SUNNICA ENERGY FARM

Appendix 8A: Preliminary Ecological Appraisal Report

Sunnica Ltd

August 2020

Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
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1. Introduction

1.1.1 AECOM was instructed by Sunnica Limited to undertake a Preliminary Ecological Appraisal (PEA) for the proposed Sunnica Energy Farm (hereafter referred to as the Scheme) within the Development Consent Order (DCO) Site (the Site) boundary (see **Figure 8A-1**).

1.1.2 This PEA was commissioned to identify whether there are known or potential ecological receptors (nature conservation designations, protected and notable[1] habitats and species and scheduled invasive non-native species) that may constrain or influence the design and implementation of the Scheme. The approach applied when undertaking this PEA accords with the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017) (Ref 8A-1). The PEA addresses relevant wildlife legislation and planning policy as summarised further on in this report and is consistent with the requirements of British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development (Ref 8A-2).

1.1.3 In order to deliver the PEA, a desk study and an extended Phase 1 Habitat Survey were undertaken by appropriately experienced ecologists, to identify ecological features within the Scheme areas and the wider potential zone of influence[2]. The potential zone of influence was defined with reference to the Scheme Boundary, as shown on **Figure 8A-1** and the type of development.

1.1.4 The purpose of the PEA was to:

- identify and categorise habitats present within the Scheme boundary and any areas immediately outside of the Site where there may be potential for direct or indirect effects (the “zone of influence”);
- carry out an appraisal of the potential of the habitats recorded to support protected or notable species of fauna and flora; and
- provide advice on any potential ecological constraints and opportunities in the zone of influence that should be addressed in the DCO application for the Scheme, including the identification (where relevant) of any requirements for follow-up habitat and species surveys and/ or requirements for ecological mitigation.

1.1.5 The purpose of this report is to provide a high-level appraisal of the ecological risks and opportunities associated with the Scheme. The report identifies the scope of further work (where necessary) that are required to support the DCO application and to inform an Ecological Impact Assessment (EcIA). High level recommendations are made on potential options for the avoidance, mitigation or compensation of the potential impacts of the Scheme (where known) on the

[1] A notable habitat or species is a habitat or species with a conservation designation, but no legal protection
[2] The zone of influence is the area over which ecological features may be subject to significant effects as a result of the Scheme and associated activities (CIEEM, 2016). The zone of influence will vary with different ecological features, depending on their sensitivities to an environmental change. As recommended by CIEEM (2016), professionally accredited or published studies have been used to determine zone of influence for different habitat and fauna species

identified ecological receptors and of potential enhancements to the biodiversity to achieve an overall gain.

1.2 The Scheme

1.2.1 Sunnica Energy Farm is a new solar farm scheme that would connect to the national electricity transmission network. Sunnica will use ground mounted solar photovoltaic (PV) panel arrays to generate electricity energy from the sun and combine these with a Battery Energy Storage System (BESS). The Scheme will be connected to the national electricity transmission network by an underground cable.

1.2.2 The BESSs will consist of a compound and battery array to allow for the storage, importation and exportation of energy to the National Grid. Details of the design of the BESS elements, including their power and energy ratings, and their dimensions and appearance, are currently in development.

1.2.3 Supporting electrical infrastructure will include an on-site substation and on-site cabling between the different electrical elements of the Scheme. The generating equipment of the Scheme will be fenced and be protected via security measures such as CCTV and lighting. Inside the fenced areas, in addition to the generating equipment will be, internal access tracks, landscaping and habitat management and drainage.

1.2.4 The Scheme will be connected to the existing Burwell National Grid Substation, most likely using 132kV cables buried underground. The cables will run between Sunnica West and Sunnica East (Grid Connection Route A), and then on from Sunnica West to the Burwell National Grid Substation (Grid Connection Route B). Details of the cable route, dimensions of the cables, the depth and method of burial, and numbers of joints required are currently in development.

1.2.5 The Scheme qualifies as a Nationally Significant Infrastructure Project (NSIP) and will require a DCO from national government, due to its generating capacity. It is expected to be an Environmental Impact Assessment (EIA) development.

1.2.6 The Scheme therefore comprises the following key areas:

- Solar Farm Sites:
  - Sunnica East Site A;
  - Sunnica East Site B;
  - Sunnica West Site A; and
  - Sunnica West Site B.
- associated electrical infrastructure for connection to the national transmission system comprise:
  - Grid Connection Route A (connecting the Sunnica East Site A with the Sunnica East Site B and then connecting to the Sunnica West Site A);

- Grid Connection Route B (connecting the Sunnica West Site A and Sunnica West Site B and the Burwell National Grid Substation Extension); and
- Burwell National Grid Substation Extension.

1.2.7 **Figure 8A-1** shows the locations of these key areas.

1.3 Site Description

1.3.1 A summary description of the habitats within the Scheme boundary (made up of the three Sites) is provided below. The extent of the Scheme is shown in **Figure 8A-1** below.

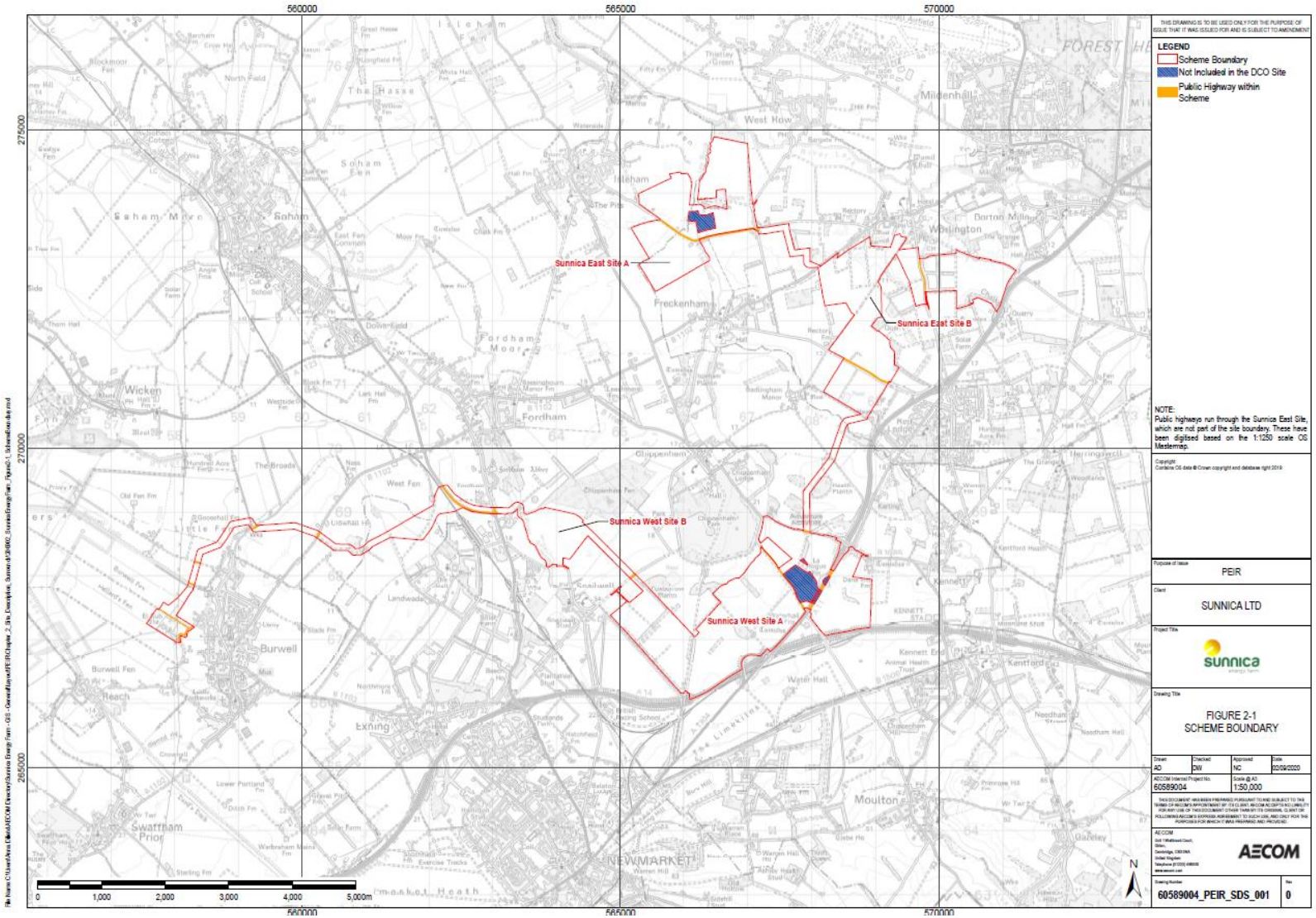

Figure 8A-1: DCO Site and Location

Sunnica East Site

1.3.2 The Sunnica East is split into two sub-sites, one to the north of Freckenham (referred to as Sunnica East Site A) and the other to the south of Worlington (referred to as Sunnica East Site B). These two sites are approximately 1 km apart and are separated by agricultural fields. The Sunnica East Site A encompasses an area of approximately 231.7 ha and includes land within the county of Suffolk and Cambridgeshire. Sunnica East Site B lies within Suffolk and encompasses an area of approximately 323.1 ha (**Figure 8A-1**).

1.3.3 The landscape features within the Sunnica East Site A and Sunnica East Site B consist of arable agricultural fields interspersed with individual trees, hedgerows, linear tree belts, small woodland blocks, farm access tracks and local roads.

1.3.4 The landscape features immediately surrounding the Sunnica East Site A and Sunnica East Site B comprise small rural villages, including Worlington to the north, Barton Mills to the north-east, Red Lodge and Freckenham to the south and Isleham to the west. Industrial land uses adjoin the A11 to the south of the Sunnica East Site with an industrial installation of a 7.5 MW solar farm situated adjacent to the south-eastern extent of the Sunnica East Site and an anaerobic digestion (AD) plant located to the south of the Sunnica East Site.

Sunnica West Site

1.3.5 The Sunnica West Site is located within the East Cambridgeshire District Council administrative area, approximately 3 km north east of Newmarket and 6.5 km east of Burwell.

1.3.6 Sunnica West is split into two sub-sites, one to the south-east (referred to as Sunnica West Site A) and the other to the north-west of Snailwell (referred to as Sunnica West Site B). These two sites are approximately 1 km apart, separated by agricultural fields and Chippenham Road. The Sunnica West Site A encompasses an area of approximately 485.5 ha and includes land to the east and west of the A11, consisting of agricultural fields bounded by trees, managed hedgerows, linear tree shelter belts, small woodland and copses and farm access tracks. Sunnica West Site B encompasses an area of approximately 68.8 ha and comprise of agricultural fields, grassland, small woodland and copses, farm access tracks and irrigation ditches fed by the River Snail which runs along the western and northern boundaries of the Site (**Figure 8A-1**).

1.3.7 The surrounding landscape comprises regularly shaped arable fields interspersed with managed hedgerows, tall shelter belts of trees and in the Chippenham Hall area, a parkland landscape with mature individual trees. Much of the area is also characterised by grazed paddocks, horse gallops and exercise tracks.

Cable Route Corridors

1.3.8 The Scheme will connect to the existing Burwell National Grid Substation via a cable route corridor. The cable route corridors under consideration are Grid Connection Route A, which connects the Sunnica East Site A with the Sunnica East Site B and then runs between the Sunnica West Site A and the Sunnica

East Site B; and Grid Connection Route B, between the Sunnica West Site A and Sunnica West Site B and the Burwell National Grid Substation.

Grid Connection Route A

1.3.9 Grid Connection Route A connects the Sunnica East Site A with Sunnica East Site B and crosses two minor roads and arable farmland (**Figure 8A-1**).

1.3.10 Heading south from the Sunnica East Site B, the cable route corridor for Grid Connection Route A crosses the River Kennett, pastoral farmland, the Chippenham footpath 49/7 (a Public Right of Way (PRoW)) and B1085 (**Figure 8A-1**).

Grid Connection Route B

1.3.11 Heading east from the Burwell National Grid Substation, the cable route corridor for Grid Connection Route B crosses agricultural fields and a number of roads including the B1102 and A142. Grid Connection Route B also crosses a number of watercourses, including the Burwell Lode, New River, and the River Snail, as well as a number of drainage ditches associated with Burwell Fen, Little Fen, the Broads, and agricultural drains (**Figure 8A-1**).

1.3.12 The cable route corridor for Grid Connection Route B crosses a PRoW (footpath 92/19) before crossing the railway line and the A142 Newmarket / Fordham Road. The Route then runs alongside Snailwell Road and across the River Snail into Sunnica West Site B.

Burwell National Grid Substation Extension

1.3.13 The habitat within the Burwell National Grid Substation Extension (surrounding the existing substation) comprises small grassland fields to the east of the existing substation (bordered by hedgerows and mature trees) and arable land to the south and west of the existing substation (**Figure 8A-1**).

2. Legislative and Planning Policy

2.1 Relevant Legislative Context

2.1.1 The following wildlife legislation has been considered when undertaking this PEA:

- Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 8A-3);
- Countryside and Rights of Way (CRoW) Act 2000 (Ref 8A-4);
- Natural Environment and Rural Communities (NERC) Act 2006 (Ref 8A-5);
- The Conservation of Habitats & Species Regulations 2017 (as amended) (the Habitats Regulations) (Ref 8A-6);
- Natura (2000) including the Birds Directive (2009) (Ref 8A-7) and Habitats Directive (1992) (Ref 8A-8);
- The Protection of Badgers Act 1992 (Ref 8A-9);
- The Hedgerows Regulations 1997 (Ref 8A-10); and
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 8A-11).

2.1.2 Compliance with the above legislation may require the attainment of relevant protected species licences prior to the implementation of the Scheme.

2.1.3 Further information on the requirements of the above legislation is provided in Appendix A.

2.2 National Planning Policy

The National Planning Policy Framework

2.2.1 The National Planning Policy Framework (NPPF) (Ref 8A-12) was originally published on 27th March 2012 and detailed the Government's planning policies for England and how these are expected to be applied. The NPPF was then revised on 24th July 2018 and 19th February 2019.

2.2.2 The NPPF states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity.

2.2.3 It specifies the obligations that Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this it to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for certain types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable, compensation may be required.

2.2.4 The NPPF is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution.

2.2.5 Further information on the relevant parts of the NPPF is provided as Appendix A.

The 25-year Environment Plan

2.2.6 In early 2018, the Government published its 25 Year Environment Plan (Ref 8A-13) to provide guidance on its new approach to managing the environment. The plan promotes a 'natural capital' approach that recognises the wider value of the environment and its contribution, such as food, clean water and air, wildlife, energy, wood, recreation and protection from hazards. The plan seeks to embed a 'net environmental gain' principle for development to deliver environmental improvements locally and nationally.

UK Post-2010 Biodiversity Framework

2.2.7 The UK Biodiversity Action Plan (UKBAP) (Ref 8A-14) was launched in 1994 and established a framework and criteria for identifying species and habitat types of conservation concern. From this list, action plans for priority habitats and species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 8A-15). The UK list of priority species and habitats, however, remains an important reference source and has been used to help draw up statutory lists of priority habitats and species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UK BAP is still used as one of the criteria to assist in assigning national value to an ecological receptor.

2.2.8 The UK Post-2010 Biodiversity Framework sets a broad enabling structure for action across the UK, including a shared vision and priorities for UK-scale activities to help deliver the Aichi Biodiversity Targets and the EU Biodiversity Strategy. A major commitment by Parties to the Convention of Biological Diversity is to produce a National Biodiversity Strategy and/ or Action Plan.

2.2.9 The UK Post-Development Framework is relevant within England in the context of Section 40 of the NERC Act 2006, meaning that Priority Species and Habitats are material considerations in planning. These habitats and species are identified as those of conservation concern due to their rarity or a declining population trend. This list encompasses 56 habitats and 943 species.

2.1 Local Planning Policy

Local and Regional Plans

2.1.1 Table 8A-1 provides a summary of the local planning policies relevant to the Scheme. For the precise wording of this policy please refer back to the source document. This planning policy has been considered when assessing potential ecological constraints and opportunities identified by the desk study and field surveys; and, when assessing requirements for further survey, design options and ecological mitigation, as described further on in this report.

Table 8A-1 Summary of Local Planning Policy

Document	*Planning Policy*	*Purpose*
East Cambridgeshire Local Plan (Adopted April 2015) (Ref 8A-16)	Policy ENV 2: Design	All new development proposals, including new buildings and structures and extensions and alterations to existing buildings and structures will be expected to make efficient use of land while respecting the density, urban and village character, public spaces, landscape and biodiversity of the surrounding area.
	Policy ENV 6: Renewable energy development	Proposals for renewable energy and associated infrastructure will be supported, unless their wider environmental, social and economic benefits would be outweighed by significant adverse effects that cannot be remediated and made acceptable in relation to: • The local environment and visual landscape impact. • Impact on the character and appearance of the streetscape/buildings. • Key views, in particular those of Ely Cathedral. • Protected species. • Residential amenity. • Safeguarding areas for nearby airfields; and • Heritage assets. Renewable energy proposals which affect sites of international, national and local nature importance or other irreplaceable habitats will be determined against the relevant sections of Policy ENV 7.
	Policy ENV 7: Biodiversity and geology	All development proposals will be required to: • Protect the biodiversity and geological value of land and buildings and minimise harm to or loss of environmental features, such as trees, hedgerows, woodland, wetland and ponds. • Provide appropriate mitigation measures, reinstatement or replacement of features and/or compensatory work that will enhance or recreate habitats on or off site where harm to environmental features and habitat is unavoidable; and • Maximise opportunities for creation, restoration, enhancement and connection of natural habitats as an integral part of development proposals. Development proposals where the main aim is to conserve biodiversity will be permitted; and opportunities to incorporate biodiversity into new development will be supported. • Proposals which have an adverse impact on a site of international importance will not normally be permitted unless there are exceptional overriding reasons of public interest (human health, public safety or environmental benefit). • Proposals which have an adverse impact on a site of national importance will not normally be permitted unless the benefits of development at the site significantly outweigh the impacts. Proposals which would cause harm to County Wildlife Sites, Ancient Woodland, aged and veteran trees, Local Nature Reserves, Protected Roadside Verges, any other irreplaceable habitats, and green corridors or important species will not be permitted unless the need for, and

Document	*Planning Policy*	*Purpose*
		benefits of development in that location outweigh the potential harm to nature conservation interests.
	Policy ENV 9: Pollution	Proposals will be refused where, individually or cumulatively, there are unacceptable impacts arising from the development on: • The natural environment, general amenity and the tranquillity of the wider rural area, including noise and light pollution.
	Policy COM 5: Strategic green infrastructure	The Council will support proposals for new and improved strategic green infrastructure where these: • Provide increased public access for quiet recreation and/or increased provision for biodiversity. • Will have no adverse effects on any existing designated sites of conservation or biological importance and impacts will be monitored to ensure the effectiveness of alternative provision away from more sensitive sites.
East Cambridgeshire District Council SPD Renewable Energy Development 2014 (Ref 8A-17)	Section 5: Biodiversity	When proposing a renewable energy scheme applicants will be expected to provide sufficient information relating to any adverse impacts upon biodiversity to the District Council. Solar farms have the potential to harm natural habitats during construction, operation or when being decommissioned; e.g. the loss of foraging / roosting sites for birds. Applicants will need to consider the impacts of renewable energy development on designated nature conservation and geodiversity sites, and any functionally linked or supporting habitat, protected and priority species and habitats of local importance to fulfil the requirements outlined in ENV 6 and ENV 7 of the Local Plan.
Forest Heath District Council Core Strategy Adopted 2010 (Ref 8A-18)	Vision 1 Forest Heath	The countryside of Forest Heath will be known for its intrinsic landscape value and rich biodiversity. Forest Heath will contain areas of expanded heathland and green links along the River Lark corridor will have been enhanced for people and to increase their biodiversity. The locally distinctive Brecks will be protected and enhanced, contributing to a linked green infrastructure network throughout the district and beyond.
	Spatial Objective ENV1	To conserve and enhance the many habitats and landscapes of international, national and local importance within Forest Heath and improve the rich biodiversity of the whole District.
	Policy CS 2 Natural Environment	Areas of landscape, biodiversity and geodiversity interest and local distinctiveness within the District will be protected from harm and their restoration, enhancement and expansion will be encouraged and sought through a variety of measures. Links between such areas will also be sought. Measures will include: • the designation of Local Nature Reserves (LNR), County Wildlife Sites (CWS) and Regionally Important Geological/Geomorphological Sites (RIGS); • appropriate management of valuable areas (such as County Wildlife Sites); • progress towards Biodiversity Action Plan targets (UK, Suffolk and Forest Heath BAPs);

Document	*Planning Policy*	*Purpose*
		• minimising the fragmentation of habitats, creation of new habitats and connection of existing areas to create an ecological network; • promotion of Green Infrastructure enhancement and/or provision on all new developments; • using Landscape Character Assessment (LCA) to inform development decisions within the District; • promotion of green corridor enhancement; and • promotion of agri-environment schemes which increase the landscape, historic and wildlife value of farmland, increase appropriate public access and reduce diffuse pollution. Where mitigation measures are employed they will result in a net gain of biodiversity for the District. New built development will be restricted within 1,500m of components of the Breckland SPA designated for Stone Curlew. Proposals for development in these areas will require a project level Habitat Regulations Assessment (HRA). Development which is likely to lead to an adverse effect on the integrity of the SPA will not be allowed. Where new development is proposed within 400m of components of the Breckland SPA designated for Woodlark or Nightjar a project level Habitats Regulation Assessment (HRA) will be required. Development which is likely to lead to an adverse effect on the integrity of the SPA will not be allowed.
	Policy CS 4 Reduce Emissions, Mitigate and Adapt to future Climate Change	Development must also seek to adapt to the negative impacts from climate change including change upon biodiversity by protecting the rural districts natural capital and applying an ecological network approach – re-enforcing and creating links between core areas of biodiversity.
Forest Heath and St Edmundsbury Local Plan: Joint Development Management Policies Document (DPD) (Ref 8A-19)	Policy DM10: Impact of Development on Sites of Biodiversity and Geodiversity Importance	Proposals for development which would adversely affect the integrity of areas of international nature conservation or geological importance will be determined in accordance with the Conservation of Habitats and Species Regulations 2010 (as amended). Proposed development likely to result in adverse effects to a Special Site of Scientific Interest (SSSI) will not be permitted unless the benefits of the development, at this Site, clearly outweigh both the impacts that it is likely to have on the features of the Site that make it of special scientific interest and any broader impacts on the national network of SSSIs. Proposals which would result in significant harm to biodiversity, having appropriate regard to the 'mitigation hierarchy', will not be permitted.
	Policy DM11: Protected Species	Development which would have an adverse impact on species protected by the Conservation of Habitats and Species Regulations (2010) (as amended), the Wildlife and Countryside Act (1981), the Protection of Badgers Act (1992), and listed in the Suffolk Biodiversity Action Plan, or subsequent legislation, will not be permitted unless there is no alternative and the local planning authority is satisfied that suitable measures have been taken to: a. reduce disturbance to a minimum; and

Document	*Planning Policy*	*Purpose*
		b. i) maintain the population identified on site; or ii) provide adequate alternative habitats to sustain at least the current levels of population. Where appropriate, the local planning authority will use planning conditions and/or planning obligations to achieve appropriate mitigation and/or compensatory measures and to ensure that any potential harm is kept to a minimum.
	Policy DM12: Mitigation, Enhancement, Management and Monitoring of Biodiversity	All proposals should include enhancement for biodiversity, such as watercourse improvements to benefit biodiversity and improve water quality, habitat creation, wildlife links and building design which creates wildlife habitat. Also all new development shown to contribute to recreational disturbance and visitor pressure within the Breckland SPA and Special Area of Conservation (SAC) will be required to make appropriate contributions through S106 agreements towards management projects and/or monitoring of visitor pressure and urban effects on key biodiversity sites.

2.2 Local Biodiversity Action Plans

2.2.1 The Scheme is located within two counties, Cambridgeshire and Suffolk. The Cambridgeshire and Peterborough Biodiversity Action Plan (Ref 8A-20) and Suffolk Biodiversity Action Plan (Ref 8A-21) provides the local nature conservation strategy for identifying threats to species within these counties and sets out the actions necessary to conserve them. These Biodiversity Action Plans provides context to inform identification of threatened or uncommon species within the district and, or county. The plans also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.

2.2.2 The Cambridgeshire and Peterborough Biodiversity Action Plan was first produced in 1999 and reviewed in 2003 and 2008. The plan sets out action plans for 23 habitat types, 205 species and 66 species of additional interest within Cambridgeshire. The 23 habitat types, 205 priority species and 66 additional species of interest in Cambridgeshire can be found in Appendix B and C.

2.2.3 The Suffolk Biodiversity Action Plan was published in 2015 and sets out action plans for 20 habitat types and for 59 species, as detailed in Appendix D.

3. Methods

3.1 Desk Study

3.1.1 A desk study was carried out to identify nature conservation designations and protected / notable habitats and species potentially relevant to the Scheme.

3.1.2 A stratified approach was taken when defining the desk study area, based on the likely zone of influence of the Scheme on different ecological receptors; and, an understanding of the maximum distances typically considered by statutory consultees. Accordingly, the desk study identified any international nature conservation designations within 10km of the Site boundary; other statutory nature conservations designations within 2km of the Site boundary; and, local non-statutory nature conservation designations, and protected or notable habitats and species within 2km of the Site boundary.

3.1.3 The desk study was carried out using the data sources detailed in **Table 8A-1**. Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the WCA; Schedules 2 and 4 of the Habitats Regulations; species and habitats of principal importance for nature conservation in England listed under Section 41 (S41) of the NERC Act; and other species that are Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists and Biodiversity Action Plans.

3.1.4 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of species presence in the local area.

Table 8A-1 Summary of Data Sources

Data Source	*Accessed*	*Data Obtained*
Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref 8A-22)	October 2018	International statutory designations within 10km of the Site boundary Other statutory designations within 2km of the Site boundary Ancient woodlands and notable habitats within 2km of the Site boundary Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints
Ordnance Survey 1:2500 Pathfinder maps and aerial photography	October 2018	Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints
Cambridgeshire & Peterborough Environmental Records Centre (CPERC) and Suffolk Biodiversity Information Service (SBIS)	December 2018	Sites designated for their nature conservation value, such as County Wildlife Sites (CWS), Local Nature Reserves (LNRs) and Local Wildlife Sites (LWS) within 2 km of the Site boundary. Protected and notable species within 2 km of the Site boundary (records for the last 10 years only).

3.1.5 A review of other schemes and associated reports was undertaken to provide supporting ecological information which may be relevant to the Scheme. These schemes and the reports reviewed, are detailed in **Table 8A-2**.

Table 8A-2 Other schemes and associated reports reviewed to provide relevant ecological information and context

Scheme Name / Application Reference	Description	Ecological Reports available
F/2012/0464/FUL Bay Farm Solar Farm	7.5MW Solar Farm on 15ha of agricultural land at Bay Farm, Worlington.	Norfolk Wildlife Services Ltd (2012) Ecological Survey, Barton Mills. Report prepared on behalf of Richard Pike Associates.
Worlington Quarry extension	Extension to the existing quarry at Bay Farm, Worlington.	Ward Associates (2017) Ecological Assessment of Land at Bay Farm, Worlington. A report to Frimstone Ltd.
Worlington Quarry	Restoration statement and plan for Worlington Quarry, Bay Farm	M. Dickerson Ltd. (2009) Phase 1 & 2 Restoration and Aftercare Statement. Worlington Quarry, Bay Farm Clover Planning (2017) Site 19 Extension Restoration Proposal. Drawing number: CP/FRIM/WORL/03

3.2 Field Survey

Phase 1 Habitat Survey

3.2.1 The Phase 1 Habitat survey was undertaken in accordance with the standard survey method (Joint Nature Conservation Committee, 2010)[3]. Phase 1 Habitat survey is a standard method of environmental audit. It involves categorising different habitat types and habitat features within a survey area. The information gained from the survey can be used to determine the likely ecological value of a site, and to direct any more specific survey work which may need to be carried out prior to the submission of a planning application. The standard Phase 1 Habitat survey method can be 'extended' to record target notes on protected, notable and invasive species.

Appraisal of the Potential Suitability of Habitats for Protected and Notable Species

3.2.2 An appraisal was made of the potential suitability of the habitats present to support protected and notable species of plants or animals. Field signs, habitat features with potential to support protected species and any sightings or auditory evidence were recorded when encountered, but no detailed surveys were carried out for any particular species.

3.2.3 Prior to undertaking the extended Phase 1 Habitat survey, aerial photography and 1:2,500 Ordnance Survey (OS) mapping were examined to attempt to identify all ponds and waterbodies within 500 m of the Scheme boundary. This

[3] Joint Nature Conservation Committee (2010) Handbook for phase 1 habitat survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough

process could not guarantee to definitively identify all waterbodies present but is the best that can be achieved within the limits of available data. Specific searches were made for ponds or other waterbodies and watercourses which could support Great Crested Newt *Titurus cristatus* within and adjacent to the Scheme boundary when undertaking the extended Phase 1 Habitat survey as described above.

3.3 Desk Study and Field Survey Limitations

3.3.1 The aim of a desk study is to help characterise the baseline context of a scheme and provide valuable background information that would not be captured by a single site survey alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitat or species does not necessarily mean that the habitats or species do not occur in the study area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Scheme.

3.3.2 Where habitat boundaries coincide with physical boundaries recorded on OS maps, the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is as estimated in the field and/or recorded by hand-held GPS. Where areas of habitat are given they are approximate and should be verified by measurement on-site where required for design or construction. While indicative locations of trees are recorded, this does not replace requirements for detailed specialist arboriculture survey to British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction.

3.3.3 Due to land access, the Phase 1 habitat survey was constrained as to the extent that could be fully surveyed. The Sunnica East Site was limited to the land east of the quarry, with all remaining land surveyed using public rights of way (PRoW) to appraise the habitats within each land parcel and their suitability to support protected / notable species. The majority of the cable route corridor was also assessed from existing PRoWs. Therefore, a full assessment of notable habitats and protected species across all land within the Scheme boundary could not be made at the time of the survey. A full assessment of the condition of waterbodies within 500 m of the Scheme boundary was also limited to areas where land access was granted.

4. Results

4.1 Nature Conservation Designations

Statutory Sites

4.1.1 The desk study identified fifteen statutory sites for nature conservation within the study areas set out i**n Table 8A-1**. These sites, designated for biodiversity reasons, are detailed in **Table 8A-3** and are listed in descending order, with those closest to the DCO Site listed first. Site designation details are summarised in **Table 8A-3** and are taken from citation documents, published online by the Joint Nature Conservation Committee (JNCC) for the individual sites. The locations of statutory sites are shown in **Figure 8A-2** (Appendix E).

Table 8A-3 Statutorily Designated Sites within 10km (international) and 2km (national) of the DCO Site

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
Chippenham Fen and Snailwell Poor's Fen	Fenland SAC, Chippenham Fen Ramsar / NNR, Chippenham Fen and Snailwell Poor's Fen SSSI	A spring-fed calcareous basin mire with a long history of management, which is partly reflected in the diversity of present-day vegetation. The invertebrate fauna is very rich, partly due to its transitional position between Fenland and Breckland. The site supports diverse vegetation types, rare and scarce plants. The site is the stronghold of Cambridge Milk Parsley *Selinum carvifolia*.	Directly adjacent to the north of the Sunnica West Site B.	International / National
Snailwell Meadows	SSSI	The meadows support a range of grassland community types ranging from dry calcareous pasture through wet neutral grassland to marshy grassland with acidic influences typical of fen edge pastures. Such community types are essentially southern in their national distribution and are rare in a Cambridgeshire context.	Directly adjacent to the south of the Sunnica West Site B.	National
Brackland Rough	SSSI	A damp valley woodland, the site holds stands of Alder *Alnus glutinosa*, a woodland type rare in Cambridgeshire and becoming scarce throughout its natural range in lowland Britain.	Approximately 160m north of the Grid Connection Route B2 and approximately 350m north-west of the Sunnica West Site B.	National
Red Lodge Heath	SSSI	This site supports a nationally important assemblage of	Approximately 750m south	National

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
		invertebrates, including nationally rare Five-banded Digger Wasp *Cerceris quinquefasciata*.	east of the Sunnica East Site B and c. 740m east of the Grid Connection Route A2.	
Cherry Hill and The Gallops, Barton Mills	SSSI	The site lies on calcareous soils at the southern edge of Breckland. The soil is a typical flinty Breckland sand with fragments of chalk. Unimproved calcareous grassland has developed on the wide roadside verges within the site. The species-rich grassland flora includes an outstanding assemblage of nationally rare plants.	Approximately 1.0km east of the Sunnica East Site B.	National
Newmarket Heath	SSSI	This site lies on the Middle Chalk near Newmarket. It is by far the largest expanse of unimproved chalk grassland remaining in Cambridgeshire. Newmarket Heath is of particular importance for the presence of areas of chalk heath, a rare vegetation type in Britain as a whole. This is the sole Cambridgeshire example and is of great geographical importance in providing a link between the Brecklands heaths and the chalk heaths of the Chilterns. There is a high diversity of flowering plants, including a large population of a nationally rare species listed in the British Red Data Book and at least five nationally uncommon species.	Approximately 1.1km south-west of the Sunnica West Site A.	National
Devil's Dyke	SSSI	The site holds one of the best and most extensive areas of species-rich chalk grassland in Cambridgeshire and a similarly extensive area of chalk scrub grading into woodland to the east.	Approximately 1.4km south west of the Burwell National Grid substation extension.	National
Breckland	Breckland SPA Breckland Forest SSSI	The site is used regularly by 1% or more of the UK breeding populations of Stone Curlew *Burhinus oedicnemus*, Nightjar *Caprimulgus europaeus* and Woodlark *Lullula arborea*.	Approximately 1.4km north east of the Sunnica East Site B.	International and National
Wicken Fen	Wicken Fen Ramsar, Fenland SAC	The site supports diverse vegetation types, rare and scarce plants. The site supports one species of British Red Data Book plant, Fen Violet *Viola persicifolia*,	Approximately 2.1km north west of the Grid Connection	International and National

Site Name	Designation	Description	Distance and Direction from the closest point of the DCO Site	Value
	Wicken Fen SSSI, NNR (just outside 2km study area)	which survives at only two other sites in Britain. It also contains eight nationally scarce plants and 121 British Red Data Book invertebrates.	Route B2 and approximately 2.6km north west of the Burwell National Grid Substation Extension.	
Rex Graham Reserve	SAC, SSSI	This long-disused chalk-pit supports the largest wild population of a nationally rare plant given special protection under Section 13 of the Wildlife and Countryside Act 1981.	Approximately 3.0km north east of the Sunnica East Site B.	International and National
Breckland	Breckland SAC	The site is designated primarily for its inland dunes, natural eutrophic lakes, European dry heaths and semi-dry grasslands, and also alluvial forests and Great Crested Newts.	Approximately 3.1km east of the Sunnica East Site B.	International
Devil's Dyke	SAC	The site holds one of the best and most extensive areas of species-rich chalk grassland in Cambridgeshire and a similarly extensive area of chalk scrub grading into woodland to the east.	Approximately 4.5km south west of the Burwell National Grid Substation Extension.	International

Non-statutory Sites

4.1.2 The desk study identified 31 non-statutory sites designated for nature conservation within 2km of the DCO Site (as per **Table 8A-1**). Of these, 26 sites have been designated as County Wildlife Sites (CWS) for their biodiversity value at a county level and are known to have supporting value to a wide variety of protected and ecologically important species and/or habitats; there are two Local Nature Reserves (LNR); two sites designated as a Protected Road Verge (PRV) for their ecological importance and one Roadside Nature Reserve (RNR). These sites are detailed in **Table 8-4** and are listed in descending order, with those closest to the DCO Site listed first. The locations of non-statutory sites are shown in **Figure 8A-3** (Appendix F).

Table 8-4 Non-statutory sites within 2km of the DCO Site

Site Name	Designation	Description	Distance and Direction from the closest point of the DCO Site	Value
Havacre Meadows and Deal Nook	CWS	This site contains semi-improved grassland, woodland, scrub and open water in close association. The site also contains willow	The cable route corridor for Grid Connection Route A2	County

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
		carr of the NVC Alder *Alnus* – Stinging Nettle *Urtica dioica* woodland community (W6).	runs through the CWS.	
Badlingham Lane	CWS	Verges within this site support species-rich flora characteristic of a breckland habitat including Sainfoin *Onobrychis* which is listed as near threatened within Suffolk's Rare Plant Register (SRPR). The site also supports a small population of Sand catchfly *Silene conica*, a plant listed in the Red Data Book and as nationally scarce within SRPR.	The CWS lies within the northern section of the Sunnica East Site B.	County
Worlington Heath	CWS	The site contains lowland heathland (Priority habitat) and dry grassland that has had historical records of Marsh stitchwort *Stellaria palustris* (Priority species included within SRPR). Wet hollows within the site also support Bog pimpernel *Anagallis tenella* and Marsh speedwell *Veronica scutellata* (locally scarce and included within the SRPR). The site also contains small pockets of scrub and mature hedge (priority habitat).	The CWS lies within the northern section of the Sunnica East Site B.	County
Chippenham Gravel Pit	CWS	The site supports populations of Nationally Scarce vascular pant species (Bearded Fescue *Vulpia ciliate* subspecies *ambigua*, Fine-leaved Fumitory *Fumaria parviflora* and Bur Medick *Medicago minima*) and County Rare vascular plant species (Smooth Cat's-ear *Hypochaeris glabra*, Small Cudweed *Filago minima* and Clustered Clover *Trifolium glomeratum*). The site also qualifies as a Grade C Site in the JNCC Invertebrate Site Register.	The CWS is adjacent to the Sunnica West Site A.	County
Snailwell Grasslands and Woods	CWS	The site forms a habitat mosaic more than ten hectares in size which contains three or more of the listed habitats in close association. The marshy grassland contains more than	The CWS (River Snail section) runs through the western section of the Sunnica West Site B.	County

Site Name	Designation	Description	Distance and Direction from the closest point of the DCO Site	Value
		0.05 ha of a good example of the NVC M22 Blunt-flowered Rush *Juncus subnodulosus* – Marsh Thistle *Cirsium palustre* community. The woodland contains approximately 0.5 ha of the NVC Alder – Stinging Nettle community.		
Halfmoon Plantation Pit	CWS	The site supports populations of Nationally Rare Smooth Rupturewort *Herniaria glabra*, Nationally Scarce vascular plant species and rare county vascular plant species.	The CWS is directly adjacent to the north of the Sunnica West Site A.	County
Chippenham Avenue Fields	CWS	Two arable fields. Grass-poly *Lythrum hyssopifolia* (Nationally Rare vascular plant species) is found in about half a dozen hollows in the two fields.	The southern field of the CWS is directly adjacent to the Sunnica West Site A.	County
Worlington Golf Course and Surrounding Habitat	CWS	The site supports areas of considerable botanical interest and support a range of Breckland plants including Spanish catchfly *Silene otites* (biodiversity priority species) and Bastard toadflax *Comandra umbellata* (two nationally rare species). Other biodiversity priority species recorded on-site include rare-spring sedge *Carex ericetorum* and purple milk-vetch *Astragalus danicus*. Mixed woodland with dense shrub layer supports Nightingales *Luscinia megarhynchos* and Goldcrest *Regulus regulus*. Additionally, arable field margins (biodiversity priority habitat) buffer the golf course along its eastern and south-western edges. Lowland heath/Breck grassland, pond/open water, hedge/scrub, marshy grassland, semi-natural and plantation woodland and wet woodland (biodiversity priority habitats) can be found on and neighbouring the golf course.	The CWS lies adjacent to (within 10m) the northern section of the Sunnica East Site B.	County
Chippenham Park	CWS	The site contains more than 0.05 ha of NVC Common Knapweed – Crested Dog's-tail grassland community and pasture woodland with more	The CWS lies approximately 10m west of the Sunnica West Site A.	County

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
		than five mature and over mature trees per hectare. The grassland also meets species richness criteria, with frequent numbers of eight neutral grassland indicators.		
Joan's Meadow	CWS	A lowland heathland site (biodiversity priority habitat) and a valuable example of short open Breckland grassland. Species include Sickle medick *Medicago falcata*, Small scabious *Scabiosa columbaria*, Field mouse-ear *Cerastium arvense* and Basil thyme *Acinos arvensis* (included within SRPR the latter also being a biodiversity priority species). Lichens, butterflies, owls, House Martin *Delichon urbicum*, Yellowhammer *Emberiza citrinella* (biodiversity priority species) and bats have all been associated with this site.	The CWS lies approximately 15m from the northern section of the Sunnica East Site B.	County
Barton Mills Chalk Pit	CWS	This active chalk quarry and landfill site supports calcareous grassland, a scarce and decreasing (biodiversity priority) habitat in Suffolk. Additionally, records of Basil thyme (biodiversity priority species) have been recorded here.	The CWS lies approximately 35m east of the Sunnica East Site B.	County
The Limekilns and Adjacent Areas	CWS	The site supports at least 0.05 ha of CG3 Upright Brome grassland and 0.05 ha of MG5 Crested Dog's-tail *Cynosurus cristatus* – Black Knapweed *Centaurea nigra* grassland. Also supports six or more strong calcareous grassland indicator species and a vascular plant species which is rare in the county.	The CWS is approximately 70m to the south of the Sunnica West Site A, on the southern side of the A14.	County
Red Lodge Warren	CWS	The site supports a valuable Breckland grassland community that includes Purple Fescue *Vulpia ciliata var. ambigua*, a nationally scarce plant (recorded in l5 l00 km squares in the UK).	The CWS lies approximately 410m east of the Sunnica East Site B.	County

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
Old Rectory Meadows	CWS	The site supports frequent numbers of at least eight neutral grassland indicator species.	The CWS lies approximately 430m west of the Sunnica West Site A.	County
Worlington Chalk Pit	CWS	The site supports a diverse flora typical of an herb-rich chalk grassland. Many of the species recorded here are rare in Suffolk such as Cat mint *Nepeta*, Night-flowering catchfly *Silene noctiflora* and Basil thyme all of which are included within SRPR and the latter is also a biodiversity priority species. Broad-leaved cudweed *Filago pyramidata* also recorded here is a biodiversity priority species, included with the SRPR and considered endangered and only found in this location. Invertebrate interest is high and of particular note are the Scarce-four-dot Pin-palp beetle *Bembidion quadripustulatum* and Cinnabar moth *Tyria jacobaeae*, both of which are biodiversity priority species.	The CWS lies approximately 435m south east of the Sunnica East Site B.	County
New River and Monk's Lode	CWS	The site supports more than ten submerged, floating, emergent and wet bank species per 20 m stretch. Also, both ends of the site are well managed and continue to display a good flora that meets the qualifying criteria.	The CWS lies approximately 615m north of Grid Connection Route B2.	County
Burwell Brick Pit	CWS	The site supports naturally regenerating grasslands, scrub, marshy, grassland, swamp and open water.	The CWS lies approximately 665m north west of the Grid Connection Route B2.	County
Snailwell (South of the stud to the railway)	PRV	Neutral / calcareous grassland, presence of a local red data book species.	The PRV is located approximately 700m west of the Sunnica West Site A.	County
Spring Close	CWS	The site supports frequent numbers of at least 8 neutral grassland indicator species.	The CWS lies approximately 840m south east of the Burwell National Grid Substation Extension.	County
Criteria 1 - Cherry Hill &	RNR	Flat bank with rare Breckland plants	The RNR lies approximately 980m	County

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
the Gallops SSSI			east of the Sunnica East Site B.	
Kennett Churchyard	CWS	The site supports frequent numbers of at least eight neutral grassland indicator species.	The CWS lies approximately 1.1km east of the Sunnica West Site A.	County
Norah Hanbury-Kelk Memorial Meadows	CWS	The sites provide suitable conditions for a rich assemblage of wetland wildlife. Snipe *Gallinago gallinago*, Gadwall *Anas strepera*, Lapwing *Vanellus vanellus* and Redshank *Tringa totanus* breed here. Of particular value on this site is a colony of Early Marsh Orchid *Dactylorhiza incarnata*, an uncommon plant in Suffolk and a biodiversity priority species. Other biodiversity priority species include, Reed Bunting *Emberiza schoeniclus*, Bullfinch *Pyrrhula pyrrhula*, Yellowhammer, Common Toad *Bufo bufo*, Grass Snake *Natrix helvetica* and Water Vole.	The CWS lies approximately 1.1km north of the Sunnica East Site B.	County
Chippenham	PRV	This protected road verge contains Neutral grassland	The PRV lies approximately 1.2km south of the Sunnica East Site A.	County
Freckenham Road RSV	CWS	This site supports populations of Nationally Rare (Spanish Catchfly *Silene otites*) and Nationally Scarce (Sickle Medick *Medicago sativa* ssp. *Falcata*) vascular plant species.	The CWS lies approximately 1.2km south of the Sunnica East Site A.	County
Pauline's Swamp	CWS	The site contains at least 0.25 ha of the NVC Meadowsweet *Filipendula ulmaria* – Wild Angelica *sylvestris* mire community (M27). It also has a pond with beds of Stoneworts *Charales*.	The CWS lies approximately 1.2km south of the Burwell National Grid Substation Extension.	County
Isleham	LNR	The site is a disused railway with species rich chalk grassland and hedgerows.	The CWS lies approximately 1.3km west of the Sunnica East Site A.	County

Site Name	*Designation*	*Description*	*Distance and Direction from the closest point of the DCO Site*	*Value*
Barton Mills	LNR	The Riverside Reserve is a mosaic of six different habitats. Reedbeds, sedge areas, alder carr, willow carr, river valley habitat.	The CWS lies 1.4km north east of the Sunnica East Site B.	County
Mildenhall Woods	CWS	Mixed woodland and grassland	The CWS lies approximately 1.4km north-east of the Sunnica East Site B.	County
Burwell Disused Railway	CWS	The site contains at least 0.05 ha of the NVC Upright Brome *Bromus erectus* grassland community (CG3) and supports a population of a Nationally Rare vascular plant species. Additionally, it also supports frequent numbers of at least 6 strong and 16 strong or weak calcareous grassland indicator species. The site also supports one of the five largest colonies in the county of nationally declining Small Blue *Cupido minimus* and Chalk-hill Blue *Polyommatus coridon* butterflies.	The CWS lies approximately 1.4km south of the Burwell National Grid Substation Extension.	County
Barton Mills Meadows	CWS	The site supports a rich assemblage of wetland plants including the Scarce Adder's-tongue Fern *Ophioglossum vulgatum*, Heath Spotted Orchid *Dactylorhiza maculata*, Water Avens *Geum rivale* and Early marsh orchid (the latter included within SRPR and considered locally scarce). The site also supports 38 species of moth including eight biodiversity priority species.	The CWS lies approximately 1.9km north east of the Sunnica East Site B.	County
RNR 96	CWS	Wild Grape Hyacinth *Muscari neglectum*	The CWS lies approximately 1.9km east of the Sunnica East Site B.	County

4.2 Habitats

4.2.1 The area surveyed encompassed all safely accessible parts of the Site and adjacent habitats to a maximum distance of 50 m, where access permission had been granted in advance of survey, or this land was visible from within areas where access permission had been granted, the Site boundary or from public rights of way, or other publicly accessible areas. In the case of watercourses and other waterbodies, this distance was extended to 500 m to

check for any features associated with the aquatic habitat that might be impacted by the Scheme.

4.2.2 Typical and notable plant species were recorded for different habitat types and reflect the conditions at the time of survey. This was not intended to be a detailed inventory of the plant species present in the survey area, as this is not required for the purposes of Phase 1 Habitat survey.

4.2.3 The Phase 1 Habitat survey was undertaken on the 5th, 6th, 9th and 11th November 2018 and updated throughout 2019 as the Scheme area evolved. Surveys were undertaken by suitably qualified AECOM ecologists who recorded and mapped all habitat types present within the survey area, along with any associated relevant ecological receptors observed. The Phase 1 Habitat map for the Scheme is provided in **Figure 8A-4** (Appendix G). Where relevant ecological receptors were present, target notes were recorded and the positions of these, where recorded, are shown on **Figure 8A-4** (Appendix G). Target notes and associated reference photographs are provided in Appendix H.

Sunnica East Sites A and B

4.2.4 The broad habitat types present within the Sunnica East Sites A and B are detailed below in **Table 8A-5** and **Table 8A-6**. The approximate extent and distribution of these habitats recorded is shown on **Figure 8A-4** (Appendix G).

Table 8A-5 Broad habitat types within the Sunnica East Site A

Habitat	*Area (ha) / length (m)*	*% of Site area*
Broad-leaved plantation woodland	0.15 ha	0.06
Coniferous plantation woodland	0.04 ha	0.02
Broad-leaved semi-natural woodland	0.15 ha	0.06
Poor semi-improved grassland	3.01 ha	1.3
Marsh / marshy grassland	3.09 ha	1.4
Improved grassland	0.85 ha	0.4
Scattered scrub	0.16 ha	0.07
Tall ruderal	1.05 ha	0.5
Ephemeral / short perennial	4.38 ha	1.9
Arable	172.33 ha	74.4
Running water	0.62 ha	0.3
Bare ground	43.92 ha	18.9
Buildings	0.10 ha	0.04
Hard surface	1.49 ha	0.64

Habitat	*Area (ha) / length (m)*	*% of Site area*
Defunct hedge	511 m	-
Intact hedge	3,108 m	-
Hedge with trees	285 m	-

Table 8A-6 Broad habitat types within the Sunnica East Site B

Habitat	*Area (ha) / length (m)*	*% of Site area*
Broad-leaved plantation woodland	1.04 ha	0.32
Coniferous plantation woodland	3.44 ha	1.1
Broad-leaved semi-natural woodland	3.68 ha	1.1
Mixed semi-natural woodland	3.28 ha	1.0
Acid grassland	10.9 ha	3.4
Semi-improved neutral grassland	0.53 ha	0.2
Improved grassland	1.18 ha	0.4
Calcareous grassland	0.91 ha	0.3
Poor semi-improved grassland	2.99 ha	0.9
Marsh / marshy grassland	0.13 ha	0.04
Dense scrub	1.20 ha	0.4
Tall ruderal	0.13 ha	0.04
Arable	280.72 ha	86.9
Standing water	1.58 ha	0.5
Bare ground	10.53 ha	3.3
Buildings	0.04 ha	0.0
Hard surface	0.95 ha	0.3
Intact hedge	5,852 m	-
Hedge with trees	382 m	-
Fence	1,433 m	-

Broad-leaved plantation woodland

4.2.5 Small areas of newly planted broad-leaved woodland are present in the the Sunnica East Sites A and B. These mostly consisted of Field Maple *Acer campestre*, Cherry *Prunus avium* and Ash *Fraxinus excelsior*.

Coniferous plantation woodland

4.2.6 This habitat was predominantly found within the Sunnica East Site B, with larger blocks present in the eastern section. These areas of woodland either solely consisted of or were dominated by Scot's Pine *Pinus sylvestris*. In the western section of the Sunnica East Site strips of mature Scot's Pine formed field boundaries; planted as wind breaks and typical of the Breckland landscape. Dominant species of the ground flora in these areas where Chickweed *Stellaria media*, Common Nettle *Urtica dioica* and Dog's Mercury *Mercurialis perennis*.

Broad-leaved semi-natural woodland

4.2.7 A few areas of semi-natural broad-leaved woodland were present across the Sunnica East Sites A and B. These typically included species such as Beech *Fagus sylvatica* and Ash with an understory of Snowberry *Symphoricarpos alba*, Privet *Ligustrum vulgare* and Hawthorn *Crataegus monogyna*.

Mixed plantation / semi-natural woodland

4.2.8 Many of the woodlands found scattered across the Sunnica East Sites A and B consisted of mixed mature broad-leaved and coniferous specimens. Coniferous species were predominantly planted Scot's Pine, but a wide variety of broad-leaved species were present, including Field Maple, Cherry, Buckthorn *Rhamnus cathartica*, Oak *Quercus robur*, Sycamore *Acer pseudoplatanus*, Beech and Ash.

Semi-improved acid grassland

4.2.9 An area of dry grassland is present in the northern section of the Sunnica East Site B and forms part of the Worlington Heath CWS. Close inspection wasn't possible of this habitat and further investigation will be required to determine its current condition.

Semi-improved grassland

4.2.10 A number of areas that appeared to be semi-improved grassland were present across the Sunnica East Sites A and B, including a rectangular strip on the north western border of the Sunnica East Site B. Many of these grassland areas were only viewable from public rights of way, so further investigation will be required to determine composition.

Semi-improved calcareous grassland

4.2.11 A small area of semi-improved calcareous grassland is outside the Site boundary, adjacent to the south east corner of the Sunnica East Site B, adjacent to the A11. Species noted included, Cock's-foot *Dactylis glomerata*, False Oat-grass *Arrhenatherum elatius*, Yorkshire-fog *Holcus lanatus*, Small Scabious *Scabiosa columbaria*, Common Knapweed *Centaurea nigra*, Viper's

Bugloss *Echium vulgare*, Wild Carrot *Daucus carota*, Common Toadflax *Linaria vulgaris*, Ploughman's Spikenard *Inula conyzae* and Blue Fleabane *Erigeron acris*.

Improved grassland

4.2.12 A number of agricultural fields consisted of Perennial Ryegrass *Lolium perenne* dominated improved grasslands.

Scrub

4.2.13 Some pockets of dense scrub are scattered across the Sunnica East Sites A and B, consisting predominantly of Hawthorn and Blackthorn.

Standing water

4.2.14 Waterbodies present within the Sunnica East Sites A and B are shown in **Figure 8A-5** (Appendix I). Access was limited to these but two are large agricultural reservoirs, which appear to have steep banks and little vegetation. Within Worlington Heath CWS, a series of seasonal ponds are shown to be present on the OS mapping, however, at the time of survey these could not be accessed, but appeared not to be present when viewed from nearby public rights of way.

Running water

4.2.15 The Lee Brook flows in a northerly direction and forms a boundary feature of the Sunnica East Site A.

Cultivated/disturbed Land – Arable

4.2.16 The majority of the Sunnica East Sites A and B consists of arable farmland. Associated with the uncultivated margins were frequently occurring marginal and ruderal plant species included Annual Meadow-grass *Poa annua*, Common Mallow *Malva neglecta*, Dandelion *Taraxacum officinale*, Scentless Mayweed *Tripleurospermum inodorum*, Common Nettle, Ribwort Plantain *Plantago lanceolata*, Mugwort *Artemisia vulgaris*, Knotgrass *Polygonum aviculare*, Red Dead-nettle *Lamium purpureum*, Yarrow *Achillea millefolium*, Groundsel *Senecio vulgaris*, Dove's-foot Cranesbill *Geranium molle*, White campion *Silene latifolia* and Cow parsley *Anthriscus sylvestris*.

Cultivated/disturbed Land –bare ground / ephemeral/short perennial

4.2.17 There are large areas of bare ground on the Sunnica East Sites A and B, with disturbed ground, which forms a pig farm on both sites.

Boundaries – Hedges

4.2.18 The Sunnica East Sites A and B are demarcated by hedgerow boundary features. Where hedges have been managed or recently planted, these consist of species such as Blackthorn, Buckthorn, Oak, Privet, Hawthorn and Cherry. Many hedges have scattered mature trees presents including White poplar *Populus alba*, Field Maple *Acer campestre*, Ash, an Elm *Ulmus species*, Sycamore *Acer pseudoplatanus*, Holly *Ilex aquifolium*, Elder *Sambucus nigra* and Larch *Larix decidua*.

Sunnica West Sites A and B

4.2.19 The broad habitat types present within the Sunnica West Sites A and B are detailed below in **Table 8A-7** and **Table 8A-8**. The approximate extent and distribution of these habitats recorded is shown on **Figure 8A-4** (Appendix G).

Table 8A-7 Broad habitat types within the Sunnica West Site A

Habitat	*Area (ha) / length (m)*	*% of Site area*
Coniferous plantation woodland	4.57 ha	0.9
Broad-leaved plantation woodland	4.58 ha	0.9
Broad-leaved semi-natural woodland	8.78 ha	1.8
Mixed semi-natural woodland	15.71 ha	3.2
Semi-improved grassland	3.42 ha	0.7
Improved grassland	37.68 ha	7.8
Dense scrub	0.21 ha	0.0
Scattered scrub	0.01 ha	0.0
Tall ruderal	5.82 ha	1.2
Ephemeral / short perennial	0.36 ha	0.1
Arable	398.1 ha	82.0
Running water	0.07 ha	0.0
Standing water	0.04 ha	0.0
Bare ground	2.95 ha	0.6
Buildings	0.11 ha	0.0
Hard surface	1.04 ha	0.2
Defunct hedge	1978 m	-
Intact hedge	7142 m	-
Hedge with trees	269 m	-
Fence	2883 m	-
Dry ditch	1090 m	-

Table 8A-8 Broad habitat types within the Sunnica West Site B

Habitat	*Area (ha) / length (m)*	*% of Site area*
Broad-leaved plantation woodland	2.57 ha	3.7
Broad-leaved semi-natural woodland	0.33 ha	0.5
Semi-improved grassland	28.06 ha	40.8
Marsh / marshy grassland	0.65 ha	0.9
Swamp	0.11 ha	0.2
Dense scrub	1.16 ha	1.7
Scattered scrub	0.75 ha	1.1
Arable	34.05 ha	49.5
Running water	0.56 ha	0.8
Bare ground	0.32 ha	0.0
Hard surface	0.16 ha	0.2
Intact hedge	424 m	-
Hedge with trees	498 m	-

Coniferous plantation woodland

4.2.20 A few small areas of young conifer plantation woodland were present within the Sunnica West Site A. These either solely consisted of or were dominated by Scot's Pine.

Broad-leaved semi-natural woodland

4.2.21 A number of mature semi-natural broad-leaved woodland blocks were present across the Sunnica West Sites A and B. These typically included species such as Oak, Silver Birch *Betula pendula*, Field Maple, Beech, Walnut Juglans regia and Ash with an understory of Privet and Hawthorn.

Mixed plantation / semi-natural woodland

4.2.22 Many of the woodlands found scattered across the Sunnica West Site A consisted of mixed mature broad-leaved and coniferous specimens. Coniferous species were predominantly planted Scot's Pine, but a wide variety of broad-leaved species were present, Field Maple, Cherry, Buckthorn, Oak, Sycamore, Beech and Ash.

Semi-improved Grassland

4.2.23 A number of isolated areas of semi-improved grassland are present across the Sunnica West Sites A and B including clearings within mixed woodland in Sunnica West Site A, with dominant Cock's-foot, False Oat-grass and

Yorkshire-fog, along with Knapweed and frequent Tormentil *Potentilla erecta* and Agrimony *Agrimonia eupatoria*.

Improved Grassland

4.2.24 A number of agricultural fields consisted of Perennial Ryegrass dominated improved grasslands.

Scrub

4.2.25 Some pockets of dense scrub are scattered across the Sunnica West Sites A and B, consisting predominantly of Hawthorn and Blackthorn.

Standing Water

4.2.26 At the time of surveys, no waterbodies were recorded within the Sunnica West Sites A and B, although areas in the woodland immediately to the north of the Sunnica West Site A appear as though they may support seasonal waterbodies. A large steep sided agricultural reservoir is located to the north of the Sunnica West Site A.

Running Water

4.2.27 The River Snail runs along the western boundary of the Sunnica West Site B. The Lee Brook runs along the north east boundary of the Sunnica West Site A.

Cultivated/disturbed Land – Arable

4.2.28 The majority of the Sunnica West Sites A and B consist of arable farmland. Associated with the uncultivated margins were frequently occurring marginal and ruderal plant species included Creeping Thistle *Cirsium arvense*, Annual Meadow-grass, Common Mallow, Dandelion spp., Scentless Mayweed, Common Nettle, Ribwort Plantain, Mugwort, Knotgrass, Red Dead-nettle, Yarrow, Groundsel, Dove's-foot Cranesbill, White campion, Cow parsley and Bur-chervil *Anthriscus caucalis*.

4.2.29 One of the arable field margins in the western section of the Sunnica West Site A contained species including Round-leaved Fluellen *Kickxia spuria,* Sharp-leaved Fluellen *Kickxia elatine*, Henbit Dead-nettle *Lamium amplexicaule* and Small Toadflax *Chaenorhinum minus*.

4.2.30 A number of areas of established set-a-side with tall ruderal species, including dominant Creeping Thistle, Yarrow and Ribwort Plantain and occasional White Melilot *Melilotus albus* and Yellow Melilot *Melilotus officinalis* are present across the Sunnica West Sites A and B.

Boundaries – Hedges

4.2.31 The Sunnica West Sites A and B are demarcated by hedgerow boundary features. Where hedges have been managed or recently planted this consist of species such as Blackthorn, Buckthorn, Oak, Privet, Hawthorn and Cherry. Many hedges have scattered mature trees presents including White poplar, Field Maple, Ash, an Elm species, Sycamore, Holly, Elder and Larch.

Cultivated/disturbed Land – ephemeral/short perennial

4.2.32 A number of the areas of hardstanding present across the Sunnica West Site A have ephemeral vegetation and bryophyte communities, including Silver Moss *Bryum argenteum*, present.

Grid Connection Routes and Burwell National Grid Substation Extension

4.2.33 The broad habitat types present along the Grid Connection Routes A and B and Burwell National Grid Substation Extension are detailed below in **Table 8A-9**. The approximate extent and distribution of habitats recorded is shown on **Figure 8A-4** (Appendix G).

Table 8A-9 Broad habitat types within the Grid Connection Routes and Burwell National Grid Substation Extension

Habitat	*Area (ha) / length (m)*	*% of Site area*
Coniferous plantation woodland	0.16 ha	0.1
Mixed semi-natural woodland	1.98 ha	1.2
Broad-leaved semi-natural woodland	4.99 ha	3.0
Broad-leaved plantation woodland	0.81 ha	0.5
Coniferous parkland	0.43 ha	0.3
Semi-improved grassland	7.71 ha	4.6
Improved grassland	11.40 ha	6.9
Marsh / marshy grassland	0.03 ha	0.02
Dense scrub	1.66 ha	1.0
Scattered scrub	1.77 ha	1.1
Arable	122.96 ha	74.1
Running water	584 m	1.3
Standing water	0.41 ha	0.2
Bare ground	1.07 ha	0.6
Buildings	0.24 ha	0.1
Hard surface	8.21 ha	4.9
Intact hedge	2608.5 m	-
Hedge with trees	1150 m	-
Fence	371 m	-

Coniferous plantation woodland

4.2.34 A few small areas of young conifer plantation woodland are present along the Grid Connection Routes. These either solely consisted of or were dominated by Scot's Pine, with other species noted including Cypress *Cupressus* species.

Broad-leaved semi-natural woodland

4.2.35 A number of mature semi-natural broad-leaved woodland blocks were present along the Grid Connection Routes. These typically included species such as Oak, Silver Birch, Field Maple and Beech and Ash.

Mixed plantation / semi-natural woodland

4.2.36 Many of the plantation woodlands found scattered along the Grid Connection Routes consisted of mixed broad-leaved and coniferous species. Coniferous species were predominantly Scot's Pine, particularly along Grid Connection Route A, but a wide variety of broad-leaved species were present throughout, including Field Maple, Cherry, Buckthorn, Oak, Sycamore, Beech and Ash.

Semi-improved Grassland

4.2.37 A number of isolated areas of semi-improved grassland were present along the Grid Connection Routes, including to the west of Snailwell industrial area (Grid Connection Route B), with dominant grass species including Cock's-foot, False Oat-grass and Yorkshire-fog. The road verge embankment there, along the A142, appears to have been planted with a more diverse species mix as part of the road construction landscaping, although access was not possible to investigate further. Semi-improved grassland is the dominant habitat within the preferred location for the Burwell National Grid Substation Extension.

Improved Grassland

4.2.38 A number of agricultural fields, road verges and grassed areas in the industrial area consisted of Perennial Ryegrass dominated improved grasslands.

Scrub

4.2.39 Some pockets of dense scrub are scattered across the Grid Connection Routes and Burwell National Grid Substation Extension, consisting predominantly of Hawthorn and Blackthorn.

Standing Water

4.2.40 Waterbodies present within the Grid Connection Routes are shown in **Figure 8A-5** (Appendix I). Access was limited to these at the time of survey and further investigation will be required to determine type and plant communities present.

Running water

4.2.41 The Grid Connection Routes cross a number of watercourses, including the River Kennett (Grid Connection Route A) and the River Snail east of Snailwell (Grid Connection Route B). At the western end of the Grid Connection Route B, there are a number of drainage ditches which will be crossed including the Burwell Lode.

Cultivated/disturbed Land – Arable

4.2.42 The majority of the habitat within the Grid Connection Routes consists of arable farmland. Associated with the uncultivated margins were frequently occurring marginal and ruderal plant species included Creeping Thistle, Annual Meadow-grass, Common Mallow, Dandelion spp., Scentless Mayweed, Common Nettle, Ribwort Plantain, Mugwort, Knotgrass, Red Dead-nettle, Yarrow, Groundsel, Dove's-foot Cranesbill, White campion and Cow Parsley.

Boundaries – Hedges

4.2.43 The Grid Connection Route and Burwell National Grid Substation Extension is demarcated by hedgerow boundary features. Where hedges have been managed or recently planted this consist of species such as Blackthorn, Buckthorn, Privet, Hawthorn and Cherry. Many hedges have scattered mature trees presents including Field Maple, Ash, an Elm species and Sycamore.

4.3 Notable Habitats

4.3.1 **Table 8A-10** provides a summary of notable habitats associated with the Site based on the results of the Phase 1 Habitat survey and with reference to guidance for the recognition of NERC Act S41 (Maddock, 2010)[4] and the relevant LBAP, as detailed in section 2.2. Further surveys may be required to investigate the value of habitats further, as detailed further on in this report.

Table 8A-10 Notable habitats within the Site

Habitat	*Scheme Area*	*NERC Act*	*LBAP*	*Supporting Comments*
Rivers	Sunnica East Site A; Grid Connection Route A; Sunnica West Site B	✓	✓	The Lee Brook, River Kennett and River Snail are likely to fulfil the criteria of this priority habitat type.
Standing Open Waters / Ponds	Whole Site	✓	✓	There are a number of waterbodies within the Scheme Boundary and further investigation will be required to determine their value.
Arable Field Margins	Whole Site	✓	✓	A number of scarce arable plants were noted during the survey and arable field margins present on both the Sunnica East Site B and Sunnica West Site A may fulfil the criteria for this priority habitat type.
Hedgerows	Whole Site	✓	✓	Hedgerows are present within the Site boundary and further investigation will be required to determine their value.
Lowland Mixed Deciduous Woodland	Whole Site	✓	✓	Broad-leaved woodland is present within the Site boundary

[4] Maddock, A. (2010) UK Biodiversity Action Plan Priority Habitat Descriptions. JNCC, Peterborough.

Habitat	*Scheme Area*	*NERC Act*	*LBAP*	*Supporting Comments*
				and further investigation will be required to determine its value.
Lowland Dry Acid Grassland	Sunnica East Site B	✓	✓	A small area of dry acid grassland is present in the northern section of the Sunnica East Site B and associated with the Worlington Heath CWS and Badlingham Lane CWS. Further investigation will be required to determine its current value.
Lowland Calcareous Grassland	Sunnica East Site B	✓	✓	A small area of calcareous grassland is present outside the Site boundary, adjacent to the eastern section of the Sunnica East Site B. Further investigation will be required to determine its current value.
Fenland Drainage Ditches	Grid Connection Routes	-	✓	The cable route corridor crosses a number of drainage ditches around Burwell. Further investigation will be required to determine whether these fulfil the criteria for this priority habitat type.

4.4 Protected and Notable Species

Waterbodies identified within 500 m of the Site boundary

4.4.1 Using maps and aerial photography, a total of 51 waterbodies and watercourses were identified within 500 m of the Site boundary as needing to be assessed for their suitability to support Great Crested Newts. Locations of each waterbody are detailed in **Figure 8A-5** (Appendix I).

Protected and notable species relevant or potentially relevant to Scheme

4.4.2 **Table 8A-11** provides a summary of potentially relevant species identified through a combination of desk study and field survey. The table summarises the conservation status of each species and provides comment on the likelihood of presence.

4.4.3 Where species are identified in **Table 8A-11** as likely or possible, they are likely to represent legal constraints or may be material to determination of the DCO application. Further surveys will or may be required to determine presence or probable absence of species.

Table 8A-11 Protected and notable species relevant or potentially relevant to the Scheme

Species	*Scheme Area*	*Legally Protected Species?*	*Species of Principal Importance?*	*Other Notable Species?*	*Present on Site?*	*Present / Potentially Present in Wider Zone of Influence?*	*Supporting Comments*
Plants	Sunnica East Sites A and B	✓	✓	✓	?	✓	The data search returned records of 14 Red Data List plants within 2 km of the Sunnica East Sites A and B. Of these 14 plants, 8 are within 500 m of the Sunnica East Site, including two priority species for England (NERC), Purple Milk-vetch *Astragalus danicus* and Spanish Catchfly. There is potential for protected and notable plant species to occur within the Sunnica East Sites A and B, with areas of botanical interest potentially associated with habitats on and near the Worlington Heath and Badlingham Lane CWSs to the south of Worlington.
	Sunnica West Sites A and B	✓	✓	✓	?	✓	The data search returned records of 8 notable plant and 5 notable lichen species within 2 km of the Sunnica West Sites A and B, of which 4 are Red Data List plants, including Cambridge Milk-Parsley *Selinum carvifolia*, a legally protected species (WCA Schedule 8), This species is known to occur at Chippenham Fen, which is to the north east of the Sunnica West Site B. There is potential for protected and notable plant species to occur on both the Sunnica West Site A and Sunnica West Site B.
	Grid Connection Routes and Burwell National Grid Substation Extension	✓	✓	✓	?	✓	The data search returned records of 17 protected / notable plant species within 2 km of the Grid Connection Routes and Burwell National Grid Substation Extension. Of these, 5 species were found within 500 m of the Grid Connection Routes, including the legally protected (WCA Schedule 8) Cambridge Milk-parsley at Chippenham Fen, which is to the north of the Grid Connection Route B. There is the potential for protected and notable plants species to occur within the Grid Connection Routes. The habitats present within the area proposed for the Burwell National Grid Substation Extension are unlikely to support notable plant species.
Terrestrial Invertebrates	Sunnica East Sites A and B	*x*	✓	✓	?	✓	The data search returned a record of White-letter Hairstreak *Satyrium w-album,* within the southern field of the western section of the Sunnica East Site B in 2011

Species	Scheme Area	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present on Site?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
							and three records of Small Heath *Coenonympha pamphilus,* a NERC species, 100 m to the north east and south east of the Sunnica East Site B in 2015. A further 26 notable invertebrate species was returned by the data search within 1 km of the Sunnica East Site B. There are habitats present across the Sunnica East Sites A and B that may support protected and notable invertebrate species, particularly the areas south of Worlington. Lime dominated hedgerows are also common across the Sunnica East Site B and may support specialist invertebrate species such as White-letter Hairstreak.
	Sunnica West Sites A and B	x	✓	✓	?	✓	A large number of notable terrestrial invertebrate species, including moths, butterflies, beetles, bees, bugs and flies was returned by the data search within 2 km of the Sunnica West Sites A and B. The closest of which was a record of Small Heath (NERC species) 500m to the south west of the Sunnica West Site A in 2009. Small areas of habitat on the Sunnica West Sites A and B have the potential to support notable invertebrates.
	Grid Connection Routes and Burwell National Grid Substation Extension	✓	✓	✓	?	✓	A large number of notable terrestrial invertebrate species, including moths, butterflies, beetles, bees, bugs and flies were returned by the data search within 2 km of the Grid Connection Routes and Burwell National Grid Substation Extension. The closest was a record of a rare weevil *Cionus longicollis,* a nationally notable species, 500m west of the Grid Connection Route A, in 2014.
Aquatic Invertebrates	Sunnica East Sites A and B	x	x	✓	?	✓	The data search returned three records of Scarce Chaser *Libellula fulva,* a notable dragonfly species, within 2 km the Sunnica East Site B. There are limited aquatic habitats present with the Sunnica East Sites A and B to support notable aquatic invertebrate species and assemblages.
	Sunnica West Sites A and B	x	x	✓	?	✓	There are limited aquatic habitats present with the Sunnica West Site Ato support notable aquatic invertebrate species and assemblages. The Sunnica West Site B is bounded by Chippenham Fen to the north east and the River Snail to the south

Species	Scheme Area	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present on Site?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
							west, both of which support notable aquatic invertebrate species and assemblages.
	Grid Connection Routes and Burwell National Grid Substation Extension	x	*x*	✓	?	✓	The Grid Connection Route B crosses a number of drainage ditches and watercourses north of the Burwell National Grid Substation Extension, which have the potential to support notable aquatic invertebrate species and assemblages.
Amphibians	Whole Site	✓	✓	✓	?	?	No records of Great Crested Newt or Common Toad were returned by the data search within 2 km of the Site boundary. Further investigation will be required to determine whether the 51 waterbodies identified within 500 m of the Site are suitable for Great Crested Newt and other amphibians.
Reptiles	Whole Site	✓	✓	-	?	✓	The data search returned three records of Common Lizard *Zootoca vivipara* within 2 km of the Site, of which one record was found c.600m to the south west of Sunnica East Site A in 2012. The data search also returned a record of Grass Snake *Natrix Helvetica* within 1 km of the Grid Connection Route B and Sunnica West Site B. Reptile habitat is limited across the Site, but small pockets of habitat suitable for reptiles do exist.
Breeding birds	Sunnica East Sites A and B	✓	✓	✓	✓	✓	Records of 33 bird species either possible or confirmed breeding within the Sunnica East Sites A and B were returned by the data search. Of these 33 species, one record of Quail *Coturnix coturnix,* (WCA Sch.1) was returned as possibly breeding in 2011. A further 12 species listed on WCA Sch.1), were returned by the data search within the Sunnica East Site B, including Stone Curlew (returned from the centre of the Sunnica East Site B) and Barn Owl *Tyto alba.*

Species	Scheme Area	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present on Site?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
							Within 1km of the Sunnica East Site B, a large number of notable / protected bird species was returned by the data search, including Nightjar, Woodlark and Red Kite *Milvus milvus.* A survey for birds carried out by Norfolk Wildlife Services in 2012, observed Skylark *Alauda arvensis* nests on the solar farm adjacent to Sunnica East Site B. Furthermore, barns near this solar farm were considered to have potential for roosting Barn Owls. Trees, scrub and arable fields occurring within the area are likely to support nesting birds during the breeding season, including those of conservation concern and associated with such habitats, such as Song Thrush *Turdus philomelos* and Skylark *Alauda arvensis*.
	Sunnica West Sites A and B	✓	✓	✓	✓	✓	A large number of protected / notable bird species was returned by the data search within 2km of the Sunnica West Sites A and B, of which five are listed on WCA Sch.1. and recorded within 500 m of the Sunnica West Site A. These included Hobby *Falco subbuteo* and Barn Owl. Trees, scrub and arable fields occurring within the Sunnica West Sites A and Bhave the potential to support nesting birds during the breeding season, including those of conservation concern and associated with such habitats, such as Yellowhammer and Reed Bunting. Barn Owl pellets were also observed in a barn within the western section of the Sunnica West Site A, during the field survey.
	Grid Connection Routes and Burwell National Grid Substation Extension	✓	✓	✓	?	✓	A large number of protected / notable bird species was returned by the data search within 2 km of the Grid Connection Routes and Burwell National Grid Substation Extension. These records included species listed on WCA Sch.1 including Kingfisher *Alcedo atthis* and Marsh Harrier *Circus aeruginosus.* Trees, scrub and arable fields occurring along the Grid Connection Routes are likely to support nesting birds during the breeding season, including species of conservation concern, such as Dunnock *Prunella modularis.*

Species	*Scheme Area*	*Legally Protected Species?*	*Species of Principal Importance?*	*Other Notable Species?*	*Present on Site?*	*Present / Potentially Present in Wider Zone of Influence?*	*Supporting Comments*
Non-breeding (wintering and passage) birds	Sunnica East Sites A and B	✓	✓	✓	✓	✓	The data search returned 68 records of protected / notable species within the Sunnica East Sites A and B, including 11 species included in Annex 1 of the Bird Directive species such as, Short eared Owl *Asio flammeus* and Golden Plover *Pluvialis apricaria.* A 'rapid risk assessment' carried out by Norfolk Wildlife Services in 2012, revealed the presence of Grey Partridge *Perdix perdix* , Linnet *Linaria cannabina* and Skylark, at the Bay Farm solar farm, located immediately south-east of the Sunnica East Site B. Trees, scrub and arable fields occurring within the Sunnica East Sites A and B have the potential to support birds during the non-breeding season, including those of conservation concern, such as Linnet *Linaria cannabina.*
	Sunnica West Sites A and B	✓	✓	✓	✓	✓	The data search returned records of a large number of protected / notable bird species within 2 km of the Sunnica West Sites A and B. Trees, scrub and arable fields occurring within the Sunnica West Sites A and B have the potential to support birds during the non-breeding season, including those of conservation concern, such as Golden Plover.
	Grid Connection Routes and Burwell National Grid Substation Extension	✓	✓	✓	✓	✓	A large number of protected / notable bird species was returned by the data search within 2 km of the Grid Connection Routes and Burwell National Grid Substation Extension. Trees, scrub and arable fields occurring within the Grid Connection Routes and Burwell National Grid Substation Extension have the potential to support birds during the non-breeding season, including over-wintering thrushes, such as Redwing *Turdus iliacus* and Fieldfare *Turdus pilaris*.
Bats	Sunnica East Sites A and B	✓	✓	-	?	✓	The data search returned a large number of bat records within 2 km of the Sunnica East Sites A and B, including Western Barbastelle *Barbastella barbastellus*. Of these, records of Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle

Species	Scheme Area	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present on Site?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
							Pipistrellus pygmaeus, Serotine *Eptesicus serotinus*, and Brown Long-eared *Plecotus auritus* roosts were returned from within 500m of the Sunnica East Site B. This included possible Serotine, Common Pipistrelle and Brown Long-eared maternity roosts. A bat activity survey, carried out in 2017 by Ward Associates, of trees at Bay Farm, immediately adjacent to the Sunnica East Site B found Barbastelle, *Myotis* sp, Noctule, Brown Long-eared, Serotine and both Pipistrelle *Pipistrellus* species. The Sunnica East Sites A and B contain trees, woodlands and buildings which have the potential to support roosting bats. The habitat within the Sunnica East Site also provides connectivity and foraging resources for bats.
	Sunnica West Sites A and B	✓	✓	-	?	✓	The data search returned a large number of bat records within 2km of the Sunnica West Sites A and B, including Western Barbastelle and Daubenton's Bat *Myotis daubentonii*. The closest of which was one record of a Long-eared bat roost returned within 500m of the Sunnica West Site A in 2012. The Sunnica West Site contains trees, woodlands and buildings which have the potential to support roosting bats. The habitat within the Sunnica West Site offers connectivity and foraging resources for bats.
	Grid Connection Routes and Burwell National Grid Substation Extension	✓	✓	-	?	✓	The data search returned a large number of bat records within 2km of the cable route corridor and Burwell National Grid Substation Extension, including Western Barbastelle. Of which, records of eight species were returned within the cable route corridor including Noctule *Nyctalus noctula* and Natterer's Bat *Myotis nattereri.*

Species	*Scheme Area*	*Legally Protected Species?*	*Species of Principal Importance?*	*Other Notable Species?*	*Present on Site?*	*Present / Potentially Present in Wider Zone of Influence?*	*Supporting Comments*
Badger *Meles meles*	Whole Site	✓	✓	-	✓	✓	The data search returned numerous records of Badger within 2km of the Site boundary. A Badger survey carried out in 2017 by Ward Associates at Bay Farm (situated immediately south east of the Sunnica East Site B), found no signs of Badger or active setts at Bay Farm. An active Badger sett and other field signs of Badger activity were recorded within the eastern section of the Sunnica East Site B during the AECOM field survey. Badger latrines and snuffle holes were recorded within the western section of the Sunnica West Site during the field survey.
Otter *Lutra lutra*	Whole Site	✓	✓	-	x	✓	The data search returned numerous records of Otter within 2km of the Site. The River Snail runs along the western boundary of the Sunnica West Site B and has the potential to support Otter. The western end of the Grid Connection Route B crosses a number of drainage ditches which offer potential to support Otter. The Grid Connection Route A crosses the River Kennett, which offers potentially suitable habitat for Otter.
Water Vole	Whole Site	✓	✓	-	x	✓	The data search returned numerous records of Water Vole within 2km of the Site. The River Snail runs along the western boundary of the Sunnica West Site (north) and has the potential to support Water Vole. The western end of the Grid Connection Route B crosses a number of drainage ditches which offer potential to support Water Vole. The Grid Connection Route A crosses the River Kennett, which offers potentially suitable habitat for Water Vole.
Invasive Non-native Species (INNS)	Sunnica East Sites A and B	x	x	✓	?	✓	The data search returned records of Nuttall's Waterweed *Elodea nuttallii*, Giant Hogweed *Heracleum mantegazzianum* and Himalayan (Indian) Balsam *Impatiens glandulifera*. The data search also returned records of Red-eared Terrapin *Trachemys scripta* subspecies *elegans,* Chinese Muntjac *Muntiacus reevesi* and American Mink *Neovison vison* within 2 km from the Sunnica East Site B.

Species	*Scheme Area*	*Legally Protected Species?*	*Species of Principal Importance?*	*Other Notable Species?*	*Present on Site?*	*Present / Potentially Present in Wider Zone of Influence?*	*Supporting Comments*
							No invasive non-native species were recorded on the Sunnica East Site A and B during the survey, however, there were areas access restrictions prevented close inspection.
	Sunnica West Sites A and B	x	x	✓	?	✓	The data search returned records of six invasive plant species: Canadian Waterweed *Elodea canadensis*, Nuttall's Waterweed, False-acacia *Robinia pseudoacacia*, New Zealand Pigmyweed *Crassula helmsii* Wall Cotoneaster *Cotoneaster horizontalis* Variegated Yellow Archangel *Lamiastrum galeobdolon* subsp. *argentatum* and three invasive mammal species: Chinese Muntjac *Muntiacus reevesi*, Chinese Water Deer *Hydropotes inermis* and Eastern Grey Squirrel *Sciurus carolinensis* within 2 km of the Sunnica West Site. Possible Variegated Yellow Archangel *Lamium galeobdolon subsp. Argentatum* was recorded within a woodland area in the northern section of the Sunnica West Site A during the field survey. Access restrictions prevented close inspection of some areas.
	Grid Connection Routes and Substation Extension	*x*	x	✓	?	✓	The data search returned records of eight invasive non-native plant species: Nuttall's Waterweed, Giant Hogweed Himalayan (Indian) Balsam, New Zealand Pigmyweed, False-acacia, Wall Cotoneaster, Variegated Yellow Archangel, Canadian Waterweed and five invasive non-native animal species: Red-eared Terrapin, Chinese Muntjac, American Mink, Chinese Water Deer, Eastern Grey Squirrel, within 2 km of the Grid Connection Routes and Burwell National Grid Substation Extension. No invasive non-native species were recorded within the Grid Connection Routes or Burwell National Grid Substation Extension during the survey, however, there were areas where access restrictions prevented close inspection.
Brown Hare *Lepus europaeus*	Whole Site	x	✓	-	✓	✓	The data search returned eight records of Brown Hare, the closest of which was found within the western section of the Sunnica East Site B. Norfolk Wildlife Services found Brown Hare to be present in 2012 at the Bay Farm solar farm, immediately south-east of the Sunnica East Site B.

Species	*Scheme Area*	*Legally Protected Species?*	*Species of Principal Importance?*	*Other Notable Species?*	*Present on Site?*	*Present / Potentially Present in Wider Zone of Influence?*	*Supporting Comments*
							Brown Hare was also recorded within the eastern section of the Sunnica East Site B during the field survey. This species has the potential to occur in other arable areas within the Site boundary.
West European Hedgehog *Erinaceus europaeus*	Whole Site	x	✓	-	*?*	✓	The data search returned 50 records of Hedgehog within 2km of the Site, the closest of which was within the cable route corridor for Grid Connection Route A in 2014. The species has the potential to occur across the Site within the grassland and scrub habitats.

Key to symbols: ✓ = yes, x = no, ? = possibly, see Supporting Comments for further rationale.

Species present on Site are those for which recent direct observation or field signs confirmed presence. Species which are possibly present are those for which there is potentially suitable habitat based on the results of the Phase 1 Habitat survey, or this combined with desk study records.

Legally protected species are those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended); and, Schedules 2 and 4 of The Conservation of Habitat & Species Regulations 2017 (as amended).

Species of Principal Importance as those listed under Section 41 of the NERC Act. Planning Authorities have a legal duty under Section 40 of the same Act to consider such species when determining planning applications.

Other notable species include native species of conservation concern listed in the LBAP (except species that are also of Principal Importance), those that are Nationally Rare, Scarce or Red Data List, and non-native controlled weed species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

5. Identification of Ecological Constraints and Recommendations

5.1.1 Relevant ecological receptors that may represent constraints to the Scheme, or that provide opportunities to deliver ecological enhancement in accordance with planning policy, are identified in **Table 8A-11**.

5.1.2 The NPPF and local planning policy specify requirements for the protection of features of importance for biodiversity. Planning policy is a material consideration when determining planning applications.

5.1.3 Compliance with planning policy requires that the proposed development considers and engages the following mitigation hierarchy where there is potential for impacts on relevant ecological receptors:

1. Avoid features where possible;
2. Minimise impact by design, method of working or other measures (mitigation) *e.g.* by enhancing existing features; and
3. Compensate for significant residual impacts, e.g. by providing suitable habitats elsewhere (whether in the control of Sunnica Ltd or otherwise legally enforceable through planning condition or Section 106 agreement).

5.1.4 This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. The rationale for the proposed mitigation and/or compensation will be provided with the DCO application, including sufficient detail to show that these measures are feasible and will be provided.

5.1.5 In pursuance of the objective within the NPPF of providing net gains in biodiversity where possible, consideration should be given to the scope for enhancement as part of the Scheme. This should represent biodiversity gain over and above that achieved through mitigation and compensation. Enhancement could be achieved within the Scheme Boundary or off-site.

5.1.6 The likelihood of the relevant ecological receptors constraining the Scheme has been assessed with reference to the scale described in **Table 8A-12**. The higher the importance of the ecological receptor for the conservation of biodiversity at national and local scales, the more likely it is to be a material consideration during determination of the DCO application.

5.1.7 Opportunities for ecological enhancement are not scaled in **Table 8A-11**, but are identified in the accompanying appraisal. There may be scope for ecological enhancement where existing habitat features could be improved or enhanced within the Scheme boundary as designed, or with only minor amendment to the design of the Scheme. Ecological enhancement may not be possible where there is little scope to accommodate enhancement within the Scheme, *e.g.* due to a lack of utilisable space, or where land is required for essential mitigation. In this case, consideration could be given to enhancing biodiversity in the vicinity of the Scheme boundary.

Table 8A-12 Scale of Constraint to Development

Likelihood	*Definition*
High	An actual or potential constraint that is subject to relevant legal protection and is likely to be a material consideration in determining the planning application (e.g. statutory nature conservation designations and European/nationally protected species). Further survey likely to be required (as detailed in this report) to support a planning application.
Medium	An actual or potential constraint that is covered by national or local planning policy and, depending on the level of the potential impact as a result of the proposed development, may be a material consideration in determining the planning application. Further survey may be required (as detailed in this report) to support a planning application.
Low	Unlikely to be a constraint to development or require further survey prior to submission of a planning application. Mitigation is likely to be covered under Construction Environmental Management Plan (CEMP) or precautionary working method statement (e.g. generic requirements for the management of nesting bird risks).

5.2 Constraints and Requirements for Further Survey: Designations

Statutory Designated Sites

5.2.1 The desk study identified fifteen statutory sites for nature conservation within the study areas set out in **Table 8A-1** and shown in **Table 8A-3**.

5.2.2 Fenland SAC, Chippenham Fen Ramsar/NNR and Chippenham Fen and Snailwell Poor's Fen SSSI are directly adjacent to the north of the Sunnica West Site B and Snailwell Meadows SSSI is directly adjacent to the south of the Sunnica West Site B. Further investigation will be required to establish whether there are any hydrological links between the designated sites and Sunnica West Site B.

5.2.3 The Breckland SPA is approximately 1.4km to the north-east of the Sunnica East Site B and habitats present within and around the Sunnica East Site B have the potential to support species associated with Breckland SPA, namely Stone Curlew, Woodlark and Nightjar. Further surveys to determine the presence of these species on the Sunnica East Site will be undertaken and are detailed below.

5.2.4 Direct or indirect impacts to the other statutory designated sites identified in **Table 8A-3** are unlikely.

Non-statutory Sites

5.2.5 The desk study identified 31 non-statutory sites designated for nature conservation within the study area set out in **Table 8A-1** and shown in **Table 8-4.** Of these, 26 sites have been designated as County Wildlife Sites (CWS) for their biodiversity value at a county level and are known to have supporting value to a wide variety of protected and ecologically important species and/or habitats and two sites are designated as a Protected Road Verge (PRV) for ecological importance.

5.2.6 Worlington Heath CWS and Badlingham Lane CWS are both partially within the Sunnica East Site B and have the potential to be directly impacted (habitat loss) or indirectly impacted (habitat degradation and disturbance) during construction of the Scheme. The Sunnica East Site B may also have an indirect impact on Worlington Golf Course and Surrounding Habitat CWS, Joan's Meadow CWS, Worlington Chalk pit CWS and Barton Mills Chalkpit CWS as all of these sites either lie immediately adjacent or within 50 m of the Sunnica East Site B.

5.2.7 Chippenham Avenue Fields CWS lies just outside the northern section of the Sunnica West Site A and has the potential to be indirectly impacted (habitat degradation and disturbance) during construction of the Scheme. At the time of survey there was no evidence to suggest that the hollows which support Grass-poly are still present within the CWS section adjacent to the Sunnica West Site A. The Limekilns and Adjacent Areas CWS lies within 70 m of the Sunnica West Site A, however, the A14 runs between the Scheme and the CWS and as such, no impacts are predicted.

5.2.8 The Grid Connection Route A passes through a section of the Havacre Meadows and Deal Nook CWS alongside the River Kennett. Currently, it is anticipated that the cable will be subject to directional drilling underneath the River Kennett (and Havacre Meadows and Deal Nook CWS) and that direct impacts on the CWS can be avoided. There is the potential for indirect impacts (habitat degradation and disturbance) during construction.

5.2.9 Direct or indirect impacts to the other non-statutory designated sites identified in **Table 8-4** are unlikely.

5.3 Constraints and Requirements for Further Survey: Habitats

5.3.1 The Sunnica East Sites A and B, Sunnica West Sites A and B and Grid Connection Routes all have the potential to support notable habitats as identified in **Table 8A-9**. Further investigation of these habitats is required to determine their quality and extent and whether they meet the relevant criteria to qualify as suitable priority habitats. As such, further Phase 2 botanical surveys will be undertaken within the Scheme boundary.

5.4 Constraints and Requirements for Further Survey: Species

Plants

5.4.1 The Sunnica East Sites A and B, Sunnica West Sites A and B and Grid Connection Routes all have the potential to support notable plant species, such as those associated arable field margins, dry heaths/grassland and fenland ditches. Further investigation of these habitats is required to determine the presence of notable plant species. As such, further Phase 2 botanical surveys will be undertaken within the Scheme boundary to identify species and hotspots of notable plant communities.

Terrestrial Invertebrates

5.4.2 The Sunnica East Sites A and B and Sunnica West Sites A and B comprise habitats that may support protected and notable terrestrial invertebrates or

invertebrate communities, identified as being present within the wider Zone of Influence during the desk study. Therefore, a survey to determine the potential for protected or notable terrestrial invertebrate species or communities to be present will be undertaken. This will determine the requirement for any further targeted surveys to establish the presence of particular species or hotspots for terrestrial invertebrate assemblages.

5.4.3 The habitats along the Grid Connection Routes may support notable terrestrial invertebrates or invertebrate communities, although more suitable habitats primarily occur in adjacent areas, including peripheral scrub and woodland. Provided that the adjacent habitats are retained and habitats along the cable route corridor are restored, it is considered unlikely that direct impacts on habitats potentially supporting notable invertebrate species or communities will occur.

5.4.4 The Burwell National Grid Substation Extension does not contain habitats that are likely to support notable terrestrial invertebrate species or assemblages.

5.4.5 Indirect impacts on habitats potentially supporting notable invertebrates are unlikely to occur.

Aquatic Invertebrates

5.4.6 Records of Scarce Chaser (a dragonfly) were returned by the data search within 2 km of the Sunnica East Sites A and B from 2011. There are however, limited aquatic habitats present with these sites to support notable aquatic invertebrate species and assemblages.

5.4.7 There are limited aquatic habitats present with the Sunnica West Site A to support notable aquatic invertebrate species and assemblages. The Sunnica West Site B is bounded by Chippenham Fen to the north east and the River Snail to the south west, both of which support notable aquatic invertebrate species and assemblages.

5.4.8 The Grid Connection Routes cross a number of drainage ditches and watercourses north of the Burwell National Grid Substation Extension, which have the potential to support notable aquatic invertebrate species and assemblages.

5.4.9 Further investigation of these watercourses will be required to determine the presence of notable aquatic invertebrate species and assemblages.

Amphibians

5.4.10 The desk study identified 51 waterbodies within 500 m of the Scheme boundary, however no records of Great Crested Newt and one record of Common Toad within 2 km of the Site.

5.4.11 A number of waterbodies have been identified within 500 m of the Scheme boundary (see **Figure 8A-5**, Appendix I) and further investigation will be required to determine their potential suitability for Great Crested Newt and other amphibians. In the first instance, a Habitat Suitability Index (HSI) assessment will be undertaken to categorise the suitability of the waterbodies for Great Crested Newt. Given, the general absence of known records of Great Crested Newt within 2km it is recommended that eDNA surveys are

undertaken of the identified waterbodies to determine presence or absence. If presence is confirmed then surveys will be undertaken to determine the size of the population present and whether breeding is occurring.

Reptiles

5.4.12 The data search returned records of both Grass Snake and Common Lizard within 2 km of the Site. Habitat potentially suitable to support reptiles was recorded on both the Sunnica East Site B, the Sunnica West Sites A and B Grid Connection Routes and Burwell National Grid Substation Extension. Therefore further surveys, following standard guidelines[5], are recommended to determine the presence or absence of reptiles. Depending on the outcomes of these surveys, mitigation may be required to avoid injuring or harming reptiles during construction.

Breeding Birds

5.4.13 The data search returned records of species listed on Schedule One of the WCA, including Hobby and Barn Owl, which may be present within buildings (Barn Owl) or mature trees (Hobby and Barn Owl) either within the Site boundary or within 500 m of the Site boundary. Trees, scrub and arable fields occurring across the whole Site have the potential to support protected and notable nesting birds during the breeding season, including those of conservation concern.

5.4.14 Furthermore, the data search returned records of species associated with the Breckland SPA, including Stone Curlew recorded within the centre of the Sunnica East Site B.

5.4.15 The Scheme has the potential to result in the direct loss of habitat used by protected and notable bird species. Further surveys of the general breeding bird assemblage, including targeted surveys for Barn Owl, are required within the Site to determine the requirement for appropriate avoidance measures and mitigation.

5.4.16 Owing to the presence of Stone Curlew records from within the Sunnica East Site B and Nightjar and Woodlark within 1km of the Sunnica East Site B, along with suitable habitats for all three species being present on that site, it is recommended that targeted surveys for these species are undertaken (following species-specific methods for each species) to determine their presence and breeding status on the Sunnica East Site B.

Non-breeding Birds

5.4.17 The data search returned a large number of records of notable bird species within 2km of the Site boundary. Trees, scrub and arable fields occurring within the Site have the potential to support notable bird species during the non-breeding season, including Golden Plover and farmland passerines, such as Skylark and Linnet. Therefore, surveys of the non-breeding (wintering) bird assemblage are recommended to assess the impact of the Scheme on non-breeding birds.

[5] Gent T and Gibson S (2003). Herpetofauna Workers Manual. JNCC, Peterborough.

5.4.18 Records of non-breeding Stone Curlew, a species associated with the Breckland SPA, were identified during the desk study. It is recommended that non-breeding Stone Curlew surveys of the Sunnica East Site B are undertaken to determine whether the species occurs during the non-breeding season when Stone Curlew congregate on farmland post-breeding between August and October and prior to migration.

Bats

5.4.19 The data search returned records of bat roosts within 500 m of the Sunnica East Sites A and B, including three possible maternity roosts. The Sunnica East Site B contains trees, woodlands and buildings which have the potential to support roosting bats and provide connectivity and foraging resources for wide variety of bat species. The Scheme could have an adverse effect on bat species both in terms of loss of roost sites and connectivity. Therefore, further surveys to determine the presence of potential roost features and surveys of bat activity, in line with current best practice guidelines[3] will be required. If key bat flight lines are identified, these should be retained or mitigated for (if lost).

5.4.20 The data search returned one record of a Long-eared Bat roost within 500 m of the Sunnica West Site A. The Sunnica West Site A contains trees, woodlands and buildings which have the potential to support roosting bats and provide connectivity and foraging resources for a wide variety of bat species. The data search returned records of 11 bat species within 2 km of the Sunnica West Sites A and B. The Scheme could have an adverse effect on bat species both in terms of loss of roost sites and connectivity. Therefore further surveys to determine the presence of potential roost features and surveys of bat activity, in line with current best practice guidelines[3] will be required. If key bat flight lines are identified, these should be retained or mitigated for (if lost).

5.4.21 The data search returned records of eight bat species within the Grid Connection Routes. The Grid Connection Routes contain trees, woodlands and buildings which have the potential to support roosting bats and provide connectivity and foraging resources for bats. The Scheme could have an adverse effect on bat species both in terms of loss of roost sites and connectivity. Therefore, surveys to determine the presence of potential roost features and surveys of bat activity, in line with current best practice guidelines will be required. If key bat flight lines are identified, these should be retained or, if at risk of being lost, should be mitigated.

5.4.22 The Burwell National Grid Substation Extension offers mature trees which may be suitable for roosting or foraging habitats bats.

Badger

5.4.23 The field survey recorded an active Badger sett within the Sunnica East Site B and latrines, snuffle holes and mammal paths (indicative of Badger activity) on the Sunnica West Site A. The data search also returned records of Badger within 1km of the Grid Connection Routes. The Grid Connection Routes and Burwell National Grid Substation Extension support habitats that may be used by Badger.

5.4.24 Owing to legislative provisions under the Protection of Badger Act 1992, further surveys (following standard guidelines[6]) are required to determine the full extent of Badger presence within the Site and in the wider zone of influence. The findings of these surveys will determine whether mitigation and relevant licences are required to avoid adverse effects on Badger.

Water Vole and Otter

5.4.25 The data search returned records of Water Vole and Otter within 2 km of the Site boundary. Waterbodies identified within 500m of the Site are presented in **Figure 8A-5**, Appendix I, however, most of these would appear unsuitable for both Water Vole and Otter, although access restrictions prevented closer inspection. An assessment of those waterbodies where direct or indirect impacts could occur should be assessed for the presence of Water Vole and Otter.

5.4.26 The River Snail runs along the western boundary of the Sunnica West Site B and has the potential to support Water Vole and Otter.

5.4.27 The western end of the Grid Connection Route crosses a number of drainage ditches which offer potential to support Water Vole and Otter. The Grid Connection Route A between the Sunnica East Site B and Sunnica West Site A also crosses the River Kennett, which offers potentially suitable habitat for Water Vole and Otter.

5.4.28 To assess suitability of waterbodies within the Site boundary for Water Vole and Otter, along with the potential for Mink to be present, further surveys of all waterbodies and watercourses are required.

Non-native Invasive Species

5.4.29 The data search returned records of a wide variety of plant, reptile and mammal species listed on Schedule 9 of the WCA. Further surveys, particularly for plant species should be undertaken within the Site boundary to determine the presence of INNS. If found to be present, biosecurity measures will need to be put in place during construction to prevent the spread of INNS into and away from the Scheme. An INNS management plan should also be produced to establish the approach to management and eradication of INNS found to be present.

Other species

5.4.30 Records of Brown Hare and Hedgehog were received during the data search and both species are likely to be present within the Site boundary. Brown Hare was recorded on the Sunnica East Site B during the filed survey. Brown Hare and Hedgehog receive limited legal protection but are Species of Principal Importance under S41 of the NERC Act. As such, precautions are recommended to ensure they are not harmed during construction through a Construction Environmental Management Plan (CEMP) or precautionary working method statement.

5.4.31 It is recommended that the Scheme is planned to take account of likely mitigation requirements for these species. This will include timing of any site

[6] http://www.mammal.org.uk/wp-content/uploads/2016/04/Surveying_Badgers_Mammal_Society.compressed.pdf

clearance to avoid Brown Hare during their breeding season. This is concordant with the requirements for nesting birds. As such, it is recommended that site clearance and preparatory works be undertaken over the autumn/winter period between September and February inclusive.

5.4.32 Although not recorded through the data search, a number of further NERC Section 41 mammal species, such as Harvest Mouse *Micromys minutus*, Polecat *Mustela putorius* and Water Shrew *Neomys fodiens* have scattered distributions across Cambridgeshire and Suffolk and habitats present within the Site boundary have the potential to support these species, if present in the area. No further surveys are recommended for these species, but mitigation and enhancement measures potentially required for other protected species should look to benefit Harvest Mouse, Polecat and Water Shrew. Any unnecessary damage to retained semi-natural habitats (*e.g.* hedgerows) outside the direct footprint of the Scheme should be avoided. This might include the use of temporary fencing to protect such habitats. This is concordant with the expected requirements for any tree protection zones. During construction, any open pits / holes should be covered at night or where not possible a wooden plank positioned at a 45° angle from the base to the top of the hole so that mammals can escape.

6. Conclusions

6.1.1 Overall, the PEA identified notable habitats and species as detailed in **Table 8A-10** and **Table 8A-11**.

6.1.2 A summary appraisal of ecological constraints and the recommended further requirements can be found in **Table 8A-13** below.

Table 8A-13 Summary appraisal of features of Ecological constraints and recommended further requirements

Receptor	*Scale of constraint*	*Further requirements*	*Number of survey visits required*	*Survey period*	*Driver*	*When is action likely to be required?*		
						To inform design	*Before planning application*	*Pre-construction onwards*
Habitat / Plants	Medium / High	A Phase 2 botanical survey and arable plant survey to identify the presence and extent of any potential notable habitats and protected/notable plant species. The surveys will focus on the County Wildlife Sites and other potential priority habitat within the Site boundary. Arable plant surveys will involve walking field boundaries and comparable areas of marginal habitat only.	Two survey visits	May to August	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Aquatic Habitats	Medium	A scoping assessment of any aquatic habitats potentially directly or indirectly affected by the Scheme. This will include an assessment of the potential for aquatic habitats to support protected/notable species. River Habitat Survey of watercourses to determine value of aquatic habitats (Depending on the outcomes of these surveys further targeted survey may be required).	One survey visit	May to June	LBAP, UKBAP, NERC Act 2006	✓	✓	✓

Receptor	*Scale of constraint*	*Further requirements*	*Number of survey visits required*	*Survey period*	*Driver*	*When is action likely to be required?*		
						To inform design	*Before planning application*	*Pre-construction onwards*
Terrestrial Invertebrates	Medium / High	A scoping survey to assess the potential of areas within the Site boundary to support protected or notable invertebrate species and assemblages (Depending on the outcomes of these surveys further targeted survey may be required).	One survey visit	April	WCA 1981, NERC Act	✓	✓	✓
Great Crested Newt	High	Undertake Habitat Suitability Index (HSI) assessment of all waterbodies within 500m of the Site boundary for their suitability to support Great Crested Newt. Following this, eDNA surveys to determine presence or absence of Great Crested Newt within suitable waterbodies. (Depending on the outcomes of the eDNA surveys further surveys to determine the population size and evidence of breeding may be required).	One survey visit for HSI assessment, followed by one survey visit for eDNA sample collection.	March to June	Habitat Regulations (2017), WCA 1981, NERC Act 2006, UKBAP, LBAP	✓	✓	✓
Reptiles	Medium	Surveys to identify the presence or absence of reptile species within the Site boundary.	One survey visit to place the reptile refugia followed by seven survey visits to check for reptiles.	April to May and / or September to October.	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓

Receptor	*Scale of constraint*	*Further requirements*	*Number of survey visits required*	*Survey period*	*Driver*	*When is action likely to be required?*		
						To inform design	*Before planning application*	*Pre-construction onwards*
Breeding birds	Medium / High	Surveys required to determine the breeding bird assemblage within the Site boundary, including those species potentially associated with designated sites (Breckland SPA) and species listed on WCA Sch. 1. Surveys for breeding Stone Curlew, Woodlark and Nightjar on the Sunnica East Sites.	Six survey visits for a territory mapping survey, along with additional visits for diurnal and nocturnal surveys of Stone Curlew and nocturnal visits for Nightjar.	April to August.	Birds Directive, WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Non Breeding birds	Medium / High	Surveys required to determine the non- breeding (wintering) bird assemblage within the Site boundary. Survey for post-breeding congregations of Stone Curlew on the Sunnica East Site B.	Six survey visits. Two survey visits for post-breeding Stone Curlew.	October to March. August to September for Stone Curlew.	Birds Directive, WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Bats	High	Surveys to identify potential features on trees and buildings that may support bat roosts (Depending on the findings of this survey and risk to these features, further surveys may be required to determine whether bats are present). Transect surveys and deployment of static detectors to identify important areas within the Site boundary used by commuting and foraging bats. Supplemented by bat trapping to determine use by rare and cryptic species.	One survey visit to undertake preliminary roost feature assessment across the Scheme. Activity survey required once per	April to October	Habitat Regulations (2017), WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓

Receptor	*Scale of constraint*	*Further requirements*	*Number of survey visits required*	*Survey period*	*Driver*	*When is action likely to be required?*		
						To inform design	*Before planning application*	*Pre-construction onwards*
			season (spring, summer, autumn). Three trapping surveys using mist nets, harp traps and acoustic lures between May and September.					
Badger	Medium / High	Survey to record all evidence of Badger activity within the Site boundary.	One survey visit.	Any time of year	Protection of Badger Act 1992	✓	✓	✓
Invasive Non-native Species	High	Further investigation should be undertaken to determine the presence of INNS within the Site boundary. Surveys will be undertaken in conjunction with other floral and protected species surveys. If INNS are identified, a management plan should be produced to manage and eradicate.	Ongoing.	April to September	WCA 1981	✓	✓	✓
Hedgehog	Low	No further survey required, but mitigation and enhancement delivered as part of the Scheme should look to retain habitats potentially used by Hedgehog and ensure that connectivity is maintained within the Site boundary and into the wider area.	N/A	-	NERC Act 2006	✓	✓	✓
Brown Hare	Low	No further survey required, but mitigation and enhancement delivered as part of the Scheme should look to retain habitats potentially used by Brown Hare and ensure that connectivity is maintained within the Site boundary and into the wider area.	N/A	-	NERC Act 2006	✓	✓	✓

7. References

Ref 8A-1 CIEEM (2017) Guidelines for Preliminary Ecological Appraisal
Ref 8A-2 BSI: https://www.bsigroup.com/LocalFiles/en-GB/biodiversity/BS-42020-Smart-Guide.pdf.
Ref 8A-3 HMSO (1981). The Wildlife & Countryside Act 1981. HMSO, London.
Ref 8A-4 HMSO (2000). Countryside and Rights of Way Act 2000. HMSO, London.
Ref 8A-5 HMSO (2006). The Natural Environment and Rural Communities Act. HMSO, London.
Ref 8A-6 HMSO (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London.
Ref 8A-7 EC (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version). EC, Brussels.
Ref 8A-8 EC (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels.
Ref 8A-9 HMSO (1992). Protection of Badgers Act 1992. HMSO, London.
Ref 8A-10 HMSO (1997). Hedgerow Regulations 1997. HMSO, London.
Ref 8A-11 Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (10th April 2017)
Ref 8A-12 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf
Ref 8A-13 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf
Ref 8A-14 Anon. (2008). UK Biodiversity Action Plan.
Ref 8A-15 JNCC, UK Post-2010 Biodiversity Framework, 2012, available at http://jncc.defra.gov.uk/page-6189
Ref 8A-16 East Cambridgeshire District Council (2015). East Cambridgeshire Local Plan Adopted April 2015. Section 6.8.
Ref 8A-17 East Cambridge District Council (2014); Supplementary Planning Document Renewable Energy Development (Commercial Scale) October 2014. Section 5.
Ref 8A-18 Forest Heath District Council (2010); Forest Heath Local Development Framework – Core Strategy Development Plan Document 200102026 (with housing projected to 2031) Adopted May 2010. Section 2 and 3.
Ref 8A-19 Forest Heath and St Edmundsbury Local Plan; Joint Development Management Policies Document. February 2015. Section 4.
Ref 8A-20 Cambridgeshire and Peterborough Biodiversity Group (2008). Priority Species and Habitats. Available from: http://www.cpbiodiversity.org.uk/biodiversity-action-plans/priority-species (Accessed July 2020).
Ref 8A-21 SBIS (2015). Priority species and habitats. Available from: http://www.suffolkbis.org.uk/biodiversity/speciesandhabitats#:~:text=The%20Suffolk%20Planning%20Biodiversity%20Action%20Plan%20%282012%29%20is,departments%20to%20meet%20their%20legal%20obligations%20towards%20biodiversity (Accessed July 2020).
Ref 8A-22 https://magic.defra.gov.uk/

Ref 8A-23 Defra (2011). Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Defra, London.

Ref 8A-24 JNCC, UK Post-2010 Biodiversity Framework, 2012, available at http://jncc.defra.gov.uk/page-6189 (Accessed July 2020).

Appendix A Legislation and Planning Policy

The Conservation of Habitats & Species Regulations 2017 (as amended)

The Habitats Regulations consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. The Regulations came into force on 30th October 1994. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

The Regulations provide for the designation and protection of 'European Sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

Under the Regulations, competent authorities i.e. any Minister, Government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive.

The Regulations place a duty on the Secretary of State to propose a list of Sites which are important for either habitats or species (listed in Annexes I and II of the Habitats Directive respectively) to the European Commission. Once the Commission and EU Member States have agreed that the Sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs). The EU Member States must then designate these Sites as Special Areas of Conservation (SACs) within six years. The Regulations also require the compilation and maintenance of a register of European Sites, to include SACs and Special Protection Areas (SPAs) classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These Sites form a network termed Natura 2000.

The Regulations enable the country agencies to enter into management agreements on land within or adjacent to a European Site, in order to secure its conservation. If the agency is unable to conclude such an agreement, or if an agreement is breached, it may acquire the interest in the land compulsorily. The agency may also use its powers to make byelaws to protect European Sites. The Regulations also provide for the control of potentially damaging operations, whereby consent from the country agency may only be granted once it has been shown through Appropriate Assessment that the proposed operation will not adversely affect the integrity of the Site. When considering potentially damaging operations, the country agencies apply the precautionary principle' i.e. consent cannot be given unless it is ascertained that there will be no adverse effect on the integrity of the Site.

In instances where damage could occur, the appropriate Minister may, if necessary, make special nature conservation orders, prohibiting any person from carrying out the operation. However, an operation may proceed where it is or forms part of a plan or project with no alternative solutions, which must be carried out for reasons of overriding public interest. In such instances the Secretary of State must secure compensation to ensure the overall integrity of the Natura 2000 system. The country agencies are required to review consents previously granted under the Wildlife and Countryside Act 1981 for land within a European Site, and may modify or withdraw those that are incompatible with the conservation objectives of the Site.

The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Regulations make special provisions for the protection of European marine Sites, requiring the country agencies to advise other authorities of the conservation objectives for a Site, and also of the operations which may affect its integrity. The Regulations also enable the establishment of management schemes and byelaws by the relevant authorities and country agencies respectively, for the management and protection of European marine Sites.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:

- *The Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention'); and The Council Directive 79/409/EEC on the Conservation of Wild birds (the 'Bird Directive')*

Wild Birds

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- *kill, injure, or take any wild bird,*
- *take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or*
- *take or destroy an egg of any wild bird.*

Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Other Animals

The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Flora, Fungi and Lichens

The Act makes it an offence (subject to exceptions) to intentionally) pick, uproot or destroy:

- *any wild plant listed in Schedule 8, or*
- *unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,*
- *to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.*

Non-native Species

The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

Countryside and Rights of Way (CRoW) Act 2000

The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.

The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

Schedule 9 of the Act amends the SSSI provisions of the Wildlife and Countryside Act 1981, including increased powers for their protection and management of SSSIs. The provisions extend powers for entering into management agreements; place a duty on public bodies to further the conservation and enhancement of SSSIs; increase penalties on conviction where the provisions are breached; and include an offence whereby third parties can be convicted for damaging SSSIs.

Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', include an offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and obtaining wildlife tissue samples for DNA analysis, and enable heavier penalties on conviction of wildlife offences.

Natural Environment and Rural Communities (NERC) Act 2006

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act required the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list was drawn up in consultation with Natural England, as required by the Act.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the (now withdrawn) UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and subtidal sands and gravels.

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the (now withdrawn) UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.

Protection of Badgers Act 1992

Badgers and their setts (burrows) are protected under the Act. This makes it an offence to kill or take a badger, to cruelly ill-treat a badger, or to interfere with a badger sett, including disturbing a badger while it is occupying a sett.

Licences to permit otherwise prohibited actions can be granted under section 10 of the Act for various purposes. This includes licences to interfere with a badger sett for the purpose of development as defined by section 55(1) of the Town and Country Planning Act 1990.

Licences may be granted in order to close down setts, or parts of setts, prior to development or to permit activities close to a badger sett that might result in disturbance. A licence will be required if a sett is likely to be damaged or destroyed in the course of development or if the badger(s) occupying the sett will be disturbed.

Licences can be applied for at any time, but a licence for development will not normally be issued unless full planning permission has been granted. The closure of setts under licence is normally only permitted during July to November, inclusive.

The Hedgerow Regulations 1997

The intention of the Act is to protect important countryside hedges from destruction or damage. The Act does not apply where planning permission has been granted. There are various other exemptions under the Act, including:

- *To make a new opening in substitution for an existing one that gives access to land. For example, a gate. However, the old opening must be filled in within 8 months;*
- *To obtain access to land where other means are not available or are only available at disproportionate cost;*
- *For the proper management of the hedgerow. This means real management, such as coppicing. But if the hedgerow is deliberately 'over-managed' this might qualify as removal.*

If the proposed works are not exempt or subject to a current planning permission then the landowner must serve a Hedgerow Removal Notice in writing on their local planning authority. The authority then has 42 days (which period can be extended if the applicant agrees) to determine whether or not the hedge is considered 'important' under the regulations, and if so, whether or not to issue a Hedgerow Retention Notice. The local authority does not have to issue a Retention Notice, even if the hedgerow counts as important. If they do not issue a notice for an important hedge this is often on condition that certain things are done, e.g. reinstatement or replanting to a certain standard, or creation of an equivalent boundary elsewhere.

Water Framework Directive (WFD) 2017

The Water Framework Directive (WFD) (2000/60/EC) introduced a comprehensive river basin management planning system to help protect and improve the ecological health of our rivers, lakes, estuaries and coastal and groundwaters. This is underpinned by the use of environmental standards to help assess risks to the ecological quality of the water environment and to identify the scale of improvements that would be needed to bring waters under pressure back into a good condition.

National Planning Policy Framework

The latest version of the NPPF came into being in February 2019, relevant sections are as follows:
Section 15 of the NPPF relates specifically to 'Conserving and Enhancing the Natural Environment'. Paragraph 170 states that '*Planning policies and decision should contribute to and enhance the natural and local environment by:*

- *protecting and enhancing valued landscapes, Sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'*

Paragraph 171 states that '*Plans should: distinguish between the hierarchy of international, national and locally designated Sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing*

networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'

Paragraph 174 states that '*To protect and enhance biodiversity and geodiversity, plans should:*

- *Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated Sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
- *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.* '

Paragraph 175 states that '*When determining planning application, local planning authorities should apply the following principles:*

- *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative Site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *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;*
- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'*

Paragraph 176 states that *'The following should be given the same protection as habitats Sites:*

- *potential Special Protection Areas and possible Special Areas of Conservation;*
- *listed or proposed Ramsar Sites; and*
- *Sites identified, or required, as compensatory measures for adverse effects on habitats Sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar Sites'.*

Paragraph 177 states that '*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.'*

Appendix B Cambridgeshire and Peterborough Priority Habitats and Species

Habitats

- Acid Grassland and Heathland BAP;
- Allotments;
- Arable Field Margins;
- Arable Land;
- Brownfield and Built;
- Burial Grounds;
- Domestic Gardens;
- Fenland Drainage Ditches;
- Fens;
- Floodplain and Grazing Marsh;
- Hedgerows;
- Lowland Chalk Grassland;
- Managed Greenspaces;
- Minerals Restoration Sites;
- Neutral Grassland;
- Ponds, Lakes and Standing Water;
- Reedbeds;
- Rivers and Streams;
- Traditional Orchards;
- Urban Forest;
- Veteran Trees and Parklands;
- Wet Woodland; and
- Woodland.

Species

Common name	*Scientific name*	*Taxon group*
Bewick's Swan	*Cygnus columbianus*	Birds
Bittern	*Botaurus stellaris*	Birds
Black-tailed Godwit	*Limosa limosa subsp. limosa*	Birds
Bullfinch	*Pyrrhula pyrrhula*	Birds

Common name	*Scientific name*	*Taxon group*
Corn Bunting	*Emberiza calandra*	Birds
Corn Crake	*Crex crex*	Birds
Curlew	*Numenius arquata*	Birds
Grasshopper Warbler	*Locustella naevia*	Birds
Grey Partridge	*Perdix perdix*	Birds
Hawfinch	*Coccothraustes coccothraustes*	Birds
Herring Gull	*Larus argentatus subsp. argenteus*	Birds
House Sparrow	*Passer domesticus*	Birds
Lapwing	*Vanellus vanellus*	Birds
Lesser Redpoll	*Carduelis cabaret*	Birds
Lesser Spotted Woodpecker	*Dendrocopos minor*	Birds
Linnet	*Linaria cannabina*	Birds
Marsh Tit	*Poecile palustris*	Birds
Reed Bunting	*Emberiza schoeniclus*	Birds
Sky Lark	*Alauda arvensis*	Birds
Song Thrush	*Turdus philomelos*	Birds
Spotted Flycatcher	*Muscicapa striata*	Birds
Stone-curlew	*Burhinus oedicnemus*	Birds
Tree Sparrow	*Passer montanus*	Birds
Turtle Dove	*Streptopelia turtur*	Birds
Yellow Wagtail	*Motacilla flava subsp. flavissima*	Birds
Yellowhammer	*Emberiza citrinella*	Birds
European eel	*Anguilla anguilla*	Fish (excluding purely marine species)
Spined loach	*Cobitis taenia*	Fish (excluding purely marine species)
Big Blue Pinkgill	*Entoloma bloxamii*	Fungi (including lichens)
a Lichen	*Caloplaca virescens*	Fungi (including lichens)
a Lichen	*Bacidia incompta*	Fungi (including lichens)
Orange-Fruited Elm-lichen	*Caloplaca luteoalba*	Fungi (including lichens)
Common Toad	*Bufo bufo*	Herptiles (amphibians and reptiles)

Common name	*Scientific name*	*Taxon group*
Great Crested Newt	*Triturus cristatus*	Herptiles (amphibians and reptiles)
Adder	*Vipera berus*	Herptiles (amphibians and reptiles)
Common Lizard	*Zootoca vivipara*	Herptiles (amphibians and reptiles)
Grass Snake	*Natrix natrix*	Herptiles (amphibians and reptiles)
Slow-worm	*Anguis fragilis*	Herptiles (amphibians and reptiles)
Blunt-leaved Bristle-moss	*Orthotricum obtusifolium*	Non-vascular plants
Chalk Screw-moss	*Tortula vahliana*	Non-vascular plants
Spreading-leaved Beardless-moss	*Weissia squarrosa*	Non-vascular plants
Sterile Beardless-moss	*Weissia sterilis*	Non-vascular plants
Bearded Stonewort	*Chara canescens*	Non-vascular plants
Dwarf Stonewort	*Nitella tenuissima*	Non-vascular plants
Great Tassel Stonewort	*Tolypella prolifera*	Non-vascular plants
Large Garden Bumblebee	*Bombus ruderatus*	Terrestrial invertebrates
Red-shanked Carder-bee	*Bombus ruderarius*	Terrestrial invertebrates
a Downy-back Ground Beetle	*Ophonus puncticollis*	Terrestrial invertebrates
a Ground Beetle	*Agonum scitulum*	Terrestrial invertebrates
Alder Flea Weevil	*Orchestes testaceus*	Terrestrial invertebrates
Eyed Longhorn Beetle	*Oberea oculata*	Terrestrial invertebrates
Mellet's Downy-back	*Ophonus melletii*	Terrestrial invertebrates
Necklace Ground Beetle	*Carabus monilis*	Terrestrial invertebrates
Sallow Guest Weevil	*Melanapion minimum*	Terrestrial invertebrates
Scarce Four-dot Pin-palp	*Bembidion quadripustulatum*	Terrestrial invertebrates
Tansy Beetle	*Chrysolina graminis*	Terrestrial invertebrates
Tall Fescue Planthopper	*Ribautodelphax imitans*	Terrestrial invertebrates
Dingy Skipper	*Erynnis tages*	Terrestrial invertebrates
Grizzled Skipper	*Pyrgus malvae*	Terrestrial invertebrates
Small Blue	*Cupido minimus*	Terrestrial invertebrates
Small Heath	*Coenonympha pamphilus*	Terrestrial invertebrates

Common name	*Scientific name*	*Taxon group*
Wall	*Lasiommata megera*	Terrestrial invertebrates
White Admiral	*Limenitis camilla*	Terrestrial invertebrates
White Letter Hairstreak	*Satyrium w-album*	Terrestrial invertebrates
White-clawed freshwater crayfish	*Austropotamobius pallipes*	Terrestrial invertebrates
Norfolk Hawker	*Aeshna isosceles*	Terrestrial invertebrates
Cigarillo Gall-fly	*Lipara similis*	Terrestrial invertebrates
Clubbed Big-headed Fly	*Dorylomorpha clavifemora*	Terrestrial invertebrates
Golden Hoverfly	*Callicera spinolae*	Terrestrial invertebrates
Phoenix Fly	*Dorycera graminum*	Terrestrial invertebrates
Depressed (or compressed) river mussel	*Pseudanodonta complanata*	Terrestrial invertebrates
Desmoulin's Whorl Snail	*Vertigo moulinsiana*	Terrestrial invertebrates
Large-mouthed Valve Snail	*Valvata macrostoma*	Terrestrial invertebrates
August Thorn	*Ennomos quercinaria*	Terrestrial invertebrates
Autumnal Rustic	*Eugnorisma glareosa*	Terrestrial invertebrates
Barberry Carpet	*Pareulype berberata*	Terrestrial invertebrates
Barred Tooth-striped	*Trichopteryx polycommata*	Terrestrial invertebrates
Beaded Chestnut	*Agrochola lychnidis*	Terrestrial invertebrates
Blood-vein	*Timandra comae*	Terrestrial invertebrates
Brindled Beauty	*Lycia hirtaria*	Terrestrial invertebrates
Broom Moth	*Melanchra pisi*	Terrestrial invertebrates
Brown-spot Pinion	*Agrochola litura*	Terrestrial invertebrates
Buff Ermine	*Spilosoma luteum*	Terrestrial invertebrates
Centre-barred Sallow	*Atethmia centrago*	Terrestrial invertebrates
Chalk Carpet	*Scotopteryx bipunctaria*	Terrestrial invertebrates
Common Fan-foot	*Pechipogo strigilata*	Terrestrial invertebrates
Dark Brocade	*Blepharita adusta*	Terrestrial invertebrates
Dark Spinach	*Pelurga comitata*	Terrestrial invertebrates
Dark-barred Twin-spot Carpet	*Xanthorhoe ferrugata*	Terrestrial invertebrates
Deep-brown Dart	*Aporophyla lutulenta*	Terrestrial invertebrates
Dot Moth	*Melanchra persicariae*	Terrestrial invertebrates
Double Dart	*Graphiphora augur*	Terrestrial invertebrates

Common name	*Scientific name*	*Taxon group*
Dusky Brocade	*Apamea remissa*	Terrestrial invertebrates
Dusky Thorn	*Ennomos fuscantaria*	Terrestrial invertebrates
Dusky-lemon Sallow	*Xanthia gilvago*	Terrestrial invertebrates
Ear Moth	*Amphipoea oculea*	Terrestrial invertebrates
False Mocha	*Cyclophora porata*	Terrestrial invertebrates
Feathered Gothic	*Tholera decimalis*	Terrestrial invertebrates
Figure Of Eight	*Diloba caeruleocephala*	Terrestrial invertebrates
Flounced Chestnut	*Agrochola helvola*	Terrestrial invertebrates
Four-Spotted Moth	*Tyta luctuosa*	Terrestrial invertebrates
Galium Carpet	*Epirrhoe galiata*	Terrestrial invertebrates
Garden Dart	*Euxoa nigricans*	Terrestrial invertebrates
Garden Tiger	*Arctia caja*	Terrestrial invertebrates
Ghost Moth	*Hepialus humuli*	Terrestrial invertebrates
Goat Moth	*Cossus cossus*	Terrestrial invertebrates
Grass Rivulet	*Perizoma albulata subsp. albulata*	Terrestrial invertebrates
Green-brindled Crescent	*Allophyes oxyacanthae*	Terrestrial invertebrates
Grey Dagger	*Acronicta psi*	Terrestrial invertebrates
Hedge Rustic	*Tholera cespitis*	Terrestrial invertebrates
Horehound Long-horn Moth	*Nemophora fasciella*	Terrestrial invertebrates
Knot Grass	*Acronicta rumicis*	Terrestrial invertebrates
Large Nutmeg	*Apamea anceps*	Terrestrial invertebrates
Large Wainscot	*Rhizedra lutosa*	Terrestrial invertebrates
Latticed Heath	*Chiasmia clathrata*	Terrestrial invertebrates
Lunar Yellow Underwing	*Noctua orbona*	Terrestrial invertebrates
Minor Shoulder-knot	*Brachylomia viminalis*	Terrestrial invertebrates
Mottled Rustic	*Caradrina morpheus*	Terrestrial invertebrates
Mouse Moth	*Amphipyra tragopoginis*	Terrestrial invertebrates
Mullein Wave	*Scopula marginepunctata*	Terrestrial invertebrates
Oak Hook-tip	*Watsonalla binaria*	Terrestrial invertebrates
Oak Lutestring	*Cymatophorima diluta*	Terrestrial invertebrates
Oblique Carpet	*Orthonama vittata*	Terrestrial invertebrates

Common name	*Scientific name*	*Taxon group*
Pale Eggar	*Trichiura crataegi*	Terrestrial invertebrates
Powdered Quaker	*Orthosia gracilis*	Terrestrial invertebrates
Pretty Chalk Carpet	*Melanthia procellata*	Terrestrial invertebrates
Rosy Minor	*Mesoligia literosa*	Terrestrial invertebrates
Rosy Rustic	*Hydraecia micacea*	Terrestrial invertebrates
Scarce Aspen Knot-horn	*Sciota hostilis*	Terrestrial invertebrates
Scarce Aspen Midget Moth	*Phyllonorycter sagitella*	Terrestrial invertebrates
September Thorn	*Ennomos erosaria*	Terrestrial invertebrates
Shaded Broad-bar	*Scotopteryx chenopodiata*	Terrestrial invertebrates
Shoulder-striped Wainscot	*Mythimna comma*	Terrestrial invertebrates
Small Emerald	*Hemistola chrysoprasaria*	Terrestrial invertebrates
Small Phoenix	*Ecliptopera silaceata*	Terrestrial invertebrates
Small Square-spot	*Diarsia rubi*	Terrestrial invertebrates
The Cinnabar	*Tyria jacobaeae*	Terrestrial invertebrates
The Concolorous	*Chortodes extrema*	Terrestrial invertebrates
The Crescent	*Celaena leucostigma*	Terrestrial invertebrates
The Forester	*Adscita statices*	Terrestrial invertebrates
The Lackey	*Malacosoma neustria*	Terrestrial invertebrates
The Rustic	*Hoplodrina blanda*	Terrestrial invertebrates
The Sallow	*Xanthia icteritia*	Terrestrial invertebrates
The Spinach	*Eulithis mellinata*	Terrestrial invertebrates
The Sprawler	*Asteroscopus sphinx*	Terrestrial invertebrates
The Streak	*Chesias legatella*	Terrestrial invertebrates
V-moth	*Macaria wauaria*	Terrestrial invertebrates
White Ermine	*Spilosoma lubricipeda*	Terrestrial invertebrates
White-line Dart	*Euxoa tritici*	Terrestrial invertebrates
White-spotted Pinion	*Cosmia diffinis*	Terrestrial invertebrates
Rosser's Sac-spider	*Clubiona rosserae*	Terrestrial invertebrates
Sedge Jumper	*Sitticus caricis*	Terrestrial invertebrates
Thin Weblet	*Meioneta mollis*	Terrestrial invertebrates
Black-headed Mason Wasp	*Odynerus melanocephalus*	Terrestrial invertebrates

Common name	*Scientific name*	*Taxon group*
Five-banded Weevil-wasp	*Cerceris quinquefasciata*	Terrestrial invertebrates
Barbastelle Bat	*Barbastella barbastellus*	Terrestrial mammals
Brown Hare	*Lepus europaeus*	Terrestrial mammals
Brown long-eared bat	*Plecotus auritus*	Terrestrial mammals
Dormouse	*Muscardinus avellanarius*	Terrestrial mammals
Harvest Mouse	*Micromys minutus*	Terrestrial mammals
Noctule	*Nyctalus noctula*	Terrestrial mammals
Otter	*Lutra lutra*	Terrestrial mammals
Polecat	*Mustela putorius*	Terrestrial mammals
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Terrestrial mammals
Water Vole	*Arvicola terrestris*	Terrestrial mammals
West European Hedgehog	*Erinaceus europaeus*	Terrestrial mammals
Annual Knawel	*Scleranthus annuus*	Vascular plants
Basil Thyme	*Clinopodium acinos*	Vascular plants
Broad-leaved Cudweed	*Filago pyramidata*	Vascular plants
Chalk Eyebright	*Euphrasia pseudokerneri*	Vascular plants
Corn Buttercup	*Ranunculus arvensis*	Vascular plants
Corn Cleavers	*Galium tricornutum*	Vascular plants
Cornflower	*Centaurea cyanus*	Vascular plants
Crested Cow-wheat	*Melampyrum cristatum*	Vascular plants
Darnel	*Lolium temulentum*	Vascular plants
Fen Ragwort	*Senecio paludosus*	Vascular plants
Fen Violet	*Viola persicifolia*	Vascular plants
Fen Wood-rush	*Luzula pallidula*	Vascular plants
Flat-sedge	*Blysmus compressus*	Vascular plants
Fly Orchid	*Ophrys insectifera*	Vascular plants
Frog Orchid	*Coeloglossum viride*	Vascular plants
Grass-poly	*Lythrum hyssopifolia*	Vascular plants
Grass-wrack Pondweed	*Potamogeton compressus*	Vascular plants
Greater Water Parsnip	*Sium latifolium*	Vascular plants
Juniper	*Juniperus communis*	Vascular plants

Common name	*Scientific name*	*Taxon group*
Man Orchid	*Aceras anthropophorum*	Vascular plants
Marsh Stitchwort	*Stellaria palustris*	Vascular plants
Pasqueflower	*Pulsatilla vulgaris*	Vascular plants
Pennyroyal	*Mentha pulegium*	Vascular plants
Pheasants-eye	*Adonis annua*	Vascular plants
Purple Milk-vetch	*Astragalus danicus*	Vascular plants
Rare Spring-sedge	*Carex ericetorum*	Vascular plants
Red Hemp-nettle	*Galeopsis angustifolia*	Vascular plants
Red Star-thistle	*Centaurea calcitrapa*	Vascular plants
Ribbon-leaved Water-Plantain	*Alisma gramineum*	Vascular plants
Sea Barley	*Hordeum marinum*	Vascular plants
Shepherd’s Needle	*Scandix pecten-veneris*	Vascular plants
Slender Hare`s-ear	*Bupleurum tenuissimum*	Vascular plants
Spanish Catchfly	*Silene otites*	Vascular plants
Spreading Hedge Parsley	*Torilis arvensis*	Vascular plants
Tower Mustard	*Arabis glabra*	Vascular plants
Tubular Water-dropwort	*Oenanthe fistulosa*	Vascular plants
Water Germander	*Teucrium scordium*	Vascular plants
White Helleborine	*Cephalanthera damasonium*	Vascular plants
Wild Candytuft	*Iberis amara*	Vascular plants

Appendix C Cambridgeshire and Peterborough Additional Species of Interest

Common name	***Scientific name***	***Taxon group***
Swift	*Apus apus*	Birds
Common Crane	*Grus grus*	Birds
Barn Owl	*Tyto alba*	Birds
Hedgehog Stonewort	*Chara aculeolata*	Non-vascular plant
Clustered Stonewort	*Tolypella glomerata*	Non-vascular plant
Snail shell bee	*Osmia bicolor*	Terrestrial invertebrates
-	*Agabus undulatus*	Terrestrial invertebrates
-	*Hydrochus crenatus*	Terrestrial invertebrates
-	*Oulimnius rivularis*	Terrestrial invertebrates
-	*Sphaerius acaroides*	Terrestrial invertebrates
Great Green Bush-cricket	*Tettigonia viridissima*	Terrestrial invertebrates
Purple Emperor	*Apatura iris*	Terrestrial invertebrates
Green Hairstreak	*Callophrys rubi*	Terrestrial invertebrates
Black Hairstreak	*Satyrium pruni*	Terrestrial invertebrates
Downy Emerald	*Cordulia aenea*	Terrestrial invertebrates
Lesne's Earwig	*Forficula lesnei*	Terrestrial invertebrates
Lesser Earwig	*Labia minor*	Terrestrial invertebrates
Mottled Grasshopper	*Myrmeleotettix maculata*	Terrestrial invertebrates
Common Green Grasshopper	*Omocestus viridulus*	Terrestrial invertebrates
Stripe-winged Grasshopper	*Stenobothrus lineatus*	Terrestrial invertebrates
Cepero's Groundhopper	*Tetrix ceparoi*	Terrestrial invertebrates
Velvet Ant	*Mutilla europaea*	Terrestrial invertebrates
Narrow-leaved Water-plantain	*Alisma lanceolatum*	Vascular plants
Green-winged Orchid	*Anacamptis morio*	Vascular plants
Pyramidal Orchid	*Anacamptis pyramidalis*	Vascular plants
Wild Liquorice	*Astragalus glycyphyllos*	Vascular plants
Lesser Water-plantain	*Baldellia ranunculoides*	Vascular plants

Common name	***Scientific name***	***Taxon group***
Great Pignut	*Bunium bulbocastanum*	Vascular plants
Lesser Calamint	*Clinopodium calamintha*	Vascular plants
Greater Dodder	*Cuscuta europaea*	Vascular plants
Early Marsh Orchid	*Dactylorhiza incarnata*	Vascular plants
Southern Marsh Orchid	*Dactylorhiza praetermissa*	Vascular plants
Dwarf Spurge	*Euphorbia exigua*	Vascular plants
Wall Bedstraw	*Galium parisiense*	Vascular plants
Opposite-leaved Pondweed	*Groenlandia densa*	Vascular plants
Lizard Orchid	*Himantoglossum hircinum*	Vascular plants
Water-violet	*Hottonia palustris*	Vascular plants
Frogbit	*Hydrocharis morsus-ranae*	Vascular plants
Spotted Cat's-ear	*Hypochaeris maculata*	Vascular plants
Perennial Flax	*Linum perenne subsp. anglicum*	Vascular plants
Field Gromwell	*Lithospermum arvense*	Vascular plants
Mouse-tail	*Myosurus minimus*	Vascular plants
Whorled Water-milfoil	*Myriophyllum verticillatum*	Vascular plants
Twayblade	*Neottia ovata*	Vascular plants
Cat-mint	*Nepeta cataria*	Vascular plants
Fringed Water-lily	*Nymphoides peltata*	Vascular plants
River Water-dropwort	*Oenanthe fluviatilis*	Vascular plants
Narrow-leaved Water-dropwort	*Oenanthe silaifolia*	Vascular plants
Knapweed Broomrape	*Orobanche elatior*	Vascular plants
Tasteless Water-pepper	*Persicaria mitis*	Vascular plants
Purple-stem Cat's-tail	*Phleum phleoides*	Vascular plants
Black Poplar	*Populus nigra subsp. Betulifolia*	Vascular plants
Fen Pondweed	*Potamogeton coloratus*	Vascular plants
Flat-stalked Pondweed	*Potamogeton friesii*	Vascular plants
Shining Pondweed	*Potamogeton lucens*	Vascular plants
Hairlike Pondweed	*Potamogeton trichoides*	Vascular plants
Oxlip	*Primula elatior*	Vascular plants
Marsh Dock	*Rumex palustris*	Vascular plants

Common name	***Scientific name***	***Taxon group***
Cambridge Milk-parsley	*Selinum carvifolia*	Vascular plants
Moon Carrot	*Seseli libanotis*	Vascular plants
Marsh Sow-thistle	*Sonchus palustris*	Vascular plants
Strawberry Clover	*Trifolium fragiferum*	Vascular plants
Sulphur Clover	*Trifolium ochroleucon*	Vascular plants
Greater Bladderwort	*Utricularia vulgaris*	Vascular plants
Slender Tare	*Vicia parviflora*	Vascular plants
Heath Dog-violet	*Viola canina*	Vascular plants

Appendix D Suffolk Biodiversity Action Plan

- *Hedgerows*
- *Traditional Orchards*
- *Wood Pasture and Parkland*
- *Dry Acid Grassland*
- *Lowland Calcareous Grassland*
- *Mixed Deciduous Woodland*
- *Arable Field Margins*
- *Reedbeds*
- *Saltmarsh*
- *Intertidal Mudflats*
- *Coastal and Floodplain Grazing Marsh*
- *Lowland Meadows*
- *Wet Woodland*
- *Lowland Fens*
- *Coastal Sand Dunes*
- *Coastal Vegetated Shingle*
- *Maritime Cliffs and Slopes*
- *Ponds*
- *Saline Lagoons*
- *Seagrass Beds*
- *Brandts Myotis brandtii*
- *Common Pipistrelle Pipistrellus pipistrellus*
- *Daubentons Myotis daubentonii*
- *Leislers Nyctalus leisleri*
- *Nathusius' pipistrelle Pipistrellus nathusii*
- *Natterer's Myotis nattereri*
- *Serotine Eptesicus serotinus*
- *Brown Hare Lepus europaeus*
- *Dormouse Muscardinus avellanarius*
- *Harbour porpoise Phocoena phocoena*
- *Otter Lutra lutra*
- *Water vole Arvicola terrestris*
- *Water Shrew Neomys fodiens*
- *Red squirrel Sciurus vulgaris*
- *Great crested newt Triturus cristatus*

- *Natterjack Toad Epidalea calamita*
- *Barn Owl*
- *Bittern Botaurus stellaris*
- *Bullfinch Pyrrhula pyrrhula*
- *Corn Bunting Emberiza calandra*
- *Grey Partridge Perdix perdix*
- *Linnet Linaria cannabina*
- *Little Tern Sterna albifrons*
- *Nightjar*
- *Reed Bunting*
- *Skylark Alauda arvensis*
- *Song Thrush Turdus philomelos*
- *Spotted Flycatcher Muscicapa striata*
- *Stone curlew Burhinus oedicnemus*
- *Tree Sparrow Passer montanus*
- *Turtle Dove Streptopelia turtur*
- *Woodlark Lullula arborea*
- *Antlion Euroleon nostra**s***
- *Stag beetle Lucanus cervus*
- *Dingy Skipper Erynnis tages*
- *Silver-studded Blue Plebejus argus*
- *Starlet sea-anemone Nematostella vectensis*
- *White-clawed crayfish Austropotamobius pallipes*
- *Depressed river mussel Pseudanodonta complanata*
- *Desmoulin's whorl snail Vertigo moulinsiana*
- *Narrow-mouth whorl snail Vertigo angustior*
- *Ramshorn snail Anisus vorticulus*
- *Shining ram's-horn snail Segmentina nitida*
- *White-mantled Wainscot Archanara neurica*
- *Oak Polypore Buglossoporus pulvinus*
- *Sandy stilt puffball Battarraea phalloides*
- *Starry breck-lichen Buellia asterella*
- *Orange-fruited elm-lichen Caloplaca luteoalba*
- *Cornflower Centaurea cyanus*
- *Man orchid Aceras anthropophorum*
- *Native Black Poplar Populus nigra **ssp.**betulifolia*
- *Pillwort Pilularia globulifera*
- *Red-tipped Cudweed Filago lutescens*
- *Shepherd's needle Scandix pecten-veneris*

- *Small-flowered Catchfly Silene gallica*
- *Spreading Hedge-parsley Torilis arvensis*
- *Tassel Stonewort Tolypella intricate*
- *Tower Mustard Arabis glabra*
- *Unspotted Lungwort Pulmonaria obscura*

Appendix E Statutory Sites for Nature Conservation

Figure 8A-2 Statutory Sites for Nature Conservation

550000 555000 560000 565000 570000 575000 580000

280000 275000 270000 265000 260000

Little Downham (LNR)
Ely Pits and Meadows (SSSI)
Pashford Poor's Fen, Lakenheath (SSSI)
RAF Lakenheath (SSSI)
Lakenheath Poors Fen (SSSI)
Maidscross Hill (SSSI)
Maidscross Hill (LNR)
Wangford Warren and Carr (SSSI)
Breckland Farmland (SSSI)
Breckland (SAC)
Lakenheath Warren (SSSI)
Lordswell Field (SSSI)
Wilde Street Meadow (SSSI)
Weather and Hom Heaths, Eriswell (SSSI)
Eriswell Low Warren (SSSI)
Berner's Heath, Icklingham (SSSI)
The Homestead (LNR)
Aspall Close (LNR)
Foxhole Heath, Eriswell (SSSI)
Rex Graham Reserve (SAC)
Barton Mills (LNR)
Rex Graham Reserve (SSSI)
Deadman's Grave, Icklingham (SSSI)
Sunnica East Site A
Upware Bridge Pit North (SSSI)
Cam Washes (SSSI)
Soham Wet Horse Fen (SSSI)
Isleham (LNR)
Cavenham Heath (NNR)
Cavenham - Icklingham Heaths (SSSI)
Breckland Forest (SSSI)
Breckland (SPA)
West Stow Heath (SSSI)
Fenland (SAC)
Wicken Fen
Sunnica East Site B
Cherry Hill and The Gallops, Barton Mills (SSSI)
Chippenham Fen
Red Lodge Heath (SSSI)
Brackland Rough (SSSI)
Chippenham Fen (NNR)
Lackford Lakes (SSSI)
Wicken Fen (SSSI)
Wicken Fen (NNR)
Sunnica West Site B
Chippenham Fen and Snailwell Poor's Fen (SSSI)
Snailwell Meadows (SSSI)
Sunnica West Site A
Worts Meadow (LNR)
Devil's Dyke (SSSI)
Stow-cum-Quy Fen (SSSI)
Newmarket Heath (SSSI)
Devils Dyke (SAC)
Bramblefields (LNR)
Coldham's Common (LNR)
Wilbraham Fens (SSSI)
Barnwell II (LNR)
Barnwell (LNR)
Great Wilbraham Common (SSSI)
Hay Wood, Whepstead (SSSI)
Limekiln Close (and West Pit) (map to be verified) (LNR)
Fulbourn Fen (SSSI)

0 1 2 3 4 5km

N

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LEGEND

- Scheme Boundary
- 2km scheme buffer
- 10km scheme buffer
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Ramsar
- Sites of Special Scientific Interest (SSSI)
- National_Nature_Reserves (NNR)
- Local Nature Reserves (LNR)

Purpose of Issue
FOR INFORMATION

Client
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Project Title
sunnica energy farm

Drawing Title
STATUTORILY DESIGNATED SITES WITHIN 10KM (INTERNATIONAL) AND 2KM (NATIONAL) OF THE DCO SITE

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FIGURE 2

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Appendix F Non-Statutory Sites for Nature Conservation

Figure 8A-3 Non-Statutory Sites for Nature Conservation

560000 565000 570000

275000

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265000

Sunnica East Site A

Sunnica East Site B

Sunnica West Site B

Sunnica West Site A

Mildenhall Woods (CWS)

Mildenhall Woods (CWS)

Mildenhall New Cemetery (CWS)

RNR 152 (CWS)

Norah Hanbury - Kelk Memorial Meadows (CWS)

Joan's Meadow (CWS)

Barton Mills Meadows (CWS)

Worlington Heath (CWS)

Worlington Golf Course and surrounding Habitat (CWS)

Badlingham Lane (CWS)

Barton Mills Chalk Pit (CWS)

RNR 96 (CWS)

RNR 96 (CWS)

Worlington Chalk Pit (CWS)

Criteria 1 - Cherry Hill & the Gallops SSSI (RNR)

Chippenham (PRV)

Freckenham Road RSV (CWS)

Red Lodge Warren (CWS)

Havacre Meadows and Deal Nook (CWS)

New River and Monk's Lode (CWS)

Burwell Brick Pit (CWS)

Chippenham Park (CWS)

Chippenham Gravel Pit (CWS)

Halfmoon Plantation Pit (CWS)

Kennett Churchyard (CWS)

Snailwell Grasslands and Woods (CWS)

Old Rectory Meadows (CWS)

Snailwell (S of the stud to the railway) (PRV)

Chippenham Avenue Fields (CWS)

The Limekilns and Adjacent Areas (CWS)

Spring Close (CWS)

Burwell Disused Railway (CWS)

Pauline's Swamp (CWS)

0 500 1,000 1,500m

N

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LEGEND

- Scheme Boundary
- 2km scheme buffer
- County Wildlife Site (CWS)
- Protected Road Verge (PRV)
- Roadside Nature Reserve (RNR)

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Client
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Project Title
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Drawing Title
NON-STATUTORY SITES WITHIN 2KM OF THE DCO SITE

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Appendix G Phase One Habitat Map

Figure 8A-4 Phase I Habitat Map

565000 566000 567000 568000

275000 274000 273000

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LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Tall ruderal
- Running water
- Arable
- Ephemeral/short perennial
- Bare ground
- Private/Garden
- Building
- Hard surface
- Intact hedge
- Defunct hedge
- Hedge and trees
- Tree
- Target note

Sheet Layout

1 2 3 4 5 6 7 8 9

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PAGE 1 OF 9

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569000 570000 571000

274000 273000 272000

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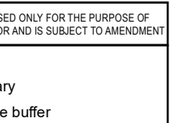
LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Coniferous parkland
- Mixed semi-natural woodland
- Broad-leaved recently felled woodland
- Dense scrub
- Unimproved acid grassland
- Semi-improved acid grassland
- Semi-improved neutral grassland
- Semi-improved calcareous grassland
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Tall ruderal
- Running water
- Standing water
- Cliff and hard slope
- Quarry
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Unclassified
- Trees line
- Intact hedge
- Defunct hedge
- Hedge and trees
- Fence
- Tree
- Target note

Sheet Layout



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0 100 200 300m

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565000 566000 567000 568000

273000 272000 271000

Isleham Field

Freckenham

Badlingham

Fordham Moor

0 100 200 300m

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LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Tall ruderal
- Running water
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Trees line
- Intact hedge
- Defunct hedge
- Hedge and trees
- Fence
- Tree
- Target note

Sheet Layout

1 2 3 4 5 6 7 8 9

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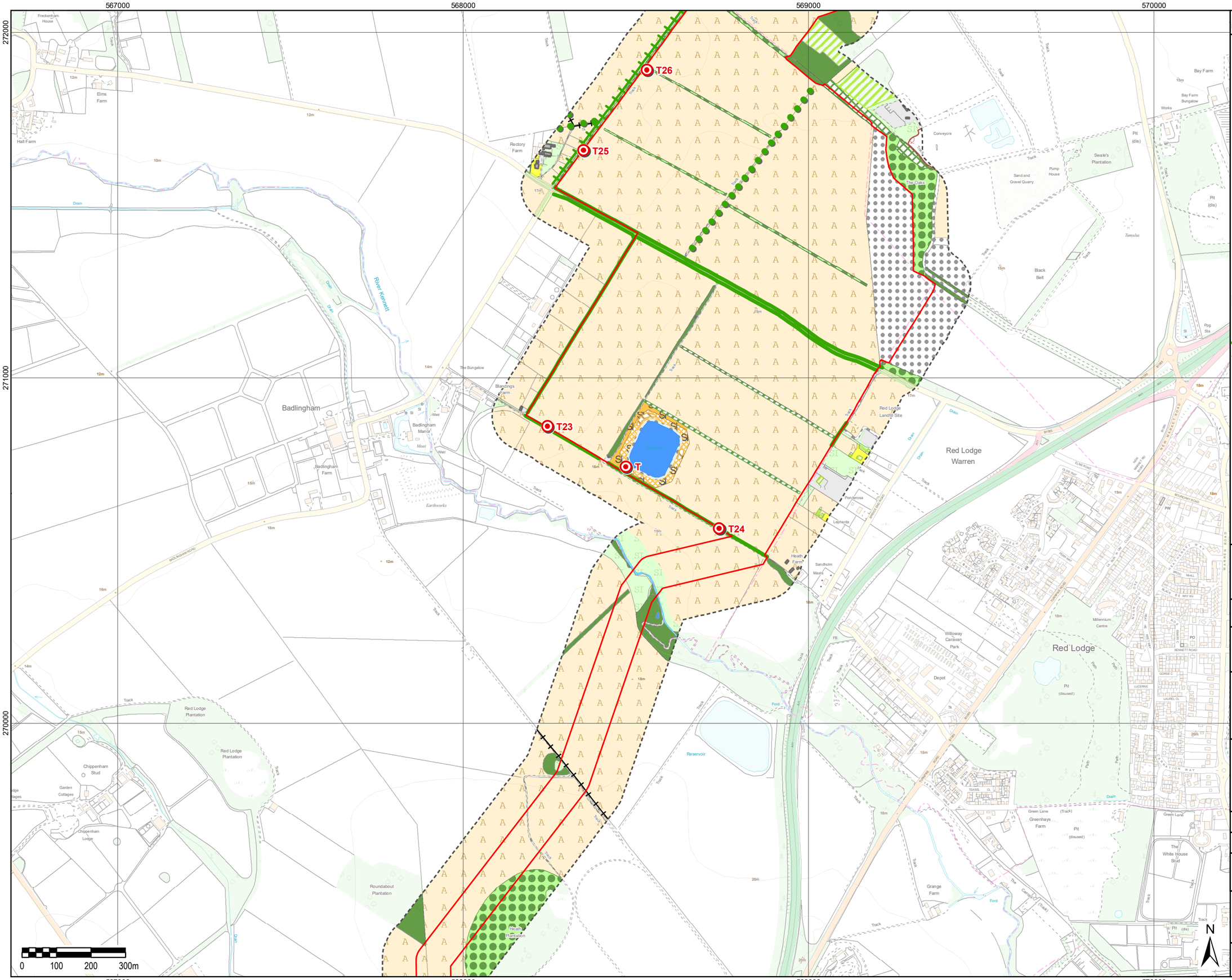

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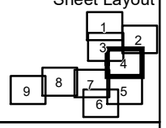
LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Semi-improved neutral grassland
- Semi-improved calcareous grassland
- Improved grassland
- Poor semi improved grassland
- Tall ruderal
- Running water
- Standing water
- Quarry
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Trees line
- Intact hedge
- Hedge and trees
- Fence
- Target note

Sheet Layout



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269000

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T50 T57 T55 T56 T58 T60 T59 T66 T67 T68 T T69 T70 T71

0 100 200 300m

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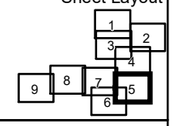
LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Mixed plantation woodland
- Scattered scrub
- Semi-improved neutral grassland
- Improved grassland
- Poor semi improved grassland
- Tall ruderal
- Running water
- Standing water
- Arable
- Ephemeral/short perennial
- Bare ground
- Building
- Hard surface
- Intact hedge
- Defunct hedge
- Hedge and trees
- Dry ditch
- Tree
- Target note

Sheet Layout



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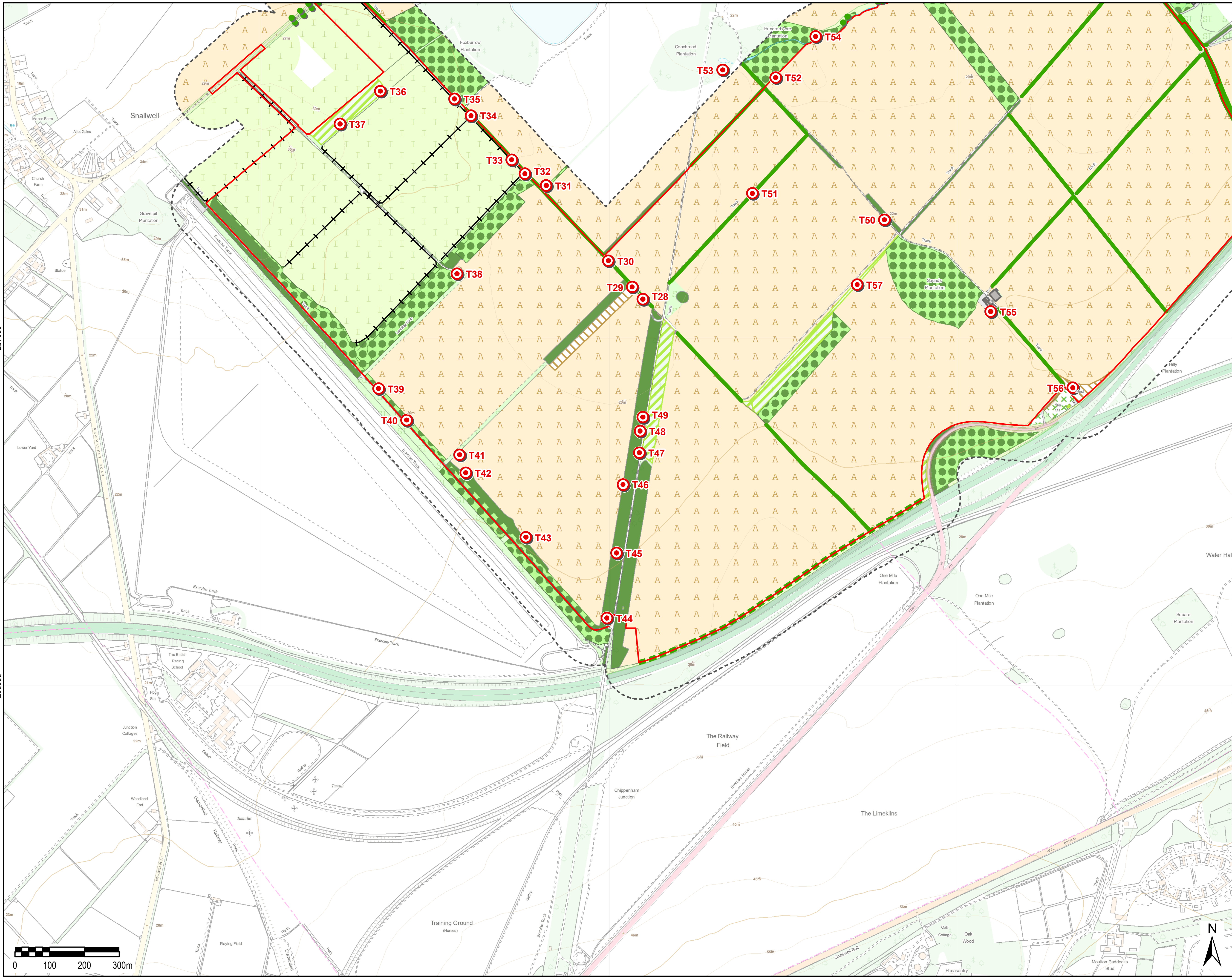

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LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Tall ruderal
- Running water
- Arable
- Bare ground
- Building
- Hard surface
- Trees line
- Intact hedge
- Defunct hedge
- Fence
- Tree
- Target note

Sheet Layout

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PAGE 6 OF 9

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564000 565000 566000

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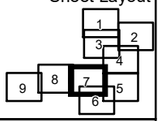
LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Semi Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Swamp
- Running water
- Arable
- Bare ground
- Building
- Hard surface
- Trees line
- Intact hedge
- Hedge and trees
- Fence
- Tree
- Target note

Sheet Layout



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Client
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Project Title
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Drawing Title
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PAGE 7 OF 9

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0 100 200 300m

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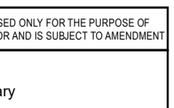
LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Coniferous parkland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Semi Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Running water
- Standing water
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Intact hedge
- Hedge and trees
- Ditch
- Tree
- Target note

Sheet Layout



Purpose of Issue
FOR INFORMATION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
PHASE 1 HABITAT
PAGE 8 OF 9

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557000 558000 559000 560000

269000 268000 267000

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LEGEND

- DCO Boundary
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Running water
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Intact hedge
- Hedge and trees
- Ditch
- Tree
- Target note

T62 T63 T64 T65

Sheet Layout

1 2 3 4 5 6 7 8 9

Purpose of Issue
FOR INFORMATION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
PHASE 1 HABITAT
PAGE 9 OF 9

Drawn	Checked	Approved	Date
BF	NG	---	20/08/2020

AECOM Internal Project No. 60589004
Scale @ A3 1:10,000

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Drawing Number
FIGURE 4.9

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Appendix H Target Notes and Photographs

Target Notes / Photographs (Sunnica East Site)

1 Beech trees (*Fagus sylvatica*) with some limited bat roost potential.

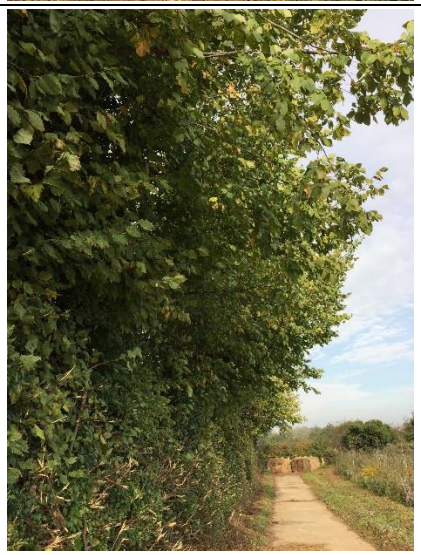
2 Narrow broad-leaved woodland belt, with Beech and Ash (*Fraxinus excelsior*) and any understory of Snowberry (*Symphoricarpos albus*), Privet (*Ligustrum vulgare*) and Hawthorn (*Crataegus monogyna*).

3 Badger (*Meles meles*) snuffle pits and runs through vegetation.

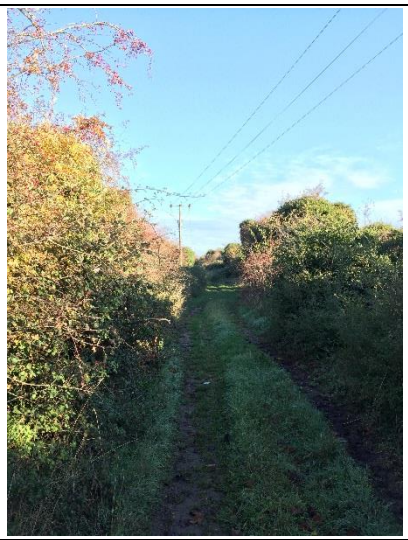
4	Mixed woodland shelter belt, with a number of mature Scots Pine (*Pinus sylvestris*) as well as younger more recently planted individuals. Broad-leaved species included Blackthorn (*Prunus spinosa*), Buckthorn (*Rhamnus cathartica*), Field Maple (*Acer campestre*), Oak (*Quercus robur),* Privet, Hawthorn and Cherry (*Prunus avium*). Bordered by game cover crop with dominant Mugwort (*Artemisia vulgaris*) and retained area of Maize (*Zea mays*).	
5	Night-flowering Catchfly (*Silene noctiflora*) in set-a-side/arable margin by A11.	
6	Area of semi-improved (Calcareous) grassland, with species including Small Scabious (*Scabiosa columbaria)*, Common Knapweed (*Centaurea nigra*), Viper's Bugloss (*Echium vulgare*), Wild Carrot (*Daucus carota*), Common Toadflax (*Linaria vulgaris*), Ploughman's Spikenard (*Inula conyzae*), Blue Fleabane (*Erigeron acris*). Occasional patch of Bramble and Hawthorn. Potential reptile habitat, with connectivity to A11 verges.	
7	Short grazed track alongside Scot's Pine woodland belt.	

8	Area of grassland in mixed woodland belt, with Basil Thyme (*Clinopodium acinos*) present.	
9	Game cover crop with Sunflower and Flax.	
10	Scot's Pine woodland belt. Set-a-side and retained Maize cover.	
11	Badger sett in Scot's Pine woodland belt. Five active holes, including fresh spoil and prints.	

12	Set-a-side margin with Dwarf Spurge (*Euphorbia exigua*).	
13	Hedgerow along A11 site boundary, with Hawthorn, Privet, Bramble. Occasional Field Maple and Ash.	
14	Hedgerow with Elm (*Ulmus* sp.), Dog rose (*Rosa canina*), Blackthorn, Hawthorn and White Poplar (*Populus alba*).	

15	Large mature Beech tree with moderate/high bat roost potential.	
16	Gappy hedgerow with Blackthorn and large Poplar present.	
17	Elm dominated hedgerow boundary.	

18	Northern boundary of the site. Broad-leaved woodland block with Silver Birch (*Betula pendula*), Elm, Sycamore, Beech and Ash.	
19	Old farm track bounded on both sides by Hawthorn dominated hedge, with Privet, Blackthorn, Elm, Sycamore.	
20	Barn Owl box in old barn. Some splash marks on entrance hole.	No photograph.
21	Broad-leaved woodland belt, with several mature Beech trees, dominant Hawthorn and Snowberry understorey. Maize cover crops on both north and south sides.	
22	Large block of mature Scot's Pine on quarry site in background, with younger Scots Pine 'hedge' in foreground.	

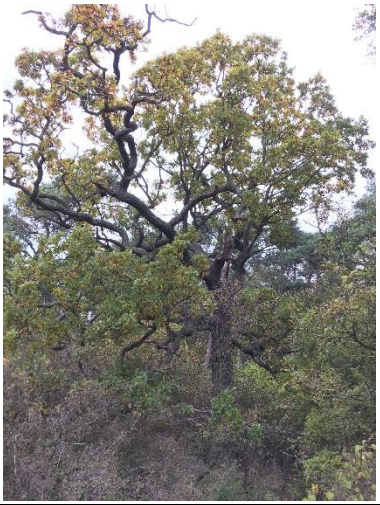
23	Arable farmland in southern section on the Sunnica East Site.	
24	Southern boundary of the Sunnica East Site at south along the cable route corridor for Grid Connection Route A, where it crosses the River Kennett.	
25	Public right of way running through the centre of the Sunnica East Site. Dominated by Hawthorn.	
26	Predominant habitat type in the centre of the Sunnica East Site. Arable farmland with Scot's Pine boundaries.	

27	Badlingham Lane CWS, with areas of dry (acid) grassland. Worlington Heath CWS in the background.	

Target Notes / Photographs (Sunnica West Site)

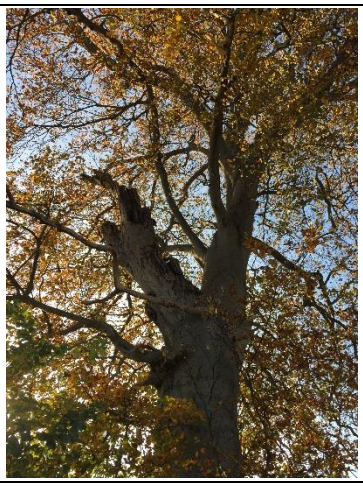
28	Hedgerow consisting predominantly of Elm, Hawthorn, Blackthorn and Bramble.	
29	Established set-a-side (tall ruderal). Dominant Creeping Thistle *Cirsium arvense*, Yarrow and Ribwort Plantain. Area of recent broad-leave woodland plantation (Cherry, Hornbeam *Carpinus betulus*, Oak, Beech).	
30	Winter beet field with margin containing Round-leaved *Kickxia spuria* and Sharp-leaved Fluellen, *Kickxia elatine,* Henbit Dead-nettle *Lamium amplexicaule* and Small Toadflax *Chaenorhinum minus.*	

31	Hedge consisting mainly of Elm and Hawthorn.	
32	Mammal run through fence with Badger hair on wire strands.	
33	Hedge consisting of Hawthorn and Lombardy Poplar *Populus nigra.* Grass track and fenced cattle and sheep grazed fields.	
34	Probable Badger diggings under stock fencing. Several Badger snuffle pits also along fence line.	

35	Mature mixed woodland just off Site with large Beech specimens. Also Oak and Scot's Pine. A number of trees with moderate/high potential for roosting bats.	
36	Mixed plantation woodland belt, consisting of Scot's Pine, Ash and Sycamore at north eastern end.	
37	Same plantation as TN36, becoming Scot's Pine dominated.	
38	Area of hardstanding with emphermal vegetation and bryophyte communities (Silver Moss *Bryum argenteum*). Tall ruderal around margins. Possible reptile habitat.	 
39	Badger latrine	No photograph

40	Boundary feature at south western edge of Sunnica West Site. Mixed woodland belt with Walnut *Juglans regia*, Scot's Pine, Ash, Hazel and Privet.	
41	Area of hardstanding with emphermal vegetation and bryophyte communities. Tall ruderal around margins including White *Melilotus albus* and Yellow Melilot *Melilotus officinalis.* Large pile of broken rubble and grassy mound half way along suitable reptile habitat.	
42	Small area of rough grass dominated by Cock's-foot.	
43	Boundary feature at south western edge of the Sunnica West Site. Frequent Scot's Pine, Ash, Hazel and Privet, with patches of Bramble and bordered by a grass margin dominated by Perennial Ryegrass and Cock's-foot.	

44	Broad-leaved woodland dominated by Silver Birch with Privet and Hawthorn understorey.	
45	Same broad-leaved woodland block as TN 44 but now dominated by Ash.	
46	Badger latrine	No photograph.
47	Open area of grassland within woodland block surrounded by Hawthorn scrub. Abundant False Oat-grass and Knapweed and frequent Tormential *Potentilla erecta* and Agrimony *Agrimonia eupatoria.*	
48	Same woodland block as TN 44 and TN 45 but becoming mixed woodland dominated by mature Scot's Pine and Beech, with an understorey of Elder and Bramble.	
49	Plenty of evidence of Badger snuffle pits.	No Photograph.

50	Arable farmland with predominantly Hawthorn hedges.	
51	Mature Beech tree in hedge line in centre of Sunnica West Site, with both Barn Owl and bat potential.	
52	Dry ditch on the northern boundary of the Sunnica West Site.	
53	Dry waterbodies in woodland on northern boundary of Sunnica West Site.	

54	Possible Variegated Yellow Archangel in woodland on northern boundary.	
55	Building with Barn Owl pellets on floor inside.	
56	Large area of set aside on southern boundary bordering the A11.	
57	Elm dominated hedge with rough field margin and block of broad-leaved woodland in background.	

58 Waterbody within the grounds of La Hogue farmshop immediately to the east of the Sunnica West Site.

Target Notes / Photographs (Cable Route Corridor and Burwell National Grid Substation Extension)

59 Looking north along the cable route corridor for Grid Connection Route A from the B1085. The cable route corridor passes through improved grassland, but there a series of mature broad-leaved woodland pockets.

60 Looking south along the cable route corridor for Grid Connection Route A from the B1085. The cable route corridor passes through arable farmland.

61 Looking north west along the cable route corridor for Grid Connection Route B from Chippenham Road towards the Sunnica West Site (north).

62 Arable farmland along the cable route corridor for Grid Connection Route B viewed from the B1102.

63 Catch Water Drain at Burwell where the cable route corridor for Grid Connection Route B crosses.

64 Burwell Lode looking south east towards where the cable route corridor for Grid Connection Route B crosses.

65 Arable field and site of the Burwell National Grid Substation Extension.

66	Area of Ephermeal / Short perennial including Small Nettle *Urtica urens* and Common Field-speedwell *Veronica persica* .	
67	Small patch of wetland within tall ruderal that includes Blue Water – speedwell *Veronica anagallis-aquatica* and Redshank *Persicaria maculosa*	
68 & 69	Large Pheasant enclosure	
T70	Arable margin with arable weeds and good invertebrate habitat.	
T71	Arable margin with bare ground and arable weeds.	No photograph

Appendix I Waterbodies within 500m of the Site

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570000

270000

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- DCO Boundary
- 500m scheme buffer
- Waterbodies surveyed for great crested newts

Sunnica East Area A

Sunnica East Area B

Sunnica West Area A

Sunnica West Area B

Cable Route A

Cable Route B

SubStation

Purpose of Issue

FOR INFORMATION

Client

SUNNICA LTD

Project Title

sunnica energy farm

Drawing Title

GREAT CRESTED NEWT SURVEY AREAS

Drawn	Checked	Approved	Date
AD	NG	CLB	20/08/2020

AECOM Internal Project No.: 60589004

Scale @ A3: 1:40,000

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Drawing Number: FIGURE 5

Rev: 0

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