ordnance Datum:** Vertical measurement indicating the height of something above the baseline , which is usually the sea level.

6.2.2 The Solar Site has a network of watercourses along the lower end. The Solar Site lies within the Western Wales River Basin District, Clwyd Management Catchment, Gele Operational Catchment and Gele waterbody area. The BESS Site lies in the same Management Catchment however it also lies in the Pont Robin Cut (Bodelwyddan) waterbody area.

6.2.3 The principal Main Rivers that flow through the Study Area are the Afon Gele and associated Bodoryn Cut, the Glan Y Morfa Drain, Bodelwyddan Main Drain, St Georges Meadow Drain, Coed Y Drive Drain and Glan Y Gors Drain.

6.2.4 The majority of the Solar Site falls within Flood Zone 3, which has the highest risk of flooding. There is a small area of land at the southern edge boundary adjacent to the A547 which is classified as Flood Zone 2. A very small proportion part of the Site is designated as Flood Zone 1. This is land which is above approximately 6.7 m AOD. This means it is an area of floodplain that benefits from the presence of flood defences. The BESS Site is located in Flood Zone 1, which has little to no risk of flooding from main rivers or the sea.

> See Natural Resources Wales / Flood zones for more information of Flood Zones.

6.3 Construction and Decommissioning Phase Effects

6.3.1 The risk of increased runoff and soil erosion as a result of construction activities, notably soil compaction, would be considered as **Negligible**.

> **Soil Compaction:** The process of increasing the density of the soil which impacts soil health and the ability for water to pass through.

6.3.2 There is a **Minor Adverse** impact on groundwater due to the minimal movement of sediment and potential contaminants because of the deep and low permeability of the soils as well as the choice of route for the Cable Corridor along existing roads.

> **Permeability:** The ability of a substance to allow gas or liquid to pass through

6.3.3 The risk posed to watercourses from crossings for vehicular access would, with the mitigation in place, result in a **Negligible** impact on the local watercourses.

6.3.4 The impact from spills or accidents on the water environment would be **Negligible** with the limited volume of chemicals or hydrocarbons stored on the Site and adherence to technical guidance on storing this.

> **Hydrocarbons:** Compounds consisting entirely of hydrogen and carbon atoms that often make up fuel or lubricants

6.3.5 Due to the method of cable laying, the impact of this on flood risk and water resources is considered to be of **Minor** significance.

6.4 Operational Phase Effects

6.4.1 The Site will cease agricultural activity for the development of the Solar and BESS facilities which will have a positive impact on the runoff rates and water quality on the Site as herbicides and pesticides are no longer required and the ground becomes less compact from the use of agricultural machinery. The change of land use on pollution will have a **Minor Beneficial Effect**.

6.4.2 Permeable surfaces across the Site will encourage the drainage of rainfall. Parts of the BESS Site with larger areas of hardstanding will be managed through a formal drainage strategy. The impact on runoff on Site and the associated flood risk is considered to be **Negligible**.

6.4.3 The risk of a fire within the BESS is very low and within acceptable standards and the design has followed the Health and Safety Executive's hierarchy of controls to further reduce the risk. There is also no known evidence to suggest that in the event of a fire, significant amounts of contaminants would be released either in water runoff or in the air. The risk to the water environment from a potential battery fire is considered to be **Negligible**.

> See What's Hierarchy of Control? Definition, 5 Levels and Examples for more information on the Health and Safety Executive's hierarchy of controls.

6.4.4 The impact on runoff on the Solar Site is of **Negligible** significance due to the composition of the Solar Site which is made up of rows of solar panels separated by sizable gaps to allow rainfall to drain. The velocity of water falling off of solar panels from rain is also significantly less than rainfall directly falling onto the ground.

> **Velocity**: The speed of an object moving in a particular direction

6.4.5 Flood risk of the Solar Site is considered to be of **Minor** significance as solar panels will be raised in areas of risk so that their default position, they would be raised higher than predicted flood levels to allow them to remain in operation during flood conditions. With a Flood Emergency Plan in place, the risk is reduced to **Negligible**.

6.5 Mitigation Measures

6.5.1 The transition of the Site from agricultural land to year-round grass cover in the Proposed Development in itself forms part of the primary mitigation where soil erosion and runoff rates of water decrease due to the increased percolation.

6.5.2 The location of equipment around both the BESS and Solar Site have been embedded within the design of the Proposed Development, which is within areas of higher elevation to reduce the risk of flooding and damage to water-sensitive equipment. Further detail is provided within the Flood Consequence Assessment (FCA), which is submitted as part of this ES.

6.5.3 The risk of contamination to water sources as a result of a potential fire outbreak on the BESS Site has been managed through the use of watertight containers that would collect any potential contaminants in the event of a fire instead of releasing these externally. More detail on the mitigation measures for BESS fires are outlined in the Outline Battery Safety Management Plan (OBSMP), which has been submitted as part of this ES.

6.5.4 Equipment around the Site will sit on top of a shallow bed of gravel to help with the water runoff and promote infiltration of the water into the soil.

6.5.5 The outline CEMP forms part of the tertiary mitigation of the Proposed Development and details mitigation methods for the construction phase of the development, including mitigating against flood risk and water pollution.

> **Tertiary Mitigation:** Actions that are undertaken to meet other existing legislative requirements or actions that are standard practice to manage common environmental effects.

6.5.6 As with construction, the most likely impacts arising during decommissioning would be similar to those during construction in terms of soil erosion, compaction and runoff. Therefore, the main mitigation during decommissioning would be similar to that during construction and is detailed in the outline DEMP.

.

7 Archaeology

7.1 Introduction

7.1.1 The ES assessed the likely significant effects of the Proposed Development on archaeology. This Chapter in the ES been prepared by Cotswold Archaeology.

7.2 Baseline Conditions

7.2.1 Baseline conditions incorporate the results of an Historic Environment Desk-Based Assessment, a Site walkover, a geophysical survey and a trial trench evaluation undertaken to date.

7.2.2 No designated historic assets are present within the Solar or BESS Site. The Cable Corridor passes through Kinmel Park, a Grade II* Registered Historic Park and Garden. Paleochannels containing a sequence of Holocene deposits within the Solar and BESS Site were identified during the geophysical survey and trial trench evaluation. There are potential Iron Age and Roman assets within the Solar Site and Kinmel Park Railway trackbed was confirmed within the Solar Site. Most of the buried archaeological remains identified in the geophysical survey and trial trenching are undated, which means their importance remains unclear. It is considered that archaeological deposits across the Site are of negligible to medium importance.

7.3 Construction and Decommissioning Phase Effects

7.3.1 The assessment has identified a **Negligible** and therefore **Not Significant** effect upon archaeological remains within the areas of the Site with the greatest disturbance with mitigation measures in place.

7.4 Operational Phase Effects

7.4.1 Effects upon below ground archaeological deposits will have occurred during the construction phase and therefore operation effects are not anticipated.

7.5 Mitigation Measures

7.5.1 Primary mitigation for the construction of the Proposed Development includes the designing of the Proposed Development to ensure areas of sensitive archaeological remains are left undisturbed where possible. The aim to use low-level piling will also minimise the impacts on buried archaeological remains.

7.5.2 An outline CEMP, DEMP and an EMS form the tertiary mitigation and will set out measures to minimise the impacts on archaeology during the construction, decommissioning and operational phases of the Proposed Development.

7.5.3 A programme of industry standard and good practice secondary mitigation will be utilised in response to discovered buried archaeological remains. The final strategy and approach of mitigation measures will be agreed with relevant stakeholders before construction begins.

Secondary Mitigation: Actions that require further activity to achieve a specific outcome, which if often secured through ~~a Section 106 agreement or consent requirements from the planning application.~~planning conditions, should consent be granted.

Stante

8 Climate Change

8.1 Introduction

8.1.1 The ES assessed the likely significant effects of the Proposed Development on climate change. This Chapter in the ES been prepared by Stantec UK Ltd.

8.1.2 The Chapter is split into two sections in which the impact of the Proposed Development on climate change is assessed (Greenhouse Gas Emissions Assessment) and then the impact of climate change on the Proposed Development (Climate Change Risk Assessment).

Greenhouse Gas Emissions Assessment

8.2 Baseline Conditions

8.2.1 The Climate Change Act 2008 requires the UK government, including Wales, to set five-yearly carbon budgets that set a limit on the total greenhouse gas (GHG) emissions allowed to ensure emissions are reduced over time to meet the goal of net zero by 2050.

8.2.2 Wales have separate carbon budgets to England. Carbon Budget 1 (2016-2020) as well as the associated 2020 interim target were both exceeded with an average reduction of 27.8% which is greater than the 23% reduction target.

8.2.3 Territorial kiloton carbon dioxide equivalent ($ktCO_2e$) estimates for 2023 show that Denbighshire and Conwy account for approximately 2.5% and 2.9% of the total CO_2e emissions in Wales and 0.18% and 0.21% of the total CO_2e emissions in the UK, respectively. The largest source of emissions within Denbighshire and Conwy is agriculture at 40.12% and 36.35% respectively.

8.2.4 If the Site continues in its current use, there would be ongoing emissions from agricultural uses. The Site would likely sequester carbon at its current rate, although vegetation would mature. Future baseline emissions are considered to remain similar to that of current Site conditions.

8.3 Construction Phase Effects

8.3.1 It is considered that the construction of the Proposed Development has the potential for temporary (for the duration of construction activities) **Moderate Adverse**, and therefore **Significant** GHG effects. The construction activities do not align with decarbonisation for a 2050 net zero trajectory. However, the construction period will only occur over a 24-month period and therefore will only cause **Temporary** effects.

8.4 Operational Phase Effects

8.4.1 The Proposed Development plays a clear and positive role in the decarbonisation of the National Grid, which in turn is crucial for the decarbonisation of the wider UK. The delivery of the Proposed Development from 2029, when operation commences, also demonstrates that the Proposed Development supports decarbonisation well before the 2050 net zero target.

8.4.2 During the operational phase, the Proposed Development is considered to have a **Beneficial** and therefore **Significant** effect. Whilst it will continue to help avoid and reduce GHG emissions and support the transition to net zero through the generation of low carbon energy, there may be the potential for this to reduce over the longer term.

8.5 Mitigation Measures

8.5.1 Primary mitigation for the operation of the Proposed Development includes generation of renewable as this will contribute to the decarbonisation of the National Grid.

> **Decarbonisation** is the removal or reduction of carbon dioxide (CO_2) output into the atmosphere.

8.5.2 Developing areas with habitats of ecological value within the Site will be avoided or minimised where possible with biodiversity enhancements in parts of the Site too to reduce GHG emissions by keeping carbon stored in mature vegetation and planting new vegetation with the potential to store carbon.

8.5.3 An outline CEMP, CTMP and Landscape and Ecology Management Plan (LEMP) form the tertiary mitigation and will set out measures to minimise greenhouse gas emissions during the construction and operational phases of the Proposed Development.

Climate Change Risk Assessment

8.6 Baseline Conditions

8.6.1 The most recent decade (2014-2023) has been on average 0.42°C warmer than the 1991-2020 average and 1.25°C warmer than 1961-1990, with the last six years (2014-2024) within the top ten warmest in the UK since 1884 (Kendon et al., 2024).

8.6.2 A new highest daily minimum temperature record of 26.8°C and daily maximum of temperature of 40.3°C was recorded during the July 2022 heatwave (Met Office, 2022).

8.6.3 Historical climate average data between 1991 and 2020 from the closest climate station (Rhyl No.2) show that the average annual temperature was 13.64°C, July was the warmest month and February the coldest. Average total annual rainfall was 828.45 mm with December the wettest month and March the driest.

8.6.4 Denbighshire and Conwy are vulnerable to storms; weather warnings for rain, thunderstorms, snow, ice, and wind are common (Met Office, 2025). The Site has also been identified to have parts at risk of flooding with a number of historical flood events recorded.

8.6.5 Projections suggest that summers will become warmer and drier, with an expected increase in maximum summer temperatures and overall decline in summer precipitation. Winters may become milder and wetter, with an overall increase in both minimum winter temperature and winter precipitation

8.7 Construction Phase Effects

8.7.1 The effect of climate change on the Proposed Development during the construction phase is likely to be **Negligible** as although there is anticipated to be an increase of average annual temperature and decrease in average annual precipitation over the construction period (2027-2029), it is expected the risks from climatic hazards will be managed by the CEMP. The impact of climate change on the Proposed Development during construction is therefore considered to be **Not Significant**.

8.8 Operational Phase Effects

8.8.1 The impact of climate change on the Proposed Development during operation is considered to be **Not Significant** with the significance of effects varying amongst the future users of the

Site, infrastructure as well as the ecology and landscaping. All are however **Not Significant** once mitigation is in place.

8.9 Mitigation Measures

8.9.1 The Proposed Development will be designed to be resilient to management of storm water and extreme rainfall events with a number of mitigation measures in place, including the location of equipment on Site, to reduce the effects of flooding as detailed in the Flood Consequence Assessment and Drainage Strategy.

8.9.2 Enhancement of habitats on Site, through planting which will sequester carbon dioxide, provide shade and improve air quality.

> **Carbon sequestration** is the long-term storage of carbon in the plants, soils geological features and the ocean.

8.9.3 The BESS will be equipped with heating, ventilation and air conditioning for cooling to protect the infrastructure from degradation caused by overheating.

8.9.4 An outline CEMP and outline LEMP form the tertiary mitigation and will set out measures to minimise the impact of climate change during the construction and operational phases of the Proposed Development.

9 Ground Conditions and Contaminated Land

9.1 Introduction

9.1.1 The ES assessed the likely significant effects of the Proposed Development on ground conditions and contaminated land. This Chapter in the ES has been prepared by Stantec UK Ltd.

9.2 Baseline Conditions

9.2.1 A Phase 1 Ground Conditions Assessment (GCA) was undertaken to identify the baseline conditions, including potential land contamination sources, instability hazards and sensitive receptors within the Study Area and a model was developed identifying where sources and receptors may interact through pathways (also known as a contaminant linkage).

9.2.2 The Phase 1 GCA found that sources of potential contamination were absent from the majority of the Site as the land use history was limited to agricultural use. Off-Site activities with the potential to generate contamination included farms, a former landfill, St. George Quarry, a former small gas works, a waste bulking station, a skip yard / waste transfer station, a household waste recycling centre, fuel filling stations, a recycled plastic products factory and an historical lead mine.

9.3 Construction and Decommissioning Phase Effects

9.3.1 With the inclusion of the primary and tertiary mitigation measures detailed, the likely effects to the identified receptors, including human health, hydrology, hydrogeology and minerals resources, during the construction and decommissioning phases of the Proposed Development are either Negligible or Minor Adverse and therefore are considered to be **Not Significant**.

> **Hydrogeology** refers to the flow of water in the subsurface (below ground), usually through geological material.

> **Minerals Resources** are naturally occurring substances that are of value to various industries.

9.4 Operational Phase Effects

9.4.1 The likely effects of the Proposed Development to the receptors, including human health, hydrology, hydrogeology and minerals resources, during the operational phase are either Negligible or Minor Adverse and is **Not Significant**.

9.5 Mitigation Measures

9.5.1 The layout of the Solar and BESS Site have been designed to, as far as possible, mitigate against effects on the ground conditions and contaminated land. This includes avoiding sensitive features that have been identified as potential sources of contamination and moving structures away from unstable land.

9.5.2 Intrusive ground investigations and assessments will be undertaken prior to construction which will be used to inform elements of the design of the Proposed Development.

9.5.3 A Foundation Works Risk Assessment (FWRA) will also be undertaken for the BESS, National Grid Substation and any other structures requiring piling.

> **FWRA** are conducted to identify and mitigate potential risks associated with the construction of deep foundations, ensuring they do not lead to contamination of soil or groundwater.

9.5.4 Appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks will be provided.

9.5.5 An outline CEMP and DEMP form the tertiary mitigation and will set out measures to minimise the impacts on ground conditions and contaminated land during the construction, decommissioning and operational phases of the Proposed Development.

10 Biodiversity

10.1 Introduction

10.1.1 The ES assessed the likely significant effects of the Proposed Development on biodiversity. This Chapter in the ES has been prepared by The Environmental Dimension Partnership Ltd (EDP).

10.2 Baseline Conditions

10.2.1 Due to the habitats present on and adjacent to the Site, in addition to a desk study and habitat assessment, detailed surveys were undertaken for hedgerows, breeding birds, wintering birds, roosting bats, foraging/commuting bats, otter, water vole, badger and great crested newt (GCN) to determine the Site's importance for wildlife.

10.2.2 The Site is considered to be of relatively low to moderate ecological value with several designated site, habitat and protected or notable species identified during the ecological investigations requiring further consideration. There are no statutory designated nature conservation sites in close proximity to the Site, but there are designations in the wider area. The only designations that are affected are at The Dee Estuary where there is considered to be a risk of effects relating to the wintering teal population for which the conservation site is designated. In addition, there are three non-statutory designated nature conservation sites within the Site itself; Abergele Grazing Marsh (Candidate) Wildlife Site and Morfa Rhuddlan (Candidate) Wildlife Site and within the Solar Site and the Cable Corridor passes through Coed Parc Kinmel (Candidate) Wildlife Site.

Teal: A species of small duck

Statutory designations are environmental designations under legal and planning policy protection due to their importance at either a local, European or international level. This includes internationally protected sites such as a Special Area of Conservation (SAC) and nationally protected sites such as a Site of Special Scientific Interest (SSSI).

10.2.3 The habitats of value within and immediately adjacent to the Site comprise the coastal floodplain and grazing marsh within the Solar Site, the network of native hedgerows, mature trees and wet ditches, the single pond within the Solar Site, wood-pasture and parkland that the Cable Corridor passes through and ancient woodland that lies adjacent to the Solar Site and parts of the Cable Corridor.

10.2.4 With respect to species at the Site, the wintering bird assemblage is generally of County ecological importance, but notable numbers of teal recorded are precautionarily assessed of up to International ecological importance due to their potential association with the nearby Dee Estuary designated sites. The populations of breeding birds, bat rooting features, foraging/commuting bats, otter, water vole, GCN and reptiles are of Local ecological importance, whilst badger presence is of Site ecological importance.

Ecological Importance: The value or potential value of a specific ecological resource or feature within a definitive geographic context. The valuing of these features follows relevant guidance but is ultimately based on professional judgement.

10.3 Operation and Construction Phase Effects

10.3.1 Through a continuous design process, the development has sought to retain and protect the key designation, habitat and species interests, thereby avoiding the risk of any significant effects arising. The network of retained and buffered habitats will also be enhanced through appropriate management measures to strengthen connectivity of these to surrounding habitats and safeguard these habitats for protected species. In addition to the strengthening of existing habitats around the boundary of the Site through additional planting, sensitive management would include: the creation of new hedgerows; restoration including wetting of dry ditches, new tree planting; enhancement of the on-site pond and creation of meadow grassland across the Solar Site and around the equipment at the BESS Site.

> **Buffered Habitats**: Landscape feature that is used to protect a sensitive area from impacts of a development

> **Sensitive Management**: Practices aimed at preserving biodiversity and maintaining healthy ecosystems

10.3.2 Furthermore, an Ecological Mitigation and Enhancement Area, totalling approximately 10 hectares, has been designed within the development to provide enhancements for overwintering and ground nesting birds (specifically teal and skylark), with the creation of ponds, scrapes and a rotation of bird crop/fallow land to provide enhanced year-round foraging and breeding opportunities. These habitats will also be of benefit to a range of other species including bats, badger, water vole, great crested newt and reptiles.

10.3.3 Bird, bat, otter, water vole, badger, reptile and GCN interests would be further protected through sensitive working methodologies and opportunities for these species enhanced through measures such as the installation of mammal gates, erection of barn owl boxes, wetting of dry ditches and creation of permanent water bodies.

10.3.4 In light of this, the only significant residual effect is considered to be a **long-term positive effect** significant at the Local level for habitats.

10.4 Decommissioning Phase Effects

10.4.1 Habitats and species interests will be protected during decommissioning as they are during construction with measures such as the use of Ecological Protection Zones, sensitive timing of works and ecological supervision. This will be informed by update species surveys as advised by an ecologist.

10.4.2 Some uncertainty remains around whether any significant negative effects will arise during decommissioning as this may depend on the extent of reversion from the enhanced habitats provided back to pasture and arable land, and also the successful colonisation of the new and enhanced habitats on-site during the lifetime of the Proposed Development.

11 Landscape and Visual

11.1 Introduction

11.1.1 The ES assessed the likely significant effects of the Proposed Development on landscape and visual. This Chapter in the ES has been prepared by The Environmental Dimension Partnership Ltd (EDP).

11.2 Baseline Conditions

11.2.1 The Solar Site comprises a series of low lying, flat agricultural fields. There are hedgerows and ditches along some boundaries and fencing is common throughout. There are few landscape features of note on the Site itself, it is limited to wet and dry ditches and hedgerows of varying quality. A stone wall forms part of the boundary with Rhuddlan Road and St George. Trees on and within the Site itself are sparse.

11.2.2 There is an operational solar farm directly adjacent to the Site which sets a precedent for this form of renewable energy development in the area.

11.2.3 The surrounding area is also low lying with little variation in landform found. There is also a public footpath, PRoW 31/12 which runs adjacent to the eastern Site boundary.

11.2.4 The BESS Site comprises two fields with no public access permitted, and the boundaries of the BESS Site include some trees. Hedgerows border most edges, except for the northern edge but this is bound by woodland off site which encloses and separates the BESS Site from St Asaph Business Park. The rural character of this area is diminished by existing landscape detractors which have an urbanising effect on the BESS Site, such as the National Grid Bodelwyddan substation, a notable piece of energy infrastructure adjacent to the north east boundary. In addition, overhead lines transect the south eastern part of the BESS Site, with lattice towers directly to the east.

11.3 Construction and Decommissioning Phase Effects

11.3.1 During construction, temporary but noticeable changes would occur, including the presence of temporary construction laydown areas, as well as construction activity and vehicle movements. A 10 m wide working corridor is required for laying underground cabling, but this would typically be worked on within a 2 m width and reinstated afterwards.

11.3.2 Significant visual effects during construction are predicted for a small number of close-range views from PRoW and roads. However, these effects would be temporary and confined to the construction phase.

11.4 Operational Phase Effects

11.4.1 Once operational, the Proposed Development will be visually integrated into the surrounding landscape through new planting and management of trees, hedgerows, grassland, and field margins. At Year 15, most views would experience a reduced level of effect. Significant effects remain at only two locations where close-range views of the Proposed Development are not fully screened. However, by Year 15, once planting has matured, no significant effects are expected from any location.

11.4.2 There would be no significant effects on national or local landscape designations. No significant residual effects are predicted for the LANDMAP aspect areas.

LANDMAP: A Welsh Geographic Information System (GIS) resource where landscape characteristics, qualities and influences on the landscape are recorded and can be evaluated against national data sets.

11.5 Mitigation Measures

11.5.1 Measures of mitigation have been developed through the continuous design process and integrated, into the design as an intrinsic part of the Proposed Development. This includes design of the development to limit visual impact on the surroundings, placement of the development on farmed land to avoid high-value habitats and sensitive ecological corridors and retention of internal networks and where logical.

11.5.2 The Illustrative Landscape and Ecology Strategy identified mitigation in the form of enhancement of ditches along with hedgerows. Parts on the site boundary where no vegetation is present, the strategy illustrates new native species rich hedgerows and hedgerow trees to improve the Green Infrastructure Network of the Site in addition to woodland copses. These would be managed throughout the operational life of the Proposed Development through a Landscape and Ecology Management Plan

11.5.3 Mitigation during construction includes the use of existing vegetation to screen works, temporary fencing to protect retained trees, Tree Protection Plans and a Construction Environment Management Plan (CEMP).

12 Built Heritage

12.1 Introduction

12.1.1 The ES assessed the likely significant effects of the Proposed Development on built heritage. This Chapter in the ES been prepared by Cotswold Archaeology.

12.2 Baseline Conditions

12.2.1 Baseline conditions incorporate the results of the Historic Environment Desk-Based Assessment.

12.2.2 There are no designated historic assets within the Solar or Bess Site. The Cable Corridor passes through Kinmel, a Grade II* Registered Historic Park and Garden. No further designated historic assets or non-designated built heritage assets are located within the Site.

12.2.3 There are 21 Scheduled Monuments, 486 Listed Buildings (of which six are Grade I, 64 are Grade II* and 416 are Grade II), three Conservation Areas, six Registered Historic Park and Gardens (in addition to the aforementioned Kinmel Park) and two Registered Historic Landscapes namely Lower Elwy Valley and Vale of Clwyd, within the 5 km Study Area around the Site. Additionally, two buildings in proximity to the Site have been identified as non-designated historic assets: Morfa Methodist Chapel and Bodoryn Chapel.

12.3 Construction and Decommissioning Phase Effects

12.3.1 The assessment has identified a **Negligible** and therefore **Not Significant** effect on both known and unknown non-designated historic assets.

12.4 Operational Phase Effects

12.4.1 The assessment has identified a **Negligible** and therefore **Not Significant** effect on both known and unknown non-designated historic assets during the operation of the Proposed Development.

12.5 Mitigation Measures

12.5.1 The layout of the Cable Corridor has been designed to ensure the construction impacts of the underground cables in the Cable Corridor will avoid important parkland features within Kinmel Park to preserve it.

12.5.2 Mitigation has also been incorporated into the design of the Proposed Development to reduce the impact on historic assets during the operation of the Solar and BESS facilities which includes the location of components on Site, buffers, planting and retaining historic boundaries.

12.5.3 The outline CEMP and DEMP will form the tertiary mitigation for construction and decommissioning effects, specifically to minimise the impact of the Cable Corridor on Kinmel Park. A LEMP will comprise appropriate mitigation to manage the landscaping and planting around the Site, to screen any historic assets.

13 Other Considerations

13.1 Introduction

13.1.1 This Chapter provides information in relation to the environmental disciplines considered throughout the EIA process which do not have their own chapters within this ES but do require consideration. This Chapter in the ES has been prepared by Stantec UK Ltd.

13.2 Population and Human Health

13.2.1 The population within the local study area (LSA) was 5,300 whilst that of the county of Denbighshire and Conwy was 95,817 and 114,741 respectively and 3,107,493 in Wales as a whole.

13.2.2 Of the overall population in the LSA, 15.6% were under the age of 15 and 29.2% were over the age of 65. In comparison to Denbighshire, Conwy and the national average, the LSA has an older population.

13.2.3 There is similar amount of the population that identify as white within the LSA (96.4%) to Denbighshire and Conwy however this is lower than the Welsh average. On the other hand, the percentage that identify as Asin, Asian British or Asian Welsh is higher within the LSA (2%) that the rest of Denbighshire and Conwy but lower than the average in Wales.

13.2.4 The majority of physical health baseline standards within Denbighshire are worse than the national averages, however, are about average in Conwy. Life expectancy for males in Denbighshire was similar to the Welsh average however females were lower.

13.2.5 Following implementation of secondary mitigation measures, it is considered that the Proposed Development still will have a **Moderate Adverse** and **Significant** effect on the Global Climate during the construction phase however this will only be temporary.

13.2.6 There are potential **Significant** positive effects during the operation of the Proposed Development at the local level due to the enhancement of existing habitats and creation of new ones.

13.3 Agricultural Land

13.3.1 An ALC Survey was undertaken on the Site. The Solar Site c consists of 148 hectares of Subgrade 3b (moderate quality) and 11.3 hectares of Subgrade 3a (good quality) land, with the remaining 6.3 hectares of land on the Solar Site classified as 'Other Land' which may include watercourses and ditches.

13.3.2 The Solar Site therefore contains a small portion of land that is considered Best and Most Versatile (BMV). However, given this small portion of BMV land is distributed around the Solar Site in a complex pattern across six different fields and comprises a range of soil types, it would be very hard to use any differently to the non-BMV land.

> **BMV Land:** Agricultural land that is classified as anything from Grade 1 to Grade 3a. This is land that has a high and consistent yield, is very versatile and requires limited input.

13.3.3 All 6.5 hectares of the BESS Site is considered to be Subgrade 3b (moderate quality) land which is not BMV land.

13.4 Material Assets and Waste

13.4.1 During the construction and decommissioning period, measures will be put in place to minimise waste and opportunities for recycling maximised, including through implementation of the CEMP and DEMP.

13.4.2 The most significant waste generation from the Site will occur during site clearance and excavation activities. These potential impacts — including transport, dust, odour, and noise — have been fully assessed, and appropriate mitigation measures have been put in place to ensure they can be adequately controlled to acceptable levels.

13.5 Major Accidents and Disaster

13.5.1 An Outline Battery Safety Management Plan (OBSMP), Flood Consequence Assessment and Drainage Strategy are all standalone documents that have been prepared alongside this ES to address the potential risk of major accidents and disaster during the construction, operation as well as decommissioning of the Proposed Development.

13.5.2 Preliminary safety hazard identification and analysis has been conducted based on comparable energy storage systems to identify likely hazards and measures to control this. The mitigation measures in place are expected to reduce the risk of major accidents and disaster within the BESS to an acceptable level.

13.5.3 As set out in the OBSMP, the BESS will be safely managed in line with international industry guidance and best practice. The site design and layout has been designed in accordance with Health and Safety Executive (HSE) and National Fire Chiefs Council (NFCC) recommendations.

13.5.4 Mitigation measures, including the use of watertight containers and control of the temperature and humidity within the BESS including active ventilation, and remote and on-site monitoring, fire suppression systems, will limit the risk of pollution to water in the highly unlikely scenario of there being a BESS fire. More detailed mitigation is explained in the Flood Consequence Assessment and Drainage Strategy.

13.6 Utilities

13.6.1 SPEN raised comments within the Scoping Direction that the impact of the Proposed Development on existing network is to be explained, including how this is to be managed and mitigated. This is explained in Section 3.4 of the ES.

13.6.2 Consultation is ongoing and SPEN have indicated that any remaining concerns can be addressed through the provision of a method statement and a suitably worded planning condition.

13.7 Electromagnetic Fields

13.7.1 All electrical equipment emits electric and magnetic radiation. Power cables produce both electric and magnetic fields which can potentially affect human health. Radiation from underground cables is generally less than radiation from overhead powerlines as emissions from adjacent conductors within a cable tend to cancel each other out. Whilst underground cabling usually results in negligible electric field above ground, it may result in significant magnetic field dependent on the current in the conductors. A space of 5 m between any cabling and homes or workspaces will mitigate potential effects on human health.

Radiation: Emission of energy in the from of waves or particles through space.

Electric and **Magnetic Field:** An electric field is the force field caused by an electric charge resulting in a change in space around the charge whereas a magnetic field is the force field generated by a moving electric charge and magnets.

Conductor: An object or type of material that allows an electric current to flow through.

13.7.2 Radiation from the transformers and inverters will be lower due to the protective enclosures they will be in. They will also be located at least 50 m away from any home or workspace.

13.7.3 A High-Level Electromagnetic Field Assessment has been prepared and submitted alongside the ES which provides further information.

14 Summary and Residual Effects

14.1 Introduction

14.1.1 The ES has been prepared to support the DNS application is for the construction, operation and decommissioning of a solar PV electricity generating system and BESS, as well as solar arrays, inverters, transformers, cabling, substations, access tracks, fencing, CCTV, landscaping and ecology improvements in addition to relevant ancillary developments for 40 years on land near Bodelwyddan, North Wales.

14.1.2 The Proposed Development has been subject to several design stages. As this process progressed measures have been incorporated into the development in order to avoid, reduce or offset significant environmental effects.

14.1.3 The Proposed Development, which includes the mitigation incorporated into the development and additional mitigation which will be secured through planning conditions. These are detailed in **Section X.9** of each discipline chapter above.

14.2 Residual Effects

14.2.1 Each of the technical assessments describe the likely significant residual effects of the Proposed Development. Residual effects mean those effects that are predicted to occur once all mitigation measures have been put in place. **Table 3** (construction and decommissioning) and **Table 4** (operation) present:

- A summary of the primary and tertiary mitigation;
- A description of what the predicted effect will be;
- Details of any further secondary mitigation measures that will be implemented to reduce any predicted effects; and
- The residual effect that is predicted once all mitigation is implemented.

14.3 Cumulative Effects

14.3.1 Each of the technical assessments considers the likely significant cumulative effects of the Proposed Development with the cumulative schemes set out in **Appendix A.8** of the ES.

14.3.2 The technical assessments identified the following significant beneficial cumulative effects:

- Long-term, Beneficial effects on Coastal Floodplain and Grazing Marsh, Hedgerows, Trees, Wet Ditches, Grassland and Pond habitats.

Table 2: Summary of Residual Effects (Construction and Decommissioning)

Chapter	Primary and Tertiary Mitigation	Potential Effect	Secondary Mitigation	Significant Residual Effect
6: Flood Risk and Water Resources	Locate BESS and substation outside areas at high risk of flooding Ensure solar panels (trackers) are above flood levels BESS units to be watertight and 'ingress protection rated, subject to procurement. Outline CEMP and DEMP OBSMP Drainage Strategy The full list can be found in **Chapter 6** of the ES.	Runoff and soil erosion (**Negligible**) Sediment mobilisation and contamination of groundwater (**Minor Adverse**) Vehicles Crossing Watercourses (**Negligible**) Chemical Spills and Pollution (**Negligible**) Cable crossings (**Minor Adverse**)	No additional mitigation is proposed	No change in effect
7: Archaeology	Locating elements impacting ground conditions away from sensitive locations Archaeological investigation and recording Outline CEMP and DEMP The full list can be found in **Chapter 7** of the ES.	In situ archaeological preservation (**Minor/Moderate Beneficial**) Archaeological remains on Solar Site (**Minor Adverse/Negligible**) Archaeological remains on BESS Site (**Permanent Moderate Adverse**) Archaeological remains along Cable Corridor (**Permanent Minor/Moderate Adverse**)	Localised use of 'no-dig' construction solutions Localised archaeological excavations	Archaeological remains on Solar Site (**Negligible**) Archaeological remains on BESS Site (**Negligible**) Archaeological remains along Cable Corridor (**Negligible**)
8: Climate Change	Complying with policy to reduce GHG emissions Outline CEMP and DEMP Construction Traffic Management Plan (CTMP) Outline Ecological Construction Method	GHG emissions (**Temporary Moderate Adverse**) Climate Change on Proposed Development (**Negligible**)	No additional mitigation is proposed	No change in effect

Chapter	Primary and Tertiary Mitigation	Potential Effect	Secondary Mitigation	Significant Residual Effect
	Statement (oECMS) The full list can be found in **Chapter 8** of the ES.			
9: Ground Conditions and Contaminated Land	Outline CEMP and DEMP Layout optimisation avoiding unstable land Layout optimisation avoiding sensitive receptors The full list can be found in **Chapter 9** of the ES.	Human health – Off Site (**Minor Adverse**) Human health – On Site (**Minor Adverse**) Hydrology (**Minor Adverse**) Hydrogeology (**Minor Adverse**) Minerals resources (**Negligible**)	No additional mitigation is proposed	No change in effect
10: Biodiversity	Outline CEMP and DEMP Outline Ecological Construction Method Statement (oECMS) Retention of valuable habitats and those around perimeter of Site Protected Species management and/or licensing for badger, reptiles, roosting bats, great crested newts and breeding / wintering birds. The full list can be found in **Chapter 10** of the ES.	International Statutory Designated Site – Dee Estuary SAC and Elwy Valley Woods SAC (**Negligible**) International Statutory Designated Site – Dee Estuary SPA and Ramsar Site (**Negligible**) National- Statutory Designated Site- Coedydd ac Ogofau Elwy a Meirchion SSSI (**Negligible**) Non- Statutory Designated Site - Morfa Rhuddlan Wildlife Site and Abergele grazing marsh Wildlife Site (**Not Significant**) Non- Statutory Designated Site - Coed Parc Kinmel Wildlife Site (**Not Significant**) Priority Habitat: Coastal and Floodplain Grazing Marsh (**Not Significant**) Priority Habitat: Wood-Pasture and Parkland (**Not Significant**) Ancient Woodland (**Negligible**) Priority Habitat: Native Hedgerows and Mature Trees (**Not Significant**) Wet Ditches (**Negligible**)	Ecological Mitigation and Enhancement Area	No change in effect

Chapter	Primary and Tertiary Mitigation	Potential Effect	Secondary Mitigation	Significant Residual Effect
		Priority Habitat: Ponds (**Negligible**) Breeding Birds (**Not Significant**) Wintering Birds (**Not Significant**) Roosting Bats (**Negligible**) Foraging/Commuting Bats (**Negligible**) Badger (**Negligible**) Otter (**Negligible**) Water Vole (**Negligible**) Great Crested Newts (**Negligible**) Reptiles (**Negligible**)		
11: Landscape and Visual	Ecological Construction Method Statement Outline CEMP	***Landscape*** Site character of the Solar and BESS Site (**Moderate Adverse**) but temporary Site character of the Cable Corridor (**Negligible**) temporary. National Landscape Character 8: North Wales Coast (**Minor/Moderate Adverse**) LANDMAP aspect area (**Negligible** to **Moderate Adverse**) Non-host Visual and Sensory Aspect Areas (**Negligible**) Designated Landscape: Betws yn Rhos SLA (**Minor/Moderate Adverse**) Designated Landscape: Clwydian Range and Dee Valley National Landscape (CRDVNL) (**Moderate Adverse** to **no effect**) ***Visual***	No additional mitigation is proposed	No change in effect

Chapter	Primary and Tertiary Mitigation	Potential Effect	Secondary Mitigation	Significant Residual Effect
		Road and PRoW users represented by Photoviewpoints (PVPs) 1,2,3 and 5 (**Minor/Moderate Adverse**), PVP 6 (**Moderate/Major Adverse**), PVP 7 (**Moderate Adverse**), PVPs 8 & 9 (**Minor/Moderate Adverse**), PVP 12 (**Moderate/Major Adverse**), PVP 13 (**Major Adverse**), PVP 20, (**Minor/Moderate Adverse**), PVP 21 (**Moderate/Major Adverse**), PVP 22 (**Moderate Adverse**) Elevated PRoW and recreational viewpoints within CRDVNL represented by PVP 14 (**Moderate/Major Adverse**), 18-19 (**Minor/Moderate Adverse**), PVP 24 and 27 (**Minor Adverse**), PVP 25-26 (**Minor** to **Moderate Adverse**) , PVP 28 (**Negligible** to **Moderate Adverse**) and PVP 29 (**Moderate Adverse**)		
12: Built Heritage	Outline CEMP and DEMP Layout of Cable Corridor to avoid parkland features in Kinmel Park	Kinmel Park (**Negligible**) Designated and non-designated historic assets (**Negligible**)	No additional mitigation is proposed	No change in effect

Table 3: Summary of Residual Effects (Operation)

Chapter	Primary and Tertiary Mitigation	Potential Effect	Further Essential Mitigation	Significant Residual Effect
6: Flood Risk and Water Resources	No maintenance access during flood conditions with remote operation used instead Implement a Flood Emergency Plan The full list can be found in **Chapter 6** of the ES	Change of land use on pollution (**Minor Beneficial**) Runoff (**Negligible**) Flood risk on Solar Site (**Minor Adverse**) Flood risk on containerised infrastructure (**Minor Adverse**)	No additional mitigation is proposed	No change in effect
7: Archaeology	Operational Environmental Management Plan (OEMP)	Replacement and maintenance of below ground equipment (**Negligible**)	No additional mitigation is proposed	No change in effect

Chapter	Primary and Tertiary Mitigation	Potential Effect	Further Essential Mitigation	Significant Residual Effect
8: Climate Change	Outline Landscape and Ecology Management Plan (oLEMP) Generate renewable energy Enhancement and development of new habitats in accordance with Landscape and Ecology Strategy	GHG emissions (**Beneficial**) Future Users of the Site e.g. workers (**Negligible/ Minor Adverse**) Infrastructure (**Negligible/ Minor Adverse**) Ecology, landscaping and planting (**Negligible/ Minor Adverse**)	No additional mitigation is proposed	No change in effect
9: Ground Conditions and Contaminated Land	No primary or tertiary mitigation proposed	Human health – Off Site (**Negligible**) Human health – On Site (**Negligible**) Hydrology (**Negligible**) Hydrogeology (**Negligible**) Minerals resources (**Negligible**)	No additional mitigation is proposed	No change in effect
10: Biodiversity	Retention of key ecological features on-site and Site boundary Green corridors throughout Solar Site Ecological Mitigation and Enhancement Area Outline LEMP Barn owl boxes Deer-proof fencing The full list can be found in **Chapter 10** of the ES	Statutory Designated Sites (**Not Significant**) Non- Statutory Designated Sites (**Not Significant**) Habitats (**Not Significant**) Breeding Birds (**Not Significant**) Wintering Birds (**Not Significant**) Roosting Bats (**Not Significant**) Foraging/Commuting Bats (**Not Significant**) Otter (**Not Significant**) Water Vole (**Not Significant**) Great Crested Newts (**Not Significant**) Reptiles (**Not Significant**)	Ecological Mitigation and Enhancement Area	No change in effect
11: Landscape and Visual	LEMP Placement of inverters and equipment away from residents	***Landscape – Year 1*** Site character of the Solar and BESS Site (**Minor/Moderate Adverse**) National Landscape Character 8: North Wales	No additional mitigation is proposed	***Landscape – Year 15*** Site character of the Solar and BESS Site (**Neutral Effect**) National Landscape Character

Chapter	Primary and Tertiary Mitigation	Potential Effect	Further Essential Mitigation	Significant Residual Effect
	The full list can be found in **Chapter 11** of the ES	Coast (**Minor Adverse**) LANDMAP aspect area (**Negligible** to **Moderate Adverse**) Non-host Visual and Sensory Aspect Areas (**Minor/Moderate Adverse**) Designated Landscape: Betws yn Rhos SLA (**Minor/Moderate Adverse**) Designated Landscape: Clwydian Range and Dee Valley National Landscape (CRDVNL) (**Moderate Adverse** to **no effect**) ***Visual – Year 1*** Road and PRoW users represented by PVPs 4, 13 and 21 (**Moderate/Major Adverse**), PVP 6 and 12 (**Moderate Adverse**), PVP 7 and 22 (**Minor/Moderate Adverse**), PVPs 1-3,5, 8 & 9 (**Minor/Moderate Adverse**), PVP 14 (**Moderate Adverse**), PVP 10 (**Minor/Moderate Adverse**), PVP 15 and 18, (**Minor/Moderate Adverse** to **Minor Adverse**), PVP 23 (**No Effect**), PVP 16 and 17 (**Minor/Moderate Adverse**), PVP 30 (**No Effect**), PVP 19 (**Moderate Adverse**), PVPs 24-28 (**Minor/Moderate Adverse** to **Minor Adverse**), PVP 29 (**Moderate Adverse**)		8: North Wales Coast (**Minor Adverse**) LANDMAP aspect area (**Minor Adverse**) Non-host Visual and Sensory Aspect Areas (**Minor Adverse** to **No Effect**) Designated Landscape: Betws yn Rhos SLA (**Negligible**) Designated Landscape: Clwydian Range and Dee Valley National Landscape (CRDVNL) (**Negligible**) ***Visual – Year 15*** PRoW users represented by PVPs 4 and 13 (**Moderate Adverse**) which is **Significant**
12: Built Heritage	LEMP Planting to screen historic assets Setting development back from listed buildings and historic assets A full description of mitigation measures can be found in **Chapter 12**	Kinmel Park (**Negligible**) Bodelwyddan Castle (**Negligible**) Bodoryn Cottages and Bodoryn Chapel (**Negligible**) Toll Bar Cottage (**Negligible**) Glan-y-Morfa (**Negligible**) Morfa Methodist Chapel (**No Effect**)	No additional mitigation is proposed	No change in effect

Environmental Statement Availability

The ES is available to view online: https://bodelwyddan-solar.co.uk/

Comments on the planning application can either be made via PEDW's website or can be forwarded during normal office hours at the following address:

Planning and Environment Decisions Wales
Crown Buildings
Cathays Park
Cardiff
CF10 3NQ

Tel: 0300 123 1590
Email: **PEDW.Casework@gov.wales**

Copies of the ES can be purchased from the Environmental Planning Team at Stantec:

Environmental Planning Team
Stantec UK Limited
3rd Floor Arthur Stanley House
40-50 Tottenham Street
London
W1T 4RN

Tel: 020 7446 6888
Email: **IEPenquiries@stantec.com**