



SUNNICA ENERGY FARM

EN010106

Volume 6

Environmental Statement

6.1 Chapter 0: Table of Contents, Glossary and Abbreviations

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009



Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

Sunnica Energy Farm

Environmental Statement

Chapter 0: Table of Contents, Glossary and Abbreviations

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Glossary

General	
"A" Weighting (dB(A))	The human ear does not respond uniformly across the audible frequency range. The "A" weighting is commonly used to simulate the frequency response of the ear.
Agricultural Land Classification (ALC)	A means of assessing the quality of farmland. Its assessment is based on physical limitations of the land, such as climate, site characteristics (for example gradient) and soil. The assessment gives an indication of the versatility and expected yield of the land. The system classifies agricultural land in 5 grades. The best and most versatile land is classified as 1, 2 and 3a. The Agricultural Land Classification was developed by the former Ministry of Agriculture, Fisheries and Food (MAFF) in 1988 and revised in 1996.
Air Quality Management Area (AQMA)	Places where air quality objectives are not likely to be achieved. Where an AQMA is declared, the local authority is obliged to produce an Action Plan in pursuit of the achievement of the air quality objectives.
Ambient noise Level, $L_{Aeq,T}$	The total sound in a certain situation at a given time usually composed of sound from many sources, near and far.
Amenity	The ability of communities to achieve enjoyment and/or quality of life.
Annual Average Daily Traffic (AADT)	Traffic data obtained by calculating daily traffic flows and then calculating the annual average. Often used in predicting noise levels and air quality, usually in conjunction with other parameters such as average vehicle speed and percentage heavy vehicles.
Annual Average Weekly Traffic (AAWT)	Traffic data obtained by calculating weekly traffic flows and then calculating the annual average. Often used in predicting noise levels and air quality, usually in conjunction with other parameters such as average vehicle speed and percentage heavy vehicles.
Annual Exceedance Probability (AEP)	The probability of a certain accumulation being exceeded in a particular year.
Applicant	Sunnica Limited.
Application	The application for a Development Consent Order (DCO) submitted by the Applicant for the Scheme.
Area of Outstanding Natural Beauty (AONB)	Land protected by the Countryside and Rights of Way Act (2000) (CROW Act). It protects the land to conserve and enhance its natural beauty. Under the CROW Act, Natural England can make orders to designate AONBs or vary the boundaries of existing ones.
Background Noise Level $L_{A90,T}$	The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T, measured using the fast time weighting, F, and quoted to the nearest whole number.

Baseline Conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Scheme together with any known or foreseeable future changes that will take place before completion of the Scheme.
Battery Energy Storage System (BESS)	A battery storage installation to allow for the storage, importation and exportation of energy to the National Grid.
Battery Container	A container to house the battery energy storage cells and associated equipment.
Battery Stations	A group of equipment supporting the BESS comprising transformers, switchgear, power conversion system (PCS) or inverter, and other ancillary equipment.
Biodiversity	The biological diversity of the earth's living resources. The total range of variability among systems and organisms at the following levels of organisation: bioregional, landscape, ecosystem, habitat, communities, species, populations, individuals, genes and the structural and functional relationships within and between these different levels.
Biodiversity Net Gain (BNG)	Development that leaves biodiversity in a better state than before and involves an approach where developers work with local governments, wildlife groups, land owners and other stakeholders in order to support their priorities for nature conservation.
Bund	An embankment structure.
Burwell National Grid Substation	The point of grid connection for the Scheme, which is known as Burwell National Grid Substation and located at Weirs Drove in Burwell. It is owned and operated by National Grid.
Burwell National Grid Substation Extension	The extension to Burwell National Grid Substation required to connect the Scheme into the National Grid.
Cable circuit	An electrical conductor necessary to transmit electricity between two points within the Scheme and may include one or more auxiliary cables for the purpose of gathering monitoring data, earthing cables, cables for auxiliary supply, optical fibre and other types of communication cables, cables connecting to direct current boxes.
Cable route	The trench and working width for the cable circuits within Grid Connection Route A and Grid Connection Route B. It will include the cable circuits as well as the temporary access track, laydown, topsoil storage and excavated material during construction. The cables that run within the cable route would connect to the substations within the Sites.
Conservation Area	An area of special environmental or historic interest or importance, of which the character or appearance is protected (Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990).

Construction Environmental Management Plan (CEMP)	A specific plan developed to ensure that appropriate environmental management practices are followed during the construction phase of a Scheme.
County Wildlife Sites (CWS)	CWS designation is non-statutory but is recognition of a site's high value for wildlife, with many sites being of county and often regional or national importance. They often support characteristic or threatened species and habitats included in Local and National Biodiversity Action Plans
Cumulative Effects	Effects upon the environment that result from the incremental impact of an action when added to other past, present or reasonably foreseeable actions. Each impact by itself may not be significant but can become a significant effect when combined with other impacts.
Decibel (dB)	The decibel is a logarithmic ratio of two values of a variable. The range of audible sound pressures is approximately 2×10^{-5} Pascals (Pa) to 200 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB.
Decommissioning Environmental Management Plan (DEMP)	A specific plan developed to ensure that appropriate environmental management practices are followed during the decommissioning phase of a project.
Design Manual for Roads and Bridges (DMRB)	A series of 15 volumes authored by Highways England that provide standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads, including motorways in the United Kingdom, and, with some amendments, the Republic of Ireland.
Developable Area	The area within the Order limits that will contain solar infrastructure (i.e. is developable). This excludes areas set aside for ecological and archaeological mitigation and landscape planting.
Development Consent Order (DCO)	Development consent is required pursuant to the Planning Act 2008 for Nationally Significant Infrastructure Projects. A development consent order is the order which grants development consent when an application is made to the Secretary of State.
Environmental effect	The consequence of an action (impact) upon the environment.
Environmental impact	The change in the environment from a development such as the removal of a hedgerow.
Environmental Impact Assessment (EIA)	A process by which information about environmental effects of a proposed development is collected, assessed and used to inform decision making.

Environmental Impact Assessment (EIA) Regulations	Regulations that give planning authorities a means of ensuring that they can take account of the environmental, economic and social implications of individual developments in their decisions on planning applications.
Environmental Statement (ES)	A document produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations to report the results of an EIA.
Flood Zone	Flood Zone definitions are set out in the National Planning Policy Guidance. There are three flood zones which refer to the probability of river and sea flooding, not taking account of the presence of flood defences.
Frequency (Hz)	The number of cycles per second (i.e., the number of vibrations that occur in one second); subjectively this is perceived as pitch.
Frequency Spectrum	The relative frequency contributions that make up a noise.
Green Infrastructure	A network of multi-functional green space and other green features, urban and rural, which can deliver quality of life and environmental benefits for communities
Grid Connection Route A	The cable route between Sunnica East Site A, through Sunnica East B, to Sunnica West Site A.
Grid Connection Route B	The cable route from Sunnica West Site A to Sunnica West Site B, and from Sunnica West Site B to the Burwell National Grid Substation.
The Grid Connection Route or Grid Connection Route A and B	Grid Connection Route A and Grid Connection Route B.
Ground mounted solar PV panel arrays	Solar photovoltaic (PV) modules attached to structures that are fixed to the ground.
Habitats Directive	A directive adopted by the European Union (then known as the European Community) in 1992. The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species.
Habitats Regulations Assessment (HRA)	A Habitat Regulations Assessment is required where a project may have significant effects on a site by affecting its function to support protected habitats or species. Its purpose is to assess the implications of the proposal in respect of the site's 'conservation objectives'.
Inverter	Inverters convert the direct current (DC) electricity into alternating current (AC), which allows the electricity generated to be exported to the national grid.
Jointing bay	Underground structures constructed at regular intervals along the cable route to join sections of the cable circuits and facilitate installation of the cable circuits into the buried ducts.

Level $L_{A10,T}$	The A-weighted sound pressure level exceeded for 10% of a given time interval, T, measured using the fast time weighting, F.
Lowest Observed Adverse Effect Level	This is the level of noise above which adverse effects on health and quality of life can be detected.
Mitigation	Measures including any process, activity, or design to avoid, reduce, or remedy for negative environmental impacts or effects of a development.
Nationally Significant Infrastructure Project	Nationally Significant Infrastructure Projects (NSIPs) are large scale developments which require development consent pursuant to the PA 2008
Noise	Unwanted or unexpected sound
On-site cables	The low or medium voltage cables within the Solar Farm, which transmit electricity between solar PV Modules to inverters and transformers, and from there to the proposed on-site substation and BESS. These cables consist of 1.5, 33, 132 and 400 kilovolt cables, as well as earthing cables and optical fibre cables.
Operation Environmental Management Plan (OEMP)	The OEMP identifies environmental mitigation measures required during operation of the Scheme that have been identified as part of the EIA. It defines those environmental commitments and actions that will be implemented during the operation and maintenance of the Scheme.
Order limits	The land shown on the Works Plans within which the Scheme can be carried out.
Outline Battery Fire Safety Management Plan	This document identifies the measures required to avoid and reduce the risk of fire from the batteries within the Scheme, as well as how to effectively manage a fire should the event occur.
Outline Landscape and Ecology Management Plan (OLEMP)	The OLEMP sets out the landscape and ecological management actions for the Scheme, outlining how mitigation measures, identified within the Environmental Statement, will be delivered through future landscape works and management.
PA 2008	Planning Act 2008
Photovoltaic (PV)	The process of converting sunlight to electrical energy.
Preliminary Environmental Information	Preliminary Environmental Information is defined in the EIA Regulations as: <i>'information referred to in regulation 14(2) which –</i> <i>(a) has been compiled by the applicant; and</i>

	<p><i>(b) is reasonably required for the consultation bodies to develop and informed view of the likely significant environmental effects of the development (and of any associated development).</i></p> <p>A Preliminary Environmental Information Report for the Scheme was produced in August 2020.</p>
Principal Aquifer	<p>These are layers of rock or drift deposits that have high intergranular and/or fracture permeability – meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.</p>
PV Modules	<p>Solar photovoltaic panel designed to convert solar irradiance to electrical energy fitted to mounting structures.</p>
Railway Crossing 1	<p>The northern railway crossing option for the cable route considered at EIA Scoping stage.</p>
Railway Crossing 2	<p>The southern railway crossing option for the cable route considered at EIA Scoping stage.</p>
Rating Level, $L_{Ar,Tr}$	<p>The specific noise level plus any adjustment for any characteristic features of the noise.</p>
Receptor	<p>A component of the natural or man-made environment that is affected by an impact, including people.</p>
Reference Time Interval, T_r	<p>The specified interval over which an equivalent continuous A-weighted sound pressure level is determined.</p>
Scheduled Monument	<p>A ‘nationally important’ archaeological site or historic building, given protection against unauthorised change and included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport. The protection given to scheduled monuments is given under the Ancient Monuments and Archaeological Areas Act 1979.</p>
Scheme	<p>A nationally significant infrastructure project comprising a ground mounted solar photovoltaic generating station with a gross electrical capacity of over 50 megawatts and associated development:</p> <p>The details of the Scheme are described in Chapter 3 of this Environmental Statement [EN010106/APP/6.1] and Schedule 1 of the draft DCO submitted with the Application.</p> <p>The Scheme will be known as “Sunnica Energy Farm”.</p>
Secondary A aquifer	<p>These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.</p>

Secondary B aquifer	These are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
Setting	The surroundings within which a heritage asset is experienced and any element which contributes to the understanding of its significance.
Significant Observed Adverse Effect Level	This is the level of noise above which significant adverse effects on health and quality of life occur.
Sites	Sunnica East Sites A and B together with Sunnica West Sites A and B. It excludes Grid Connection Route A and Grid Connection Route B.
Sounds Pressure Level (L_p)	Equal to 20 times the logarithm to the base 10 of the ratio of the root mean squared (RMS) sound pressure to the reference sound pressure. In air the reference sound pressure is 2×10^{-5} Pa. Mathematically: Sound Pressure Level (dB) = $20 \log_{10} \{p(t) / P_0\}$ Where $P_0 = 2 \times 10^{-5}$ Pa
Source Protection Zone	Source Protection Zones (“SPZ”) show the risk of contamination from any activities that might cause pollution to groundwater sources such as wells, boreholes and springs used for public water supplies. The closer the activity, the greater the risk. SPZs can comprise of up to three main zones (inner, outer and total catchment). A fourth zone of special interest can also occasionally be applied to a groundwater source.
Specific Noise Level, $L_{Aeq,Tr}$	The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.
Study Area	The area in which a particular assessment or survey targets. The study area will vary depending on the nature of the technical assessment. Where relevant, these are defined within the relevant technical chapter of the ES.
Sunnica East Site A	Land located approximately 3.5 kilometres (‘km’) east of Mildenhall, 0.5km south-east of Isleham and 0.6km south-west of West Row. The specific area for Sunnica East Site A is shown in the Works Plans.
Sunnica East Site B	Land located approximately 1.5km south-east of Mildenhall, 1km east of Freckenham and immediately south of Worlington. The specific area for Sunnica East Site B is shown in the Works Plans.
Sunnica East Sites A and B	Sunnica East Site A and Sunnica East Site B

Sunnica West Site A	The land located approximately 7km to the east of Burwell, immediately north of the A14 at Newmarket. The specific area for Sunnica West Site A is shown in the Works Plans.
Sunnica West Site B	The land located approximately 5.5km to the east of Burwell and 0.5km north of Snailwell. The specific area for Sunnica West Site B is shown in the Works Plans.
Sunnica West Sites A and B	Sunnica West Site A and Sunnica West Site B
Switchgear	A combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment
Transformers	Transformers increase and decrease the voltage of the electricity
Water Framework Directive	The Water Framework Directive (“WFD”) introduced a new system for monitoring and classifying the quality of surface and ground waters. The Directive requires that Environmental Objectives be set for all surface waters and groundwater to enable them to achieve Good Ecological Potential/Status by a defined date.
Works Plans	The plans submitted with the Application known as the Works Plans and which delineate the Order limits for the Scheme.
World Heritage Site	A site inscribed by United Nations Educational, Scientific, and Cultural Organisation (UNESCO) because of its Outstanding Universal Value under the terms of the UNESCO World Heritage Convention.
Written Scheme of Investigation	A Written Scheme of Investigation outlines known and potential archaeological features and deposits or built heritage elements on a site and suggests a structure for exploring them using the latest, most appropriate and cost-effective archaeological techniques.
Zone of Influence	The area for the assessment of combined effects. Zones of Influence (Zols) are variable depending on the environmental factor being discussed.
Zone of Theoretical Visibility	A map, usually digitally produced, showing areas of land within which the Scheme is theoretically visible.

List of Abbreviations and Acronyms

Term	Meaning
AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
AC	Alternating current
AEP	Annual Exceedance Probability
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
APFP Regulations	Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
AQMA	Air Quality Management Area
ASA	Alternative Sites Assessment
BAP	Biodiversity Action Plan
BEIS	Department for Business, Energy and Industrial Strategy
BGS	British Geological Survey
BMV	Best and Most Versatile
BNL	Basic Noise Level
BPM	Best Practicable Means
BS	British Standard
CCC	Cambridgeshire County Council
CCRA	Climate Change Risk Assessment
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CLR	Contaminated Land Report
COPA	Control of Pollution Act
COSHH	Control of Substances Hazardous to Health
CPRE	Campaign to Protect Rural England

Term	Meaning
CRMP	Construction Resource Management Plan
CSM	Conceptual Site Model
CTMP	Construction Traffic Management Plan
CWS	County Wildlife Site
DAS	Design and Access Statement
dB	Decibel
DC	Direct current
DCLG	Department for Communities and Local Government
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DEMP	Decommissioning Environmental Management Plan
DMRB	Design Manual for Roads and Bridges
DWS	Drinking Water Standards
EA	Environment Agency
ECDC	East Cambridgeshire District Council
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
END	Environmental Noise Directive
EPS	European Protected Species
ES	Environmental Statement
EU	European Union
FHDC	Forest Heath District Council
FRA	Flood Risk Assessment
GCN	Great Crested Newt
GHG	Greenhouse Gas
GI	Ground Investigations
GIS	Geographical Information System

Term	Meaning
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GPR	Ground Penetrating Radar
GRA	Groundwater Risk Assessment
GRP	Glass Reinforced Plastic
HDD	Horizontal Directional Drilling
HDV	Heavy Duty Vehicles
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HIA	Heritage Impact Assessment
HSC	Hazardous Substances Consent
HSE	Health and Safety Executive
IAN	Interim Advice Note
IAQM	Institute of Air Quality Management
ICOMOS	International Council on Monuments and Sites
IEMA	Institute of Environmental Management and Assessment
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
L _{A10}	A-weighted, sound level exceeded for 10% of the measurement period.
L _{A90}	A-weighted, sound level exceeded for 90% of the measurement period.
L _{Aeq}	A-weighted, equivalent sound level over the measurement period.
L _{AFmax}	A-weighted, maximum sound level over the measurement period, measured on 'fast' response
LAQM	Local Air Quality Management
LCA	Landscape Character Area
LCT	Landscape Character Type
LEMP	Landscape and Ecology Management Plan
LGS	Local Geological Sites
LiDAR	Light Detection And Ranging

Term	Meaning
LLCA	Local Landscape Character Area
LNR	Local Nature Reserve
LOAEL	Lowest Observable Adverse Effect Level
LTCA	Local Townscape Character Area
LV	Limit Value
LVIA	Landscape and Visual Impact Assessment
L_w	Sound Power Level
MCA	Mineral Consultation Areas
MHCLG	Ministry of Housing, Communities and Local Government
MOD	Ministry of Defence
MSA	Mineral Safeguarding Areas
MT	Motorised Travellers
NCA	National Character Areas
NHLE	National Heritage List for England
NIA	Noise Impact Area
NMU	Non-Motorised Users
NNR	National Nature Reserve
NRMM	Non-road Mobile Machinery
NOEL	No Observed Effect Level
NPPF	National Planning Policy Framework 2018
NPS	National Policy Statement
NPS	National Policy Statement for England
NRMM	Non-Road Mobile Machinery
NSIP	Nationally Significant Infrastructure Project, as defined by the Planning Act 2008 (as amended)
NTS	Non-Technical Summary
NVC	National Vegetation Classification
OBFSMP	Outline Battery Fire Safety Management Plan

Term	Meaning
OEMP	Operation Environmental Management Plan
OS	Ordnance Survey
OUV	Outstanding Universal Value
PA 2008	Planning Act 2008
PEI	Preliminary Environmental Information
PEIR	Preliminary Environmental Information Report
PERA	Preliminary Environmental Risk Assessment
PHE	Public Health England
POC	Point of Connection
PPE	Personal Protective Equipment
PPG	Planning Practice Guidance
PPS	Planning Policy Statement
PPV	Peak Particle Velocity
PRoW	Public Right of Way
PWS	Private Water Supplies
RAF	Royal Air Force
RBMP	River Basin Management Plan
RHS	River Habitat Survey
RPG	Registered Park and Garden
RSPB	Royal Society for the Protection of Birds
RV	Representative Viewpoint
SAC	Special Area of Conservation
SCC	Suffolk County Council
SEBC	St Edmundsbury Borough Council
SLA	Special Landscape Area
SM	Scheduled Monument
SOCC	Statement of Community Consultation

Term	Meaning
SOAEL	Significant Observed Adverse Effect Level
SoCG	Statement of Common Ground
SoS	Secretary of State
SOUV	Statement of Outstanding Universal Value
SPA	Special Protection Area
SPI	Species of Principal Importance
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Strategy
TA	Transport Assessment
TPO	Tree Preservation Order
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VP	Viewpoints
VR	Visual Receptor
WFD	Water Framework Directive
WHO	World Health Organisation
WHS	World Heritage Site
WSC	West Suffolk Council
ZTV	Zone of Theoretical Visibility