SUNNICA ENERGY FARM

EN010106

Volume 6

Environmental Statement

6.1 Chapter 16: Other Environmental Topics

APFP Regulation 5(2)(a)

Planning Act 2008

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

18 November 2021
Version number: 00

Planning Act 2008

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

Sunnica Energy Farm

Environmental Statement
Chapter 16: Other Environmental Topics

Regulation Reference:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	EN010106
Application Document Reference	EN010106/APP/6.1
Author	Sunnica Energy Farm Project Team

Version	Date	Status of Version
Rev 00	18 November 2021	Application Version

Table of contents

Chapter **Pages**

16 Other Environmental Topics 1

16.1 Introduction 1

16.2 Development Parameters Assessed 1

16.3 Glint and Glare 2
Introduction 2
Consultation Responses 2
Assessment Methodology 5
Baseline Conditions 6
Embedded Design Mitigation 8
Assessment of Potential Effects 8
Mitigation Measures 10
Residual Effects 11
Cumulative Effects 11

16.4 Ground Conditions 11
Introduction 11
Consultation Responses 12
Assessment Methodology 14
Baseline Conditions 16
Embedded Mitigation Measures 17
Assessment of Potential Effects 18
Mitigation Measures 20
Residual Effects 21
Cumulative Effects 21

16.5 Major Accidents and Disasters 22
Introduction 22
Consultation Responses 22
Assessment Methodology 26
Baseline Conditions 28
Assessment of Potential Effects 29
Mitigation Measures 34
Residual Effects 34
Cumulative Effects 35

16.6 Telecommunications, Television Reception and Utilities 35
Introduction 35
Consultation Responses 35
Assessment Methodology 37
Baseline Conditions 38
Assessment of Potential Effects 39
Mitigation Measures 40
Cumulative Effects 40

16.7 Waste **40**
Introduction 40
Consultation Responses 41
Assessment Methodology 42
Baseline Conditions 43
Assessment of Potential Effects 43
Mitigation Measures 46
Residual Effects 46
Cumulative Effects 46
16.8 References **48**

Table of Plates

Plate 16-1 Potential for glint and glare from A14 for road users traveling in a south-westerly direction 10
Plate 16-2 Proposed screening for A14 for road users travelling in a south-westerly direction 11

Table of Tables

Table 16-1 Consultation matters raised and responses for glint and glare 3
Table 16-2. Impact significance criteria for the glint and glare assessment 6
Table 16-3 Consultations matters and responses for ground conditions 12
Table 16-4 Severity of risk associated with potential contamination of ground conditions 14
Table 16-5 Probability of risk associated with potential contamination of ground conditions 15
Table 16-6 Comparison of probability and severity associated with potential contamination of ground conditions 16
Table 16-7 Risk evaluation of the Scheme for ground conditions 19
Table 16-8 Consultations matters and responses for major accidents and disasters 22
Table 16-9. Major accidents or disasters shortlisted for further consideration 26
Table 16-10 Consultations matters and responses for telecommunications, television reception and utilities 36
Table 16-11 Consultations matters and responses for waste 41
Table 16-12 Waste arisings during construction 43
Table 16-13 Estimated waste arisings during decommissioning. 45

16 Other Environmental Topics

16.1 Introduction

16.1.1 The purpose of this Environmental Statement (ES) chapter is to collate the assessment of other environmental topics that do not warrant individual chapters, either due to the brevity of the assessment or the small impact associated with the Scheme.

16.1.2 This chapter describes and assesses the potential effects of the Scheme on:

a. Glint and Glare (Section 16.3);
b. Ground Conditions (Section 16.4);
c. Major Accidents and Disasters (Section 16.5);
d. Telecommunications, Television Reception and Utilities (Section 16.6); and
e. Waste (Section 16.7).

16.1.3 Where relevant, baseline conditions, assessment methodology and mitigation measures are outlined in the sections above for each topic.

16.1.4 This chapter is supported by the following technical appendices provided on **Volume 2** of this Environmental Statement **[EN010106/APP/6.2]**:

a. Appendix 16A: Glint and Glare Assessment
b. Appendix 16B: Ground Conditions Phase 1 Preliminary Environment Risk Assessment (PERA)
c. Appendix 16C: Framework Construction Environmental Management Plan (CEMP)
d. Appendix 16D: Unplanned Atmospheric Emissions from Battery Energy Storage Systems (BESS)
e. Appendix 16E: Framework Decommissioning Environmental Management Plan (DEMP)
f. Appendix 16F: Framework Operation Environmental Management Plan (OEMP)
g. Appendix 16G: Relevant Legislation and Policy for the Other Environmental Topics

16.1.5 Abbreviations and capitalised terms are defined in the Glossary, **Chapter 0** of this Environmental Statement **[EN010106/APP/6.1]**.

16.2 Development Parameters Assessed

16.2.1 **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]** presents a description of the Scheme, against which

this chapter has been assessed. The assessment has been based on likely worst-case parameters using the Rochdale Envelope approach; the actual impact may therefore be less than anticipated if the Scheme is built to a lesser scale. For the purposes of assessing construction impacts, a two-year construction period has been used as the worst case. A phased development is possible but it would not affect the outcomes of the assessment set out in this chapter.

16.3 Glint and Glare

Introduction

16.3.1 This section summarises the potential effects of the Scheme on glint and glare for surrounding road users, railway operations, dwellings, public rights of way (PRoW), bridleways, and aviation activity.

16.3.2 The definition of glint and glare can vary; however, the definition used within this assessment is as follows[1]:

a. 'Glint' refers to a momentary flash of bright light typically received by moving receptors or from moving reflectors.

b. 'Glare' refers to a continuous source of bright light typically received by static receptors or from large reflective surfaces.

16.3.3 The full study on glint and glare, undertaken for the Scheme by Pager Power, is available in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2]**.

Consultation Responses

16.3.4 Consultation undertaken to date in relation to glint and glare is outlined in the Consultation Report **[EN010106/APP/5.1]** submitted with the DCO application. **Table 16-1** outlines the matters raised within the Scoping Opinion and key themes raised since scoping during statutory consultation and how these have been addressed through the ES.

[1] These definitions are aligned with those of the Federal Aviation Administration (FAA) in the United States of America.

Table 16-1 Consultation matters raised and responses for glint and glare

Consultee	Matter raised	Response
Planning Inspectorate (Scoping Opinion)	The Inspectorate notes that in paragraph 10.5.30, the Scoping Report confirms that assessments in Chapter 10 (Landscape and Visual Amenity) of the ES will include "general consideration" of the potential for glint and glare from the Proposed Development to cause significant effects to both landscape and visual receptors. The Inspectorate also notes that the potential impacts of glint and glare to aircraft are considered within section 14.6 (Major Accidents or Disasters). Given that the Applicant will address impacts associated with glint and glare within relevant aspect Chapters of the ES, the Inspectorate agrees that a specific chapter for glint and glare is not required and is satisfied for this matter to sit more generally within 'Other Environmental Topics'.	The glint and glare assessment is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2].** A summary is presented in this section. The glint and glare assessment has also been considered in the assessment of the landscape and visual effects in **Chapter 10** of this Environmental Statement **[EN010106/APP/6.1]**.
East Cambridgeshire District Council (Scoping Opinion)	It is agreed glint and glare should be scoped in and should focus on visual impact, highway safety (specifically A14/A11) and aviation safety.	The glint and glare assessment is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2]** and a summary is presented in this section. The assessment includes visual impact, aviation safety, highway safety and covers the A14 and A11.
Ministry of Defence (Scoping Opinion)	The MOD have no aerodrome height or technical safeguarding concerns with this proposal. With regards to glint and glare from the arrays the applicant has identified there are aviation receptors within 20km of the proposed solar farms and the closest of these are RAF Mildenhall, RAF Lakenheath and Cambridge Airport, which are within 20km of the Sunnica East Site and Sunnica West Site.	The glint and glare assessment is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2] a**nd a summary is presented in this section. The assessment includes aviation activity associated with RAF Mildenhall, RAF Lakenheath and Cambridge Airport.

Consultee	Matter raised	Response
Suffolk County Council / West Suffolk Council (Scoping Opinion)	With respect to glint or glare Paragraph 10.5.30 of the scoping report states that a general consideration of the potential for glint and glare from the scheme to cause significant effects to landscape and visual receptors will be provided as part of the assessment. Due to the scale of this development and the sensitivities of activities in the vicinity of the site, including neighbouring residential properties within 30m of the Sunnica East site and aviation receptors, it is recommended that full consideration of potential adverse effects of glint and glare should be provided and scoped into the ES.	The glint and glare assessment is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2]** and a summary is presented in this section.
Suffolk County Council / West Suffolk Council (Scoping Opinion)	There is no reference within the Scoping Report to operational effects from glint and glare on aviation receptors including RAF Mildenhall and RAF Lakenheath. It is recommended that MOD Safeguarding are fully consulted in order to ensure the approach being taken to the assessment of glint and glare is appropriate. Any effect on flying instruments should also be considered as well as the flight paths for RAF Mildenhall and RAF Lakenheath.	RAF Mildenhall and RAF Lakenheath are described as aviation receptors in Paragraph 14.3.4 of the EIA Scoping Report. The glint and glare assessment is included in **Appendix 16A** of the Environmental Statement **[EN010106/APP/6.2]** and a summary is presented in this section. Please see response above to MoD, who were consulted on the scoping opinion.
Section 47 response (statutory consultation)	Concerns regarding glint and glare on aviation receptors from nearby aviation facilities.	The glint and glare assessment is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2].** A summary is presented in this section. The assessment includes aviation activity associated with RAF Mildenhall, RAF Lakenheath and Cambridge Airport.
Section 47 response (statutory consultation)	Concerns that glare from the solar panels could impact users of the A11 and A14 as well as other minor roads.	Roads that are within 1km of the Order limits were assessed as part of the glint and glare assessment, which is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2].** A summary is presented in this section.

Consultee	Matter raised	Response
Section 47 response (statutory consultation)	Concerns regarding glint and glare on equestrian users and the local equestrian facilities.	Horse facilities, public rights of way and bridleway receptors that are within 1km of the Order limits were assessed as part of the glint and glare assessment, which is included in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2].** A summary is presented in this section.

Assessment Methodology

16.3.5 The glint and glare assessment methodology has been defined with reference to consultation with stakeholders and review of available guidance and studies. No process for determining and contextualising the effects of glint and glare are provided in the available guidance. Additionally, there are no specific guidelines for assessing the impact of solar reflections upon surrounding roads, byways, footpaths and dwellings. Therefore, the approach has been informed by the policy presented in **Appendix 16G** of this Environmental Statement **[EN010106/APP/6.2]**, current studies, stakeholder consultation, and the professional judgement of the assessor. The approach of the assessment is to determine whether a reflection from the proposed Scheme is geometrically possible and then to compare the results against the relevant guidance and studies to determine whether the reflection is significant.

16.3.6 In summary, the assessment methodology includes the following:

a. Identifying receptors in a study area surrounding the Order limits. The study area varies depending on the type of receptor:
    i. Aviation receptors within 20km of the Order limits; and
    ii. Ground-based receptors, including railway, road, public rights of way (PRoW), bridleway, dwelling and horse facility receptors within 1km of the Order limits and have a potential view of the panels;
b. Considering direct solar reflections from the Scheme towards the identified receptors by undertaking geometric calculations;
c. Considering the visibility of the panels from the receptor's location. If the panels are not visible from the receptor then no reflection can occur;
d. Based on the results of the geometric calculations, determining whether a reflection can occur, and if so, at what time it will occur;
e. Considering both the solar reflection from the Scheme and the location of the direct sunlight with respect to the receptor's position;

f. Considering the solar reflection with respect to published studies and guidance – including intensity calculations where appropriate; and

g. Determining whether a significant detrimental effect is expected in line with the significance criteria set out in **Table 16-2**.

16.3.7 Within the assessment model, the Scheme and relevant receptor locations are defined. From this information, a chart is produced that states whether a reflection can occur, the duration, and the part of the development that can produce the solar reflection towards the receptor.

16.3.8 Reflections towards ground-based receptors to the north of the panels are unlikely at this latitude for fixed panels facing south and have therefore been scoped out of the assessment.

Table 16-2. Impact significance criteria for the glint and glare assessment

Impact criteria / significance	Definition	Mitigation requirement
No impact / not significant	A solar reflection is not geometrically possible or will not be visible from the assessed receptor.	No mitigation required.
Low / not significant	A solar reflection is geometrically possible; however, any impact is considered to be small such that mitigation is not required e.g. intervening screening will limit the view of the reflecting solar panels.	No mitigation required.
Moderate / significant	A solar reflection is geometrically possible and visible for less than either 60 minutes per day or 3 months per year.	Whilst the impact may be acceptable, further analysis should be undertaken to determine the requirement for mitigation.
Major / significant	A solar reflection is geometrically possible and visible for more than 60 minutes per day and more than 3 months per year and therefore under conditions that will produce a significant impact.	Mitigation will be required.

Baseline Conditions

16.3.9 The agricultural land use within the study area results in a generally ‘open’ character to the landscape, although there are notable areas of vegetation, in terms of field boundaries, roadside and residential garden vegetation and woodland blocks, such that the vegetation patterns are varied across the Order limits and the glint and glare study area and provide existing screening for surrounding receptors.

16.3.10 Full details of the baseline conditions can be found in Section 10.6 of **Chapter 10: Landscape and Visual Amenity** of this Environmental Statement **[EN010106/APP/6.1]**.

Receptors

Aviation receptors

16.3.11 Potential aviation receptors include air traffic control towers and approaching aircraft. RAF Mildenhall, operated by the MOD, is the closest aerodrome to the Order limits and is located approximately 2.5km to the north-east.

16.3.12 RAF Lakenheath Airfield is located approximately 10km to the north-east and Cambridge Airport approximately 19km to the south-west of the Order limits.

Railway receptors

16.3.13 One railway line of approximately 10km in length is considered in the assessment on train driver receptors, which runs in an L-shape approximately 0.5km from the southern extent of the Order limits at Sunnica West Site A and Sunnica West Site B.

16.3.14 No signals have been identified along the assessed section of railway, therefore no signal receptors are considered as part of this assessment.

Road receptors

16.3.15 Roads that are within or close to 1km of the Order limits and have potential views of the panels are considered in the assessment. These include the A14, A11, A1304, B1085, A142 and B1102.

Public Rights of Way (PRoW) and bridleway receptors

16.3.16 PRoW and bridleways that are within or close to 1km of the Order limits and have potential views of the panels are considered in the assessment.

16.3.17 Receptor locations along the four permissive paths that have been proposed as part of the Scheme have also been considered in this assessment.

Dwelling receptors

16.3.18 Dwelling receptors that are within or close to 1km of the Order limits and have potential views of the panels are considered in the assessment. In built-up residential areas, only the outer lying dwellings (closest to the Order limits) have been considered. This is because these dwellings will mostly block views of the Scheme to dwellings further back and therefore will not

be affected by glint and glare. A total of 222 dwelling receptors have been assessed.

Horse facility receptors

16.3.19 Horse training facilities within 1km of the Order limits have been assessed. Sample receptor points were taken at the six identified facilities:

a. Snailwell Gallops
b. British Racing School
c. Limekins Gallops
d. Godolphin Stables
e. Bury Hill Gallops
f. Long Hill Gallops

Embedded Design Mitigation

16.3.20 The embedded design mitigation for screening the Scheme from view of receptors to glint and glare as well as landscape and visual impacts is shown in Figures 3-1 and 3-2 **[EN010106/APP/6.3]** and described in Section 10.7 of **Chapter 10: Landscape and Visual Amenity** in this Environmental Statement **[EN010106/APP/6.1]**. These measures will be secured through the Framework Outline Landscape and Ecology Management Plan (OLEMP), presented in **Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2]**. This includes:

a. Careful siting of the Scheme in the landscape with offsets from existing residential areas, vegetation patterns and road networks;
b. Conserving landscape, ecology and archaeological features (including below ground) within the Order limits; and
c. Creating new Green Infrastructure (i.e. vegetation planting) within the Order limits with extensive planting proposals.

Assessment of Potential Effects

16.3.21 This section provides a summary of the glint and glare assessment presented in **Appendix 16A** of this Environmental Statement **[EN010106/APP/6.2]**. No reflections are predicted for aviation receptors at RAF Mildenhall, which is the closest aviation receptor to the Scheme, and no effects are anticipated for receptors at RAF Lakenheath and Cambridge Airport due to their distance from the Scheme and orientation of the runways. Therefore, **no impact** is anticipated on these receptors, which is not significant.

16.3.22 Most of the assessed ground-based receptors, with the exception of those discussed below, will not experience any significant effects because the

criteria listed in **Table 16-2** have not been reached and/or due to visibility of any panels being screened from view by existing vegetation and landform and the proposed planting for the Scheme illustrated in Figures 3-1 and 3-2 and described in the OLEMP (**Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2]**). Consideration has been given to those receptors that may have views of the panels prior to the proposed planting becoming established and, although there may be views of the panels, most of these receptors (except those discussed below) have been assessed as **low** impact and therefore not significant. This is due to the location of the solar reflection and reflections coinciding with direct sunlight, therefore not resulting in a safety hazard.

16.3.23 Prior to establishment of the proposed landscape planting a moderate effect (significant) is expected upon three dwellings, which will remain until the proposed vegetation screening has established and the reflecting panels are obstructed from view. Once the vegetation planted for screening has established, no significant effects are anticipated and further mitigation is not required.

16.3.24 Road users travelling in a south-westerly direction on a section of the A14 adjacent to Sunnica West Site A (see **Plate 16-1**) will have views of the panels for approximately 200m with the potential for glint and glare. Although the road users would only be in the reflection zone momentarily, this is considered sufficient to result in a potential safety hazard and therefore, without additional mitigation would result in a major effect which is considered significant.

Plate 16-1 Potential for glint and glare from A14 for road users traveling in a south-westerly direction

Mitigation Measures

16.3.25 Mitigation (in addition to the embedded mitigation planting) is not recommended for the majority of receptors as significant impacts are not anticipated as a result of the existing screening and landscape planting illustrated in Figure 3-1 and 3-2 and described within the OLEMP (**Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2]**).

16.3.26 Mitigation will be provided for the road users travelling in a south-westerly direction in the form of a temporary solid hoarding that will be 2.5m in height (see **Plate 16-2**). The hoarding would be located on a short section, approximately 300m, along the Sunnica West Site A boundary with a high percentage of evergreen (native and non-native) species, planted adjacent to the temporary hoarding along the road side in line with the indicative planting strategy shown on Figure 3-2 and to be secured through the OLEMP (**Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2]**).

16.3.27 The temporary hoarding will be removed once the density and height of vegetation is sufficient to screen the views. The planting behind the hoarding will be undertaken as per the OLEMP (**Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2]**), and it is envisaged that this will allow the hoarding to be removed within approximately 5 years. The detailed design of the hoarding will be undertaken as part of the detailed design stage and will be secured through a DCO Requirement. With the introduction of the mitigation, **no effects** are anticipated.

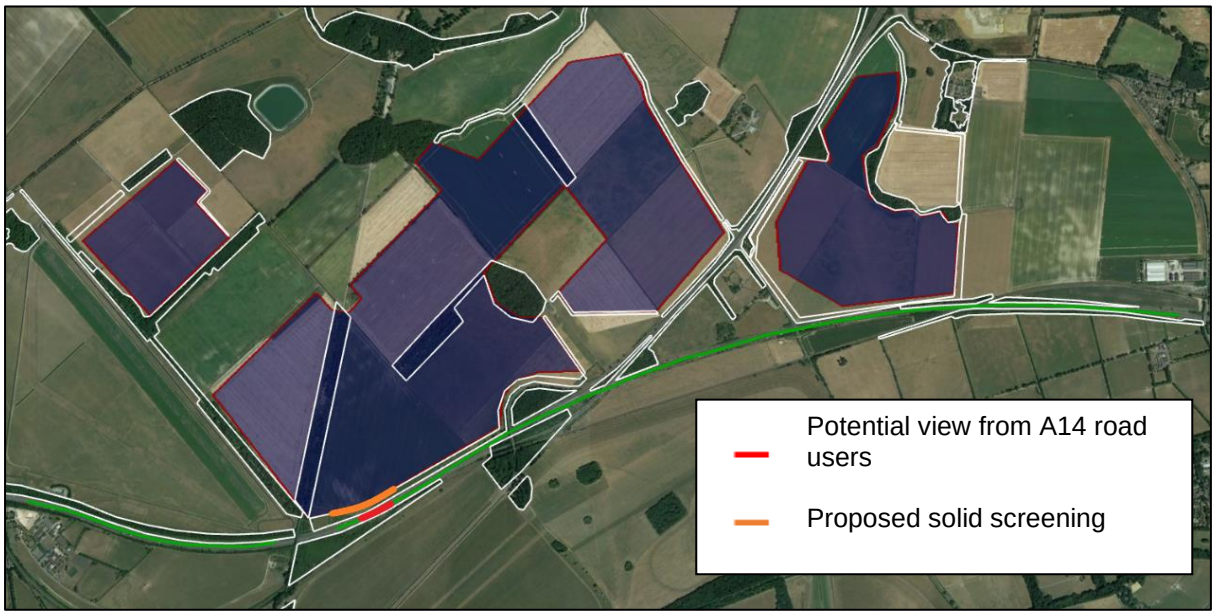

Plate 16-2 Proposed screening for A14 for road users travelling in a south-westerly direction

Residual Effects

16.3.28 With the proposed embedded design mitigation and the additional mitigation in the form of the temporary solid hoarding, **no significant residual effects** are anticipated as a result of the Scheme.

Cumulative Effects

16.3.29 Fifteen proposed solar farms have been identified in the short list of cumulative schemes presented in **Appendix 5A** of this Environmental Statement **[EN010106/APP/6.2]**. The assessment summarised above identified that with the introduction of the additional mitigation no receptors will experience significant effects as a result of the Scheme. Additionally, it is anticipated that the cumulative developments will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments. Therefore, cumulative effects would be unlikely and are not considered to arise for glint and glare. Therefore, the overall impact of the Scheme is considered not significant.

16.4 Ground Conditions

Introduction

16.4.1 The Preliminary Environmental Risk Assessment (PERA) assesses the land condition within the Order limits to identify potential environmental land quality liabilities and constraints. The PERA has been developed based on desk-top studies and site walkovers. The full PERA is presented in **Appendix 16B** in this Environmental Statement **[EN010106/APP/6.2]**. This section provides a summary of the PERA.

Consultation Responses

16.4.2 Consultation undertaken to date in relation to ground conditions is outlined in the Consultation Report **[EN010106/APP/5.1]** submitted with the DCO application. **Table 16-3** outlines the matters raised within the Scoping Opinion and the key themes raised since scoping and during statutory consultation, and how these have been addressed through the ES.

16.4.3 East Cambridgeshire District Council (ECDC) and West Suffolk Council (WSC) were consulted post-scoping and invited to comment on the PERA. Both councils consider that the PERA is acceptable and agree with the assessment including the need for an intrusive investigation, which will be secured through a Requirement of the DCO. This requires the preparation and approval of a site investigation scheme and the identification of any remediation measures.

Table 16-3 Consultations matters and responses for ground conditions

Consultee	Matter raised	Response
Planning Inspectorate (Scoping Opinion)	As the ground conditions Phase 1 Preliminary Risk Assessment (PRA) is still "being prepared", there is insufficient evidence that the Scheme will not significantly affect ground conditions, including the creation of new contamination pathways or worsen existing contamination pathways. Therefore, the Inspectorate does not agree with the approach that a ground conditions assessment can be scoped out of the ES on the basis of anticipated results. The ES should include an assessment of the potential affects the Scheme could have on ground conditions.	A Ground Conditions Phase 1 Preliminary Environmental Risk Assessment is included in **Appendix 16B** of this Environmental Statement **[EN010106/APP/6.2].** This Section summarises the findings of this report.
East Cambridgeshire District Council (Environmental Health Scientific Officer) (Scoping Opinion)	Consider that any land contamination or air quality implications are likely to be low or negligible.	Noted

Consultee	Matter raised	Response
Isleham Parish Council (Scoping Opinion)	The potential damage to panels and subsequent pollution into the ground from material deterioration, storms, birds and vandalism.	The Scheme will have an Operational Environmental Management Plan in place for the operation and maintenance of the Scheme. This will include measures to regulate the environmental effects of the operational phase of the Scheme including measures to manage the risk from pollution from small leaks and spillages from maintenance activities. A Framework Operation Management Plan (OEMP) is presented in **Appendix 16F** of this Environmental Statement **[EN010106/APP/6.2**].
Environment Agency (Scoping Opinion)	Land contamination investigations should be carried out in accordance with BS 5930:1999-2010 'Code of Practice for site investigations' and BS 10175:2011 'Investigation of potentially contaminated sites - Code of Practice' as updated/amended. Site investigation works should be undertaken by a suitably qualified and experienced professional. Soil and water analysis should be fully MCERTS accredited. Any further site investigation, demolition, remediation or construction works on site must not create new pollutant pathways or pollutant linkages in to the underlying principal aquifer to avoid generating new contaminated land liabilities for the developer. Clean drilling techniques may be required where boreholes, piles etc. penetrate through contaminated ground.	Noted and agreed. A site investigation strategy will be secured through a Requirement of the DCO.
Section 47 response (statutory consultation)	Heavy metals will build in the surrounding soil.	Best practice avoidance and mitigation measures for ground contamination have been outlined in **Appendix 16C: Framework Construction Environmental Management Plan** in this Environmental Statement **[EN010106/APP/6.1]**.

Assessment Methodology

16.4.4 The assessment involved a desk-based review of the Order limits to identify historic land uses and the geological, hydrological, hydrogeological and ecological setting of the Order limits. A walkover was undertaken to identify environmental and ground conditions which may represent a potential future liability. A study area has been defined as the Order limits plus a 250m radius.

16.4.5 A Conceptual Site Model (CSM) was prepared with a view to identifying any potentially significant source-pathway-receptor linkages. This was followed by an environmental risk assessment.

16.4.6 The risk assessment is based on current good practice guidance. This is presented below and included in **Appendix 16B, Annex D** of this Environmental Statement **[EN010106/APP/6.2]**.

16.4.7 The magnitude of risk associated with potential contamination within the Order limits has been assessed. To do this, an estimate has been made of:

a. The potential severity of the risk, which is classified according to the criteria in **Table 16-4**; and

b. The likelihood of risk occurring, which is classified in accordance to the criteria in **Table 16-5**.

Table 16-4 Severity of risk associated with potential contamination of ground conditions

Severity	Examples
High	Acute risks to human health likely to result in “significant harm” (e.g. very high concentrations of contaminants/ground gases) Catastrophic damage to buildings/property (e.g. by explosion, sites with high gassing potential, extensive VOC contamination) Major pollution of controlled waters (e.g. surface watercourses or principal aquifers/source protection zones) Short term risk to a particular ecosystem
Medium	Chronic (long-term) risk to human health likely to result in “significant harm” (e.g. elevated concentration of contaminants/ground gases) Pollution of sensitive controlled waters (e.g. surface watercourses or principal/secondary A aquifers) Significant effects on sensitive ecosystems or species
Mild	Pollution of non-sensitive waters (e.g. smaller surface watercourses or Secondary B aquifers or unproductive strata)

Severity	Examples
	Significant damage to crops, buildings, structures or services (e.g. by explosion, sites with medium gassing potential, elevated concentrations of contaminants)
Minor	Non-permanent human health effects (requirement for protective equipment during site works to mitigate health effects) Damage to non-sensitive ecosystems or species Minor (easily repairable) damage to buildings, structures or services (e.g. by explosion, sites with low gassing potential)

Table 16-5 Probability of risk associated with potential contamination of ground conditions

Probability	Examples
High likelihood	Pollutant linkage may be present that appears very likely in the short-term and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
Low likelihood	Pollutant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Unlikely	Pollutant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable

16.4.8 An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in **Table 16-6**.

Table 16-6 Comparison of probability and severity associated with potential contamination of ground conditions

Probability		Severity			
		High	**Medium**	**Mild**	**Minor**
	High likelihood	Very High Risk	High Risk	Moderate Risk	Moderate/ Low Risk
	Likely	High Risk	Moderate Risk	Moderate/ Low Risk	Low Risk
	Low likelihood	Moderate Risk	Moderate/ Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/ Low Risk	Low Risk	Very Low Risk	Very Low Risk

16.4.9 The requirements for further works or mitigation are dependent on the significance of the risk. Generally, 'moderate' to 'very high' risks are considered to be significant and in need of further assessment/ mitigation and 'very low' to 'low' risks are generally considered insignificant and not requiring further assessment/mitigation. Professional judgement is often required in the determination of whether an effect is considered to be significant by taking account of whether effects are considered to be positive or negative, permanent or temporary, direct or indirect, the duration and frequency of the effect and whether any secondary effects are caused.

Baseline Conditions

16.4.10 The land within the Order limits is directly underlain by solid geology of the Chalk Formation, classified as a Principal Aquifer, locally overlaid by superficial deposits of the Alluvium, River Terrace Deposits, Lowestoft Formation and Blown Sand, classified as Secondary Aquifers. The land within the Order limits is located within Source Protection Zones (SPZs) III, with a small portion of the Order limits in the north-western corner of Sunnica West A and the Grid Connection Route B designated SPZ II by the Environment Agency (EA) for the protection of potable water supply. A number of rivers, drains and isolated ponds are also located within the study area. There are identified areas of nationally designated ecological significance within 250m of the Order limits. These are shown in Figures 2-2 and 2-3 of this Environmental Statement **[EN010106/APP/6.3]**.

16.4.11 There are a number of current and historical uses that are potentially contaminative present within the Order limits or in the surrounding areas, although most of the Order limits has remained undeveloped throughout the historical period studied, which is from the first edition of the historical

Ordnance Survey (OS) maps in the late 1800's to present. Areas of note include active and former landfills, historical and current mining sites, former sewage works and current waste water treatment works, various industrial and commercial activities, farmlands, active and historical (dismantled) railway lines, and a number of infilled pits and ponds, scattered across the land within the Order limits, which may have been filled with a variety of (unlicensed) waste materials. Further details of the baseline can be found in **Appendix 16B** of this Environmental Statement **[EN010106/APP/6.2]**.

Embedded Mitigation Measures

16.4.12 During construction, operation and decommissioning, standard industry best practice measures would be adopted to avoid and reduce the risk to ground conditions.

16.4.13 The following design mitigation measures have been incorporated into the Scheme design:

a. Permanent equipment/plant: all plant (i.e. inverters, transformers and switchgear) will be installed on concrete bases or a levelling layer of thick sand with suitable bunding, as described in **Chapter 3** of this Environmental Statement **[EN010106/APP/6.1].** This will be secured through the Design Principles within the Design and Access Statement **[EN010106/APP/7.3]**;

b. Surface water drainage: the detailed operational drainage design will be carried out pre-construction with the objective of ensuring that drainage of the land to the present level is maintained. It will follow either the design of a new drainage system taking into account the proposed new infrastructure (access tracks, cable trenches, structure foundations) to be constructed, or, if during the construction of any of the infrastructure, there is any interruption to existing schemes of land drainage, then new sections of drainage will be constructed. The surface water drainage strategy is submitted with the DCO application as part of the Flood Risk Assessment presented in **Appendix 9C** of this Environmental Statement **[EN010106/APP/6.2]**. Infiltration drainage design will be in accordance with BRE 365 and infrastructure will be placed at least 10m away from surface watercourses;

c. Operational Activities: during the operational phase, on-site activity will be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components that fail, and monitoring to ensure the continued effective operation of the Scheme;

d. A CEMP (Framework CEMP included in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**) will be updated and finalised prior to construction, with the aim of (amongst other things) reducing impacts from dust generation, soil removal and waste generation. The CEMP will be secured by a requirement in the DCO;

e. A OEMP (Framework OEMP included in **Appendix 16F** of this Environmental Statement **[EN010106/APP/6.2]**) will be updated and finalised prior to operation, with the aim of (amongst other things) reducing nuisance impacts from dust generation, soil removal and waste generation. The OEMP will be secured by a requirement in the DCO; and

f. A DEMP (Framework DEMP included in **Appendix 16E** of this Environmental Statement **[EN010106/APP/6.2]**) will be updated and finalised prior to decommissioning, with the aim of (amongst other things) reducing impacts from dust generation, soil removal and waste generation. The DEMP will be secured by a requirement in the DCO.

16.4.14 Historical boreholes (including former Waterhall public water supply) are noted to exist in the Order limits; these will need to be identified and decommissioned (if not in use) or protected, in accordance with EA guidance, to remove this potential pathway into the underlying aquifers. This will be secured through the strategy to further investigate ground contamination risks as a Requirement of the DCO.

16.4.15 Natural England and the EA have been and will continue to be consulted regarding Fenland SAC, Chippenham Fen SSSI and Snailwell Poor's Fen SSSI which adjoin or partially overlap the Sunnica West Site B prior to any intrusive works. This will be secured through the strategy to further investigate ground contamination risks as a Requirement of the DCO. This is because these nature conservation sites are fed by chalk springs, and water levels are controlled by a series of ditches and dykes. They also support a diverse range of aquatic flora and fauna which may be susceptible to local changes in ground and surface flows.

Assessment of Potential Effects

16.4.16 A risk assessment of the identified plausible contaminant linkages has been undertaken for the study area in line with current legislation. The assessment takes into consideration the sources of possible contaminant risks and the presence of any plausible pathways or receptors as outlined in the Environmental Protection Act 1990 (Part 2A) (Ref 16-28). The following contaminant linkages were assessed:

a. Hazards to human health: inhalation, ingestion or dermal contact with made ground, shallow soil or dust contaminated by metals, inorganic and organic chemicals (including Asbestos Containing Materials (ACM) fibres);

b. Hazards to controlled waters: leaching of contaminants from overlying soils, lateral groundwater migration, or discharge to surface watercourses of made ground or groundwater contaminated by metals, inorganic and organic chemicals;

c. Hazards to ecological receptors: impacts from metals, inorganic and organic chemical contaminants within the made ground and

groundwater through lateral groundwater migration, discharge to surface water, sedimentation/dust deposition, physical damage to habitat, and increased human disturbance during construction;

d. Hazards to properties: plant uptake of bioavailable contamination such as phytotoxic metals in soil affecting crops or grazing animals; ground gas build up in any on-site buildings; and sulphate or hydrocarbons coming into contact with in ground structures or permeating through plastic utility pipes; and

e. Impact on mining/mineral sites: loss of resource.

16.4.17 **Table 16-7** below provides a summary of the risk evaluation of the Scheme.

Table 16-7 Risk evaluation of the Scheme for ground conditions

Source	Receptor	Risk Evaluation		
		Severity	Likelihood	Risk
Hazards to Human Health				
Metal, inorganic and organic chemical contamination within the made ground (possibly including ACM) and shallow soils	Site neighbours (residential/commercial)	Mild	Low	**Low**
	Site workers	Mild	Low	**Low**
	Public site visitors on PRoW	Minor	Unlikely	**Very Low**
Hazards to Controlled Waters				
Metal, inorganic and organic chemical contamination within the made ground and groundwater	Groundwater (Principal and Secondary Aquifers) and associated abstraction wells	Medium	Low	**Moderate/ Low**
	Surface water (rivers, canals, drains and ponds)	Medium	Low	**Moderate/ Low**
Hazard to Ecological Receptors				
Metal, inorganic and organic chemical contamination within the made ground and groundwater. Introduced contaminants from construction such as fuels and oils.	Ecological receptors Chippenham Fen and Snailwell Poor's Fen (SSSI), Snailwell Meadow (SSSI), Blackland Rough (SSSI), Fenland (SAC) and Chippenham Fen (NNR).	Medium	Likely	**Moderate**
Hazard to Properties				

Source	Receptor	Risk Evaluation		
		Severity	Likelihood	Risk
Phytotoxic metals in soil (cadmium, copper, mercury, nickel and zinc) Ground gas Sulphate and hydrocarbons	Crops in fields/ grazing animals	Mild	Unlikely	**Very Low**
	Any on-site buildings such as the switchgear and control building; farm buildings	Minor	Low	**Very Low**
	Concrete foundations, water supply pipes and other utilities	Minor	Low	**Very Low**
Impact on mining/mineral sites				
Mining/mineral sites	Mineral Safeguarding Areas for sand and gravel; Minerals Site Specific Allocations	Medium	Low	**Moderate/ Low**

16.4.18 In line with paragraph 16.4.9, the risks to 'hazards to controlled waters', 'hazards to ecology receptors' and 'impact on mining/mineral sites' are considered to require further assessment/ mitigation.

16.4.19 Given that this is a risk evaluation, the identified risk (prior to the implementation of any additional mitigation, in **Table 16-7** above) will be the same during construction, operation and decommissioning, assuming that appropriate health and safety practices during construction will be adopted during site clearance, preparation, earthworks, construction and decommissioning and appropriate environmental protection/mitigation measures will be employed. It is also considered that the Scheme development will not introduce contaminative substances into the ground with the implementation of standard industry good practice. These measures will be secured through **Appendix 16C: Framework CEMP**, **Appendix 16F: Framework OEMP** and **Appendix 16E: Framework DEMP** of this Environmental Statement **[EN010106/APP/6.2]**.

Mitigation Measures

16.4.20 Intrusive site investigation is proposed by the Applicant at the post-consent stage to provide geo-environmental data to evaluate soil and groundwater quality and confirm the conceptual site model. This in turn will allow for recommendations for any remediation works to remove any unacceptable pollutant linkages on completion of the Scheme. The geo-environmental investigation will be designed with due consideration of the requirements of BS 10175:2011: +A2 2017: Investigation of Potentially Contaminated Sites – Codes of Practice (BSI). The requirement for an intrusive investigation is secured through a Requirement of the DCO.

16.4.21 The site Investigation will be carried out in accordance with current best practice health and safety regulations. This could include, for example, the following measures:

a. Use of appropriate Personal Protective Equipment (PPE) for construction workers - including gloves and, where appropriate, dust masks, use of ground gas monitoring equipment and hygiene facilities; and

b. Use of appropriate site control measures to minimise the migration of contaminated dusts and soils from the Order limits to adjacent areas.

Residual Effects

16.4.22 The PERA has identified that the potential contaminant linkages associated with the Scheme are generally classified as **very low** to **moderate** in the absence of additional mitigation.

16.4.23 Potential contaminated linkage classified as **moderate** include lateral migration of potentially contaminated groundwater and potential discharge to surface water towards ecological receptors, including SSSI, SAC and NNR. With the mitigation described above, these effects will be minimised further and are anticipated to be **very low** to **low** and not significant.

16.4.24 Potential contaminant linkages assessed as **moderate/low** include leaching of contaminants (if present) from overlying soils to groundwater and lateral groundwater migration and discharge to surface water. With the mitigation described above, these effects will be minimised further and are anticipated to be **very low** to **low** and not significant.

16.4.25 There will be a temporary sterilisation of the Minerals Safeguarding Areas for sand or gravel. However, the resource will not be lost permanently, so the effects are anticipated to be **moderate** to **low**. The impact on Minerals Site Specific Allocations is assessed as very low, as these are not located on-site.

16.4.26 All the remaining potential contaminant linkages have been classified as between **very low** and **low**. These include potential linkages to human health and to properties. With the mitigation, the effects described above will be minimised further and are anticipated to be **very low** to **low** and not significant.

Cumulative Effects

16.4.27 The shortlisted cumulative schemes are residential developments, solar farms and battery storage, and they are expected to result in some degree of excavation or ground disturbance.

16.4.28 Provided that the requirements of relevant policy and legislation relating to land contamination and remediation are integrated within the design and appropriate mitigation measures are applied during the demolition and

construction phases of each cumulative scheme, it is considered that the cumulative effect on ground conditions will be negligible.

16.5 Major Accidents and Disasters

Introduction

16.5.1 This section summarises the potential effects of the Scheme on the environment as a result of the vulnerability of the Scheme to risks of major accidents or disasters (which are relevant to the Scheme) occurring.

16.5.2 'Accidents' are an occurrence resulting from uncontrolled developments in the course of construction, operation, and decommissioning (e.g. major emission, fire or explosion).

16.5.3 'Disasters' are naturally occurring extreme weather events or ground related hazard events (e.g. subsidence, landslide, earthquake).

Consultation Responses

16.5.4 Consultation undertaken to date in relation to major accidents and disasters is outlined in the Consultation Report **[EN010106/APP/5.1]** submitted with /the DCO application. **Table 16-8** outlines the matters raised within the Scoping Opinion and key themes raised during statutory consultation, as well as how these have been addressed through this ES.

Table 16-8 Consultations matters and responses for major accidents and disasters

Consultee	Matter raised	Response
East Cambridgeshire District Council (ECDC) (Scoping Opinion)	The table for major accidents and disasters is considered to be acceptable, but it is suggested that sabotage/criminal activity is duly considered; as pre-planned damage to this Scheme could leave it greatly vulnerable to a major accident. This element of the ES might need to be confidential.	The risk of sabotage and criminal activity is considered in this Section.

Consultee	Matter raised	Response
Planning Inspectorate (Scoping Opinion)	The ES should include a description and assessment (where relevant) of the likely significant effects resulting from accidents and disasters applicable to the Proposed Development.	Some of the shortlisted accidents and disasters are assessed in this Section. Others are assessed in the relevant technical chapter, **Chapters 6** to **15** of this Environmental Statement **[EN010106/APP/6.1]**. Please refer to **Table 16-9** for further details of the locations of the assessments for each of the shortlisted accidents and disasters.
Planning Inspectorate (Scoping Opinion)	The description and assessment should consider the vulnerability of the Proposed Development to a potential accident or disaster and also the Proposed Development's potential to cause an accident or disaster. The assessment should specifically assess significant effects resulting from the risks to human health, cultural heritage or the environment. Any measures that will be employed to prevent and control significant effects should be presented in the ES.	Some of the shortlisted accidents and disasters are assessed in this Section. Others, including effects resulting from the risks to human health and cultural heritage, are assessed in the relevant technical chapter, **Chapters 6** to **15** of this Environmental Statement **[EN010106/APP/6.1]**. **Table 16-9** presents further details of the locations of the assessments for each of the shortlisted accidents and disasters.
Planning Inspectorate (Scoping Opinion)	Relevant information available and obtained through risk assessments pursuant to European Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met.	Some of the shortlisted accidents and disasters are assessed in this Section. Others are assessed in the relevant technical chapter, **Chapters 6** to **15** of this Environmental Statement **[EN010106/APP/6.1]. Table 16-9** presents further details of the locations of the assessments for each of the shortlisted accidents and disasters.

Consultee	Matter raised	Response
Planning Inspectorate (Scoping Opinion)	The Inspectorate does not consider there to be sufficient evidence available at this stage for the Applicant to omit any major accidents or disasters from the scope of assessment and expects all shortlisted accidents and disasters to be fully considered within the ES. As mentioned in 4.3.6 of this Opinion, the Proposed Development is located within the statutory bird strike safeguarding zones surrounding RAF Mildenhall and RAF Lakenheath. Therefore, the Inspectorate suggests that the Applicant considers the risk of bird strike in their assessment of major accidents or disasters.	All shortlisted accidents and disasters from the EIA Scoping Report have been considered. Some of the shortlisted accidents and disasters are assessed in this Section. Others are assessed in the relevant technical chapter, **Chapters 6** to **15** of this Environmental Statement **[EN010106/APP/6.1]**. **Table 16-9** presents further details of the locations of the assessments for each of the shortlisted accidents and disasters. A consideration of the risk of bird strike is presented in this Section and the ornithological baseline conditions are included in **Chapter 8: Ecology and Nature Conservation** of this Environmental Statement **[EN010106/APP/6.1].**
Health and Safety Executive (Scoping Opinion)	According to HSE's records there is one major accident hazard site and six major accident hazard pipelines within the proposed DCO application boundary of the Sunnica Energy Farm for this Nationally Significant Infrastructure Project.	The design team have taken utility constraints into account when preparing design layouts. Information on how these constraints have been avoided are discussed in **Chapter 3: Scheme Description** of this Environmental Statement **[EN010105/APP/6.1]**
Health and Safety Executive (Scoping Opinion)	The presence of hazardous substances on, over or under land at or above set threshold quantities (Controlled Quantities) will probably require Hazardous Substances Consent (HSC) under the Planning (Hazardous Substances) Act 1990 as amended. Further information on HSC should be sought from the relevant Hazardous Substances Authority.	This is a generic comment and not considered to be relevant to this project as no hazardous materials are expected.

Consultee	Matter raised	Response
Public Health England (PHE) (Scoping Opinion)	Within the EIA PHE would expect to see information about how the promoter would respond to accidents with potential off-site emissions e.g. flooding or fires, spills, leaks or releases off-site. Assessment of accidents should: identify all potential hazards in relation to construction, operation and decommissioning; include an assessment of the risks posed; and identify risk management measures and contingency actions that will be employed in the event of an accident in order to mitigate off-site effects.	Emergency response is covered in the Framework CEMP (**Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**). An Outline Fire Safety Management Plan has been prepared **[EN010106/APP/7.9].** Spills and leaks are discussed in the Ground Conditions PERA (**Appendix 16B** of this Environmental Statement **[EN010106/APP/6.2]**). A BESS Air Quality Fire Risk Assessment has been prepared and is provided in **Appendix 16D** of this Environmental Statement **[EN010106/APP/6.2]**.
Public Health England (Scoping Opinion)	The EIA should include consideration of the COMAH Regulations (Control of Major Accident Hazards) and the Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations 2009: both in terms of their applicability to the installation itself, and the installation's potential to impact on, or be impacted by, any nearby installations themselves subject to the Regulations.	This is a generic comment and not considered to be relevant to this project as the Scheme will not store quantities of dangerous substances within the Order limits which equals or exceeds COMAH thresholds.
Section 47 response (statutory consultation)	Concerns about the fire risk of the batteries being installed as part of the Scheme	This issue is covered in this Section. Additionally, an Outline Fire Safety Management Plan has been prepared as part of the DCO submission **[EN010106/APP/7.9].** An Unplanned Atmospheric Emissions from Battery Energy Storage Systems (BESS) is presented in **Appendix 16D** of this Environmental Statement **[EN010106/APP/6.2]**.
Section 47 response (statutory consultation)	Concerns of security threats from terrorism on the Scheme	This issue is covered in this Section.

Assessment Methodology

16.5.5 In general, major accidents or disasters, as they relate to the Scheme, fall into three categories:

a. Events that could not realistically occur, due to the nature of the Scheme or its location;

b. Events that could realistically occur, but for which the Scheme, and associated receptors, are no more vulnerable than any other development; and

c. Events that could occur, and to which the Scheme is particularly vulnerable, or which the Scheme has a particular capacity to exacerbate. These are the events that are considered in this Section.

16.5.6 An exercise was undertaken to identify all possible major accidents or disasters that could be relevant to the Scheme. This long list was drawn from several sources, including the UK Government's Risk Register of Civil Emergencies (Ref 16-33). Major accidents or disasters with little relevance in the UK were not included, such as volcanic eruptions for example.

16.5.7 The long list was screened to form a shortlist of events to be taken forward for further consideration. The shortlist of events and the list of relevant chapters and assessments in which they have been scoped into are summarised in **Table 16-9** below.

Table 16-9. Major accidents or disasters shortlisted for further consideration

Major accident or disaster	Potential risk and receptor	Relevant Chapter or Appendix of the ES
Floods	Risk of the Scheme flooding and its potential to exacerbate flooding to property and people in areas of increased flood risk.	**Chapter 9: Flood Risk, Drainage and Water Resources** of this Environmental Statement **[EN010106/APP/6.1]** **Appendix 9C Flood Risk Assessment** of this Environmental Statement **[EN010106/APP/6.2]**
Fire	Risk of fire to local residents, habitats and species.	This Section of this chapter **Outline Fire Safety Management Plan** of this Environmental Statement **[EN010106/APP/6/7.9]**
Road accidents	Risk posed by spillage of hazardous loads from road traffic accidents during construction / decommissioning on the aquatic environment	**Appendix 16C Framework CEMP** of this Environmental Statement **[EN010106/APP/6.2]** **Appendix 16C Framework DEMP** of this Environmental Statement **[EN010106/APP/6.2]**

Major accident or disaster	Potential risk and receptor	Relevant Chapter or Appendix of the ES
	Risk from glint and glare to affect road users	Section 16.3 of this Chapter: Glint and Glare **Appendix 16A Glint and Glare Assessment** of this Environmental Statement **[EN010106/APP/6.2]**
Rail accidents	Risk of rail accident as a result of the cable route corridor crossing on rail users	This Section of this chapter
Aircraft disasters	Risk from glint and glare to affect pilots and aircraft	Section 16.3 of this Chapter: Glint and Glare **Appendix 16A Glint and Glare Assessment** of this Environmental Statement **[EN010106/APP/6.2]**
Flood Defence Failure	Risk of increased flooding or flooding to the Scheme and employees	**Chapter 9: Flood Risk, Drainage and Water Resources** **Appendix 9C Flood Risk Assessment** of this Environmental Statement **[EN010106/APP/6.2]**
Utilities failure (gas, electricity, water, sewage, oil, communications)	Risk of utilities failure to affect employees and local residents	Section 16.6 of this Chapter: Telecommunications, Television Reception and Utilities
Mining / Extractive Industry	Risk of unstable ground conditions from current or past quarrying activity to affect employees	The Preliminary Environmental Risk Assessment presented in **Appendix 16B** of this Environmental Statement **[EN010106/APP/6.2]**. There is the potential for current or past quarrying activity in the vicinity to lead to unstable ground conditions due to nearby active quarries. However, the risk will be considered as part of the geotechnical design, ensuring that the risk is designed out.
Plant disease	Biosecurity risks from new planting to habitats and species	**Chapter 8: Ecology and Nature Conservation** of this Environmental Statement **[EN010106/APP/6.1]** **Appendix 16C Framework CEMP** of this Environmental Statement **[EN010106/APP/6.2]**

Major accident or disaster	Potential risk and receptor	Relevant Chapter or Appendix of the ES
Criminal activity	Risk of sabotage/criminal activity and the effects of pre-planned damage to the Scheme.	This Section of this chapter
Bird strike	The Scheme is located within the statutory bird strike safeguarding zones surrounding RAF Mildenhall and RAF Lakenheath.	This Section of this chapter

16.5.8 Those major accidents and disasters listed in **Table 16-9** that are not being considered within another technical assessment (fire and rail accidents) have been reviewed by the design team to ensure risks are addressed through the design as necessary. These events are assessed below.

16.5.9 Where there is potential for interaction between a major accident and disaster, receptor, and the Scheme, these have been shortlisted and a qualitative evaluation is provided below. An effect is considered significant based on the effect it would have on the environment, as a result of the assessed accident or disaster occurring. Details on appropriate prevention measures and mitigation for significant effects on the environment from such events are either provided in the sections below or within the referenced topic chapters.

Baseline Conditions

16.5.10 A number of receptors are present in the vicinity of the Scheme which could be vulnerable to major accidents or disasters, either because of their proximity to the Scheme or their importance to the surrounding area. These include:

a. Towns, villages, farms and residential homes;
b. Commercial sites and buildings;
c. Roads;
d. Railways;
e. Designated ecological sites, woodland, farmland, and waterbodies; and
f. Underground infrastructure services including electricity, water, communications, and gas.

16.5.11 Details of the specific receptors that fall into the above categories are provided in **Chapter 2: Scheme Location** of this Environmental Statement **[EN010106/APP/6.1]**. These receptors have been considered in this assessment.

Assessment of Potential Effects

Construction and Decommissioning Phase

16.5.12 Risks of major accidents and disasters occurring during construction and decommissioning for those topics that are assessed elsewhere in this ES are assessed in the relevant chapters and sections as outlined in **Table 16-9.** All works will be subject to risk assessments as required by the Framework CEMP (**Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**) and the Framework DEMP (**Appendix 16E** of this Environmental Statement **[EN010106/APP/6.2]**). Mitigation measures to be implemented during construction and decommissioning are listed within the Framework CEMP and the DEMP respectively, which will be secured by Requirements in the DCO.

Criminal damage

16.5.13 The Order limits would be managed by the contractor during construction and decommissioning to mitigate the risk of criminal activity. The design will include safety measures to protect the sites from criminal damage, including fencing, CCTV cameras and lighting in critical areas. Therefore, the Scheme is not expected to have an effect on the environment due to the risk of a major accident occurring as a result of criminal damage during construction and decommissioning.

Birdstrike

16.5.14 The construction and decommissioning of the Scheme would not have any effect on the numbers and frequency of bird flights overhead. The land within the Order limits is not located along any migratory corridors for birds, within a valley or headland, or in close proximity to large water bodies which may attract large flocks of birds. The land within the Order limits is also not on a path connecting areas supporting significant numbers of birds that pose a risk to aviation such as water birds. Additionally, the Scheme will not create habitat that will attract significant numbers of flocking birds that may pose a strike risk for aviation. The ornithological baseline for the Order limits is provided in **Chapter 8: Ecology and Nature Conservation** of this Environmental Statement **[EN010106/APP/6.1]**. The Scheme is not expected to have an effect on birds due to the risk of a major accident occurring as a result of birdstrike during construction and decommissioning.

Fire

16.5.15 Health and Safety on site would be managed by the contractor during construction and decommissioning to mitigate the risk of fire. During construction and decommissioning, the Scheme is not expected to have an effect on the environment due to the risk of a major accident occurring as a result of fire during construction and decommissioning.

Rail Accidents

16.5.16 The cable route corridor for Grid Connection Route B crosses the railway line connecting Newmarket to Ely. Non-intrusive trenchless techniques will be used to construct the crossing of the cable route, therefore the works will be undertaken deep below the crossing and a distance either side, not interfering with the operations of the railway. Additionally, the construction of the crossing will be managed to the specific requirements of Network Rail (as secured by the protective provisions with Network Rail included in the DCO) and therefore the risk of a rail accident as a result of the crossing will be minimised. Therefore, significant effects on the environment due to rail accidents are not anticipated.

16.5.17 A Framework Operational Environmental Management Plan (OEMP) has been prepared to manage environmental risks during operation. This is provided in **Appendix 16F** of this Environmental Statement **[EN010106/APP/6.2]**. The approval and implementation of the OEMP will be secured by a Requirement to the DCO.

Criminal damage

16.5.18 If the Scheme were to be damaged through pre-planned criminal activity, the risk of a major accident occurring on site may increase. The design will ensure that the compounds and solar equipment are secure to minimise the potential for damage to occur through criminal activity. Embedded mitigation will include fencing, CCTV cameras and lighting in critical areas. These are described in further detail in **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]**. There will also be a commissioning phase of testing undertaken prior to the operation phase to ensure that all equipment is operating correctly.

16.5.19 There will be 17 permanent operations staff present on site during the day; this will allow faster responses to an intruder security alert or damage than other solar farms in the UK, which are traditionally unmanned.

16.5.20 Furthermore, the Scheme does not process or include large scale chemicals and criminal damage to the infrastructure is unlikely to lead to a large-scale leak, explosion, or other major event. Therefore, the Scheme is not expected to have an effect on the environment due to the risk of a major accident occurring as a result of criminal activity during operation.

Birdstrike

16.5.21 The Scheme falls within the statutory birdstrike safeguarding zones surrounding RAF Mildenhall and RAF Lakenheath. The Order limits is not located along any migratory corridors for birds, within a valley or headland, or in close proximity to large water bodies which may attract large flocks of birds. Birds are unlikely to be attracted to the panels. This is discussed

further in **Chapter 8: Ecology and Nature Conservation** of this Environmental Statement **[EN010106/APP/6.1]**.

16.5.22 It is considered highly unlikely that the operation of the Scheme would have any effect on the numbers and frequency of bird flights overhead. Therefore, the Scheme is not expected to have an effect on birds due to the risk of a major accident occurring as a result of birdstrike to overhead aircraft.

Fire

16.5.23 There is a potential fire risk associated with certain types of batteries such as lithium ion. An Outline Battery Fire Safety Management Plan has been prepared and is provided with the DCO application **[EN010106/APP/7.6]**. The implementation of the Outline Battery Fire Safety Management Plan will be secured by a Requirement to the DCO. This fully explores the risks associated with fires from BESS equipment and minimises the impact of an incident during construction, operation and decommissioning of the facility and includes the following:

a. Details of the hazards associated with lithium-ion (li-ion) batteries;
b. Isolation of electrical sources to enable firefighting activities;
c. Measures to extinguish or cool batteries involved in fire;
d. Minimise environmental impact of an incident;
e. Containment of fire water run-off;
f. Handling and responsibility for disposal of damaged batteries; and
g. Establishment of regular onsite training exercises.

16.5.24 The Outline Battery Fire Safety Management Plan **[EN010106/APP/7.6]** outlines the requirement for two sources of firefighting water to be installed on site during operation. These include:

a. Internal automated sprinkler or water mist system; and
b. Firefighting water for the Fire and Rescue team.

16.5.25 Each BESS container will be fitted within an automatic sprinkler or water mist system for fire suppression in the event of an unplanned fire. The water supply for this system will be integrated into the design of each BESS container and located either internally or externally to each BESS. The containment of this water would be within a sump integrated into the BESS container.

16.5.26 Each BESS compound requires a maximum of 242.5m^3 of water storage for use by fire fighters in case of an unplanned fire in the BESS compound. Water would either be stored two half capacity sectional steel panel tank or two half capacity cylindrical steel panel tanks.

16.5.27 Each BESS area would be lined with an impermeable surface to prevent water used during firefighting operations infiltrating into the soils underlying the BESS area. Each BESS area would also require a bunded lagoon capable of capturing 242.5m^3 of fire water. The lagoon would have a volume of approximately 410m^3, which would allow the water to be stored following an emergency event and removed from site if contaminated.

16.5.28 As well as fire suppression systems described above, fire detection systems, such as multispectral infrared flame detectors, will be installed to detect any fire. The Scheme design will include adequate separation and firewalls between battery banks to ensure that an isolated fire would not become widespread and lead to a major incident.

16.5.29 The Scheme design includes cooling systems which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. The following with regards to fire protection will be undertaken during manufacturing and installation of the battery equipment:

a. The manufacturer will undertake extensive testing and analysis to assess fire risk;

b. The installation area and equipment will be protected from flooding, which has the potential to cause electrical fires. The risk of flooding has been assessed as part of the Flood Risk Assessment in **Appendix 9C:** of this Environmental Statement **[EN010106/APP/6.2]** and mitigation measures to protect it from flooding have been recommended which will be developed as part of the detailed design; and

c. Installation areas will comply with appropriate local fire, electrical and building code requirements, including access to fire trucks in case of emergency.

16.5.30 In addition to the above, a Fire Emergency Response Plan and a Fire Service Site Specific Risk Assessment will be produced for each BESS area. This will be secured through the Framework OEMP **[EN010106/APP/6.2]**, the implementation of which is secured via a Requirement to the DCO.

16.5.31 Further specific mitigation measures are identified in the Outline Battery Fire Safety Management Plan **[EN010106/APP/7.6]**. With the above mitigation and the additional measures included within the Outline Battery Fire Safety Management Plan **[EN010106/APP/7.6]**, the risk of fire is minimised. In addition, in the unlikely case that there is a fire, it would be contained and controlled.

16.5.32 An assessment on the potential for unplanned atmospheric emissions from BESS in the event of a fire has been undertaken and is provided in **Appendix 16D** of this Environmental Statement **[EN010106/APP/6.2]**. This study reviews the potential emissions to air from out-gassing and from fire and considers the potential magnitude of emissions and the likely consequences of emissions to air from BESS.

16.5.33 The battery technologies proposed for the site are based on sealed cells with no excess electrolyte. This removes the potential for venting or out-gassing of gaseous substances during normal operational use. If the battery cells become damaged by heat or are burnt within a fire affecting a single module, a rack of modules or multiple racks, then the combustible materials consumed in the fire could give rise to a range of organic and inorganic air pollutants.

16.5.34 Dispersion modelling was undertaken to help understand the minimum rates of dilution likely to occur to pollutant concentrations as they disperse from the source of the emission to receptor locations. Public Health England identifies acute exposure guideline level (AEGL) values, which start at AEGL-1 and increase in severity of health outcome to AEGL-3. The AEGL-1 criteria define the *"level of the chemical in air or above which the general population could experience notable discomfort"*.

16.5.35 The assessment concluded that emissions of hydrogen fluoride could cause concentrations over time periods of 10 minutes, 1 hour or up to 6 hours that are below the AEGL-1 value at locations within 100 m of the fire. In most instances the AEGL-1 value would be achieved within the Order limits and in all cases in a shorter distance than that to the nearest sensitive receptors.

16.5.36 The detailed design will ensure that the parameters assessed in this study are met (i.e. 1 kg to 3 kg of hydrogen fluoride from a 5 rack fire). The potential consequence at actual receptor locations surrounding the BESS (located within the relevant work areas as shown within the Work Plans **[EN010106/APP/2.2]**) would be exposure to hydrogen fluoride at concentrations below the AEGL-1 value.

16.5.37 The design of BESS includes a number of design elements to both prevent, detect and control a fire should one occur. These include the use of batteries that are sealed by design so do not vent when in normal use and have no free electrolyte. The battery modules will contain cells separated by a thermal barrier to prevent one cell affecting the temperature of the adjacent one, with the modules themselves also separated from one another by another thermal barrier or an air gap. The thermal barrier is intended to ensure that should one cell/module heat up it will not impact on the adjacent cell/module so as to prevent a thermal cascade. The batteries will be controlled by charging management systems that will detect if a cell or battery is not operating correctly and the whole BESS will be fitted with a fire monitoring system so if one cell or module were to catch fire the fire suppression system will automatically be triggered to reduce the temperate and ensure that the burning cell/module does not affect the other cells/modules in the BESS. These details for the battery design will be secured through the Design and Access Statement **[EN010106/APP/7.3]** included within this DCO Application.

16.5.38 Therefore, in the unlikely event that a fire were to break out in a single cell or module, it is considered very unlikely given the control measures that the

fire would spread to the rest of the BESS. Even should all the systems fail and a large scale fire break out within one of the BESS containers, then the resultant hydrogen fluoride concentration at the closest receptors would be below the level that Public Health England has identified as resulting in notable discomfort to members of the general population.

16.5.39 The expected hydrogen fluoride emissions will be checked against the assumptions in **Appendix 16D** of this Environmental Statement **[EN010106/APP/6.2]** at detailed design stage (post-consent) once the make, model and layout of the BESS is known, and, if necessary, consequence modelling will be undertaken to demonstrate the impacts associated with an unplanned fire would not exceed the effects outlined in this report or cause any significance adverse health effects to the local community.

Rail accidents

16.5.40 The cable route corridor for Grid Connection Route B crosses the railway line connecting Newmarket to Ely. The crossing will be designed to meet the specific requirements of Network Rail (and protective provisions will be in the DCO for the protection of Network Rail's railway) and therefore the risk of a rail accident as a result of the crossing will be minimised. Therefore, significant effects on the environment due to rail accidents are not anticipated.

Mitigation Measures

16.5.41 Minimising the risk of major accidents during construction, operation and decommissioning will be addressed through appropriate risk assessments as required in the Framework CEMP, OEMP and DEMP, provided in **Appendices 16C, 16F and 16E** respectively in this Environmental Statement **[EN010106/APP/6.2]**. The implementation of those plans will be secured via a Requirement to the DCO.

16.5.42 An Outline Battery Fire Safety Management Plan has been produced for the Scheme and is provided in **[EN010106/APP/7.6]**. This has been produced in consultation with Suffolk Fire and Rescue Service. Suffolk Fire and Rescue were also consulted on behalf of Cambridgeshire Fire and Rescue Service. This will be updated and maintained as a 'live document' throughout the operational phase of the Scheme. The implementation of the plan will be secured via a Requirement to the DCO.

Residual Effects

16.5.43 Given the nature of accidents and disasters, there is the potential for significant effects if an event does occur, however, the assessment has concluded that the risk of such events occurring is low for the Scheme and significant effects on the environment are therefore not anticipated. The focus is on prevention of major accidents and disasters, and mitigation if an

event does occur. Taking into account the good industry practice and additional mitigation measures discussed above, the risk of accidents and disasters is considered low.

Cumulative Effects

16.5.44 The shortlisted cumulative schemes located in close proximity to the Order limits are residential developments, solar farms and battery storage around Burwell Substation.

16.5.45 Increased traffic during construction and decommissioning phases of the Scheme in combination with other developments could result in a greater risk of road accidents in combination. This is assessed in **Chapter 13: Transport and Access** of this Environmental Statement **[EN/010106/APP/6.1]**.

16.5.46 The solar developments in close proximity to the Order limits are located around Burwell Substation and adjacent to the Grid Connection Route B. They are not positioned in close proximity to the developable area of the Order limits. Additionally, with embedded mitigation and additional mitigation listed above to reduce the risk of fire, no significant effects are expected from the Scheme alone. For these reasons, it is concluded that no significant cumulative effects would arise from the Scheme.

16.6 Telecommunications, Television Reception and Utilities

Introduction

16.6.1 This section evaluates the effects of the Scheme on telecommunication infrastructure, television reception and existing utilities.

Consultation Responses

16.6.2 Consultation undertaken to date in relation to telecommunications, television reception and utilities is outlined in the Consultation Report **[EN010106/APP/5.1]** submitted with the DCO application. **Table 16-10** outlines the matters raised within the Scoping Opinion and the key themes raised during statutory consultation and how these have been addressed through the ES.

Table 16-10 Consultations matters and responses for telecommunications, television reception and utilities

Consultee	Matter raised	Response
Planning Inspectorate (Scoping Opinion)	The Inspectorate notes the Applicant's conclusion that a specific chapter for this matter in the ES is considered unnecessary. The Inspectorate agrees that telecommunications, television reception, and utilities does not have to be a separate chapter of the ES. The Inspectorate is content that any significant effects that arise from affecting telecommunications, television reception, and utilities will be adequately assessed within the appropriate chapter of the ES.	The assessment is presented in this section.
East Cambridgeshire District Council (Scoping Opinion)	The proposed approach to telecommunications and waste is considered acceptable.	Noted.
ESP Utilities Group Ltd (Scoping Opinion)	ESP Utilities Group Ltd are continually laying new gas and electricity networks and this notification is valid for 90 days from the date of this letter. If your proposed works start after this period of time, please re-submit your enquiry.	A check has been undertaken. The design team have taken utility constraints into account when preparing design layouts. This is described in **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]**.
National Grid (Scoping Opinion)	Guidelines on electricity infrastructure has been provided by National Grid. Ground levels above our cables must not be altered in any way. Cable and Pipeline Crossings information provided. General notes on pipeline safety provided.	The design team have taken utility constraints into account when preparing design layouts. Separate consultation has been undertaken with National Grid, including engagement on protective provisions. This is described in **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]**.

Consultee	Matter raised	Response
Cadent gas (Scoping Opinion)	We require to carry out an assessment on the whole area of the application to assess if any of our assets will be affected, therefore we require a marked out site plan of the whole proposed area.	The design team have taken utility constraints into account when preparing design layouts. Separate consultation has been undertaken with Cadent Gas, including engagement on protective provisions. This is described in **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]**.
Section 47 response (statutory consultation)	The PEI Report does not explain how the conclusion that the Scheme is unlikely to interfere with telecommunications and television reception has been reached.	This is discussed in this Section. Telecommunications, television reception and utilities have not been discussed in the same level of detail as some topics due to the unlikely impact associated with the Scheme and typical solar farms. This was confirmed by the Planning Inspectorate's Scoping Opinion, included above.

Assessment Methodology

16.6.3 To identify any existing infrastructure constraints, both consultation and a desk-based study has been undertaken. Consultation with relevant telecommunication and utilities providers is a routine part of solar developments.

16.6.4 Consultees include water, gas and electricity providers and telecommunications providers. Telecommunications and television providers are unlikely to be affected by Electromagnetic Interference (EMI) unless transmitters are near electrical infrastructure associated with the solar PV array.

16.6.5 A desk-based search has been undertaken for the presence of telecommunications, television reception and utilities infrastructure within the Order limits and within the vicinity. A qualitative approach is used to assess the likelihood of significant effects on telecommunications, television reception and utilities.

Baseline Conditions

Telecommunications

16.6.6 Two mobile phone masts are present within the Order limits, one in Sunnica East Site B and the other within Sunnica West Site A.

Television Reception

16.6.7 The area surrounding the Scheme receives television signals that were made exclusively digital after the digital switchover was completed in the Anglian region in 2011.

16.6.8 The area within and surrounding the Order limits is predominantly served by the Tacolneston transmitter (Norfolk), which is located approximately 48km north east of the Sunnica East Site B (Ref 16-34). Much of the area surrounding the Sunnica East Site A, Sunnica East Site B, Sunnica West Site A, and Sunnica West Site B is also served by the Sandy Heath transmitter (Central Bedfordshire), approximately 47km south-west of the Sunnica West Site B (Ref 16-35).

16.6.9 The Linnet Valley and Bury St Edmunds repeat transmitters are located approximately 15km south-east of Sunnica West Site A, both of which are part of the Tacolneston transmitter group.

Utilities

16.6.10 Consultation has been and will continue to be undertaken with the following organisations:

a. National Grid Electricity Transmission PLC (NGET);
b. Environment Agency;
c. National Grid Gas PLC (NGG);
d. Anglian Water;
e. UKPN; and
f. Cadent Gas Ltd.

16.6.11 On-site utilities could include water, sewers, gas or oil pipelines and electrical cables. Knowledge of the utilities during design and construction allows any effects to be negated by avoiding them or by use of suitable structures, such as pipe bridges.

16.6.12 Through consultation and a desk-based search of existing datasets, the following utilities and infrastructure that have the potential to be affected by the Scheme have been identified:

a. High or intermediate pressure (above 2 bar) gas pipelines and associated equipment:

i. Feeder Main 3 – Roudham Heath to Great Wilbraham
ii. Feeder Main 3 – Barton Mills to Burwell.

b. Low or medium pressure (below 2 bar) gas pipes and associated equipment.

c. A pipeline associated with the Lodes-Granta river augmentations scheme crosses Sunnica West A.

d. Electricity transmission underground cables and associated equipment.

e. Electricity transmission 400kV overhead lines:

i. Burwell Main Walpole 1
ii. Burwell Main Walpole 2.

f. Burwell Main 400kV Substation.

g. Burwell Main 132kV Substation.

h. Above ground electricity sites and installations.

Assessment of Potential Effects

Telecommunications

16.6.13 The mobile telecommunications masts are not expected to be affected by the Scheme, given the low-lying nature of the Scheme and the lack of potential for it to form a barrier between the mast and any receiving station. Therefore, the Scheme is not anticipated to interfere with telecommunications infrastructure and no effects are anticipated in the construction, operation, and decommissioning phases.

Television Reception

16.6.14 The Scheme consists of fixed low-lying infrastructure with no moving parts and is therefore unlikely to interfere with digital television signals and therefore no effects are anticipated in the construction, operation, and decommissioning phases.

Utilities

16.6.15 The potential exists for utilities to be affected during the construction of the Scheme through damage caused as a result of excavation and engineering operations. Without any precautionary measures to avoid damage to utilities, this could lead to a short-term adverse effect.

16.6.16 Precautionary measures have been included as part of the embedded mitigation for the Scheme. These include: locating the Scheme outside of utilities' protected zones; the use of ground penetrating radar before excavation to identify any unknown utilities; and consultation and agreement of construction/ demobilisation methods prior to works commencing. Consultation has been undertaken with Cadent Gas and National Grid in order to carefully identify the easement corridors required to avoid the gas

pipelines running through the Order limits. These measures would reduce the likelihood of effects on utilities during construction. Engagement is also ongoing with all statutory undertakers with apparatus with the potential to be affected by the Scheme to agreement protective provisions that are included in the DCO. Therefore, no adverse effects are expected during construction.

16.6.17 The decommissioning phase would require below ground works to remove the on-site infrastructure; however, the grid connection cables will remain in situ. Works would be undertaken within the footprint excavated during construction. The embedded mitigation measures used during construction would also apply during decommissioning. These measures, along with those listed within the Framework DEMP (provided in **Appendix 16E** of this Environmental Statement **[EN010106/APP/6.2]**), would reduce the likelihood of effects on utilities during decommissioning. Therefore, no adverse effects are predicted during decommissioning.

16.6.18 No effects on utilities are predicted as a result of the operational phase of the Scheme because no below-ground works will be required during operation.

Mitigation Measures

16.6.19 The risk of damage to utilities during construction would be minimised through embedded mitigation, which would involve those measures listed above and mapping infrastructure that crosses the Scheme and avoiding it through the design. The draft DCO also includes protective provisions for the protection of electronic communication networks and utilities, and engagement with relevant statutory undertakers in this respect is ongoing. No further mitigation would be required.

Cumulative Effects

16.6.20 The Scheme has been assessed to have no effect on telecommunication, television or utilities. It is expected that the other developments included within the cumulative schemes shortlist would also have no effect on telecommunications and television reception and would adhere to the same mitigation as set out above to reduce the risk of damaging utilities. All developments will need to be managed through a CEMP and would include mitigation measures to reduce the risk of damaging utilities during construction. Therefore, no cumulative effects are expected on telecommunications, television reception, or utilities.

16.7 Waste

Introduction

16.7.1 This section discusses the expected waste streams during each phase of the Scheme and assesses the likely significant effects that may arise from waste as a result of the Scheme.

16.7.2 The legal definition of waste is "*any substance or object which the producer discards or intends or is required to discard*" (Ref 16-37). The legal definition of waste also covers substances or objects, which fall outside of the commercial cycle or out of the chain of utility. In particular, most items that are sold or taken off site for recycling are wastes, as they require treatment before they can be resold or reused.

16.7.3 In practical terms, wastes include surplus spoil, scrap, recovered spills, unwanted surplus materials, packaging, office waste, wastewater, broken, worn-out, contaminated or otherwise spoiled plant, equipment and materials.

Consultation Responses

16.7.4 Consultation undertaken to date in relation to waste is outlined in the Consultation Report **[EN010106/APP/5.1]** submitted with the DCO application. **Table 16-11** outlines the matters raised within the Scoping Opinion and key themes raised during statutory consultation and how these have been addressed through the ES.

Table 16-11 Consultations matters and responses for waste

Consultee	Matters raised	Response
The Planning Inspectorate (Scoping Opinion)	The Inspectorate agrees that waste does not need to be a separate chapter of the ES and that the description of the potential streams of construction waste and estimated volumes can be included in the ES description of the Scheme development chapter. However, an assessment of the likely significant effects that may arise from waste should also be included within the ES. In addition, the ES should describe any measures implemented to minimise waste and state whether the Waste Hierarchy will be utilised. The CEMP should include as much detail as possible on on-site waste management, recycling opportunities, and off-site disposal. If off-site disposal is required, an assessment of likely significant effects including intra-cumulative effects should be included within the ES.	Information on waste management in line with the Waste Hierarchy is presented in the Framework CEMP and DEMP in **Appendix 16C and 16 E** of this Environmental Statement **[EN010106/APP/6.2]** and summarised in this section. The estimated streams and volumes of construction waste are also included within this Section and **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]**. An assessment of the likely effects that may arise from waste is also included in this Section. An assessment of intra-cumulative effects has been carried out and is presented in **Chapter 17: Effect Interactions** of this Environmental Statement **[EN010106/APP/6.1]**.

Consultee	Matters raised	Response
Public Health England (Scoping Opinion)	The EIA should demonstrate compliance with the waste hierarchy (e.g. with respect to re-use, recycling or recovery and disposal). For waste arising from the installation, the EIA should consider: the implications and wider environmental and public health impacts of different waste disposal options; and disposal route(s) and transport method(s) and how potential impacts on public health will be mitigated.	Information on waste management in line with the Waste Hierarchy is presented in the Framework CEMP and DEMP in **Appendix 16C and 16 E** of this Environmental Statement **[EN010106/APP/6.2]** and summarised in this section. The estimated streams and volumes of construction waste are also included within this Section and **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]**. An assessment of the likely effects that may arise from waste is also included in this Section. An assessment of intra-cumulative effects has been carried out and is presented in **Chapter 17: Effect Interactions** of this Environmental Statement **[EN010106/APP/6.1]**.
Section 47 response (statutory consultation)	Concerns regarding how waste will be dealt with during construction, operation and decommissioning.	Information on waste management is presented in the Framework CEMP, OEMP and DEMP in **Appendix 16C, 16F and 16 E** of this Environmental Statement **[EN010106/APP/6.2]** and summarised in this section.
Section 47 response (statutory consultation)	Concerns regarding the disposal of toxic waste.	Information on waste management is presented in the Framework CEMP, OEMP and DEMP in **Appendix 16C, 16F and 16E** of this Environmental Statement **[EN010106/APP/6.2]** and summarised in this section.
Section 47 response (statutory consultation)	Concerns that recycling facilities will not be able to cope with such a large number of solar panels following decommissioning.	Recycling facilities and waste carriers will be determined prior to decommissioning. Recycling plants with sufficient capacity will be identified.

Assessment Methodology

16.7.5 Waste streams and quantities have been estimated using industry standards, based on activities, material requirements and staff requirements during the construction, operation, and decommissioning phases. The processing of these waste quantities (i.e. re-use, recycling or disposal to

landfill) has been considered in the assessment to identify whether any significant effects from the generation of waste are anticipated.

16.7.6 The number of vehicles associated with the removal of waste material associated with construction and decommissioning is considered within **Chapter 13: Transport and Access** of this Environmental Statement **[EN010106/APP/6.1]**.

Baseline Conditions

16.7.7 The waste carriers and landfill sites used will be determined by the contractor pre-construction. Two Authorised Landfill Sites are located adjacent to the site, to the east of the A11. These are Kennett Hall Farm and Kennett Phase 2 A.

Assessment of Potential Effects

16.7.8 Given the nature of the Scheme, significant quantities of waste are not anticipated. Expected waste streams during the construction, operation and decommissioning phases are discussed below.

16.7.9 A Construction Resource Management Plan (CRMP) and Decommissioning Resource Management Plan (DRMP) will be prepared for the construction and decommissioning phases, along with the detailed CEMP and DEMP. **Appendix 16C: Framework CEMP** and **Appendix 16E: Framework DEMP** of this Environmental Statement **[EN010106/APP/6.2]** include measures to control and manage waste on-site.

Construction Phase

16.7.10 The majority of construction equipment will be delivered to site for assembly and installation (mounting structures) and connection (solar panels).

16.7.11 The types of waste streams and vehicles associated with the removal of waste material during construction is summarised in **Table 16-12** below.

Table 16-12 Waste arisings during construction

Waste	Management	Destination
Hazardous waste		
Paint	Approximately 1000kg	Authorised recycling or landfill
Solvents	Approximately 500kg	Authorised recycling or landfill
Chemical cans and containers, oily rags	Approximately 1000kg	Authorised recycling or landfill

Waste	Management	Destination
Non-hazardous waste		
Paperboard	Approximately 21,094m^3, 703 containers	Authorised recycling or landfill
Wood	Approximately 28,125m^3, 938 containers	Authorised recycling or landfill
Plastic	Approximately 2,813m^3, 94 containers	Authorised recycling or landfill

16.7.12 All waste transported off site will be delivered to the appropriately licenced receivers of such materials. Operators receiving any waste materials resulting from the Scheme will be subject to their own consenting procedures.

16.7.13 Prior to construction, opportunities to minimise waste produced through the construction phase will be explored as far as possible. Possibilities to re-use or recycle materials will be explored before resorting to landfill options.

16.7.14 Re-usable waste includes soil excavated for trenches, roads, compound areas and foundations. These will be re-used on-site where possible and soil arisings will be balanced through a cut and fill exercise to retain volumes on site.

16.7.15 There may be a need to remove some soils from the Order limits for treatment or disposal, if found to be contaminated and if it is not practical to treat this onsite. Toxic and / or hazardous waste must be treated by an authorised operator. Transportation of hazardous waste will also require an authorised carrier. Materials are to be dealt with in accordance with the CEMP and the CRMP. With these in place and the appropriate control measures followed, no significant effects are anticipated.

Operational Phase

16.7.16 During the operational phase of the Scheme there will be up to 17 permanent staff, although given the scale of the Scheme maintenance personnel would be expected to be present on-site most days. Waste arisings are expected to be minimal, and would include:

a. Welfare facility waste;
b. Equipment needing replacing;
c. Waste metals; and
d. General waste (paper, cardboard, wood, etc.).

16.7.17 During the operational phase of the Scheme, waste arisings are expected to be minimal and are not anticipated to result in a significant impact if

disposed of appropriately. Details of how waste during operation will be dealt with are provided in the Framework OEMP, which is provided in **Appendix 16F** of this Environmental Statement **[EN010106/APP/6.2].** A detailed OEMP will be prepared prior to the start of operation.

Decommissioning Phase

16.7.18 It is expected that waste streams during decommissioning could include:

a. Solar panels and mounts;
b. Waste materials from foundations;
c. Electrical equipment;
d. Batteries;
e. Cables;
f. Welfare facility waste;
g. Waste chemicals, fuels and oils;
h. Waste metals;
i. Waste water from dewatering of excavations; and
j. Waste water from cleaning activities (e.g. wheelwash).

16.7.19 The estimated types and volumes of waste during decommissioning is discussed in **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]** and summarised in **Table 16-13** below.

Table 16-13 Estimated waste arisings during decommissioning.

Waste	Management	Destination
BESS Equipment	Approximately 17,550m^3, 585 containers	Authorised recycling or landfill
Electrical works	Approximately 10,380m^3, 346 containers	Authorised recycling or landfill
Solar PV Equipment	Approximately 12,060m^3, 402 containers	Authorised recycling or landfill
Modules	Approximately 110,400m^3, 3,680 containers	Authorised recycling or landfill
Steel	Approximately 44,850m^3, 1,495 containers	Authorised recycling or landfill
Plastic	Approximately 3,105m^3, 104 containers	Authorised recycling or landfill

16.7.20 All waste transported off site will be delivered to the appropriately licenced receivers of such materials. Operators receiving any waste materials resulting from the Scheme will be subject to their own consenting

procedures. It is worth noting that it is not possible to forecast the capacity of the landfill sites for decommissioning at this stage due to potential change in waste generation and operators at that time.

16.7.21 Prior to decommissioning, opportunities to minimise waste as far as possible will be explored. Possibilities to re-use or recycle materials will be explored before resorting to landfill options. There is a new industry emerging for recycling solar panels. This would be explored, in addition to any resale of any operational panels. Waste during the decommissioning phase will be dealt with as part of the DRMP and the DEMP, which will be prepared in line with relevant legislation and guidance at that time of decommissioning. The Framework DEMP is included in **Appendix 16E** of this Environmental Statement **[EN010106/APP/6.2].** With these measures in place, no significant effects are anticipated.

Mitigation Measures

16.7.22 As part of the embedded mitigation, a CRMP and a DRMP will be agreed as part of the CEMP and DEMP, prior to the commencement of construction and decommissioning phases.

16.7.23 Waste arisings will be prevented and designed out where possible. Opportunities to re-use material resources will be sought where practicable. Where re-use and prevention are not possible, waste arisings will be managed in line with the Waste Hierarchy.

Residual Effects

16.7.24 During construction, operation, and decommissioning, the re-use or recycling of materials will be explored before resorting to landfill options. Waste during the construction, operation and decommissioning phase will be dealt with as part of a CEMP, OEMP and the DEMP, which will be prepared in line with relevant legislation and guidance. A DRMP would also be produced prior to decommissioning. Therefore, it is not anticipated that there would be a significant effect on waste from the Scheme.

Cumulative Effects

16.7.25 If the construction or decommissioning phases of the Scheme happen at the same time as the construction phase of another significant scheme within the local area, there may be some cumulative effects associated with waste.

16.7.26 There are a number of potential schemes that, depending on construction dates, may have cumulative effects with the Scheme. These include a number of new residential developments within the local area, solar schemes, and two new battery storage facilities.

16.7.27 Cumulative volumes of waste may put pressure on the capacity of local recycling plants or landfill sites. This would be managed through the CRMP

and consultation with waste providers. Therefore, effects from cumulative volumes of waste are not expected to be significant.

16.8 References

Ref 16-1 Infrastructure (EN-5) Her Majesty's Stationery Office (HMSO), (1990); Part IIA of the Environment Protection Act 1990.

Ref 16-2 HMSO, (1991); The Water Resources Act 1991.

Ref 16-3 HMSO, (2009); The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009.

Ref 16-4 HMSO, (2003); The Water Act 2003.

Ref 16-5 HMSO, (1984); The Building Act 1984.

Ref 16-6 HMSO, (2015); The Building Regulations & c (Amendment) Regulations 2015.

Ref 16-7 HMSO, (1990); Town and Country Planning Act 1990.

Ref 16-8 HMSO, (1995); The Environment Act 1995.

Ref 16-9 HMSO, (2016); Environmental Permitting (England and Wales) Regulations 2016.

Ref 16-10 The Hazardous Waste (England and Wales) (Amendment) Regulations 2016.

Ref 16-11 The Contaminated Land (England) (Amendment) Regulations 2012.

Ref 16-12 HMSO, (2015); Environmental Damage (Prevention and Remediation) Regulations 2015.

Ref 16-13 HMSO, (1999); The Anti-Pollution Works Regulations 1999.

Ref 16-14 Department of Energy & Climate Change, (2011); Overarching National Policy Statement for Energy (EN-1).

Ref 16-15 Department of Energy & Climate Change, (2011); National Policy Statement for Electricity Networks.

Ref 16-16 Ministry of Housing, Communities and Local Government (MCHLG), (2019); National Planning Policy Framework (NPPF).

Ref 16-17 East Cambridgeshire District Council, (2015); Local Plan.

Ref 16-18 Forest Heath Borough Council, (2010); Forest Heath Local Development Framework. Core Strategy Development Plan Document 2001-2026 (with housing projected to 2031) Adopted May 2010.

Ref 16-19 Environment Agency, (2009); Updated technical Background to the CLEA model; Science Report: SC050021/SR3 (Contaminated land exposure assessment (CLEA) spreadsheet based tool).

Ref 16-20 Environment Agency, (2006); Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination Environment Agency.

Ref 16-21 Environment Agency, (2009); Human Health Toxicological Assessment of Contaminants in Soil, Science Report SC050021/SR2.

Ref 16-22 Environment Agency, (2020); Land Contamination: Risk Management.

Ref 16-23 Environment Agency, (2010); Guiding Principles for Land Contamination (GPLC 1, 2 and 3).

Ref 16-24 Construction Industry Research and Information Association (CIRIA), (2001); CIRIA Guidance C532. Control of water pollution from construction sites. Guidance for consultants and contractors.

Ref 16-25 The Chartered Institute of Environmental Health (CIEH) Local Authority Handbooks (various publication dates, 2006 - 2009).

Ref 16-26 British Standard (BS) 8485:2015 + A1:2019; Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.

Ref 16-27 CIRIA (2007); CIRIA Guidance C665. Assessing risks posed by hazardous ground gases to buildings.

Ref 16-28 CIRIA (2001) Contaminated Land Risk Assessment: A Guide to Good Practice (C552)

Ref 16-29 HMSO (1990) Environmental Protection Act 1990.

Ref 16-30 HMSO (2011) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended by The Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018).

Ref 16-31 OJEU (2012) Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC.

Ref 16-32 OJEU (2009) Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations.

Ref 16-33 Cabinet Office (2017) National Risk Register Of Civil Emergencies.

Ref 16-34 Full Freeview on the Tacolneston (Norfolk, England) transmitter.

Ref 16-35 Full Freeview on the Sandy Heath (Central Bedfordshire, England) transmitter.

Ref 16-36 Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and repealing certain Directives (Waste Framework Directive).

Ref 16-37 Directive 2018/851/EC of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (Waste Framework Directive).

Ref 16-38 HMSO (2011) The Waste (England and Wales) Regulations 2011

Ref 16-39 HMSO (2016) The Hazardous Waste (England and Wales) (Amendment) Regulations 2016.

Ref 16-40 HMSO (1989) Control of Pollution (Amendment) Act 1989.