Fairy Hill Proposed Solar Farm:

Ecological Impact Assessment

Date: 6 June 2023

For: BWCE

Ref: eg211118

Revision: 02

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ABBREVIATIONS

BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BNGA	Biodiversity Net Gain Assessment
BWCE	Bristol and West Community Energy
CEMP	Construction and Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
DBRC	Devon Biodiversity Records Centre
EcIA	Ecological Impact Assessment
IEF	Important Ecological Features
JNCC	Joint Nature Conservation Committee
LEMP	Landscape and Ecological Management Plan
MAGIC	Multi-Agency Geographic Information for the Countryside
MMU	Minimum Mapping Unit
NERC	Natural Environment and Rural Communities Act 2006
POS	Public Open Space
PRA	Preliminary Roost Assessment
PRF	Potential Roosting Feature
S41	Section 41 of the NERC Act 2006
UK Habs	UK Habitats Classification Survey
UK	United Kingdom
WCA	Wildlife and Countryside Act 1981
ZoI	Zone of Influence

1 INTRODUCTION

1.1 This Ecological Impact Assessment (EcIA) has been prepared in support of a planning application for a new solar farm at Fairy Hill on the outskirts of Compton Dando, on behalf of Bath and West Community Energy (BWCE). BWCE is a not-for-profit community benefit society, owned by its members and run for the benefit of the community.

1.2 The location and extent of the site are shown in **Figure 1** and **Figure 2**. The proposed solar farm is located on a 2ha area of land currently in agricultural use as an arable field. The site is in a Green Belt and would thus need to demonstrate Very Special Circumstances for the principle of development to be acceptable in planning terms.

1.3 The proposed solar farm would generate approximately 2.1MW of renewable energy. As a community led project, the applicant is working with the sole purpose of benefiting the local community and surrounding area by reducing the reliance on fossil fuels, and therefore the carbon emissions, as well as generating income for local community benefit. In addition to the solar arrays, the project would provide wildlife and community benefits, and a net gain for biodiversity.

1.4 This report assesses the potential ecological impacts of construction and operation phases of the proposed development. It is supported by an ecological data search, a desk study to identify any notable or protected sites, habitats or species on or near to the site, a habitat survey to map and describe the habitats of the site, a review of existing ecological data, and detailed surveys of the wildlife on and around the site.

1.5 Ecological data for the site was collected in 2022, including a UK habitat survey, a badger survey, and an assessment for protected species. This was updated with site visits in 2023 to verify that the conditions have not substantially changed.

1.6 The scope of this assessment is based on the Guidelines for Ecological Impact Assessment in the UK, published in 2019 by Chartered Institute of Ecology and Environmental Managers (CIEEM).

1.7 A Preliminary Ecological Appraisal (PEA) was undertaken to inform our initial approach to the development scheme. The PEA allowed for a targeted approach to the full ecological assessment, the findings of which has fed into this report. The purpose of this report is to:

- Set out the methodologies used to inform the assessment.
- Identify Important Ecological Features (IEFs) within the Zone of Influence (ZoI).
- Assess the impacts from the development on the IEFs and the resulting significant effects.
- Set out measures to avoid or mitigate negative impacts.
- Assess the residual effects after the incorporation of agreed avoidance or mitigation measures.
- Set out agreed measures to offset significant residual effects.
- Set out opportunities for ecological enhancement.

1.8 This EcIA presents how offences under relevant legislation can be avoided and follows the structure and content of an EcIA recommended by the CIEEM guidelines. Additional ecology reports that accompany the planning application deal with separate matters comprising:

- A Biodiversity Net Gain (BNG) Assessment, using the latest Defra metric to calculate the net change in habitats, and setting out how good practice for providing a net gain will be followed;
- A Construction and Environmental Management Plan (CEMP) setting out in detail the measures that will be taken during construction to avoid adverse environmental effects; and

- A Landscape and Ecological Management Plan (LEMP) setting out how the site will be managed and monitored in the long-term to ensure that biodiversity enhancements are achieved.

1.9 These reports are referred to where relevant in this EcIA, but to avoid duplication their content is not reproduced extensively in this document.

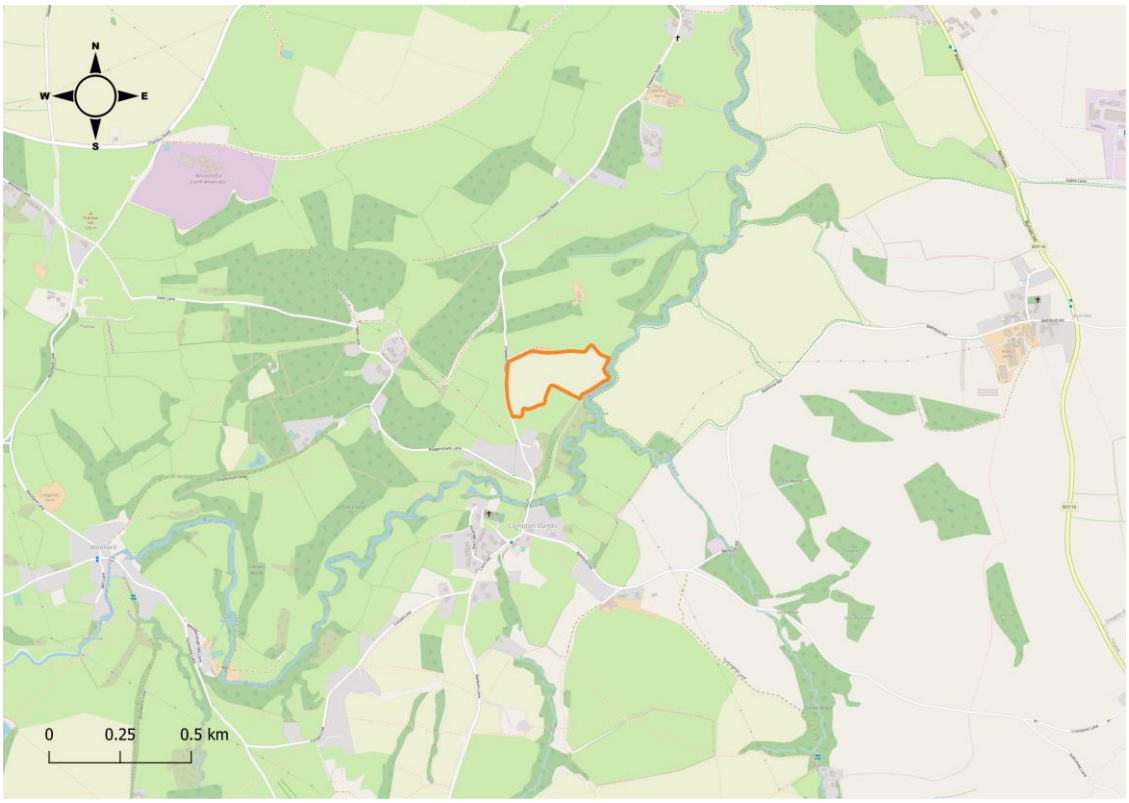

Figure 1. Fairy Hill Solar Farm proposed site of development, with the site boundary illustrated in orange.

2 SITE LOCATION AND GENERAL DESCRIPTION

Site Location

2.1 The site is located approximately 500m north of Compton Dando in the Bath and North East Somerset council area. The Ordnance Survey grid reference for the center of the site is ST647651.

General Description

2.2 The majority of the site consists of a cultivated arable field, which is bordered by wide field margins occupied by rough grassland characteristic of periodically cultivated fallow ground. The boundary hedges are tall and bushy and comprise a diverse mix of woody species (**Figure 2**).

2.3 The eastern edge of the site is bordered by the River Chew and its associated riparian trees and woodland. The River Chew is a Site of Nature Conservation Importance – a local-level designation.

2.4 There are no statutorily designated sites that are close enough to be at risk of adverse effects from the proposed development.

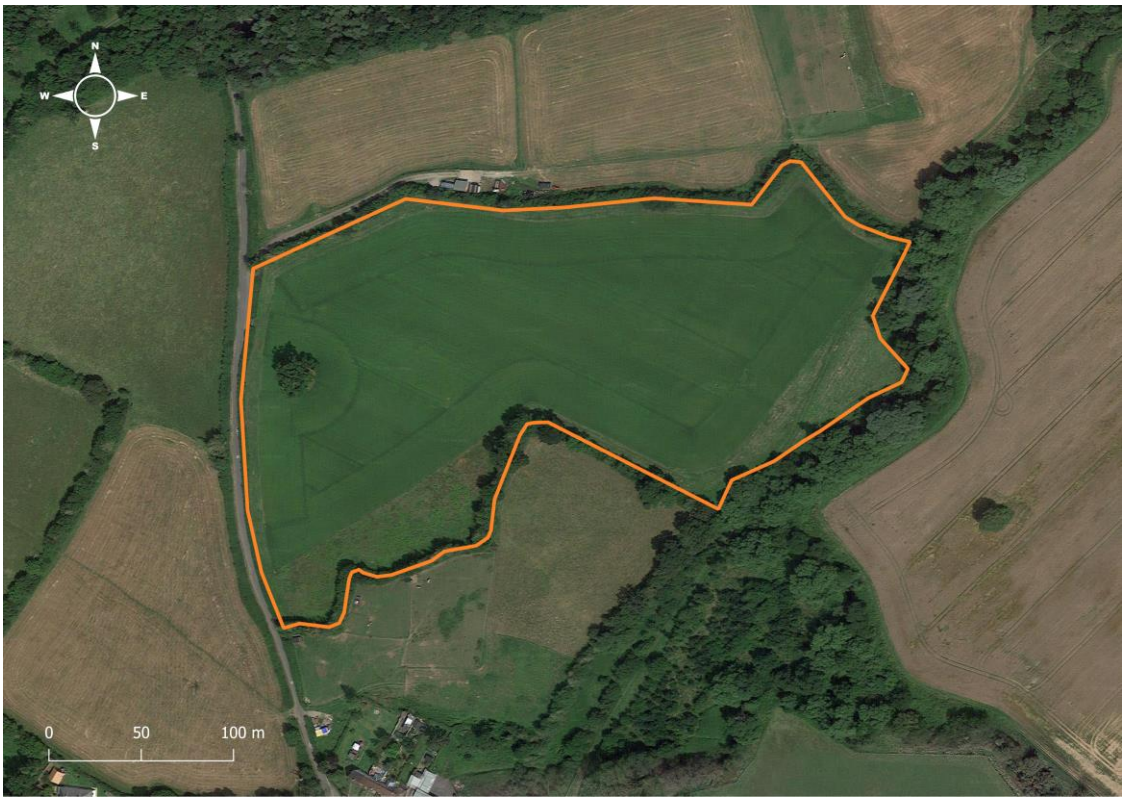

Figure 2. Site location, with the ecology survey boundary outlined in orange.

3 CHARACTERISTICS OF THE DEVELOPMENT

3.1 The proposed development is for the construction, operation and management of a solar farm comprising:

- Solar photovoltaic panels;
- A transformer substation;
- A switchroom;
- Perimeter security fencing;
- An access track;
- On site cabling;
- Offsite cabling connecting the switchroom to the grid via the road running south towards Compton Dando;
- A DNO cabin;
- A satellite mast;
- CCTV cameras; and
- The community orchard and nature reserve that will be developed in the field surrounding the solar array.

3.2 The generating capacity is estimated to be approximately 2.1MW over an area of approximately 2ha. The installed capacity will depend on the technology available at the time of construction. An initial layout is illustrated in **Figure 3**. This layout has taken into account topography, ground conditions, ecology, landscape and visual elements of the environment. The exact layout of the array may be amended in the course of the forthcoming environmental assessments to further refine micro-siting around aspects of the environment.

3.3 The solar panels will be orientated to face the south on static frames, with a clearance above ground at the lower (front) edge of approximately 0.7m and a height at the higher (rear) edge of up to 1.908m, at an angle of approximately 15 degrees. The dimensions of each individual panel will be selected prior to construction to take advantage of the most efficient technology available on the market at the time.

3.4 The solar panels will be connected to inverters in order to convert the direct current electricity that they generate into alternating current for use in the electricity grid. The inverters will be housed in a small building approximately the size of a shipping container (approximately 2.5m high, 2.5m wide and 12m long). 'String inverters', which are connected to cabling underneath and between the panels, can be used instead of a central inverter building depending on technical design resolution later in the project. The solar farm also requires the construction of a switchroom building and underground cabling to connect into the electricity grid via cabling under the road to a connection point south of the field in which the solar farm would be located.

3.5 The solar array and associated infrastructure will not be publicly accessible and will be set behind security fencing that will be approximately 2m high. This typically consists of galvanised steel mesh fencing with wooden posts and a 100mm gap at the bottom for wildlife.

3.6 Construction of the solar farm is expected to take approximately four months to complete. Once installed, the solar farm will operate for a period of 30 years. During operation the site is monitored externally and there are no permanent staff on site and no permanent artificial lighting. Scheduled on-site activities will consist of annual vegetation management, regular inspection and cleaning of the panels, and servicing, maintenance or replacement of parts as required.

3.7 Once the operational lifetime of the solar farm is complete, it will be possible to remove the panels and above-ground infrastructure and return the site to an alternative use. Any below-ground footings or cabling can either be secured and left *in-situ* or removed, depending on whichever is the most environmentally appropriate option.

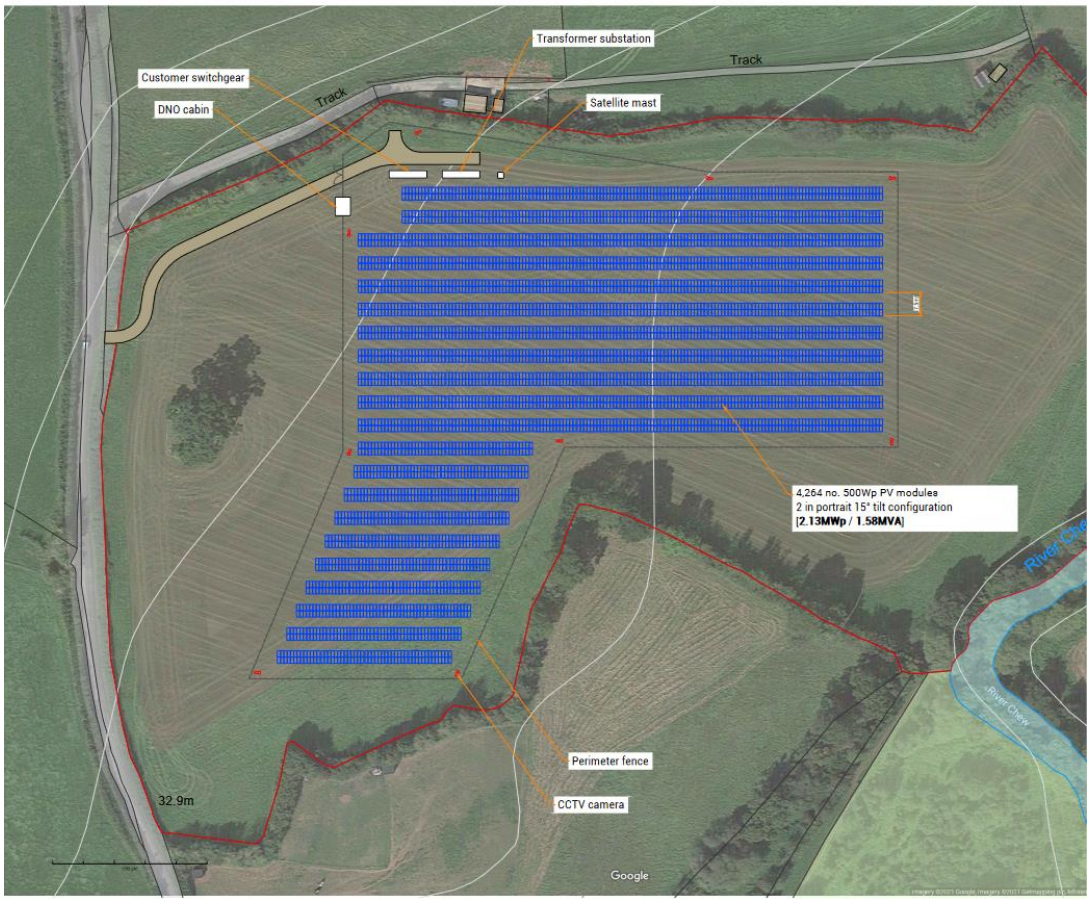

Figure 3. Fairy Hill Solar Farm proposed development plan.

4 LEGISLATION AND POLICY

4.1 Wildlife in the UK remains protected through European Directives, which are transposed into national legislation, supported by a range of national, regional and local planning policy and best practice guidance. Planning policy and legislation seeks to set broader goals for the conservation and enhancement of the natural environment and halting the continued loss of biodiversity in the UK.

4.2 Development can contribute to these goals through, for example, protecting the ecological features of a site and making them a valued part of the site's new use, and by incorporating enhancements to improve the site's value for wildlife.

4.3 The sections below provide a brief guide to the principal legislation and policy that sets the terms of reference for ecological appraisals in the UK. This is not intended to be a full description of all the obligations enacted by the various referenced documents, which should be referred to in their original form for the full details.

4.4 It is the responsibility of those involved with the development works to ensure that wildlife protection and nature conservation legislation is complied with at every stage of the project. Such legislation applies even in the absence of related planning conditions.

Relevant Legislation

4.5 The principal pieces of legislation relating to wildlife that are of relevance to this report are:

1. *EU Habitats Directive (1992);*
2. *The Environment Act 2021;*
3. *Conservation of Habitats and Species (Amendment) Regulations 2017;*
4. *The Wildlife and Countryside Act 1981 (as amended) (WCA);*
5. *The Natural Environment and Rural Communities (NERC) Act 2006;*

4.6 The presence of species and habitats on a site which are protected under UK and European legislation is a material consideration when a planning authority

is considering a development proposal. Ecological assessments and protected species surveys are therefore designed to provide local planning authorities with the baseline information they require in order fully consider the potential ecological effects of a planning application. Furthermore, *The Environment Act 2021* introduces a clearer responsibility for development to provide measurable net gains for biodiversity following good practice guidelines that are secured in the long term.

Relevant Policy

4.7 Regional and local planning authorities are obliged to follow key principles to ensure that the potential impacts of planning decisions on biodiversity conservation are fully considered. *The National Planning Policy Framework* sets out the Government's policies for the protection and enhancement of biodiversity through the town and country planning system. This encourages the contribution to, and enhancement of, natural and local environments through minimising the impacts on biodiversity and providing net gains in biodiversity where possible.

4.8 Planning authorities are required to follow key principles in their consideration of potential impacts of planning decisions on biodiversity conservation. *Circular 06/05: Biodiversity and Geological Conservation* provides guidance on the application of the law relating to planning and nature conservation and complements the *National Planning Policy Framework.*

4.9 Biodiversity 2020: A strategy for England's wildlife and ecosystem services, provides the UK Post-2010 Biodiversity Framework and country level biodiversity strategies for England, based on the list of habitats and species listed under The NERC Act 2006.

Local Planning Policy

4.10 The BANES Development Plan comprises:

- Bath and North East Somerset Core Strategy, adopted July 2014;

- Bath and North East Somerset Council's Placemaking Plan, adopted July 2017; and
- The Local Plan Partial Update adopted on 19th January 2023.

4.11 Policies of particular relevance to this report are:

- Policy NE3: Sites, Habitats and Species
- Policy NE3a: Biodiversity Net Gain
- Policy NE4: Ecosystem Services
- Policy NE5: Ecological Networks and Nature Recovery
- Policy NE6: Tres and Woodland Conservation
- Policy CP7: Green Infrastructure
- Policy NE1: Development and Green Infrastructure

5 METHODOLOGY

Establishing the Baseline

Desk Study

5.1 Desktop data was obtained from Bristol Regional Environmental Records Centre (BRERC) in July 2021. The search area was set at a radius of 1km from the site boundary for records of non-statutory sites, habitats and species.

5.2 Online resources were also used, including the UK government's online resource for geographic information about the natural environment (MAGIC Map). This and other resources were used to scope the habitat survey at an appropriate scale and level of detail. MAGIC maps and the reports from ecology surveys previously carried out at the site were checked to identify if there were any known or possible locations of rare and/or habitats of high nature conservation priority, including sites of European importance within 10km and National importance within 5km.

Habitat Survey

5.3 A preliminary habitat survey was conducted on the 8th July 2021. The field survey method was based on the UK Habitats Classification Survey (UK Habs) as per the UK Habs User Manual (2020). This was updated by site visits in 2022 and 2023 to verify that conditions have not substantially changed.

5.4 Considering the size of the site and the nature of variation in habitats across the site, the appropriate scale of mapping was determined to be a fine scale Minimum Mapping Unit, meaning no areas of habitats less than 25m^2 or 5m in length if a linear feature need be recorded.

5.5 The Primary Habitats were mapped using the professional edition of the hierarchy, at a minimum of a Level 4 habitat using the UK Habs Habitat Definitions as a guide. Once a Primary Habitat was assigned, a Secondary Code was added to further define the habitat type. Habitats are described with reference to their dominant and constituent species, and their UK Habs codes are given in the relevant sections. In some cases, secondary codes are referred to where there is sufficient variation in the habitat to warrant their use.

Evaluation for Protected/Notable Species

5.6 The potential for the Site to support legally protected and notable species has been assessed using the desk study results combined with field observations during the field surveys. The assessment of habitat suitability for protected and notable species was based on knowledge and judgement of an experienced professional team supplemented in all cases by recognised sources of guidance on habitat suitability assessment for key animal groups including:

- Amphibians (Gent and Gibson, 2003);
- Badgers (Harris *et al*., 1991; and Roper, 2010);
- Bats (Collins, 2016; and Mitchell-Jones, 2004);
- Birds (wintering and breeding) (Gilbert *et al*., 1998; and Bibby *et al*., 2000);
- Dormice (Bright *et al*., 2006);
- Otters (Chanin, 2003; and Crawford, 2011);
- Water voles (Strachan *et al*., 2011);
- Other notable mammal;
- Reptiles (Gent and Gibson, 1998; and Froglife, 1999); and
- Terrestrial Invertebrates (Drake *et al*., 2007; and Kirby, 2001).

5.7 Species not listed above are deemed to be absent from the survey area or do not constitute Important Ecological Features within the meaning of the EcIA guidelines and are not considered further in this report.

Badger Survey

5.8 A badger survey (and other notable mammals) was undertaken on the 8th July 2021. The badger survey was completed in line with good practice guidelines (Harris, Cresswell and Jefferies (1989)). The Site was searched for evidence of badger and where setts were recorded, their status and level of activity was noted.

Condition Assessment

5.9 To inform a Biodiversity Net Gain Assessment (BNGA) a condition assessment has been undertaken of the habitats present on the site using the Biodiversity Metric 3.0 – Technical Supplement. This document sets out criteria and characteristics for each habitat and provides guidance on an assessment of habitat condition (which can be 'good', 'fairly good', 'moderate', 'fairly poor' and 'poor'). The assessment criteria considered are different for each habitat type but include criteria such as the presence of undesirable species, habitat extent, habitat health and vegetation structure.

5.10 Further details relating to the BNG Assessment are provided in standalone report.

Zone of Influence

5.11 The Zone of Influence (ZoI) for a project is the area over which ecological features may be affected by biophysical changes because of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.

5.12 Based on the scale and nature of the development, it has been assessed that the ZoI arising from these works is unlikely to be greater than 1km from the center of the site. Therefore, these distances have been used to collect the ecological data search information.

5.13 The habitat survey area comprised primarily the site. However, adjacent land was viewed where possible. As referenced in industry guidance, IEFs that are present or potentially present on and off the site which may be impacted by the development have been considered.

Important Ecological Features

5.14 Data gathered allows for appropriate assessment of IEFs, enabling nature conservation values to be assessed against published criteria wherever possible. Once the baseline of the site and value of the IEF's have been established appropriate mitigation and enhancements can be recommended.

5.15 The main criteria by which IEFs are identified are diversity, naturalness, and extent as per CIEEM (2019) guidelines. Identification of IEFs is supported by best practice such as the Bat Surveys for Professional Ecologists, Good Practice Guidelines (Collins, J. (ed) 2016) and other literature, including Usher (1986) and Ratcliffe (1977). The identification of IEFs was also aided by consultation with Natural England and PCC Ecologist and public consultation carried out as part of the pre-application process.

5.16 Furthermore, when determining importance for this EcIA, consideration of geological context was also made. The following frame of reference is used:

- International and European;
- National (England);
- Regional (South West);
- County (Somerset);
- Local authority-wide area (BANES); and
- Parish (Compton Dando).

5.17 Based on best practice (CIEEM, 2018), any features considered to be less than of local value are not assessed within this EcIA.

5.18 Not all potential or confirmed IEFs within the ZoI have the potential to be significantly affected by the development and a proportionate approach has been employed. Where features are unlikely to be affected by the development, or where any effects that impact IEFs are unlikely to be significant, for the reasons listed below, such features have been scoped out of the assessment:

- No pathway of effect has been identified, for example the feature is sufficient distance from the site or there is the presence of a barrier between its location and the site; or
- The feature is of insufficient biodiversity conservation value within the ZoI, due to its quality, extent, or population size.

Impact Assessment

5.19 The impact assessment process involves:

- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative impacts and effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

Predicting Ecological Impacts and Effects

5.20 The process of predicting ecological impacts and effects has considered the relevant aspects of ecosystem structure and function. Examples include the availability of the identified IEF's resources, such as connective or breeding habitat and environmental processes such as the hydrological regime of adjacent River Chew.

Characterising Ecological Impacts

5.21 When describing ecological impacts and effects, the following characteristics are considered:

- Positive or Negative;
- Extent;
- Magnitude;
- Duration;
- Frequency And Timing; and
- Reversibility.

Assessment of Cumulative Impacts and Effects

5.22 There is no requirement for a cumulative assessment in this EcIA, considering the nature of the development as a temporary solar array, the small scope of works to be assessed and the scale of the likely impacts.

Assessment of Residual Impacts

5.23 After assessing the impacts of the proposal, extensive design development was undertaken to avoid any impacts, and where impacts could not be avoided, to mitigate these residual impacts appropriately.

Determining Significant Effects

5.24 A 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives of any identified IEFs.

5.25 The following considerations are made in relation to the identified IEFs:

- Any processes or key characteristics that will be removed or changed;
- Whether there will be an effect on the nature, extent, structure and function of habitats; and
- Whether there is an effect on the average population size and viability of a species.

5.26 The evaluation of significant effects is based on available scientific evidence.

Limitations

5.27 Engain cannot verify the accuracy of third party information. Records held by a local biological record center and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.

5.28 The field survey is not definitive and represents a snapshot of the ecological status of a site. However, through use of professional judgement and desk study information to supplement site survey data, it is considered that an

accurate assessment of the potential for the site to support protected species or those of conservation concern was possible.

5.29 The site was freely accessible with no areas that could not be accessed. Areas surrounding the site were visible from the site boundaries, which helped provided ecological context. It is considered that this is not a limitation to this assessment.

5.30 It should be noted that this EcIA is relevant to the legislation detailed in Section 2 at the time of writing. Should there be changes to legislation prior to the development being completed, this EcIA may require updating in line with any legislative updates.

6 BASELINE RESULTS

Desk Study

Statutory Designated Sites

6.1 The desk study identified four European designated sites within 15km and six sites of National importance for nature conservation within 5km of the application boundary, as shown in **Table 6.1**.

Non-Statutory Designated Sites

6.2 Fairy Hill is located within the Bristol and Bath Green Belt. Britain's green belts are designed to limit urban sprawl and protect city's peripheral countryside from encroachment. The Bristol and Bath Green Belt particularly emphasizes keeping the two cities separated.

6.3 The site also lies within The Forest of Avon Community Forest. Community Forests are located in and around Britain's largest urban areas. They are multi-goal orientated, with targets that include enhancing biodiversity to improve resistance to climate change and providing people with leisure and recreation opportunities to improve health and wellbeing. A Community Forest is not a single continuous forest, but an area where regeneration, growth and linking of forests is actively encouraged.

6.4 Nine Local Wildlife Sites (LWS) all of which are described as Sites of Nature Conservation Interest (SNCI) are located within a 1km buffer of the site boundary:

- Bathford Brook and adjacent land;
- Burnett Brook and woods;
- Great Wood;
- Lye Hill;
- Park Copse;

- Pepper Shells Wood;
- River Chew and adjacent land; and
- Wooscombe complex.

Table 6.1 – Statutory Designated Sites of International Importance within 15km and National Importance within 5km of the Site

Site Name	Designation[1]	Distance	Description
Nationally Designated Sites			
Manor Road Community Woodland	LNR	2.4km Northeast	Consists of young native woodland, grassland, hedgerows and stone walls. The woodland is inhabited by many different birds including bullfinches *Pyrrhula pyrrhula* and whitethroats *Sylvia communis*.
Stockwood Open Space	LNR	4.2km Northwest	Majority characterized as old grassland and unploughed meadows on lime-rich clay soil. Numerous summertime butterfly species are present including meadow brown *Maniola jurtina*, marbled white *Melanargia galathea*, and large skipper *Ochlodes venatus*.
Cotswolds	AONB	4.5km East	The Cotswolds are of national importance due to their rare limestone grassland habitat and ancient beech woods. They provide a recreational green area for the large urban populations nearby.
Stidham Farm	SSSI	4.6km Northeast	The site is considered important due to the possible glaciation of the area and due to being one of only two accessible deposits of Pleistocene terrace-gravels in the surrounding the Avon valley.
Bickley Wood	SSSI	5.0km North	The site is the most extensive exposure of Carboniferous Downend Group Group strata in the Bristol coalfield, containing shale bands with fossil plants and bivalves.
Cleeve Wood	SSSI	5.0km North	The site contains the largest and most stable population of the rare plant species Bath asparagus *Ornithogalum pyrenacium*.

[1]AONB – Area of Outstanding Natural Beauty; LNR – Local Nature Reserve; SAC – Special Area of Conservation; SPA – Special Protection Area; SSSI – Site of Special Scientific Interest.

Site Name	Designation[1]	Distance	Description
Internationally Designated Sites			
Chew Valley Lake	SPA	8.0km Southwest	Primarily designated for the presence of the species A056 'Shoveler *Anas clypeata*'.
Bath & Bradford on Avon Bats	SAC	10.0km East	Primarily designated for the presence of the Annex II species 1304 'Greater horseshoe bat *Rhinolophus ferrumequinum*', and 1323 'Bechstein's bat *Myotis bechsteinii*'. Furthermore, a qualifying feature of the site is the presence of the Annex II species 1303 'Lesser horseshoe bat *Rhinolophus hipposideros*'.
Avon Gorge Woodlands	SAC	11.0km Northwest	Primarily designated for the presence of the Annex I habitat 9180 'Tilio-Acerion forests of slopes, screes and ravines'. Furthermore, a qualifying feature of the site is the presence of the Annex I habitat 6210 'Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)'.
North Somerset & Mendip Bats	SAC	13.3km Southwest	Primarily designated for the presence of the Annex I habitats 6210 'Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)', and 9180 'Tilio-Acerion forests of slopes, screes and ravines', and for the presence of Annex II species 1303 'Lesser horseshoe bat *Rhinolophus hipposideros*', and 1304 'Greater horseshoe bat *Rhinolophus ferrumequinum*'. Furthermore, a qualifying feature of the site is the presence of the Annex I habitat 8310 'Caves not open to the public'.

Habitats

6.5 The majority of the site consists of a cultivated arable field which is bordered by wide field margins occupied by rough grassland characteristic of periodically cultivated fallow ground (**Figure 4**). The margins are dominated by grass and tall ruderals.

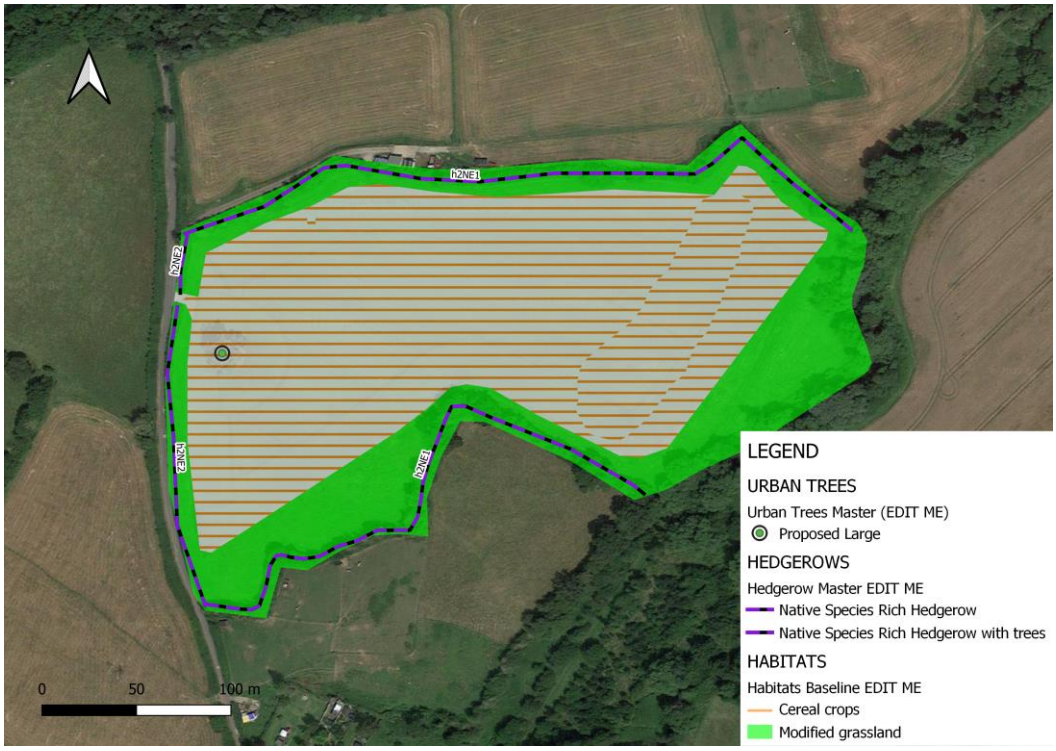

Figure 4: baseline habitats plan

6.6 The boundary hedges are tall and bushy and comprise a diverse mix of woody species including hazel (*Corylus avellana*), field maple (*Acer campestre*), blackthorn (*Prunus spinosa*), dogwood (*Cornus sanguinea*), dog rose (*Rosa canina*), hawthorn (*Crataegus monogyna*), wayfaring tree (*Viburnum lantana*), ash (*Fraxinus excelsior*) and oak (*Quercus robur*).

6.7 There is a large, mature oak tree in the western section of the site (see **Figure 5**). The trunk is over 1m in diameter and there is some dead wood in the canopy. The land is cultivated under the canopy of the tree with the exception of a small area of rough grassland.

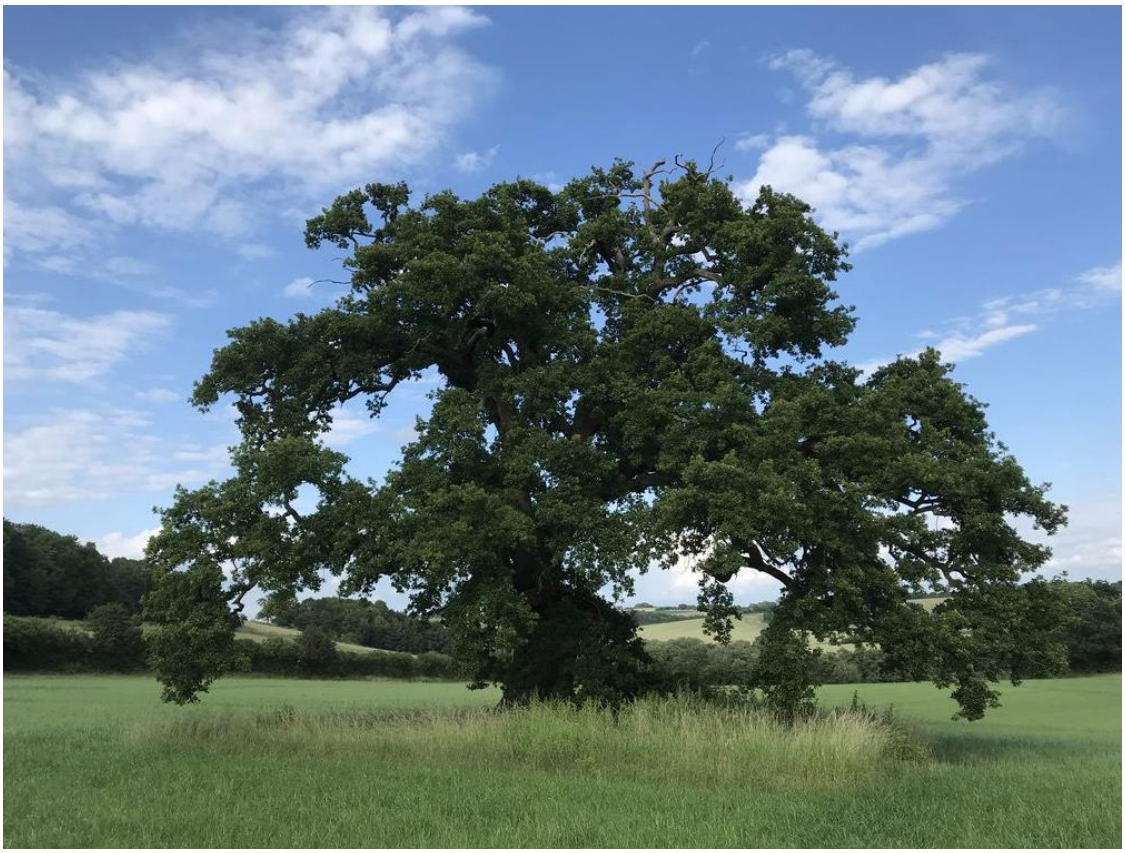

Figure 5. The large mature oak tree situated in the western section of the development site.

6.8 The eastern edge of the site is bordered by the River Chew and its associated riparian trees and woodland. The banks are dominated by alder (*Alnus glutinosa*) along with ash and other woody species. The river channel is deeply incised into the landscape and heavily shaded by the associated trees.

Badgers

6.9 There are several records of badgers within the 1km search area, and 11 records of badger setts within the 1km proximity, with the closest recorded sett being less than 500m away and potentially within the boundary of the site.

6.10 The site provides foraging habitat for badgers and the boundary of the site offers suitable habitats for badgers to construct a sett. However, there were no signs of badgers on or adjacent to the proposed solar farm area during the survey undertaken in July 2021.

Bats

6.11 The BRERC records contained the following bat species:

- Brown long-eared bat (*Plecotus auratus*);
- Common pipistrelle (*Pipistrellus pipistrellus*);
- Natterer's bat (*Myotis nattereri*);
- Noctule (*Nyctalus noctule*);
- Serotine (*Eptesicus serotinus*);
- Soprano pipistrelle (*Pipistrellus pygmaeus*); and
- Whiskered bat (*Myotis msytacinus*).

6.12 The records also indicate roosts within 1km of the site, including for natterer's bat, brown long-eared bat, serotine, and whiskered bat. Brown long-eared bats are the only species for which maternity roosts have been recorded within 1km of the site.

6.13 The River Chew, boundary hedgerows, and associated rough grassland field margins provide excellent foraging habitat for bats. The mature oak tree also provides a good foraging spot that is likely to attract species feeding on invertebrates associated with the tree. The cultivated cereal crop provides very little opportunity for foraging bats, as there will be very low invertebrate abundance and diversity.

6.14 There are several potential roosting features on the stem and canopy of the mature oak tree, and there are numerous trees in the boundary hedges that could have potential roosting features.

Birds

6.15 The data search returned hundreds of records for a broad range of bird species at Fairy Hill and the surrounding 1km, including many uncommon and scarce species. A large proportion of these records are for waterbirds and birds of prey, likely due to the proximity of the site to Chew Valley Lake SPA.

6.16 Kingfisher (*Alcedo atthis*) and dipper (*Cinclus cinclus*) are recorded extensively, both of which are likely to use the River Chew to the eastern border of the site.

6.17 Hobby (*Falco Subbuteo*), buzzard (*Buteo buteo*), and kestrel (*Falco tinnunculus*) are frequently recorded within the 1km search area. Sparrowhawk (*Accipiter nisus*) and hen harrier (*Circus cyaneus*) have also been recorded many times and there are a small number of records of peregrine falcon (*Falco peregrinus*), tawny owl (*Strix aluco*), and red kite (*Milvus milvus*). All of these species could use the site and surrounding areas.

6.18 Other notable species include turtle dove (*Streptopelia turtur*), brambling (*Fringilla montifringilla*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), yellow hammer (*Emberiza citrinella*), and raven (*Corvus corax*).

6.19 The 1km search area consists of a range of habitat including hedged field, woodland, rivers, and small ponds. As a result, an abundance and wide variety of species use the area.

Amphibians

6.20 There is one record of great crested newts (*Triturus cristatus*) within the 1km data search area, recorded in 1999 at a pond 850m northwest of the site. Additionally, there is one record of smooth newts (*Lissotriton vulgaris*) and one record of palmate newts (*Lissotriton helveticus*) at the same pond in 1999.

6.21 There are four records of common frog (*Rana temporaria*) and five records of common toad (*Bufo bufo*) in the 1km search area.

6.22 There are no suitable breeding ponds on or adjacent to the site. The nearest pond visible on maps is Mill Pond in Compton Dando, approximately 300m southwest of the site. A pond approximately 400m southeast of the site was

analysed for newt DNA and returned a negative result, and the closest positive newt DNA record is from a pond approximately 1.2km east of the site.

6.23 The rough grassland field margins, hedgerows, and woody vegetation associated with the River Chew are all suitable terrestrial habitat for amphibians. There are no permanent waterbodies within the site. The River Chew is substantial enough to form a barrier to newt dispersal into or out of the site along the eastern boundary.

6.24 Great crested newts are not considered a constraint on the proposed development due to the lack of permanent water bodies on the site, the distance to ponds in the surrounding areas, and the significant barriers to dispersal.

Reptiles

6.25 There are three records of slow-worms (*Anguis fragilis*) within the 1km data search area. There are no records of other reptiles.

6.26 The rough grassland field margins, hedgerows, and woody vegetation associated with the River Chew offer suitable habitat for foraging and commuting species of reptiles, including common lizards (*Zootoca vivipara*) and grass snakes (*Natrix helvetica*).

Otters and Water Voles

6.27 There are many records of otter (*Lutra lutra*) within the 1km search area, including an extended recording from 2018 where an otter was observed on the River Chew for five minutes between Compton Dando and Keynsham. There are no records of water voles (*Arvicola amphibius*).

6.28 The River Chew is excellent habitat for otters and may also be used by water voles, although the dense shading and limited amount of water-margin vegetation limit its suitability for the latter species.

Dormice

6.29 There are two records of dormice (*Muscardinus avellanarius*) from 2006 within the 1km search area.

6.30 The boundary hedges and woody vegetation associated with the River Chew are suitable dormouse habitat and are well connected to the surrounding landscape.

Terrestrial Invertebrates

6.31 The data search returned records of invertebrates from a broad range of taxa. Notable records include white-legged damselfly (*Platycnemis pennipes*) and a number of moth and butter species including cinnabar (*Tyria jacobaeae*), dusky thorn (*Ennomos fuscantaria*) and jersey tiger (*Euplagia quadripunctaria*).

Other Wildlife

6.32 Historically, European eel (*Anguilla anguilla*) and bullhead (*Cottus gobio*) have been recorded in the River Chew within the 1km search area around the site.

6.33 There are three records of the invasive American mink (*Neovison vison*) and a large number of recordings of brown hare (*Lepus europaeus*) within the search boundaries.

Summary of Important Ecological Features

6.34 The ecological features within the study area and their value according to the geographical criteria set out in the Methods section are detailed in **Table 5.6** below.

6.35 The site has features of ecological value at the level of the Parish or the Local Authority Area: these are associated with the site boundaries, the tree in the middle of the field, and the adjacent River Chew.

Table 5.6 – Summary of Important Ecological Features

Site, Habitat or Species	Ecological Importance
Amphibians	Parish
Badgers	n/a – not present on site
Bats: foraging and commuting bats around the edges of the site and the mature oak tree	Parish

Site, Habitat or Species	Ecological Importance
Birds: nesting and foraging around the edges of the site and the mature oak tree	Parish
Dormice: potentially present in boundary hedges	Parish
Hedgehogs: potentially present around the edges of the site	Parish
Otters, water voles, eels and bullhead in the River Chew	Local Authority Area (BANES)
Habitats: hedges around the site margins and the mature tree in the centre of the field	Local Authority Area (BANES)
Reptiles: potentially present around the edges of the site	Parish

Future Baseline

6.36 Significant changes in baseline conditions between the time of writing and the proposed commencement of construction (if within 2 years) are considered unlikely, given the current management regime of annual mowing.

7 IMPACT ASSESSMENT

Inherent Avoidance, Mitigation and Enhancement

7.1 The following built-in features of the project will avoid or mitigate impacts on wildlife:

- The installation of a solar farm has very limited footprint impacts, typically occupying less than 5% of a given site area. This project's footprint impacts will comprise the footings for the panels, the ancillary buildings and the new access track, all or which are located away from the features of ecological value.
- Site selection: the proposed solar farm is on an arable field, which has negligible habitat value
- Measures to avoid impacts on wildlife during construction are designed into the Construction Environmental Management Plan (CEMP) that is submitted with the application.
- The proposal includes habitat creation including the replacement of the arable cropping regime with a managed grassland, and the provision of an orchard, which will provide new habitats for wildlife.
- There will be no artificial lighting required during the operation of the scheme.

7.2 The CEMP includes measures that will avoid and minimise dust, noise and vibration as well as the potential for fuel and chemical spills and will ensure the River Chew is protected.

Potential Impacts

Construction

7.3 As the footprint of the project is in habitats of negligible ecological value where there is a very low likelihood of any protected or notable species being found, and in light of the measures set out in the accompanying CEMP, there will be no adverse ecological impacts during construction.

Operation

7.4 Once constructed, the solar farm is a passive operation with regular, scheduled maintenance visits, and there is very limited scope for any adverse ecological effects.

7.5 The creation of large areas of new ecologically valuable habitat will enhance the site for wildlife and provide a net gain in habitats of approximately 26%.

Decommissioning

7.6 The site will be restored back to pre-construction use on completion with any alterations from the baseline for alternate use requiring planning consent or agreement with LPA on a continued suitable management regime.

8 CONCLUSIONS

8.1 The installation of the solar farm would not have ay adverse impacst on Important Ecological Features. The risk of harm to wildlife during construction will be controlled under the terms of the CEMP that has been submitted with the application. The enhancement and long-term management of the site will deliver a substantial net gain for biodiversity. The proposal will therefore comply with the relevant wildlife legislation and with the particularly relevant Local Plan policies as set out below.

BANES Planning Policy	Compliance
Proposals are sensitive to nationally and locally protected landscapes and nature conservation areas, and take opportunities to enhance the ecological value of the land	The proposals would not have any impacts on protected nature conservation areas. The landscape proposals will substantially enhance the ecological value of the land.
The application should be supported by a Biodiversity Management Plan, which reflects the BRE National Solar Centre “Biodiversity Guidance for Solar Developments” (or successor guidance).	A Landscape Ecological Management Plan has been submitted with the application
Proposals are supportive of land diversification and continued agricultural use, biodiversity measures and supporting the provision of multi-functional Green Infrastructure e.g. permissive paths and wildlife corridors.	The proposals contain biodiversity measures and support the enhancement of the green corridor along the River Chew as well as providing enhanced public access

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