

# **Green Hill Solar Farm Preliminary Environmental Information Report**

## **Chapter 23 Major Accidents and Disasters**

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## 23 Major Accidents and Disasters

### 23.1 Introduction

23.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the findings of the Environmental Impact Assessment (EIA) work undertaken to date concerning the potential impacts of the Scheme on Major Accidents and Disasters (MAD) during the construction, operation and maintenance, and decommissioning phases. The following aspects will be considered within the MAD assessment process:

- The potential effects of the Scheme on the environment deriving from its vulnerability to risks of relevant major accidents and/or disasters;
- The potential effects of the Scheme interacting with any sources of external hazards; and
- The potential effects of an external major accident and/or disaster and risk of the Schemes existence on an environmental receptor.

23.1.2 The chapter presents the information available at this stage in the Scheme's development to consider MAD impacts. Where information is not yet available, the chapter sets out how it will be dealt with in the ES at the DCO application stage.

23.1.3 For more details about the Scheme, refer to **Chapter 4: Scheme Description**.

23.1.4 The MAD assessment has identified a range of factors relevant to the assessment. This chapter is intended to be read as part of the wider PEIR with the following potential likely effects addressed in the following relevant chapters of the PEIR set out below.

**Table 23.1 Supporting Information from other Chapters relevant to Major Accidents and Disasters effects**

Effect	Addressed within PEIR
Flood Risk	Chapter 7: Climate Change Chapter 10: Hydrology, Flood Risk and Drainage
Fire and Explosions	Chapter 22: Ground Conditions and Contamination Chapter 16: Air Quality
Road Accidents	Chapter 13: Transport and Access Chapter 15: Glint and Glare
Hazardous Substances	Chapter 13: Transport and Access
Aviation Accidents	Chapter 15: Glint and Glare
Disturbance of Unexploded Ordinance	Chapter 22: Ground Conditions and Contamination
Unstable Ground Conditions	Chapter 22: Ground Conditions and Contamination
Vegetation Pests and Diseases	Chapter 9: Ecology and Biodiversity

### Appendices and Figures

23.1.5 This chapter is supported by the following tables:

- **Table 23.1:** Signposting to Major Accidents and Disasters effects;
- **Table 23.2:** Summary of Consultation and Responses;



- **Table 23.3:** Criteria for Assessing Sensitivity Receptors;
- **Table 23.4:** Criteria for Assessing Magnitude of Impacts (Positive or Negative);
- **Table 23.5:** Criteria for Assessing the Significance of Effects; and
- **Table 23.6:** Summary of Mitigation Measures.

## 23.2 Consultation

23.2.1 An EIA Scoping Report was submitted to the Planning Inspectorate (PINS) in July 2024, with a formal request for Scoping Opinion. PINS subsequently issued the Scoping Opinion on the proposed scope on 30<sup>th</sup> August 2024. Consultation undertaken throughout the pre-application and scoping phase for the Scheme has informed the approach to the Major Accidents and Disaster assessment and the information provided within this chapter.

23.2.2 A summary of consultation and response to the Scoping Report are outlined below in **Table 23.1**.

**Table 23.2: Summary of Consultation and Responses**

Consultee and Date	Consultation Response	Outcome and any further steps anticipated
The Planning Inspectorate Scoping Opinion 30 <sup>th</sup> August 2024	<p>A standalone Chapter for MA&amp;D is proposed to be scoped out on the basis that potential MA&amp;D will be assessed in other ES chapters where relevant. The shortlist of MA&amp;D to be considered in the EIA contained in Table 22 does not identify the relevant chapter(s) for all of those and none of the SR technical chapters make any reference to consideration of MA&amp;D.</p> <p>The Inspectorate notes that the proposed site boundary falls within the consultation zones of one major accident hazard site (MAHS) and three major accident hazard pipelines (MAHPs) The Applicant’s attention is drawn to the Health and Safety Executive’s and Northern Gas Networks’ consultation response contained in Appendix 2 of this Opinion in this regard.</p> <p>The potential for fire resulting from the battery storage component of the Proposed Development is included in the shortlist. However, it is unclear where in the ES the risk of fire would be assessed. The Inspectorate notes that an outline Battery Safety Management Plan is proposed to be submitted with the DCO application. The risk of fire associated with battery storage facilities should be assessed in the ES and relevant mitigation, such as fire-fighting and containment measures, should be set out therein and secured in the DCO, with reference to the proposed Battery Safety Management Plan.</p> <p>No reference is made to MA&amp;D in respect of UXO, although the ‘Detailed UXO Risk Assessment’ report contained in Appendix 10 identifies the risk from allied ordnance on Site G as ‘Medium’ and recommends the implementation of a UXO Risk Management Plan. MA&amp;D impacts resulting from UXO</p>	Major Accidents and Disasters have been scoped into a stand-alone chapter.



Consultee and Date	Consultation Response	Outcome and any further steps anticipated
	<p>should be considered in the ES and an assessment provided where significant effects are likely to occur.</p> <p>Text appears to be missing from para 22.4.5 and the final sentence suggests that the intention may have been to identify some MA&amp;D matters proposed to be scoped out. The Inspectorate notes that Table 22.3 identifies MA&amp;D as an aspect to be scoped out.</p> <p>Based on the above, and in the absence of evidence demonstrating no LSE and/or clear agreement of the conclusion with relevant statutory bodies, the Inspectorate is not in a position to agree to scope out a standalone chapter for MA&amp;D. Accordingly, the ES should include a discrete chapter that identifies potential impacts and provides an assessment where significant effects may occur or evidence of the absence of a LSE and agreement with the relevant consultation bodies.</p>	
<p>Health and Safety Executive Scoping Opinion 30<sup>th</sup> August 2024</p>	<p>According to HSE's records, the proposed DCO application boundary for this Nationally Significant Infrastructure Project is within the consultation zones of a major accident hazard site ['MAHS'] and three major accident hazard pipelines ['MAHP'].</p>	<p>Major accident site and three major accident hazard pipelines have been considered and the operator will be consulted.</p>
<p>Northern Gas Networks Scoping Opinion 30<sup>th</sup> August 2024</p>	<p>NGN has a number of gas assets in the vicinity of some of the identified "site development" locations. It is a possibility that some of these sites could be recorded as Major Accident Hazard Pipelines(MAHP), whilst other sites could contain High Pressure gas and as such there are Industry recognised restrictions associated to these installations which would effectively preclude close and certain types of development. The regulations now include "Population Density Restrictions" or limits within certain distances of some of our "HP" assets.</p> <p>The gas assets mentioned above form part of the Northern Gas Networks "bulk supply" High Pressure Gas Transmission" system and are registered with the HSE as Major Accident Hazard Pipelines. Any damage or disruption to these assets is likely to give rise to grave safety, environmental and security of supply issues. NGN would expect you or anyone involved with the site (or any future developer) to take these restrictions into account and apply them as necessary in consultation with ourselves. We would be happy to discuss specific sites further or provide more details at your locations as necessary.</p>	<p>Three major accident hazard pipelines have been considered within this assessment.</p> <p><b>Chapter 22:Other Environmental Matters</b>, Section 22.5 will consider the location of these assets. Consultation will be carried out with the operator.</p>



### 23.3 Legislation, Planning Policy and Guidance

23.3.1 This section provides an overview of the legislation, planning policy and guidance against which the Scheme will be considered for Major Accidents and Disasters.

#### Legislation

##### Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref.1)

23.3.2 The legislation requires ‘A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/ or disasters...’ (Schedule 4, Paragraph 8).

##### Health and Safety at Work Act (1974) (Ref.2)

23.3.3 The Act provides the framework for the regulation of workplace health and safety in the UK. The overriding principle is that foreseeable risks to persons in workplaces shall be reduced so far as is reasonably practicable and that adequate evidence shall be produced to demonstrate that this has been done.

##### The Control of Major Accident Hazards Regulations 2015 (Ref.3)

23.3.4 *The Control of Major Accident Hazards Regulations (COMAH) are enforced ‘aims to prevent and mitigate the effects of major accidents involving dangerous substances which can cause serious damage/harm to people and/or the environment. COMAH treats risks to the environment as seriously as those to people’.* Key points of the COMAH regulations include general duties for operators, safety reporting, emergency plans and public information.

##### Construction (Design and Management) Regulations 2015 (CDM Regulations) (Ref.4)

23.3.5 The Construction (Design and Management) Regulations place specific duties on clients, designers and contractors so that health and safety is considered throughout the life of a construction development from planning and design to completion and maintenance. The regulations apply to all construction work.

##### The Regulatory Reform (Fire Safety Order) 2005 (Ref.5)

23.3.6 Provides a framework for regulating fire safety in all non-domestic premises including workplaces, commercial properties and communal areas used in common in England and Wales. Key provisions include risk assessments, fire safety measures, information and training and maintenance.

#### National Planning Policy

##### Overarching National Policy Statement for Energy (EN-1) (Ref.6)

23.3.7 Under Schedule 3 of the EIA Regulations, the risks of major accidents and natural disasters relevant to the Scheme needs to be considered., with the following requirements set out:

*A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned...Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.*

##### National Planning Policy Framework (Ref.7)

23.3.8 Although not directly relevant to energy developments, the NPPF does refer, at paragraph 101

*“planning policies and decisions should promote public safety and take into account wider security and defence requirements by:*



*anticipating and addressing possible malicious threats and natural hazards, especially in locations where large numbers of people are expected to congregate. Policies for relevant areas (such as town centre and regeneration frameworks), and the layout and design of developments, should be informed by the most up-to-date information available from the police and other agencies about the nature of potential threats and their implications. This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security; and*

*recognising and supporting development required for operational defence and security purposes, and ensuring that operational sites are not affected adversely by the impact of other development proposed in the area.”*

#### **Relevant Industry Guidance**

*IEMA (2020) Major Accidents and Disasters in EIA: An IEMA Primer (Ref.8)*

23.3.9 The aim of the Institute of Environmental Management and Assessment (IEMA) Major Accidents and Disasters in EIA Primer is to *‘increase awareness of the major accidents and/or disasters EIA topic and its application. It offers an assessment methodology based on known current practice within the UK to date and identifies key terminology that can be used.’*

### **23.4 Assessment Methodology**

23.4.1 IEMA guidance (Ref.8) define a major accident and disaster as the following:

- Major Accidents: *‘Events that threaten immediate or delayed serious environmental effects to human health, welfare and/ or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events. Major accidents can be caused by disasters resulting from both man-made and natural hazards.’*
- Disasters: Can consist of a ‘natural hazard’, examples of these are landslides, flooding, earthquakes, strong winds or a ‘Man-Made’ hazard such as theft, acceleration of glint and glare from reflective surfaces, Unexploded Ordnance (UXO) and others. The hazard is determined to be a disaster by having the potential to cause an event or situation that meets the definition of a major accident.

23.4.2 The impact of major accidents and/ or disasters can be of varied significance. They have the potential to impact people, assets, property and the surrounding environment.

23.4.3 The MAD assessment identifies the potential for major accidents or disasters to which have the potential to result in likely significant effects on human health and the natural and built environment. The threats identified may result in serious damage. Arrangements can be identified to reduce and manage the risk of potential hazards.

#### **Study Area**

23.4.4 The Study Area for the Scheme includes both natural and human-made hazards located within the Scheme itself, and the surrounding area.

23.4.5 The Study Area includes any land uses or activities within the Scheme boundary, as well as any areas occupied during construction, operation and decommissioning. Additionally, external features beyond the Scheme’s boundary that are likely to interact with the Scheme will also be considered.

23.4.6 The following influencing factors and associated distances from the Site boundary were adopted for setting the Study Area:

#### **Built environment features**

- Airports and airfields within approximately 13km (the legal distance of the safeguarding zone for licensed airports in the UK);



- COMAH facilities within the Scheme boundary (distance to furthest COMAH installation centre point whose consultation zone overlaps the Scheme);
- Major Accident Hazard Pipelines (MAHP) within approximately 1km (distance to furthest MAHP whose consultation zone overlaps the Scheme);
- Bulk fuel storage facilities (including Liquefied Natural Gas, Liquefied Petroleum Gas) within approximately 500m;
- UXO as identified within the initial desk-based risk assessment;
- Transmission lines (gas, electrical, oil/fuels) within the Site.

#### **Natural features**

- Hydrological and geological features such as dam failure and seismic activity within 5km and hydrological and geological feature such as flood risk and unstable ground conditions within 1km;

23.4.7 The Study Area for each identified hazard and threat has been determined based on likely impact pathways, proximity to and of receptors, the potential scale of worst-case impacts from case-study incidents and professional judgment where there is no data on past events. Where practicable, approaches undertaken for similar scale schemes have been utilised.

23.4.8 External features that may present a hazard to the Scheme have been considered where there is a potential for these to interact with the Scheme, including those beyond the scheme boundary.

#### **Impact Assessment Methodology**

23.4.9 The following methodology is based on the 2020 guidance published by the IEMA (Ref.8), with references to previous assessments conducted for similar schemes.

23.4.10 The purpose of this assessment is to assess the vulnerability of the Scheme to those hazards that have the potential to cause a major event, and which could then generate a significant adverse effect on the environment. This will comprise a risk assessment specific to the Site, focusing on un-planned, yet plausible events caused by both natural (for example a flood) and man-made events (for example arson) which could arise.

23.4.11 The following three categories have been determined based on practices completed by similar schemes:

- Events that could not realistically occur, due to the nature of the Scheme or its location;
- Events that could realistically occur, but for which the Scheme, and associated receptors, are no more vulnerable than any other development; and
- Events that could occur, and to which the Scheme is particularly vulnerable, or which the Scheme has a particular capacity to exacerbate.

23.4.12 The approach to assessing the potential impacts of the Scheme on Major Accidents and Disasters will follow the IEMA Guidance (Ref.8) on assessing EIAs.

23.4.13 This preliminary assessment of major accidents and disasters has been conducted using a staged approach as outlined here:

- Identifying potential risk events related to the scoped in major event types (source / pathways and receptors);
- Defining the reasonable worst-case consequence if the event did occur;
- Identifying any possible prevention, minimisation and / or mitigation measures;
- Assessing the likelihood; and then
- Determining whether the risk has been mitigated to 'As Low As Reasonably Practicable' (ALARP) and identification of any residual risks and their significance.





23.4.14 Significance will be considered for each identified receptor in conjunction with the appropriate environmental topics for this assessment.

**Sensitivity of Receptors**

23.4.15 The Scheme is likely to have impacts on major accident and disaster receptors in the local District and County areas, and to a more minor extent, and national level. The sensitivity of a receptor is based upon its relative importance, and of its ability to adapt to or absorb changes as a result of changes to baseline conditions. The Sensitivity of these receptors will be assessed in accordance with **Table 23.2** below.

**Table 23.3 Criteria for Assessing Sensitivity Receptors**

Sensitivity	Definition
High	The receptor or resource has little ability to absorb the change without fundamentally altering its present character or it is of international or national importance
Medium	The receptor or resource has moderate capacity to absorb the change without significantly altering its present character or is of high and more than local (but not national or international) importance.
Low	The receptor or resource is tolerant of change without detrimental effect, is of low or local importance.

**Magnitude of Impacts**

23.4.16 The magnitude of an impact is typically defined by the following factors:

- Extent – the area over which an effect occurs;
- Duration – the time for which the effect occurs;
- Frequency – how often the effect occurs;
- Severity – the degree of change relative to existing environmental conditions.

23.4.17 The magnitude of impacts will be quantified in full for the construction and operational phases of the Scheme and estimated for the Scheme’s decommissioning (the operational life of the Scheme is anticipated to be 60 years) in accordance with the metrics set out in **Table 23.4**.

**Table 23.4 Criteria for Assessing Magnitude of Impacts (Positive or Negative)**

Magnitude	Definition
Major	The total loss or major change/substantial alteration to key elements/features of the baseline (pre-development) conditions, such that the post development character/composition/attributes will be fundamentally changed.  High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; majority of population affected; permanent change; substantial service quality implications.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions, such that post development character/composition/attributes of the baseline will be materially changed  Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications.
Minor	A minor shift away from baseline condition. As change arising from the loss/alteration will be discernible/detectable but not material. The underlying



Magnitude	Definition
	<p>character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation.</p> <p>Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population affected; rapid reversal; slight service quality implications.</p>
Negligible	<p>Very little change from baseline conditions. The change will be barely distinguishable and approximating to a non-change situation</p> <p>Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.</p>
Neutral	No change from baseline conditions.

**Assessment of Significance**

23.4.18 The degree of significance of impacts, in respect of major accidents and disasters, is determined using the matrix below in **Table 23.5** taking into consideration both receptor sensitivity to change and magnitude of change to baseline conditions

**Table 23.5: Criteria for Assessing the Significance of Effects**

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major/moderate	Moderate/minor	Minor/negligible
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Low	Moderate/minor	Minor	Minor	Negligible
Negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

23.4.19 The degree of significance can be described either in terms of beneficial or adverse magnitudes of scale and should be used to determine which impacts from the Scheme need to be considered further in the ES, and therefore which effects require mitigation measures to be implemented in the design, construction, operation, and decommissioning phase of the Scheme.

23.4.20 According to IEMA guidance (Ref.8), a significant effect is defined as one that has the potential to cause temporary or permanent destruction of an environmental receptor, which cannot be remedied through minor clean-up and restoration efforts. Additionally, a significant effect would result in long-lasting damage with a reasonable likelihood of occurring.

**23.5 Assessment Assumptions and Limitations**

23.5.1 This preliminary assessment is based on baseline and Scheme's design information available at the time of writing this chapter. A full assessment of potential hazards is being undertaken as part of the EIA, the assessment will be developed and refined following statutory consultation, and as additional information becomes available, the final assessment presented within the ES.

23.5.2 The potential impacts and their effects cannot be predicted with complete certainty. Predictions are constrained by the quality and reliability of available information and the precision of the predictive methods used. Therefore, the assessment in the ES will indicate likely impacts rather than exact predictions. Where there is uncertainty, a precautionary approach will be taken, assuming a reasonable worst-case scenario for the assessment.



- 23.5.3 The design of the Scheme will adhere to various industry standards and codes, many of which are mandatory. These standards require that infrastructure and systems be designed to either eliminate risks to people and the environment or reduce them to levels that are ALARP, which is considered adequate.
- 23.5.4 The findings of this preliminary assessment may change as the Scheme's design is further developed and refined through ongoing assessment and consultation progresses. Further assessments will be documented in the ES.

## 23.6 Baseline Conditions

- 23.6.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Major Accidents and Disasters.

### Existing Baseline

#### Flooding

- 23.6.2 Baseline data with regard to flood risk both to on-site and off-site receptors has been considered in **Chapter 10: Hydrology, Flood Risk and Drainage**. Furthermore, baseline data related to the potential impacts of increased surface water flooding as a result of increased precipitation due to climate change have been explored in **Chapter 7: Climate Change**. Together, these conclude the Scheme's development area are of a medium sensitivity to impacts from the Scheme.

#### Pollution

- 23.6.3 During construction and operation there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction and maintenance activities.
- 23.6.4 This is discussed further in **Chapter 10: Hydrology, flood risk and drainage** and **Chapter 22: Ground Conditions and Contamination**. Mitigation measures will be contained within the CEMP, OEMP and Decommissioning Environmental Management Plan.
- 23.6.5 During construction and operation, standard control measures would be implemented by the appointed contractor to manage the risk of spillages and leaks and such no MAD scenarios have been identified.

#### Fire and Explosions

- 23.6.6 Impacts from fires and explosions related to the scheme will impact on air quality and human health receptors. Baseline conditions for air quality have been explored in **Chapter 16: Air Quality**, which indicate residential receptors are of a high sensitivity to air quality changes. The baseline risk from unexploded ordnance is deemed to be low across all parts of the Scheme, with the exception of Green Hill G which has a medium risk.
- 23.6.7 On-site equipment explosions would be most likely to impact human health directly based on proximity to equipment or infrastructure most vulnerable to explosion (lithium-ion batteries and substations), and from projected debris. The risk zones for fires and explosions are to be fully defined in the ES to determine the number of residential dwellings, and number of publicly accessible highways or rights of way that are of high or medium sensitivity to impacts from the Scheme.

#### Road Accidents

- 23.6.8 Baseline data for road accidents has been identified in **Chapter 13: Transport and Access** to determine impacts from construction and operational traffic on the road network. Additionally, the Scheme may impact on road users as a result of glint and glare, which has been explored in **Chapter 15: Glint and Glare**.
- 23.6.9 Kettering Road (A43) (national road) was identified as being within the screening distance of Green Hill A.2. A screening review indicated that there is a potential line of sight from A43 road users and the proposed panels such that this road will require technical modelling. These impacts will be assessed in the ES.



### **Rail**

23.6.10 There are no railways within the Study Area to consider for MAD.

### **Aviation Accidents**

23.6.11 Aviation receptors have been considered as part of **Chapter 16: Glint and Glare**. Potential effects (without mitigation) are predicted at Hold Farm Airfield, Pitsford Airfield, Sywell Aerodrome, William Pitt Airfield, and Easton Maudit Airfield. Aviation receptors will be assessed at the main ES stage.

### **Damage or Severance of Utilities**

23.6.12 Consultation will take place with utility providers to ensure impacts are not caused to the identified major accident hazard site (Sywell) and three Cadent Gas major accident hazard pipelines at Streeton Lane, Wootton and Mears Ashby.

23.6.13 Further consultation will take place during the statutory consultation period and effects from major accidents and disasters on these will be presented in the ES.

### **Vegetation, Pests, and Diseases**

23.6.14 The new planting proposed can be susceptible to disease and pests. Changing conditions due to climate change may exacerbate this. The failure of planting presents a risk to the natural environment. The existing baseline conditions within the local area with regard to susceptibility to impacts as a result of disease and pests will be explored in **Chapter 9: Ecology and Biodiversity** in the ES. Mitigation of impacts, through a landscape planting strategy will take account of the need to plant a diverse range of species that will be tolerant to climate change.

### **Future Baseline**

23.6.15 In absence of the Scheme, it is considered there will be no change to the future baseline for major accidents and disasters. The baseline details as presented above are not anticipated to change in the absence of the Scheme.

23.6.16 The effects of climate change could increase the vulnerability of the local population to the effects of major accidents and disasters, for example increased fire risk with hotter, drier weather; but this is considered to remain a low risk.

### **Receptors**

23.6.17 The following receptors have been considered within this assessment:

- The surrounding population and human health specifically members of the public, local communities, road users and nearby workers;
- Nearby infrastructure and built environment;
- The natural environment including biodiversity, land and soil, air and climate; and
- Historic environment.

23.6.18 It is acknowledged that throughout the construction, operation including maintenance activities and decommissioning phases of the Scheme there are potential effects of the Scheme on the future operators and contractors' employees. However, it is considered that these effects will be managed sufficiently through implementation and compliance with the relevant health and safety regulations and ensuring works are carried out in line with best practice measures. Compliance with these measures will mitigate potential risks to be ALARP. Where necessary, employees of the Scheme have been considered for completeness.

23.6.19 Members of the public who willfully trespass, breaching the Schemes boundary fencing will not be considered within this assessment. The Applicant will provide a secure boundary of the Scheme to reduce the risk of trespassing to ALARP, which has been further considered below.



## 23.7 Embedded Mitigation Measures

- 23.7.1 The way that potential environmental impacts have been or will be prevented, avoided or mitigated to reduce impacts to a minimum through design and/or management of the Scheme is outlined in this section and will be considered as part of the assessment of the potential effects.
- 23.7.2 The following embedded mitigation measures for construction/operation/decommissioning have been incorporated into the Scheme design, with detailed proposals and locations to be submitted with the DCO application.
- 23.7.3 The Applicant has committed to constructing and managing the Proposed Scheme in accordance with best practice environment, health and safety standards and systems.
- 23.7.4 The Applicant has committed to completing the following management plans which will support the DCO application and outline clear and consistent approaches to control activities within the Schemes Order Limits:
- Outline Battery Fire Safety Management Plan;
  - Construction Environmental Management Plan (CEMP) (to be submitted as part of the application for development consent);
  - Operational Environmental Management Plan (OEMP) (to be submitted as part of the application for development consent); and
  - Decommissioning Environmental Management Plan (DEMP) (to be submitted as part of the application for development consent).

## 23.8 Assessment of Likely Impacts and Effects

- 23.8.1 The UK Government's National Risk Register 2020 (Ref.9) was used to identify possible major accidents or disasters that could be relevant to the Scheme. Those with little relevance in the UK including natural and environmental hazards such as wildfire, volcanic eruption and earthquakes have been excluded from the assessment, further to this consideration of risk events such as pandemic, malicious attacks and public disorder have been excluded.
- 23.8.2 Consideration was placed upon the location of the Scheme to screen major accidents and disasters. Based then on the likelihood of such an event occurring in relation to the Scheme, a shortlist was created for the assessment, taking account of the broader topic areas scoped into the assessment. The major accidents and disasters taken forward for further consideration are shortlisted below.
- Flooding;
  - Fires and explosion;
  - Road accidents;
  - Aviation Incidents;
  - Damage or cut-off of utilities;
  - Unstable ground conditions; and
  - Vegetation pests and diseases.
- 23.8.3 A tabulated list of the potential impacts of the Scheme, and the type of mitigation that can be applied where effects are identified, can be found in **Table 23.6** below. These potential impacts will be taken forward for assessment in the ES.



**Table 23.6 Summary of Likely Major Accidents and Disasters Effects and Mitigation**

Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
Flood Risk	Increased risk of on-site surface water flooding due to increased precipitation due to climate change	Local population and built environment	Construction, Operation and Decommissioning	<p>Flooding of sections of the Scheme, particularly the Cable Route during construction. Loss of construction materials and plant.</p> <p>Potential harm to construction workers Potential damage to infrastructure.</p> <p>Impacts on property and people if the project exacerbated flood risk.</p> <p>A flood risk assessment is contained in Appendix 10.1 and further discussed in Chapter 10: Hydrology, Flood Risk and Drainage.</p> <p>The review of climate change resilience set out in Chapter 7: Climate Change.</p>	Water management measures embedded in the CEMP and OEMP, as pollution prevention actions, infiltration trenches, are outlined in Chapter 10: Hydrology, Flood Risk and Drainage and Chapter 7: Climate Change, and the use of permeable hardstanding, planting of grass and wildflower mix under the PV panel arrays.	No additional mitigation measures are proposed at this stage of the Scheme.	Negligible, Not Significant.
	Increased risk of off-site surface water flooding due to increased precipitation due to climate change	Population and built environment	Construction, Operation and Decommissioning	<p>Impacts on property and people if the project exacerbated flood risk.</p> <p>A flood risk assessment is contained in Appendix 10.1 and further discussed in Chapter 10:</p>	Water management measures embedded in the CEMP, and OEMP, such as pollution prevention actions, infiltration trenches are outlined in	No additional mitigation measures are proposed at this stage of the Scheme.	Negligible, Not Significant.



Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
				<p>Hydrology, Flood Risk and Drainage.</p> <p>The review of climate change resilience set out in Chapter 7: Climate Change.</p>	<p>Chapter 10: Hydrology, Flood Risk and Drainage and Chapter 7: Climate Change, alongside the inclusion of embedded mitigation measures in the Scheme design such as vegetated landscape and ecology buffers to watercourses, thus reducing the residual effect to being negligible.</p>		
	Increased off-site flooding due to increased water discharge to local watercourses	Population and built environment	Operation	<p>Impacts on property and people if the project exacerbated flood risk.</p> <p>A flood risk assessment is contained in Appendix 10.1 and further discussed in Chapter 10: Hydrology, Flood Risk and Drainage.</p>	<p>Water management measures embedded in the OEMP, alongside the inclusion of embedded mitigation measures in the Scheme design such as vegetated landscape and ecology buffers to watercourses.</p>	<p>No additional mitigation measures are proposed at this stage of the Scheme.</p>	<p>Negligible, Not Significant.</p>
Fires and explosions	Emission of smoke and particulate matter	Population, air and biodiversity	Operation	<p>Air quality impacts from a fire to the BESS are expected to be short-term</p>	<p>An Outline Battery Fire Safety Management Plan</p>	<p>No additional mitigation measures are</p>	<p>To be determined in the ES.</p>



Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
	from major on-site fires			<p>(e.g. a couple of hours) due to the likely short-term nature of any fire incident.</p> <p>Risk of harm/injury/death to construction workers or member of the public.</p> <p>Risk of harm to local biodiversity.</p> <p>Chapter 19: Air Quality, outlines potential likely effects associated with emissions from fires.</p>	and CEMP will be prepared in line with all relevant legislation and regulations to accompany the ES which will ensure that the risks of fire, and thus the residual environmental impacts can be minimised.	proposed at this stage of the Scheme.	
	Disturbance of unexploded ordnance (UXO)	Population, infrastructure and built environment, biodiversity, historic environment	Construction	<p>There is an increased risk of construction workers encountering unexploded ordnance during intrusive investigation work.</p> <p>Risk of fire /explosion causes damage to environmental receptor or structural damage to buildings and / or infrastructure.</p> <p>Risk of harm/injury/death to construction workers or member of the public.</p>	UXO risk management measures will be set out in the CEMP to ensure risk is managed during the construction phase.	The mitigation strategies outlined in the Detailed UXO Risk Assessment include the establishment of a UXO Risk Management Plan, conducting site-specific UXO awareness briefings for all personnel involved in intrusive works, and ensuring the presence of a UXO specialist	Negligible, Not Significant.





Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
						on-site during any open excavations, including trial pits, service pits, and foundations.	
	Explosions from impacts on major accident hazard site (Sywell) and three pipelines.	Construction and operational workers Population Built environment	Construction, Operation and Decommissioning	Risk of fire /explosion causes damage to environmental receptor or structural damage to buildings and / or infrastructure.  Risk of harm/injury/death to construction workers or member of the public.	Consultation will be carried out with the operator to inform the assessment for ES.  Construction methods would include risk assessments.	No additional mitigation measures are proposed at this stage of the Scheme.	To be determined in the ES.
Damage/ cut-off of utilities	Striking of underground services/utilities.	Employees and local residents	Construction	Risk of fire /explosion causes damage to environmental receptor or structural damage to buildings and / or infrastructure.  Risk of harm/injury/death to construction workers or member of the public.	Discussions are in progress with utility and infrastructure providers to ascertain the locations of all assets, and the provider's required offset distances will be implemented in the Scheme design to minimise potential risk.  Contractor practice and working guidelines will also be implemented to minimise the risk of	No additional mitigation measures are proposed at this stage of the Scheme.	Negligible, Not Significant.



Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
					such accidents occurring, and to minimise the severity of an impact in the event an asset is disturbed which will be secured in the (OCEMP).		
Unstable ground conditions	Ground compressibility.	Employees and local residents  Built environment	Construction	Alluvium and Made Ground deposits are considered to be too variable and compressible in their existing condition for conventional shallow foundations at the Site.	No embedded mitigation measures are proposed at this stage of the Scheme.	Mitigation measures are outlined in Chapter 22: Ground Conditions and Contamination which include the recommendation for floor loads to be transferred to ground improved soils or to piles through concrete ground beams/concrete frame or otherwise suspended.	Negligible, Not Significant.
Road Accidents	Increased risk of accidents from increased HGV	Road users	Construction	Risk of harm/injury/death to construction workers or member of the public.	The preliminary assessment of road safety anticipates there is a negligible	Further details to be included in the CTMP. This might include	Negligible, Not Significant



Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
	use of local highways			The assessment of road user and pedestrian safety is presented in Chapter 14: Transport and Access.	<p>effect on road safety from the Scheme's construction, operation, and decommissioning.</p> <p>The implementation of a Construction Traffic Management Plan (CTMP) will provide a framework for the management of construction vehicle movements to and from the Site and ensure that the residual cumulative effects of the construction of the Scheme and other developments are reduced.</p>	staggered programme to ensure sites are worked on at different times.	
	Glint and glare to vehicle drivers on national and regional roads	Population	Operation	<p>Risk of harm/injury/death to construction workers or member of the public.</p> <p>The assessment of road user and pedestrian safety is presented in Chapter 14: Transport and Access.</p>	This will be clarified through full assessment in the ES. On-site screening to obstruct views of solar panels, and backtracking of tracking panels to limit long-term glare to road users	No additional mitigation measures above embedded mitigation are proposed at this stage of the Scheme.	Minor, Not significant



Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
					should provide sufficient mitigation that the residual impacts are negligible.		
Vegetation Pests and Diseases	Habitats and Protected Species	Biodiversity	Construction and Operation	<p>Harm to existing and proposed planting.</p> <p>The assessment of invasive and non-native species is outlined in Chapter 9: Ecology and Biodiversity.</p>	<p>Assessment of the impacts of pests and diseases on the proposed planting on the Scheme have not been assessed at PEIR and will be completed for the ES. Identified risks are to be addressed in the Landscape and Ecological Management Plan, which is to be produced to accompany the ES.</p> <p>Specific monitoring for invasive non-native species as set out in the CEMP will reduce potential residual effects.</p> <p>This will provide a mitigation strategy to ensure the environmental</p>	No additional mitigation measures are proposed at this stage of the Scheme	Neutral, Not significant.



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Effect	Description of Potential Impact	Sensitive Receptor	Scheme Phase	Reasonable worst consequence if event did occur	Embedded Mitigation	Additional Mitigation	Residual Effect
					effects of pests and diseases on vegetation are minimised.		



## 23.9 Residual Effects

- 23.9.1 Taking into account the mitigation measures as detailed above, the potential for the Scheme to generate effects was assessed using the methodology as detailed in **Section 23.4** of this Chapter. As outlined in **Table 23.6** above, major accidents effects from flood risk, ground conditions road accidents, during the construction, operation and decommissioning phases of the Scheme, taking into consideration the proposed embedded mitigation, are likely to be managed to result in no significant effects.
- 23.9.2 These findings have been determined in consultation with other EIA topics as referenced in **Table 23.1**. Whereby residual effects cannot be determined and require further assessment these will be determined within the ES.
- 23.9.3 A detailed assessment on major accidents and disasters will be included in the ES.

## 23.10 Cumulative Effects

### Cumulative Effects

- 23.10.1 Considering the mitigation identified in the above sections and associated PEIR chapters to reduce the risk of major accidents and disasters, it is not expected that any cumulative schemes would increase the risk or severity of the residual effects associated with major accidents and disasters affecting the Scheme or resulting from works associated with the Scheme. A ZoI of 10km is considered sufficient to encompass potential cumulative effects across the natural and built environment.
- 23.10.2 The cumulative effects of major accidents and disasters will be fully assessed in the ES.

### In-Combination Effects

- 23.10.3 Major accidents and disasters are likely to have in-combination effects with other ES topics, most notably human health, as a result of the potential secondary impacts to on-site employees and to the local population. None of the identified residual effects from major accidents and disasters are assessed to be significant, and as such, there is not anticipated to be any significant in-combination effects on human health as a result of major accidents and disasters.
- 23.10.4 The in-combination effects of major accidents and disasters will be fully assessed in the ES.

## 23.11 Summary

- 23.11.1 This chapter of the PEIR has identified the existing environment in relation to Major Accidents and Disasters and the assessment work that has been undertaken to date.
- 23.11.2 **Table 23.6** demonstrate that following the implementation of the mitigation measures committed to, risks have been mitigated to be ALARP where possible and there are no residual risks.
- 23.11.3 Preliminary mitigation measures for potential impacts have been described, along with an assessment of possible residual effects. However, not all significant environmental effects can be identified yet, as assessments are ongoing and the Scheme's design is still in progress. Further assessments will be conducted to support the DCO application, and this chapter will be updated.
- 23.11.4 This assessment is based on the information available at this stage and uses a worst-case approach. Further hazard and risk analysis will be carried out throughout the Project's lifecycle, following applicable laws and industry best practices, to ensure risks remain ALARP during detailed design, construction planning, and operation.



## References

- Ref.1 Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
- Ref.2 Health and Safety at Work etc. Act 1974, c. 37. Available at: <https://www.legislation.gov.uk/ukpga/1974/37/contents>
- Ref.3 The Control of Major Accident Hazards Regulations 2015, SI 2015/483. Available at: <https://www.legislation.gov.uk/uksi/2015/483/contents/made>
- Ref.4 The Construction (Design and Management) Regulations 2015. Available at: <https://www.legislation.gov.uk/uksi/2015/51/contents/made>
- Ref.5 The Regulatory Reform (Fire Safety) Order 2005, SI 2005/1541. Available at: <https://www.legislation.gov.uk/uksi/2005/1541/contents/made>
- Ref.6 Overarching National Policy Statement for Energy (EN-1), 2023. Available at: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1>
- Ref.7 National Planning Policy Framework (2023). Available at: <https://www.gov.uk/guidance/national-planning-policy-framework>
- Ref.8 Institute of Environmental Management and Assessment (2020) Major Accidents and Disasters in EIA: An IEMA Primer
- Ref.9 National Risk Register (2023). Available at: <https://www.gov.uk/government/publications/national-risk-register-2023>