Rush Wall Solar Park

Environmental Statement

Appendix 5.1

Preliminary ecological appraisal

Western Ecology, 1 Geffery Close, Landrake, Saltash, Cornwall PL12 5HA Telephone: 0800 622 6828
Email: office@westernecology.co.uk

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Preliminary Ecological Appraisal
Rush Wall Solar Park
June 2021

Report no: PEA-526.2

A report by

Colin Hicks BSc (Hons) MCIEEM

Chartered Institute of Ecology and Environmental Management

Western Ecology, 1 Geffery Close, Landrake, Saltash, Cornwall PL12 5HA Telephone: 0800 622 6828
Email: office@westernecology.co.uk

Report details

Site name:	Rush Wall Solar Park
Site address:	Redwick, Newport
Grid reference:	ST 416 853
Survey date:	17th June 2021
Report date:	22 July 2021
Report author:	Colin Hicks BSc (Hons) MCIEEM
Checked by:	Yolande Knight PhD, MRSB
Report no:	WOR-526.2

Declaration of compliance

BS 42020:2013

This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of practice for planning and development.

Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of survey data and report

The findings of this report are valid for 24 months from the date of survey. If work has not commenced within this period, an updated survey by a suitably qualified ecologist will be required.

Revisions

Date	Report no:	Comment
21/05/2020	WOR-526.1	Original report
22/07/2021	WOR-526.2	Field survey and report updated to meet survey validity guidelines

Table of contents

1. Introduction

1.1. Background

1.1.1. Western Ecology has been commissioned to complete a Preliminary Ecological Appraisal of land for the proposed Rush Wall Solar Park near Redwick.

1.2. Survey aims

1.2.1. The survey and this report identify features of conservation importance that could constitute a constraint to the proposals for this site. Where appropriate, recommendations for impact avoidance, mitigation and post-development enhancement are made to ensure compliance with wildlife legislation and relevant planning policy.

1.2.2. This survey has been prepared in accordance with the 'Guidelines for Preliminary Ecological Appraisal' produced by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017).

2. Survey methodology

2.1. Desktop survey

2.1.1. The desktop survey collated existing biological records for the site and adjacent areas and identified any nature conservation sites that may be affected by the proposals. This comprises an important part of the assessment process, providing information on ecological issues that may not be apparent during the site survey.

2.1.2. Consultees for the data search included:

- South East Wales Biodiversity Records Centre - records of protected/notable species within 2km of the centre of the site and non-statutory nature conservation sites within 4km of the centre of the site.
- Natural Resources Wales datasets – Location of statutory nature conservation sites within 5km.

2.1.3. Species data was examined for protected and notable species records. An assessment was then made, based on known habitat preferences, as to whether these species might be present within the site and how they might be affected by the proposal.

2.1.4. The location of nature conservation sites was examined to determine their ecological and landscape relationships with the proposed site. An assessment was then made of how the sites may be affected by the proposal, taking into account these relationships, and the species and/or habitat types for which the nature conservation site was chosen.

2.1.5. SSSI Impact Risk Zones are areas where the proposed planned change to the environment could either create significant damage to a local SSSI, or might require additional planning and consultation in order to avoid impacting such sites. The assessments are made according to the particular sensitivities of the features for which the SSSI is notified, and specifies the types of development that have the potential for adverse impacts.

2.1.6. In compliance with the terms and conditions relating to its commercial use, the full desk study data is not provided within this report.

2.2. Field survey

2.2.1. A Preliminary Ecological Appraisal of the site was completed by Colin Hicks BSc (Hons.) MCIEEM.

2.2.2. The survey was completed on 17th June 2021 between 09:00 and 16:00 with an air temperature of 15°C, light winds, dry and 100% cloud.

2.2.3. Habitats were classified using the Phase 1 Habitat Survey methodology developed by the Joint Nature Conservation Committee (JNCC, 2010) and modified by the Institute of Environmental Assessment (IEA, 1995). The main plant species were recorded, and broad habitat types mapped. Habitats encountered are described

within the Results section, with a map included within the report. Plant species were identified according to Stace (1997).

2.3. Method for valuation of habitats

2.3.1. The ecological value of habitats present is provided in line with Guidelines for Ecological Impact Assessment (CIEEM, 2018), and those which are important in terms of legislation or policy are identified. Table 1 summarises this information and details the extent of each habitat recorded here.

2.3.2. The nature conservation value, or potential value, of the habitat is determined within the following geographic context:

- International importance (e.g. internationally designated sites such as Special Areas of Conservation, Special Protection Areas, Ramsar sites);
- National importance (e.g. nationally designated sites such as Sites of Special
  Scientific Interest or species populations of importance in the UK context);
- County importance (e.g. SNCI, habitats and species populations of importance in the context of Newport);
- Local importance (e.g. important ecological features such as old hedges, woodlands, ponds);
- Site importance (e.g. habitat mosaic of grassland and scrub which may support a diversity of common wildlife species);
- Negligible importance. Usually applied to areas such as built development or areas of intensive agricultural land.

The examples are not exclusive and are subject to further professional ecological judgment.

2.4. Survey constraints

2.4.1. All areas of the site were readily accessible. Although some plant species would have not been visible during the survey period.

2.4.2. It should be noted that habitats, and the species they may support, change over time due to natural processes and because of human influence. In line with current guidelines, the survey on which this report is based is only valid for two years, after which time it will need updating. This report is valid until 17th June 2023.

2.5. Study area

2.5.1. The study area of the biological records search is within a 2km radius of the site centre for notable species, 4km for non-statutory nature conservation sites and 5km for statutory nature conservation sites. The study area for the Preliminary Ecological Appraisal was the footprint of the development, hereafter referred to as the ‘Site’, and its immediate boundaries. This is the area included within the line described as “Survey area” within the legend of Map 1.

3. Results

3.1. Background

3.1.1. Habitats have been classified using the Phase 1 Habitat Survey methodology, and are described below and detailed in Map 1. Habitats which are important in terms of legislation or policy are identified. Plant species that characterise each of these habitats are identified, although this is for descriptive purpose, and comprehensive inventory is not provided.

Improved grassland

3.1.2. Much of the site comprised grassland that has been improved to provide fodder and forage for livestock, dominated by locally abundant Perennial Rye-grass *Lolium perenne* with occasional Meadow-Broome *Bromus commutatus* and Cock's Foot *Dactylis glomerata*. Herbs were uncommon but included Creeping Buttercup *Ranunculus repens*, Curled Dock *Rumex crispus*, Broad-leaved Dock *Rumex obtusifolius*, Ribwort Plantain *Plantago lanceolata*, Common Nettle *Urtica dioica*, Common Knotgrass *Polygonum aviculare*, Chickweed *Stellaria media* and Dandelion *Taraxacum officinale* agg.

3.1.3. Disturbed areas at gateways supported Annual Meadow Grass *Poa annua* with Yorkshire fog *Holcus lanatus*, Fat Hen *Chenopodium album*, Scentless Mayweed *Tripleurospermum inodorum*, Sow-thistle *Sonchus* sp. and occasional Cockspur *Echinochloa crus-galli.*

3.1.4. This managed habitat is of site value for biodiversity.

Arable

3.1.5. The remainder of the Site comprised forage Maize *Zea mays* with tall grasses, herbs and scrub at margins including Cock's Foot, Perennial Rye-grass, Yorkshire Fog, Timothy *Phleum pratense*, Creeping Thistle *Cirsium arvense*, Hogweed *Holcus lanatus*, Redshanks *Persicaria maculosa*, Bramble *Rubus fruticosus* and occasional Common Reed *Phragmites australis*.

3.1.6. This managed habitat is of negligible value for biodiversity.

Tall ruderal

3.1.7. An area of managed land adjacent to reens in the east of the site supported locally abundant Broad-leaved Dock amongst Perennial Rye-grass, Annual Meadow-grass and Smooth Sow-Thistle *Sonchus oleraceus*.

3.1.8. Farmyard manure stores within improved grassland supported abundant ruderal herbs including Fat Hen, Broad-leaved Dock and Common Nettle.

3.1.9. This habitat is of site value for biodiversity and provides habitat for widespread and common invertebrates.

Reens

3.1.10. The Site is bisected by reens.

3.1.11. Reens are typically at least 2 metres wide, free from shading vegetation, have some water flow and are managed by NRW. Reen banks were vegetated with common and widespread grasses and herbs present in the adjacent grassland including Perennial Rye-grass and Cock's Foot, with herbs including Creeping Buttercup, Creeping Thistle and Hedge Bindweed *Calystegia sepium*. Soft Rush Juncus effusus and Common Reed were also present.

3.1.12. The surface of the reens were largely vegetated with Common Duckweed *Lemna minor*.

3.1.13. Reens are part of an area of coastal and floodplain grazing marsh, and as such are listed under Section 7 of the Environment (Wales) Act 2016 and are a Local Biodiversity Action Plan priority habitat.

3.1.14. This habitat is part of a network of reens that are an interest feature of the Gwent Levels – Redwick and Llandevenny SSSI. Accordingly, this habitat is of National value for biodiversity.

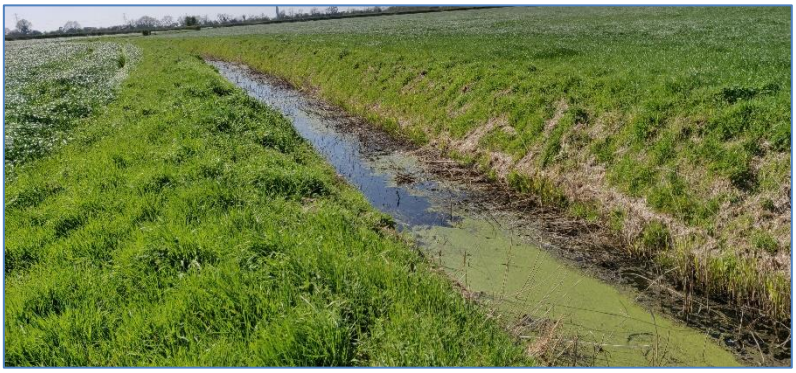

Image 1. Reen (10/04/2019)

Ditch

3.1.15. Ditches are smaller features with little or no water flow and are managed by the landowner.

3.1.16. Fields are enclosed by ditches, the majority of which are heavily shaded beneath hedgerows of native shrubs associated with the ditch banks. In places, these ditches are dry or choked with dead vegetation, and where open water exists it typically supported abundant Common Duckweed with Common Reed along the banks.

3.1.17. Ditches are heavily shaded and would not support invertebrates that are an interest feature of the Gwent Levels – Redwick and Llandevenny SSSI

3.1.18. Ditches are part of an area of coastal and floodplain grazing marsh, and as such are listed under Section 7 of the Environment (Wales) Act 2016 and are a Local Biodiversity Action Plan priority habitat.

3.1.19. This habitat is part of a network of ditches that are an interest feature of the Gwent Levels – Redwick and Llandevenny SSSI. Accordingly, this habitat is of National value for biodiversity.

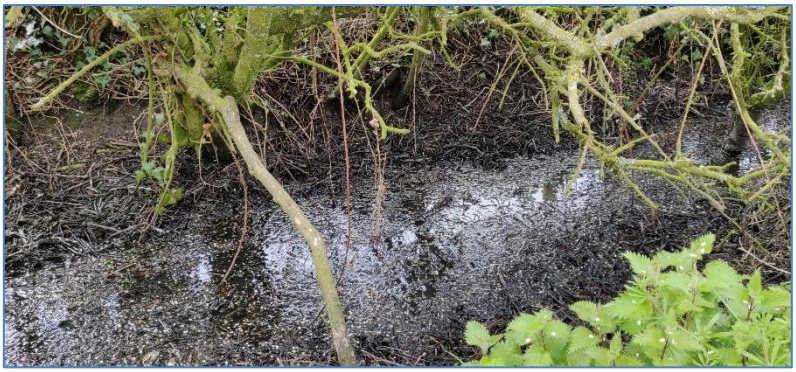

Image 2. Ditch (10/04/2019)

Intact hedge, native species rich & Intact hedge and trees, native species rich

3.1.20. The majority of vegetated field boundaries comprise close-managed, species rich hedgerows with diverse native woody shrubs and trees including Hawthorn *Crateagus monogyna*, Blackthorn *Prunus spinosa* and occasional Common Ash *Fraxinus excelsior*, Elder *Sambucus nigra*, apple *Malus* sp. and shrubby elm *Ulmus* sp. Locally abundant willow were present within the hedgerows including Goat Willow *Salix caprea*, Grey Willow *Salix cinerea* and larger Crack Willow *Salix fragilis,* with occasional Osier *Salix viminalis*. Understorey vegetation was sparse, but included Bramble, Ivy *Hedera helix*, Hedge Bindweed, Hogweed and Dog Rose *Rosa canina* agg.

3.1.21. In places these hedgerows include larger trees.

3.1.22. These hedgerows are associated with drainage ditches which they have frequently overgrown.

3.1.23. Hedgerows are listed under Section 7 of the Environment (Wales) Act 2016 and are a Local Biodiversity Action Plan priority habitat. The hedgerows would not qualify as ecologically important for the purposes of the Hedgerow Regulations 1997 due a lack of species diversity.

3.1.24. This habitat is of Local value for biodiversity and provides nesting habitat for widespread and common birds.

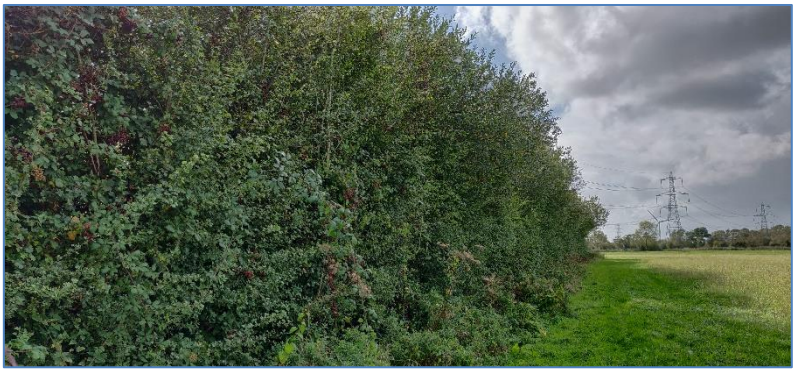

Image 3. Hedgerow (26/09/2019)

Scrub

3.1.25. Occasional Bramble and Hawthorn scrub is present within grassland and reen margins.

3.1.26. This habitat is of Site value for biodiversity and provides nesting habitat for widespread and common birds.

Table 1. Habitat extent within development footprint and ecological value

Habitat type	Area	Ecological value
Improved grassland	26.74 ha	Site
Arable	59.22 ha	Negligible
Tall ruderal	0.36 ha	Site
Reen	0.26 ha	National
Ditch	1.18 ha	National
Intact hedge, native species rich	5.67 km	Local
Intact hedge and trees, native species rich	3.27 km	Local

3.2. Desktop survey

3.2.1. The biological records search found a number of notable species. Due to the broad scale of many records, it is not possible to determine if they relate to the Site.

Amphibians

3.2.2. There are 2 records for Common Frog, 4 records for Smooth Newt and 2 records for Great Crested Newt within 2km.

Badgers

3.2.3. There are 2 records for Badger within 2 km of the Site.

Bats

3.2.4. There are 66 records for bats within 2km of the Site. The species recorded are detailed in Table 2. The nearest record for a known bat roost is 0.6km and describes an unknown bat roost in 1986.

Table 2. Bat records within 2km

Common name	Number of records
Bat	2
Common Pipistrelle	43
Greater Horseshoe	1
Lesser Horseshoe	3
Nathusius' Pipistrelle	1
Noctule	13
Soprano Pipistrelle	1
Whiskered	1

Birds

3.2.5. There are 2313 bird records within 2km and these are detailed in Table 3.

Table 3. Bird records within 2km

Common name	Conservation listings	Count
Barn Owl	WCA1.1, WCA9, Bern, CITES, LBAP (ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	19
Bar-tailed Godwit	BDir1, BDir22, S7, Bonn, WBR(RSPB), LBAP (BBNP, CON, GWY, VOG), UKBAm(RSPB)	3
Bewick's Swan	BDir1, WCA1.1, S7, UKBAP, Bonn, Bern, LBAP (CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	4

Black Redstart	WCA1.1, Bern, LBAP (GWY, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	2
Black-headed Gull	BDir22, S7, Bonn, WBR(RSPB), LBAP (GWY, VOG), UKBAm(RSPB)	12
Black-tailed Godwit	BDir22, WCA1.1, UKBAP, Bonn, RD1 (UK), LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)	1
Brambling	WCA1.1, LBAP (CON)	2
Bullfinch	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	25
Cetti's Warbler	WCA1.1, LBAP (ANG, PEM, VOG)	133
Coal Tit	Bern, LBAP (CON, POW), WBAm(RSPB)	15
Common Crossbill	WCA1.1, Bern, LBAP (CON, POW), LI(VC43)	1
Common Gull	BDir22, Bonn, WBR(RSPB), UKBAm(RSPB)	12
Common Sandpiper	Bonn, Bern, WBAm(RSPB)	6
Common Scoter	BDir22, WCA1.1, S7, UKBAP, Bonn, LBAP (ANG, BBNP, CER, CON, CRM, DEN, FLI, GWY, PEM, VOG), WBAm(RSPB), UKBR(RSPB)	4
Cormorant	Bonn, LBAP (CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	10
Cuckoo	S7, UKBAP, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, VOG), UKBR(RSPB), UKBAm(RSPB)	26
Curlew	BDir22, S7, UKBAP, Bonn, RD1 (UK), WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), LI(VC43), UKBAm(RSPB)	12
Dipper	Bern, LBAP (BRG, CLY, CON, MTR, POW, RCT, TRA), WBAm(RSPB), UKBAm(RSPB)	1
Dunlin	Bonn, Bern, WBR(RSPB), LBAP (CON, GWY, POW), LI(VC43), UKBAm(RSPB)	9
Dunnock	S7, UKBAP, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)	46
Eider	BDir22, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1
Fieldfare	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	50
Firecrest	WCA1.1, Bern, LBAP (BRG, CON, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	1
Gadwall	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	43
Garden Warbler	LBAP (BRG, CON, POW), WBAm(RSPB)	11
Garganey	BDir21, WCA1.1, Bonn, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	9
Goldcrest	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	28
Golden Plover	BDir1, BDir22, S7, Bonn, WBR(RSPB), LBAP (BBNP, CON, CRM, FLI, GWY, POW, SNP, VOG), LI(VC43)	2
Goldeneye	BDir22, WCA1.2, Bonn, LBAP (CON, POW), UKBAm(RSPB)	1
Goshawk	WCA1.1, WCA9, Bonn, CITES, LBAP (CLY, CON, POW, VOG)	1
Grasshopper Warbler	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)	26
Great Black-backed Gull	BDir22, Bonn, Bern, WBR(RSPB), UKBAm(RSPB)	7
Green Sandpiper	WCA1.1, Bonn, Bern, LBAP (CON, VOG), UKBAm(RSPB)	5
Green Woodpecker	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	19
Greenshank	BDir22, WCA1.1, Bonn, LBAP (CON, POW), UKBAm(RSPB)	7
Grey Partridge	BDir21, S7, UKBAP, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, DEN, FLI, GWY, POW, TRF, VOG), LI(VC43), UKBR(RSPB)	4
Grey Plover	BDir22, Bonn, WBR(RSPB), LBAP (CON, GWY), UKBAm(RSPB)	7
Guillemot	Bonn, LBAP (CON, PEM), WBAm(RSPB), UKBAm(RSPB)	1
Hawfinch	S7, UKBAP, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1
Hen Harrier	BDir1, S7, Bonn, CITES, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, SNP, VOG), LI(VC43), UKBR(RSPB)	3
Hobby	WCA1.1, Bonn, Bern, CITES, LBAP (CON, GWY, POW, VOG), WBAm(RSPB), LI(VC43)	6
House Martin	Bern, LBAP (BRG, CON, POW, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	50
House Sparrow	S7, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	51
Jack Snipe	BDir21, Bonn, LBAP (CON, POW), WBAm(RSPB)	3
Kestrel	S7, Bonn, Bern, CITES, WBR(RSPB), LBAP (ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBAm(RSPB)	60
Kingfisher	BDir1, WCA1.1, Bern, LBAP (CLY, CON, DEN, FLI, GWY, POW, TRA), WBAm(RSPB), UKBAm(RSPB)	69
Knot	BDir22, Bonn, LBAP (BBNP, CON, GWY), WBAm(RSPB), UKBAm(RSPB)	2
Lapwing	BDir22, S7, UKBAP, Bonn, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRF, VOG), LI(VC43), UKBAm(RSPB)	39
Lesser Black-backed Gull	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	16
Lesser Redpoll	S7, UKBAP, WBR(RSPB), LBAP (CON), LBAP (DEN, POW, VOG), UKBAm(RSPB)	10
Lesser Spotted Woodpecker	S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), LI(VC43), UKBR(RSPB)	1
Linnet	S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, DEN, FLI, PEM, VOG), LBAP (CON, GWY), UKBR(RSPB)	21
Long-tailed Tit	WBAm(RSPB)	64
Mallard	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	209
Marsh Harrier	BDir1, WCA1.1, Bonn, CITES, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	3
Marsh Tit	S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)	5
Marsh Warbler	WCA1.1, UKBAP, UKBR(RSPB)	4
Meadow Pipit	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	24
Merlin	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	9

Mute Swan	BDir22, Bonn, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	205
Osprey	BDir1, WCA1.1, Bonn, CITES, LBAP (GWY), WBAm(RSPB), UKBAm(RSPB)	1
Oystercatcher	BDir22, Bonn, LBAP (CON, GWY), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	12
Peregrine	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (ANG, CLY, CON, GWY, PEM, POW, TRF, VOG), LI(VC43), UKBAm(RSPB)	4
Pintail	BDir21, WCA1.2, Bonn, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	4
Pochard	BDir21, Bonn, WBR(RSPB), LBAP (CON, POW), UKBR(RSPB), UKBAm(RSPB)	1
Purple Sandpiper	WCA1.1, Bonn, Bern, LBAP (CON, VOG), UKBAm(RSPB)	1
Red Kite	BDir1, WCA1.1, WCA9, Bonn, CITES, RD1 (UK), LBAP (CON, CRM, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	4
Redshank	BDir22, Bonn, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	17
Redstart	Bern, LBAP (CON, GWY, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	2
Redwing	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	48
Reed Bunting	S7, UKBAP, Bern, LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), WBAm(RSPB), UKBR(RSPB)	73
Ringed Plover	S7, Bonn, Bern, LBAP (BBNP, CON, CRM, GWY, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	5
Ruff	BDir1, BDir22, WCA1.1, Bonn, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	2
Sand Martin	Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	6
Sanderling	Bonn, Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	5
Sandwich Tern	BDir1, Bonn, Bern, LBAP (ANG, CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1
Shelduck	Bonn, Bern, LBAP (CON, GWY, VOG), WBAm(RSPB), UKBAm(RSPB)	18
Short-eared Owl	BDir1, Bern, CITES, WBR(RSPB), LBAP (CON, DEN, GWY, PEM, POW), LI(VC43), UKBAm(RSPB)	10
Shoveler	BDir21, Bonn, CITES, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	34
Skylark	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)	13
Snipe	BDir21, Bonn, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	45
Song Thrush	BDir22, S7, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	61
Spoonbill	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	5
Spotted Flycatcher	S7, UKBAP, Bonn, Bern, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), UKBR(RSPB)	7
Spotted Redshank	BDir22, Bonn, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	6
Starling	BDir22, S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	85
Stone-curlew	BDir1, WCA1.1, UKBAP, Bonn, Bern, UKBR(RSPB)	1
Swallow	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	121
Swift	LBAP (BRG, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	35
Teal	BDir21, Bonn, CITES, LBAP (ANG, CON, DEN, FLI, GWY), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	116
Tree Sparrow	S7, UKBAP, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBR(RSPB)	7
Tufted Duck	BDir21, Bonn, LBAP (CON, POW, VOG), WBAm(RSPB)	3
Turnstone	Bonn, Bern, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	5
Turtle Dove	BDir22, S7, UKBAP, CITES, WBR(RSPB), LBAP (BBNP, CON, GWY, MON, POW), UKBR(RSPB)	5
Wheatear	Bern, LBAP (BRG, CON, POW), WBAm(RSPB)	15
Whimbrel	BDir22, WCA1.1, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	11
White-fronted Goose	BDir22, S7, UKBAP, Bonn, Bern, WBR(RSPB), LBAP (BBNP), UKBR(RSPB), UKBAm(RSPB)	1
Whitethroat	LBAP (CON, POW), WBAm(RSPB)	26
Wigeon	BDir21, Bonn, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	12
Willow Tit	S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, DEN, FLI, POW, VOG), LBAP (CON, GWY), LI(VC43), UKBR(RSPB)	1
Willow Warbler	WBR(RSPB), LBAP (CON), UKBAm(RSPB)	45
Woodcock	BDir21, Bonn, LBAP (CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBR(RSPB), UKBAm(RSPB)	2
Yellow Wagtail	S7, UKBAP, Bern, WBR(RSPB), LBAP (CON, DEN, FLI, POW, TRA, VOG), LI(VC43), UKBAm(RSPB)	14
Yellowhammer	S7, UKBAP, Bern, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), UKBR(RSPB)	2

Key to Conservation status

UKBAP = UK Biodiversity Action Plan Priority Species
UKBAP (R) = UK Biodiversity Action Plan Priority Species (Research only species)
BDir1 = EC Birds Directive Annex 1 Species
BDir21 = EC Birds Directive Annex 2.1 Species
BDir22 = EC Birds Directive Annex 2.2 Species
Bern = The Bern Convention on the Conservation of European Wildlife and Natural Habitats
Bonn = The Bonn Convention on the Conservation of Migratory Species of Wild Animals Species
CITES = Convention on International Trade in Endangered Species
EPS = European Protected Species

HDir = EU Habitats Directive Species
NRW = Natural Resources Wales Priority Species
RD1 (Wales) = Welsh Red Data Book listing based on IUCN guidelines
RD1 (UK) = UK Red Data Book listing based on IUCN guidelines
RD2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce)
WBR (RSPB) = RSPB Welsh Red listed birds (not based on IUCN criteria)
WBAm (RSPB) = RSPB Welsh Amber listed birds (not based on IUCN criteria)
UKBR (RSPB) = RSPB UK Red listed birds (not based on IUCN criteria)
UKBAm (RSPB) = RSPB UK Amber listed birds (not based on IUCN criteria)
S42 = Natural Environment and Rural Communities Act 2006 (Section 42)
WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species
WCA5 = Wildlife and Countryside Act Schedule 5 Species
WCA8 = Wildlife and Countryside Act Schedule 8 Species
WCA9 = Wildlife and Countryside Act Schedule 9 Species
WSG.P = Guidelines for the Selection of Wildlife Sites in South Wales - Primary species
WSG.C = Guidelines for the Selection of Wildlife Sites in South Wales - Contributory species
LBAP (xxx) = Local Biodiversity Action Plan Species (see key below)
LI (SEWBReC) = Locally Important Species (as identified by local specialists) in SEWBReC area.
LI (BIS) = Locally Important Species (as identified by local specialists) in BIS* area.
LI (BRYO-MON) = Locally or nationally scarce or rare bryophyte in Monmouthshire.
LI (VC##) = Locally Important Species (as identified by local specialists) in Vice County ##
LI (VC##, LS) = Locally Scarce in Vice County ##
LI (VC##, LR) = Locally Rare in Vice County ##
LI (VC##, EX) = Extinct in Vice County ##
LI (VC##, UR) = Under Recorded in Vice County ##
* BIS = Biodiversity Information Service for Powys and Brecon Beacons National Park

Common Dormouse

3.2.6. The biological record search returned no records for Dormouse within 2km.

Otter

3.2.7. The biological record search returned 495 records for Otter within 2km. With the exception of 56 records at the site boundaries for droppings/spraint or footprints largely associated with Mink monitoring rafts, all of these records are outside the proposed development footprint.

Water Vole

3.2.8. The biological record search returned 2707 record for Water Vole within 2km. The majority of these records are to the east of the Site, associated with Magor Marsh, although there are a cluster of records at the north eastern boundary of the Site in the period 2013 to 2016.

Fish

3.2.9. There are 15 records for European Eel *Anguilla anguilla* within 2km

Reptiles

3.2.10. The biological record search returned 5 records for Grass Snake.

Invertebrates

3.2.11. The biological record search returned 67 records for a number of notable invertebrates within 2km including 3 records for Shrill Carder bee close to the eastern site boundary. These are listed in Table 4.

Table 4. Notable invertebrate records within 2km

Latin name	Common Name	Conservation status	Count
Agonopterix atomella	Greenweed Flat-body	S7, UKBAP, RD2 (UK)	1
Boloria euphrosyne	Pearl-bordered Fritillary	WCA5, S7, UKBAP, RD1 (UK), RD2 (UK), LBAP (BBNP, CER, CON, DEN, FLI, PEM, POW), LI(SEWBReC), LI(VC43)	1
Bombus ruderarius	Red-shanked Carder-bee	S7, LBAP (FLI, MTR, VOG)	1
Cupido minimus	Small Blue	WCA5, S7, UKBAP, RD1 (UK), LBAP (CON, PEM, VOG), LI(SEWBReC)	1

Hipparchia semele	Grayling	S7, UKBAP, RD1 (UK), LBAP (BRG, CDF, GWY, RCT, VOG), LI(BIS), LI(SEWBReC), LI(VC43)	1
Leptidea sinapis	Wood White	WCA5, S7, UKBAP, RD1 (UK), RD2 (UK), LBAP (POW, VOG), LI(SEWBReC)	1
Rhizedra lutosa	Large Wainscot	S7, UKBAP, LBAP (BRG, GWY)	4
Bombus humilis	Brown-banded Carder-bee	S7, LBAP (CER, CON, FLI, GWY, PEM, POW, VOG)	21
Bombus sylvarum	Shrill Carder Bee	S7, RDB2 (UK) - NB, LBAP (CER, FLI, PEM, VOG)	31

Plants

3.2.12. The biological record search returned 36 records for notable plants. With the exception of a single record for Tubular Dropwort *Oenanthe fistulosa*, all records are distant from the Site. These are listed in Table 5.

Table 5. Notable plant records within 2km

Latin name	Common name	Conservation status	Count
Bupleurum tenuissimum	Slender Hare's-ear	S7, UKBAP, RD1 (UK), RD2 (UK), LBAP (CON, FLI, VOG), LI(VC51, LR)	1
Hyacinthoides non-scripta	Bluebell	WCA8	4
Oenanthe fistulosa	Tubular Water-dropwort	RDB1 [UK] - DD, RDB2 [UK] - R	31

Statutory Nature Conservation Sites

3.2.13. There are 10 Sites of Special Scientific Interest (SSSI) within 5km of the proposed development. These are detailed in Table 6, along with a summary of their interest features and distance (nearest point) from Site. These sites are of National importance.

Table 6. Sites of Special Scientific Interest within 5km

SSSI name	**Summary of interest features**	**Distance from proposed solar PV farm**
Gwent Levels - Redwick and Llandevenny	Wet pasture important for plants and invertebrates	The proposed solar PV farm is within this site
Gwent Levels - Whitson	Wet pasture important for plants and invertebrates	1.5 km to the west
Gwent Levels - Magor and Undy	Wet pasture important for plants and invertebrates	At the eastern edge of the proposed solar farm
Magor Marsh	Marshland important for breeding water and marsh birds	340 metres to the north east
Severn Estuary	Estuarine fauna including water fowl, migratory fish, invertebrates. Important for wintering and passage birds	1.2km to the south
Penhow Woodlands	Woodland with plant interest	3.7km to the north
Gwent Levels - Nash and Goldcliff	Wet pasture important for plants and invertebrates	3.9km to the west
Langstone-Llanmartin Meadows	Lowland marshy grassland important for plants and invertebrates	4.1km to the north west
Rectory Meadow - Rogiet	Meadow Clary *Salvia pratensis*	4.2km to the north east
Newport Wetlands SSSI	Breeding and over-wintering birds, invertebrates, and aquatic and marginal flora. Also of special interest are the ditch habitat and reedbeds.	4.4km to the west

3.2.14. The Severn Estuary, 1.2km to the south, is also subject to the following International designations:

- Severn Estuary Special Protection Area (SPA)

- Severn Estuary Ramsar Site
- Severn Estuary Special Area of Conservation (SAC)

3.2.15. These sites are of International importance.

Non-statutory Nature Conservation Sites (NNCS)

3.2.16. There are five Sites of Importance for Nature Conservation (SINC) within 1 km (Table 7). These sites are of County importance.

Table 7. SINC present within 1 km of the Site.

SINC Names	Qualifying features	Distance from proposed solar farm
Barecroft Fields	H7 Marshy Grassland S7 Vascular plants (primary species: *Thalictrum flavum*)	At the north eastern corner
Blackwall Lane Field	H7 Marshy Grassland S7 Vascular plants (primary species: *Thalictrum flavum*)	On the eastern edge of the site
Bowkett Field, Barecroft	H7 Marshy Grassland	105 metres to the north
Land at Barecroft Common	H7 Marshy Grasslands S7 Vascular Plants (Primary species: *Thalictrum flavum* and contributing species: *Oenanthe fistulosa*)	180 metres to the north east
Bluehouse Farm	H4 Neutral grassland H7 Marshy grassland indicators S7 Vascular Plants – Contributory Species – tubular water drop wort & cyperus sedge	620 metres to the north east

western ECOLOGY

1 Geffery Close
Landrake
Saltash
Cornwall
PL12 5HA

Tel: 0800 622 6828
email: office@westernecology.co.uk

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F29 F30 F31

Farmyard manure store with ruderal herbs

Farmyard manure store with ruderal herbs

0 50 100 150 200 250 m

Legend

- Target note
- Intact hedge with trees, native species rich
- Intact hedge, native species rich
- A Arable
- Tall ruderal
- Ditch
- Reen
- I Improved grassland

Title: Map 1 Phase 1 habitats

Project: Rush Wall Solar Park

Checked by: CDH Version: 03
Date: 22/07/2021

3.3. Potential for species of nature conservation importance

3.3.1. Habitats have been assessed from the results of the field survey for their potential to support the following protected species. Where there is no potential for a species or species group to be present within the site, or where habitats with the potential to support this species or species group will not be impacted by the proposals, they may be scoped out at this stage.

Amphibians

3.3.2. There are two records for Great Crested Newt within 2km of this site. The majority of ditches and reens are unsuitable for breeding amphibians due to the presence of significant number of waterfowl, lack of emergent vegetation and poor water quality. However, areas with reduced flow and refugia habitat could support small numbers of Greater Crested Newt.

3.3.3. There is also potential for small numbers of common and widespread amphibians to be present in reens, and adjacent grassland or arable habitats.

Badger

3.3.4. Evidence of Badgers foraging is present across the site, comprising occasional snuffle holes.

Bats

3.3.5. No suitable features for roosting bats were present within the footprint of the proposed solar PV array. Trees associated with boundaries are largely early mature and would not provide much in the way of bat roosting habitat, although occasional larger trees are present that would have potential roosting features.

3.3.6. The boundary features will be used by foraging bats.

3.3.7. Research into habitat preferences of bats in Britain (Walsh and Harris, 1996) found that although bats could be found in almost all habitats, they showed clear preference for woodland edges and water bodies along with treelines and hedgerows. Strong avoidance was seen for a number of habitats, including improved grassland, and this was common in all landscapes.

3.3.8. Improved grassland and arable habitats within the development footprint are unlikely to be an important resource for local bat species.

Birds

3.3.9. Common bird species will nest within the boundary habitats.

3.3.10. Improved grassland habitats within much of the solar PV array footprint have little value for ground nesting birds due to their grazing and foraging regime.

3.3.11. The Site has unknown potential for over-wintering and passage birds that are interest features of the nearby Severn Estuary SSSI, Ramsar and SPA sites, whilst Lapwing are known to breed on the Gwent Levels.

Common Dormice

3.3.12. Dormice are arboreal and are found within species-rich woodland, hedgerow and woody fruiting scrub. The improved grassland and arable habitat within the solar PV array footprint would not support this animal.

3.3.13. Enclosing habitats (species rich hedgerows) have limited potential for Dormice as they do not support a diverse range of fruiting shrubs and do not link into areas of woodland, whilst there are no records within 2km.

Fish

3.3.14. It is likely that European Eel are present within reens and may migrate through terrestrial habitats in periods of damp weather.

Hedgehog

3.3.15. It is possible that an occasional Hedgehog might be associated with habitats within and bounding the Site.

Reptiles

3.3.16. Boundary habitats have some potential for Grass Snake, although the managed improved grassland and arable habitat within the footprint would be unlikely to support reptiles.

Otter

3.3.17. It is likely that Otter are actively foraging within reens associated with the Site and there are abundant records within 2km.

Water Vole

3.3.18. The majority of ditches associated with the Site are unsuitable for Water Vole due to heavy shading and a lack of suitable water flow/quality and bankside vegetation. However, reens have potential and there are abundant records within 2km.

3.3.19. Mink monitoring traps are present in reens, indicating the likely presence of Water Vole.

Invertebrates

3.3.20. Improved grassland and arable habitats within the footprint of the proposed solar PV array would be unlikely to support invertebrates of restricted distribution, although boundary watercourses are part of the Gwent Levels– Redwick and Llandevenny SSSI ,selected in part for aquatic invertebrates associated with reens. There are also records for Shrill Carder Bee in the area.

Plants

3.3.21. Improved grassland and arable habitats within the footprint of the proposed solar PV array would be unlikely to support plants of restricted distribution, although boundary watercourses are part of the Gwent Levels– Redwick and Llandevenny SSSI selected in part for aquatic plants including Whorl-leaf Watermilfoil *Myriophyllum verticillatum*.

3.4. Invasive Non-native Species

3.4.1. No plant listed as Invasive Non-native under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) with respect to England and Wales was present and invasive non-native plants do not need to be considered further.

4. Evaluation of ecological features and potential impacts

4.1. Background

4.1.1. Ecological features that have the potential to be present have been assessed in light of current nature conservation policy, planning policy and wildlife legislation by an experienced ecologist (see Appendix 1). Where necessary, the ecological value of an ecological feature is given along with the potential effect of the proposed development.

4.1.2. If it is considered that the proposed development is likely to have no effect on features that have been identified as present, or potentially present, they may be scoped out at this stage.

4.2. Habitats of nature conservation importance

4.2.1. Protected habitats - Habitats are protected under international and national legislation including The Conservation of Habitats and Species Regulations 2017, and Wildlife and Countryside Act 1981 (as amended). These have been formulated into policy measures, with many examples protected under formal site designations such as SSSIs and SACs.

4.2.2. No habitats of European Community Importance as defined within The Conservation of Habitats and Species Regulations 2017 were present within this site. Protected habitats of this type are not a consideration for this project.

4.2.3. Notable habitats - Fifty-five habitats are listed as being of key significance to sustain and improve biodiversity in relation to Wales. Under Section 7 of the Environment (Wales) Act there is a need for these habitats to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. These habitats are the subject of National and Local Biodiversity Action Plans. Hedgerows are given particular protection under the Protection of Hedgerows Act 1997.

Intact hedge, species rich

4.2.4. Hedgerows would qualify as a Local Biodiversity Action Plan Priority Habitat and a Section 7 habitat. These features will remain intact and no mitigation for habitat loss is required. However, mitigation should be adopted to avoid accidental damage during the construction phase.

Standing water – reens

4.2.5. Reens and ditches qualify as a Section 7 habitat and a Local Biodiversity Action Plan Priority Habitat and are an interest feature of the Gwent Levels - Redwick and Llandevenny SSSI. These features will remain intact and no mitigation for habitat loss is required. However, mitigation should be adopted to avoid accidental damage during the construction phase.

Coastal and floodplain grazing marsh

4.2.6. The site as a whole qualifies as “Coastal and floodplain grazing marsh” a Section 7 habitat and Local Biodiversity Action Plan priority habitat. This is defined as:

> *“periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species like reeds; although they may abut with fen and reed swamp communities.”*

4.2.7. The majority of these features will remain intact. However, there will be some habitat loss associated with electrical cabinets, transformers and access tracks. Habitat loss would be a material consideration to the planning application and mitigation is recommended.

4.3. Species of nature conservation importance

4.3.1. Overview - Many native wild plants and animals are protected by law with the two main legal instruments being the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017. The latter consolidates amendments to the Conservation (Natural Habitats, &c) Regulations 1994 which transposed into UK Law the EU Habitats Directive.

4.3.2. A range of species of fungi, plant or animal are listed in Section 7 of the Environment (Wales) Act 2016 as being of principal importance for the purposes of conserving biodiversity. There is a need for these species to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. These species are the subject of National and Local Biodiversity Action Plans.

<u>Amphibians</u>

4.3.3. The four native widespread amphibians (Common Frog, Common Toad, Common Newt and Palmate Newt) are given limited protection from trade under the Wildlife and Countryside Act 1981 (as amended).

4.3.4. Great Crested Newt (GCN) and Natterjack Toad and their breeding sites and resting places (during all parts of their lifecycle) are fully protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017. They are identified as European Protected Species. Under these laws it is an offence to:

- capture, kill, disturb or injure GCN and Natterjack Toads (on purpose, or by not taking enough care);
- damage or destroy a breeding or resting place (even accidentally);
- obstruct access to their resting or sheltering places (on purpose, or by not taking enough care);
- possess, sell, control or transport live or dead newts, or parts of them;
- take GCN or Natterjack Toad eggs.

4.3.5. The very rare Pool Frog, only recently recognised as a native amphibian, is fully protected under the Wildlife and Countryside Act 1981 (as amended).

4.3.6. GCN, Natterjack Toad, Common Toad and Pool Frog are Section 7 species.

4.3.7. Reens have potential to support small numbers of GCN during the breeding season, whilst adjacent hedgerows and rough semi-natural vegetation may be used during their terrestrial phase and hibernation. However, much of the site comprises intensively managed agricultural grassland and arable habitats that have little value for Great Crested Newt.

4.3.8. There is potential for the construction phase of the development could result in the capture, killing, disturbance or injury of a GCN, and the loss of a resting place.

4.3.9. Following development, it is likely that habitats associated with the site will be improved for Great Crested Newt due to reduced management.

4.3.10. Mitigation may be required if GCN are present in boundary habitats at this site.

Badger

4.3.11. Badgers are protected from persecution or ill-treatment under the Protection of Badgers Act 1992. Under the Act, it is an offence to:

- wilfully kill, injure or take, or attempt to kill, injure or take, a badger;
- damage a badger sett or any part of it;
- destroy a badger sett;
- obstruct access to, or any entrance of, a badger sett;
- cause a dog to enter a badger sett; or
- disturb a badger when it is occupying a badger sett.

4.3.12. Badgers are foraging across the site, and Badger setts may be present within the site or at its boundaries.

4.3.13. Although habitat loss would not impact local Badger populations, there is potential for Badgers to get trapped within the Site during the construction/operational phase, and for Badger setts to be impacted if they are within 30 metres. Mitigation may be required.

Bats

4.3.14. Bat species, and their breeding or resting places (roosts), are protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017. They are identified as European Protected Species. Under these laws it is an offence to:

- capture, kill, disturb or injure bats (on purpose or by not taking enough care);
- damage or destroy a breeding or resting place (even accidentally);
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care); or
- possess, sell, control or transport live or dead bats, or parts of them.

4.3.15. Seven species of bat are listed under Section 7.

4.3.16. The construction and operation of the proposed solar PV array would not result in the capture, killing or injuring of bats, nor damage or destroy a breeding or resting place, or obstruct access to a resting place.

4.3.17. The current habitats are likely to have value for foraging bats, in particular hedgerows and reens. Mitigation will be required if the site is of importance for foraging and commuting bats.

Birds

4.3.18. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended) from being killed, injured or captured whilst their nests and eggs are protected from being damaged, destroyed or taken. Birds which are listed under Schedule 1 of the Act are given additional protection against disturbance.

4.3.19. A number of species of bird are listed under Section 7.

4.3.20. Boundary habitats will support widespread and common nesting bird species. These habitats will remain and no mitigation for their loss is required.

4.3.21. Habitats intensively managed grassland arable habitats are unlikely to be important for ground nesting birds, although there is unknown potential for passage and overwintering birds to be active in this area. Mitigation will be required if the site is of importance for birds.

4.3.22. Any activities that expose invertebrates, such as earth worms and grubs, will provide an additional food resource for local birds and will have a positive temporary effect, particularly when adults are feeding nested chicks.

Common Dormouse

4.3.23. Common (or Hazel) Dormice, and their breeding and resting places, are protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017). They are identified as a European Protected Species. Under these laws, it is an offence to:

- Capture, kill, disturb or injure Common Dormice (on purpose or by not taking enough care);
- Damage or destroy a breeding or resting place (even accidentally);
- Obstruct access to their resting or sheltering places (on purpose or by not taking enough care); or
- Possess, sell, control or transport live or dead dormice, or parts of dormice.

4.3.24. Common Dormice are listed under Section 7.

4.3.25. Species rich hedgerows have limited potential for Dormice and will remain intact beyond the solar PV array. No mitigation for Dormice is needed and they can be scoped-out of further consideration.

Fish

4.3.26. A number of fish listed in Schedule 5 are protected under the Wildlife and Countryside Act 1981 (as amended) from selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative).

4.3.27. Barbel, Grayling, River Lamprey, Atlantic Salmon (whilst in freshwater), Allis Shad, Twaite Shad, Vendace and Whitefish are listed under Schedule 4 of The Conservation of Habitats and Species Regulations 2017. This prevents them being killed or captured in a certain way.

4.3.28. European Eel are listed under Section 7.

4.3.29. Reens have the potential to support European Eel, whilst they may occasionally be present in vegetated boundary habitats. These habitats will not be impacted by the proposed development.

Hedgehog

4.3.30. Hedgehogs are partially protected under the Wildlife & Countryside Act and may not be trapped without a licence. Hedgehogs are listed under Section 7.

4.3.31. There is potential for Hedgehog to be associated with boundary habitats. The proposed development will not affect these habitats and Hedgehog do not need to be considered further.

Reptiles

4.3.32. All native reptiles are protected to some degree under the Wildlife and Countryside Act 1981 (as amended), whilst our two rarest species, the Sand Lizard and Smooth Snake, are given full protection under the Act, and also identified as European Protected Species.

4.3.33. The four common species (Slow Worm, Adder, Grass Snake and Common (Viviparous) Lizard) are protected from deliberate killing, injury and trade.

4.3.34. The two rare species, Sand Lizard and Smooth Snake, are given more protection that includes protection from capture and deliberate or reckless killing, injury or disturbance. Their breeding or resting places are also protected from obstruction or damage, even if it were accidental. All five native reptiles are listed under Section 7.

4.3.35. The Site has potential to support foraging Grass Snake. The loss of semi-natural habitats to the development will not adversely impact foraging reptiles, were they to be present, although construction activities could result in the killing of injury of individuals which may be deemed an offence under the Wildlife and Countryside Act 1981 (as amended). Mitigation is recommended.

Otter

4.3.36. Otter, and their breeding or resting places (holts and couches), are protected under the Wildlife and Countryside Act 1981 (as amended), and The Conservation of Habitats and Species Regulations 2017. They are identified as European Protected Species. Under these laws, it is an offence to:

- capture, kill, disturb or injure otters (on purpose or by not taking enough care)
- damage or destroy a breeding or resting place (deliberately or by not taking enough care)

- obstruct access to their resting or sheltering places (deliberately or by not taking enough care)
- possess, sell, control or transport live or dead otters, or parts of otters

Otter are listed under Section 7.

4.3.37. It is likely that Otter are feeding along the reens at the field boundary, although habitats are not suitable for resting Otter (holt or couch). Mitigation for foraging Otter may be required.

Water Vole

4.3.38. Water Vole is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under the Act it is an offence to:

- intentionally capture, kill, disturb or injure Water Voles (on purpose or by not taking enough care);
- destroy or block access to their places of shelter or protection;
- possess, sell, control or transport live or dead bats, or parts of them.

Water Vole are listed under Section 7.

4.3.39. There is potential for Water Vole to be present within reens. Mitigation may be required if the site is of importance for Water Vole.

Invertebrates

4.3.40. Approximately 70 invertebrate species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), with three species protected under The Conservation of Habitats and Species Regulations 2017. The latter are identified as European Protected Species. Under the Wildlife and Countryside Act 1981 (as amended) offences include:

- Sale, or offering / exposing for sale
- Possession
- Intentional taking, killing or injuring
- Intentionally / recklessly damaging or destroying its place of shelter / protection
- Intentionally / recklessly disturbing it whilst occupying its place of shelter / protection
- Intentionally / recklessly obstructing access to its place of shelter / protection

One hundred and thirteen invertebrates are listed under Section 7.

4.3.41. Reens have the potential to support invertebrates of restricted distribution, included those that are interest features of the Gwent Levels – Redwick and Llandevenny SSSI, whilst Shrill Carder Bee may be present in terrestrial habitats. Mitigation may be required if habitats supporting notable invertebrates will be impacted by the proposed development.

Flora

4.3.42. A range of plants are protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended), with nine species protected under The Conservation of Habitats and Species Regulations 2017. The latter are identified as European Protected Species. Under the Wildlife and Countryside Act 1981 (as amended) offences include:

- intentional picking, uprooting or destruction
- selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative)
- advertising (any of these) for buying or selling

77 species of vascular plants are listed under Section 7 along with 67 lichens and 52 mosses and liverworts.

4.3.43. Reens have the potential to support plants of restricted distribution, included those that are interest features of the Gwent Levels – Redwick and Llandevenny SSSI. Mitigation may be required if habitats supporting notable plants will be impacted by the proposed development.

4.4. Statutory Nature Conservation Sites

4.4.1. There are 10 SSSIs within 5km of this Site (Table 6). Guidance is given within paragraph 175 of the National Planning Policy Framework for planning applications on land within or outside an SSSI likely to have an adverse effect on its notified special interest features. Within this guidance it is stated that:

> *"development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;"*

4.4.2. Of these 10 sites, it is expected that the construction and operation of the proposed solar PV array would have a negligible effect on the following types of interest features:

- Distant interest features that are non-motile, mainly plants;
- Invertebrates associated with distant SSSIs that do not disperse widely;
- Sites that support motile species that would not be found in association with the habitats present at the development site;
- Habitat interest features associated with distant sites.

On this basis, significant effects on the following 6 Nationally protected sites can be discounted:

- Gwent Levels - Nash And Goldcliff SSSI
- Langstone-Llanmartin Meadows SSSI
- Penhow Woodlands SSSI

- Gwent Levels - Magor And Undy SSSI
- Gwent Levels - Whitson SSSI
- Rectory Meadow - Rogiet SSSI

Significant effects cannot be discounted at this stage for the following sites:

- Gwent Levels – Redwick Llandevenny SSSI
- Magor Marsh SSSI
- Severn Estuary SSSI
- Newport Wetlands SSSI

Gwent Levels – Redwick Llandevenny SSSI

4.4.3. The proposed development is located within Gwent Levels – Redwick Llandevenny SSSI. The Gwent Levels constitute the lowlands between Cardiff and Chepstow, and are drained by an ordered network of drainage ditches. They are an example of one of the most extensive areas of reclaimed wet pasture in Great Britain, which includes the Somerset Levels, Romney Marsh and the Pevensey Levels, and is the largest area of its kind in Wales. Together these Levels systems constitute a national series of sites each with its own special features.

4.4.4. The Gwent Levels reens are rich in plant species and communities, many of which are rare or absent in other Levels systems. This is due to the variety of reen types and their management regimes, and the timing of the management which results in a staggered programme across the Levels. The regular maintenance of some reens provides conditions for submerged species such as hairlike pondweed *Potamogeton* trichoides and openwater emergents such as arrowhead *Sagittaria sagittifolia* an opportunity to flourish.

4.4.5. Others are less intensively managed and some have become completely overgrown by weeds and hedges. The aquatic invertebrate fauna is very diverse and the Gwent Levels compares well with similar areas in Britain. Many nationally rare or notable species are present such as *Haliplus mucronatus* and *Hydrophilus piceus*. The area is important in the Welsh context for its snails and dragonflies and includes the species *Physa heterostropha* and *Brachytron pratense* respectively. The large number of hedgerows add to the diversity of the area, and together with the main reen banks provide a habitat for nationally important assemblages of terrestrial invertebrates such as *Pipunculus fonsecai* and *Tomosvaryella minima*.

4.4.6. The Redwick and Llandevenny area supports rich assemblages of invertebrate species including *Chalcis sispes,* a parasite of the Stratiomys fly larvae, the beetle *Scirtes orbicularis* and the drone fly *Pharhelophilus consimilis*.

4.4.7. The area also contains a number of nationally rare plant species including the rare *Myriophyllum verticillatum* located in peaty ditches in the northern part of the site and the brackish water crowfoot associated with the ditches bordering the sea wall

Magor Marsh SSSI

4.4.8. Magor Marsh SSSI is located 340 metres to the east of the proposed solar PV array. This SSSI is the largest remnant of the formerly extensive fenlands near the Gwent coast. It lies on estuarine alluvium but receives run-off from an area of Carboniferous Limestone. The site supports a variety of reed *Phragmites australis*, sedge *Carex*

spp. and submerged and emergent aquatic plants. There are areas of wet meadow and both Willow *Salix* spp. and Alder *Alnus glutinosa* carr with an intersecting system of drainage ditches – or reens and ponds. It is an important breeding ground for water and marsh birds including Cetti's Warbler, Reed Warbler, Coot, Moorhen, Water Rail and Little Egret.

Severn Estuary SSSI

4.4.9. The Seven Estuary 1.2km to the south lies on the south west coast of Britain at the mouth of four major rivers (the Severn, Wye, Usk and Avon) and many lesser rivers. The immense tidal range (the second highest in the world) and classic funnel shape make the Severn Estuary unique in Britain and very rare worldwide. The intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh is one of the largest and most important in Britain. The estuarine fauna includes: internationally important populations of waterfowl; invertebrate populations of considerable interest; and large populations of migratory fish, including the nationally rare and endangered Allis Shad *Alosa alosa.* The SSSI forms the major part of a larger area of estuarine habitat, which includes the Upper Severn Estuary, the Taf/Ely Estuary and Bridgwater Bay.

4.4.10. The estuary has a diverse geological setting and a wide range of geomorphological features, especially sediment deposits. It is important for the interpretation of coastline dynamics and land-forms, and also past changes, in sea level, sediment supply, climate and river flow. The estuary's overall interest depends on its large size, and on the processes and interrelationships between the intertidal and marine habitats and its fauna.

4.4.11. Beds of eel-grass *Zostera* spp. occur on the more sheltered mud and sand banks. The estuary fringes have large areas of saltmarsh. These are generally grazed by sheep and/or cattle, a significant factor determining the plant communities. A range of saltmarsh types is present, with both gradual and stepped transitions between bare mudflat and upper marsh. Glassworts *Salicornia* spp. and Annual Sea-blite *Suaeda maritima* colonise bare mud on the lower saltmarshes, and disturbed areas at higher levels. Common Cord-grass *Spartina anglica* is abundant on the seaward fringes of marshes, where it occurs as dense monocultures, or with other species, such as Sea Aster *Aster tripolium,* Greater Seaspurrey *Spergularia media* and Common Saltmarsh-grass *Puccinellia maritima.* The middle marsh is mainly dominated by Common Saltmarsh-grass, and frequent associates include Sea-milkwort *Glaux maritima*, English Scurvygrass *Cochlearia anglica* and Sea Arrowgrass *Triglochin maritima,* together with two nationally scarce plants Bulbous Foxtail *Alopecurus bulbosus* and Slender Hare's-ear *Bupleurum tenuissimum*. There are a few localities for an uncommon middle marsh community, which is characterised by Sealavender *Limonium vulgare* and Thrift *Armeria maritima.* Prominent species on the upper marsh are Red Fescue *Festuca rubra* and Saltmarsh Rush *Juncus gerardi.* Nationally scarce species occurring on the upper marshes include Sea Clover *Trifolium squamosum* and Sea Barley *Hordeum marinum.* Highly saline drying pans on the upper marsh support a community with abundant Reflexed Saltmarsh-grass *Puccinellia distans* and Lesser Seaspurrey *Spergularia marina.* The highest saltmarsh around the driftline is usually dominated by Sea Couch Elymus pycnanthus, with Spear-leaved Orache *Atriplex prostrata*. Some brackish pools and

depressions on the upper marshes have small stands of Common Reed *Phragmites australis* or Sea Club-rush *Scirpus maritimus*. Corn Parsley *Petroselinum segetum,* a European rarity, occurs within the site.

4.4.12. The fluctuating salinity and highly mobile sediments with consequent high turbity limits the benthic invertebrates to relatively few species. Those which are tolerant of such conditions occur in very high densities on the more stable mudflats. The most prominent species are ragworm *Nereis* spp., Lugworm *Arenicola marina*, Baltic Tellin *Macoma balthica* and the spire shell *Hydrobia ulvae*. A greater variety of invertebrates tend to occur on the intertidal rock platforms, a more stable habitat with rock pools and a relatively high cover of seaweeds.

4.4.13. Seven species of migratory fish move through the Estuary between the sea and rivers. There are particularly large numbers of Atlantic Salmon *Salmo salar* and Common Eel *Anguilla anguilla.* The other species are Allis Shad, the nationally rare Twaite Shad *Alosa fallax*, the Sea Trout *Salmo trutta*, Sea Lamprey *Petromyzon marinus* and the Lampern or River Lamprey *Lampetra fluviatilis.*

4.4.14. The SSSI is of international importance for wintering and passage wading birds, with total winter populations averaging about 44,000 birds. Numbers can be considerably higher during severe winters when, owing to its mild climate, the Severn supports wader populations that move in from the colder coasts of Britain. The SSSI holds most of the estuary's internationally important Curlew *Numenius arquata* and Redshank *Tringa totanus* populations, and most of its nationally important Ringed Plover *Charadrius hiaticula* and Grey Plover *Pluvialis squatarola* populations. Other waders which occur in significant numbers within the SSSI are Common Snipe *Gallinago gallinago*, Knot *Calidris canutus,* Whimbrel *Numenius phaeopus* and Turnstone *Arenaria interpres.*

4.4.15. The SSSI is internationally important for Dunlin *Calidris alpina* and supports about 7.5% of the British wintering population of this species. The estuary as a whole supports about 10.5% of the British wintering population and is the single most important wintering ground of Dunlin in Britain.

4.4.16. In late winter and early spring, the SSSI supports nationally important numbers of Shelduck *Tadorna tadorna,* following the partial dispersal from their moulting grounds in Bridgwater Bay. There are also significant numbers of Wigeon *Anas penelope.*

Newport Wetlands SSSI

4.4.17. The site lies 4.5km to the south west within the Gwent Levels, part of an area of low lying lands between Cardiff and Chepstow which is drained by an ordered network of drainage ditches. The Levels are an example of one of the most extensive areas of reclaimed wet pasture in Great Britain, which also includes the Somerset Levels, Romney Marsh and the Pevensey Levels, and is the largest area of its kind in Wales. Together these levels systems constitute a national series of sites, each with its own special features. Newport Wetlands lies to the south of the city of Newport, adjacent to the Severn Estuary and close to the mouth of the River Usk. It is part of the larger Newport Wetlands Reserve constructed to meet the commitment by the UK Government to create "a substantial area of wetland habitat on the shores of the Severn Estuary" as part of the compensation for the loss of the Taf/Ely Estuary SSSI following the construction of the Cardiff Bay Barrage.

4.4.18. The site overlies a sequence of Holocene deposits, including estuarine clay and peat. The majority of the site lies below mean high water level, with the sea being excluded by extensive flood defences. Within the central wet grassland area, the traditional drainage system of the Gwent Levels has been amended by the creation of hydrologically discrete field blocks that can be individually flooded in winter. At the eastern end of the site, three shallow saline lagoons, linked by ditches, have been created. There is an inlet/outlet to the Severn Estuary which allows both water and salinity levels to be controlled throughout the year. At the western part of the site, 43ha of reedbed have been created on the pulverised fuel ash (PFA) reservoirs that used to be part of Uskmouth power station. As a result of the large embankments and filling of the reservoirs with PFA, most of this area lies above mean high water level. Water from the nearby Nash Sewage Treatment works is passed through a 'tertiary treatment reedbed' and then through the reedbed lagoons before being discharged to the Severn Estuary.

4.4.19. In winter, Newport Wetlands support nationally (UK) important numbers of shoveler *Anas clypeata* and black-tailed godwit *Limosa limosa*. Other over -wintering species that use the site include gadwall *A. strepera*, wigeon *A. penelope*, shelduck *Tadorna tadorna*, dunlin *Calidris alpina*, redshank *Tringa totanus*, whimbrel *Numenius phaeopus* and curlew *N. arquata*. During the summer, the wet grasslands, saline lagoons and reedbeds on the site support an exceptional variety of breeding birds, including nationally (UK) important breeding populations of avocet *Recurvirostra avosetta*, redshank, lapwing *Vanellus vanellus*, water rail *Rallus aquaticus*, Cetti's warbler *Cettia cetti* and bearded tit *Panurus biarmicus*. In addition, breeding populations of ringed plover *Charadrius hiaticula* and little ringed plover *C. dubius* are also present.

4.4.20. The aquatic invertebrate assemblage is very diverse and compares well with other similar areas in Britain. Many nationally rare and scarce species are present, including the great silver water beetle *Hydrophilus piceus*, the water beetle *Hydaticus transversalis* and the ornate brigadier soldierfly *Odontomyia ornate.* The nationally scarce spider *Tetragnatha striata* has a strong population in the reedbeds and the nationally scarce shrill carder bee *Bombus sylvarum* is found throughout the site. Overall, some 400 invertebrate species have been recorded at the site, several of which are confined to the Gwent Levels in Wales.

4.4.21. The watercourses are rich in plant species and communities, many of which are rare or absent in other levels systems. This is due to the variety of ditch types, the different management regimes and timing of the management; all of which results in a mosaic of ditch habitats across the site.

4.4.22. This provides opportunities for a range of aquatic plants. In the ditches themselves, submerged species such as curly pondweed *Potamogeton crispus*, rigid hornwort *Ceratophyllum demersum* and, occasionally, stoneworts *Chara* spp. grow. Amongst the more notable species is hairlike pondweed *Potamogeton trichoides* which, in Wales, is almost entirely confined to the Gwent Levels area. There is a high diversity of floating plants, with all five British native duckweed species and frog-bit *Hydrocharis morsus-ranae* frequently abundant. Newport Wetlands is one of the few places on the Levels where nationally scarce least duckweed *Wolffia arrhiza*, the world's smallest flowering plant, is found at the north-western extent of its British

range. Along the banks, fool's watercress *Apium nodiflorum*, lesser water-parsnip *Berula erecta*, tubular water dropwort *Oenanthe fistulosa* and water plantain *Alisma plantago-aquatica* occur.

4.4.23. The reedbeds at Newport Wetlands are the largest within the south-east Wales area. In wetter areas with standing water, the vegetation is almost entirely composed of common reed *Phragmites australis*. However, in drier areas, it is joined by marsh bedstraw *Galium palustre*, hemp agrimony *Eupatorium cannabinum* and great willowherb *Epilobium hirsutum*.

4.4.24. In addition, the site has a number of other habitats that add to its overall wildlife value. These include hedgerows, scrub, woodland and grassland.

International designations

4.4.25. The Seven estuary 1.2km to the south has the following International designations:

Severn Estuary RAMSAR

4.4.26. The Severn Estuary is one of the largest estuaries in Britain and it has the second largest tidal range in the world. Its classic funnel shape and southwest orientation makes it susceptible to extreme weather conditions in the east Atlantic. There are large urban developments on the estuary. The high tidal range leads to strong tidal stream and high turbidity, producing communities characteristic of the extreme physical conditions of liquid mud and tide-swept sand and rock. The site is particularly important for the run of migratory fish between the sea and rivers via the estuary. Species using the estuary include *Salmo salar*, *S. trutta, Petromyson marinus, Lampreta fluviatilis, Alosa alosa*, *A. fallax* and *Anguilla anguilla*.

4.4.27. The estuary is also important for migratory birds during spring and autumn migrations. During the five year period 1987/88 to 1991/92 the estuary supported nationally important numbers of Common Ringed Plover *Charadrius hiaticula*, Dunlin *Calidris alpina*, Whimbrel *Numenius phaeopus*, and Common Redshank *Tringa totanus*. The site also regularly supports more than 20,000 waterfowl. In the five year period 1988/89 to 1992/93 the average peak count was 68,026 waterfowl, comprising 17,502 wildfowl and 50,524 waders. These included internationally important numbers of Greater White-fronted Goose *Anser albifrons albifrons* (3,002), Shelduck *Tadorna tadorna* (2,892), Gadwall *Anas strepera* (330), Dunlin *Calidris alpina* (41,683) and Common Redshank *Tringa totanus* (2,013). Several other species occur in nationally important numbers.

Severn Estuary SPA

4.4.28. This area has been designated an SPA due to its importance during the spring and autumn migration periods for waders moving up the west coast of Britain, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders.

4.4.29. This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Over winter;

Bewick's Swan *Cygnus Columbianus bewickii*, 280 individuals representing at least 4.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage;
Ringed Plover *Charadrius hiaticula*, 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

Over winter;
Curlew *Numenius arquata*, 3,903 individuals representing at least 1.1% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6)

Dunlin *Calidris alpina alpina*, 44,624 individuals representing at least 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)

Pintail *Anas acuta*, 599 individuals representing at least 1.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Redshank *Tringa totanus*, 2,330 individuals representing at least 1.6% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)

Shelduck *Tadorna tadorna*, 3,330 individuals representing at least 1.1% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.
The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall *Anas strepera*, Shelduck *Tadorna tadorna*, Pintail *Anas acuta*, Dunlin *Calidris alpina alpina*, Curlew *Numenius arquata*, Redshank *Tringa totanus*, Bewick's Swan *Cygnus columbianus bewickii*, Wigeon *Anas penelope*, Lapwing *Vanellus vanellus*, Teal *Anas crecca*, Mallard *Anas platyrhynchos*, Shoveler *Anas clypeata*, Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula*, Grey Plover *Pluvialis squatarola*, White-fronted Goose *Anser albifrons albifrons* , Whimbrel *Numenius phaeopus*.

4.4.30. There is unknown potential for passage and wintering birds, that are an interest feature of the Severn Estuary SPA and Severn Estuary Ramsar, to be occasionally present within this Site.

4.4.31. It is very likely that Eel associated with the Ramsar are present within reens and may occasionally traverse the site when moving between watercourses. The proposed

solar PV farm will not create barriers to these movements and no mitigation for eel is recommended.

Severn Estuary SAC

4.4.32. The Severn Estuary SAC has been designated for:

Annex I habitats that are a primary reason for selection of this site;

Estuaries - Habitat occurrence description not yet available.
Mudflats and sandflats not covered by seawater at low tide - Habitat occurrence description not yet available.
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Habitat occurrence description not yet available.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site;

Sandbanks which are slightly covered by sea water all the time
Reefs

Annex II species that are a primary reason for selection of this site;

Sea lamprey *Petromyzon marinus* - Species occurrence description not yet available.
River lamprey *Lampetra fluviatilis* - Species occurrence description not yet available.
Twaite shad *Alosa fallax* - Species occurrence description not yet available.

4.4.33. Due to separation distances, it is extremely unlikely that the proposed solar PV farm would have a significant adverse effect on the habitat and fish species for which this SAC has been selected.

4.5. Non-statutory Nature Conservation Sites (NNCS)

4.5.1. Five NNCS are within 1km of the Site, two of which border the eastern limits of the Site. Due to separation distance between the proposed development and the three distant NNCSs, it is extremely unlikely that the proposed development size and type would adversely impact the species or habitats for which these sites have been selected.

4.5.2. The two adjacent NNCSs are Barecroft Fields SINC and Blackwell Lane Field SINC, both selected for Marshy Grassland and Common Meadow-rue *Thalictrum flavum.* Due to separation from the site by reens, it is unlikely that these areas will be adversely impacted by the proposed solar PV farm.

5. Further surveys

5.1. Mitigation

5.1.1. Where there is potential that the proposed development will have a significant[1] effect on a valued ecological feature of nature conservation interest, recommendations for mitigation are made based on the mitigation hierarchy detailed in Paragraph: 018 Reference ID: 8-018-20140306 of National Planning Practice Guidance;

- Avoidance –significant harm to wildlife species and habitats should be avoided through design.
- Mitigation – where significant harm cannot be wholly or partially avoided, it should be minimised by design, or by the use of effective mitigation measures that can be secured by, for example, conditions or planning obligations.
- Compensation – where, despite whatever mitigation would be effective, there would still be significant residual harm, as a last resort, this should be properly compensated for by measures to provide for an equivalent value of biodiversity.

5.1.2. Where the detail of a proposal is unknown, such as in outline planning applications, general mitigation will be suggested. This should be re-addressed once final plans are known.

Further survey work

5.1.3. Where further survey work is not recommended, this is because it is the professional judgement of the ecologist that adequate information is already available and further surveys would not make any material difference to the assessment provided.

5.1.4. Where the information within this report is insufficient to allow a full description of the nature conservation features of the site along with a robust assessment of the potential effects on these features, further survey work will be recommended.

5.2. Habitats of nature conservation importance

To ensure compliance with nature conservation legislation and planning policy, the following recommendations are made with regards to habitats:

Intact hedge, species rich and ditches

5.2.1. All hedgerows and ditches should be protected from accidental damage during the construction phase by a suitable buffer zone of 7 metres. This protection zone should be delineated by a suitable fence and will be maintained for the operational phase of the solar PV farm. There should be no access, storage of materials, ground disturbance, burning or contamination within the fenced areas.

[1] For the purposes of this report, a practical approach has been taken to define the term 'significant'. If an effect is sufficiently important to be given weight in the planning process or to warrant the imposition of a planning condition, it is likely to be 'significant' in the context of the level under consideration (BSI, 2013).

Standing water - reens

5.2.2. All reens should be protected from accidental damage during the construction phase by a suitable buffer zone of 12.5 metres. This protection zone should be delineated by a suitable fence and will be maintained for the operational phase of the solar PV farm. There should be no access, storage of materials, ground disturbance, burning or contamination within the fenced areas.

Coastal and floodplain grazing marsh

5.2.3. The site as a whole qualifies as “Coastal and floodplain grazing marsh” a Section 7 habitat and Local Biodiversity Action Plan priority habitat. Habitat loss to features such as access tracks should be minimised.

5.3. Protected species and species of nature conservation importance

To ensure compliance with nature conservation legislation and planning policy, the following recommendations are made with regards to species:

Amphibians

5.3.1. There is potential for Great Crested Newt to be present in reens and larger ditches at the field boundary, although habitats beyond these boundary features are not optimal for Great Crested Newt during their terrestrial phase due to intensive agricultural management.

5.3.2. Great Crested Newt surveys have been completed and are reported elsewhere.

Badgers

5.3.3. Although habitat loss would not impact local Badger populations, there is potential for Badgers to get trapped within the Site during the construction/operational phase, and for Badger setts to be impacted if they are within 30 metres.

5.3.4. Badger surveys have been completed and are reported elsewhere.

Bats

5.3.5. The current habitats are likely to have moderate value for foraging bats, in particular hedgerows and reens.

5.3.6. Bat activity surveys have been completed and are reported elsewhere.

Nesting birds

5.3.7. Habitats such as intensively managed grassland and arable habitats are unlikely to be important for ground nesting birds, although there is unknown potential for passage and overwintering birds to be active in this area.

5.3.8. Bird surveys have been completed and are reported elsewhere.

Reptiles

5.3.9. The Site has potential to support foraging Grass Snake. The loss of semi-natural habitats to the development will not adversely impact foraging reptiles, were they to be present, although construction activities could result in the killing of injury of individuals which may be deemed an offence under the Wildlife and Countryside Act 1981 (as amended). Mitigation is recommended. Reasonable avoidance measures

should be adopted to displace Grass Snake from any habitats likely to be disturbed during the construction phase.

Otter

5.3.10. It is likely that Otter are feeding along the reens at the field boundary, although habitats are not suitable for resting Otter (holt or couch).

5.3.11. Otter surveys have been completed and are reported elsewhere.

Water Vole

5.3.12. There is potential for Water Vole to be present within reens in this Site.

5.3.13. Water Vole surveys have been completed and are reported elsewhere.

Invertebrates

5.3.14. There are also records for Shrill Carder Bee in the area, whilst reens may support insects of restricted distribution.

5.3.15. Invertebrate surveys have been completed and are reported elsewhere.

Plants

5.3.16. Boundary watercourses are part of the Gwent Levels– Redwick and Llandevenny SSSI selected in part for aquatic plants.

5.3.17. Aquatic plant surveys have been completed and are reported elsewhere.

5.4. Statutory Nature Conservation sites

To ensure compliance with nature conservation legislation and planning policy, the following recommendations are made with regards to Statutory Nature Conservation Sites:

5.4.1. There are four National statutory nature conservation designations within 5km of the proposed solar PV farm that need further consideration:

- Gwent Levels – Redwick Llandevenny SSSI
- Magor Marsh SSSI
- Severn Estuary SSSI
- Newport Wetlands SSSI

5.4.2. Due to the nature of this development, an Ecological Impact Assessment will be completed for this development and will provide a more detailed assessment of likely impacts of the proposed development on these Nationally important sites. In the case of the Magor Marsh, Severn Estuary and Newport Wetlands SSSIs, this assessment will be informed by the outcome of wintering, passage and breeding bird surveys. An assessment of Gwent Levels - Redwick and Llandevenny SSSI will consider the potential for the proposed development to affect wet pasture habitat, invertebrate and plant interest features.

5.4.3. There are two International statutory nature conservation designations within 5km of this Site that need further consideration:

Severn Estuary SPA

5.4.4. This site was designated due to its importance during the spring and autumn migration periods for waders moving up the west coast of Britain, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders.

5.4.5. Due to the proximity of the proposed development to this SPA, the proposed development should be the subject of an Appropriate Assessment under the Conservation of Habitats and Species Regulations 2017. To allow this Assessment, further survey work will be required to characterise winter and migratory bird movements in this area.

Severn Estuary Ramsar

5.4.6. The site is particularly important for the run of migratory fish between the sea and rivers via the estuary, and migratory birds during spring and autumn migrations.

5.4.7. Due to separation distances, the proposed solar PV would not have an adverse effect on migratory fish. However, there is unknown potential to impact migratory birds. Due to the proximity of the proposed development to this Ramsar site, the proposed development should be the subject of an Appropriate Assessment under the Conservation of Habitats and Species Regulations 2017. To allow this Assessment, further survey has been completed to characterise winter and migratory bird movements in this area and these are reported elsewhere.

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7. Appendix 1:

Legislation and Policy used to assess habitats and species

7.1.1. Environment (Wales) Act 2016

The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way.
The Act received Royal Assent in 2016. It delivers against Welsh Government's Programme for Government commitment to introduce new legislation for the environment.

7.1.2. European Habitats and Species Directive (CEC, 1992)

The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance.

7.1.3. European Red Data lists (IUCN, 2000)

International Union for Conservation of Nature (IUCN and the European Commission have been working together on an initiative to assess around 6,000 European species according to IUCN regional Red Listing Guidelines. Through this process they have produced a European Red List identifying those species which are threatened with extinction at the European level so that appropriate conservation action can be taken to improve their status.

7.1.4. European Council Birds Directive (CEC, 1979)

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. An important part of this Directive is the identification and classification of Special Protected Areas (SPAs) to protected vulnerable bird species listed in Annex 1 of the Directive and regularly occurring migrating species.

7.1.5. The Wildlife and Countryside Act (WCA) 1981 (as amended)

This Act is the primary legislation that protects animals, plants and certain habitats in the UK.

7.1.6. The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 consolidate and update the Conservation of Habitats and Species Regulations 2010, and transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") and elements of Directive 2009/147/EC on the conservation of wild birds ("the Birds Directive") in England, Wales, and to limited extent, Scotland and Northern Ireland.

The objectives of the Habitats Directive is to protect biodiversity through the conservation of natural habitats and species of wild fauna and flora. The Directive lays down rules for the protection, management and exploitation of such habitats and species.

The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species. These sites form a network termed Natura 2000 and include Special Areas of Conservation and Special Protection Areas.

7.1.7. Protection of Badgers Act 1992

The Protection of Badgers Act 1992 consolidated and improved previous legislation. Under the Act it is an offence to kill, injure or take a Badger, or to damage or interfere with a sett used by a Badger unless a licence is obtained from a statutory authority.

7.1.8. The Hedgerow Regulations 1997

The Hedgerows Regulations 1997 protect certain hedgerows from being removed (uprooted or destroyed) if they meet certain criteria.

7.1.9. The Countryside and Rights of Way (CRoW) Act 2000

This Act increases measures for the management and protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation.

7.1.10. Circular 06/2005 Biodiversity and geological conservation – statutory obligations and their impact within the planning system

This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the national planning policy in the National Planning Policy Framework and the Planning Practice Guidance.

7.1.11. Natural Environment and Rural Communities Act 2006

The Act made amendments to the both the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way (CROW) Act 2000. For example, it extended the CROW biodiversity duty to public bodies and statutory undertakers.

7.1.12. UK Post-2010 Biodiversity Framework, 2012

The 'UK Post-2010 Biodiversity Framework', published in July 2012, succeeds the UK BAP and 'Conserving Biodiversity – the UK Approach', and is the result of a change in strategic thinking.

7.1.13. Planning (Wales Act) 2015

As of 6th July 2015, the Planning (Wales) Act 2015 came into force. This Act puts into place delivery structures, processes and procedures to create a modern delivery framework for the preparation of development plans and planning decisions, ruling that any statutory body carrying out a planning function must exercise those functions in accordance with the principles of sustainable development as set out in the Well-being of Future Generations (Wales) Act 2015.

7.1.14. Planning Policy Wales 2016 (Ninth Edition)

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government, establishing a commitment towards sustainable development within the planning system. It envisions the planning system to recognise the threat of climate change, and to reconcile the need of development and conservation; fundamental for sustainable development.

7.1.15. The natural choice: securing the value of nature (2011) (Natural Environment White Paper)

This White Paper outlines the Governments vision for the future of landscape and ecosystem services.