

## Tween Bridge Solar Farm

### 7.11 Flood Risk Sequential Test and Exception Test

Planning Act 2008  
Infrastructure Planning (Applications: Prescribed Forms and  
Procedure) Regulations 2009

APFP Regulation 5(2)(q)

Document Reference: 7.11

August 2025

Revision 1

**Tween Bridge Solar Farm.**

**Flood Risk Sequential Assessment and Exception Test**

On behalf of RWE Renewables UK Solar and Storage Ltd.

**Date: 26/08/2025 | Pegasus Ref: P21-3484**

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# FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

## Contents.

1. Introduction and Site Location.....	2
2. National Planning Policy Requirements.....	4
3. Order Limits & Existing Hydrology .....	18
4. Site Selection.....	23
Stage 1: Identifying available grid connection capacity .....	24
Stage 3: Consideration of environmental and planning constraints .....	25
Stage 4: Initial identification of panel areas.....	28
5. Sequential Assessment – Suitability of Alternative Sites.....	30
Stage 1 – Establishing the Area of Search.....	30
Figure 5.1 – The 10Km search radius. A larger copy of this plan is included at Appendix 2. ....	31
Figure 5.4 – Site 2 located to the northeast of Burton on Stather. ....	35
6. Conclusions To Sequential Assessment for Flood Risk .....	43
7. Exception Test.....	46
Part 1 of the Exception Test – The Wider Sustainable Benefits to the Community presented by the Scheme .....	46
Part 2 of the Exception Test – How the Scheme will be made safe from flood risk, level of vulnerability of users/workers, how the Scheme will remain operational in a ‘design’ flood event, and how the Scheme has sought to improve flood risk locally .....	51
Conclusions to the Exception Test.....	54

## List of Appendices

Appendix 1 – Alternative Sites and Constraints Map

Appendix 2 – Fluvial/Surface Water Flood Risk Map for Alternative Site 1

Appendix 3 – Fluvial/Surface Water Flood Risk Map for Alternative Site 2

Appendix 4 – Fluvial/Surface Water Flood Risk Map for Alternative Site 3

## 1. Introduction and Site Location

### 1.1. Introduction

1.1.1 RWE Renewables UK Solar and Storage Ltd (hereafter, the 'Applicant') has commissioned this Flood Risk Sequential Assessment and Exceptions Test that forms part of a suite of documents supporting an application under Section 37 of the Planning Act 2008 [Ref. 1-1] to the Secretary of State (SoS) for the Department of Energy Security and Net Zero (DESNZ) for a Development Consent Order (DCO) for the Tween Bridge Solar Farm (hereafter, the 'Scheme').

1.1.2 The Scheme constitutes a Nationally Significant Infrastructure Project (NSIP) as it comprises the construction of a generating station (section 14 of the Planning Act 2008) in England that does not generate electricity from wind, is not an offshore generating station and has a capacity of more than 50 Megawatts (MW) (section 15(2) of the Planning Act 2008). **Environmental Statement Chapter 2: Scheme Description [Document Reference 6.1.2]** provides a full description of the Scheme.

### 1.2. Purpose of this Document

1.2.1 The Scheme is located in an area at risk now and in the future from flooding with the **Flood Risk Assessment [Document Reference 6.3.10.1]** identifying the Scheme as almost entirely Flood Zone 3, at risk of fluvial and tidal flooding, hence there is a need to carry out a sequential test of the Scheme in accordance with policy as set out below. The purpose of this Assessment is to evidence that the Sequential Test has been applied to the proposed siting of the Scheme, and that reasonably available alternative sites have been considered on a sequential basis, prior to applying the Exception Test to justify the Scheme in a flood risk area. The Sequential Test has been applied against relevant National Policy Statements, the NPPF and the NPPG as applicable, it has considered all sources of flooding and wider sustainability matters of siting a development, including constraints related to habitat/ecology, valued landscape character and cultural heritage.

1.2.2 The Exception Test element of the report assesses if the Scheme can be made safe for its operational lifetime for a 'design' flood event<sup>1</sup>, and that through the careful design and mitigation of new drainage measures, the Scheme would not increase the risk of flooding both within the Order Limits and elsewhere in the

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<sup>1</sup>A design flood event is a flood event of a given annual flood probability. See Paragraph: 002 Reference ID: 7-002-20220825 <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

neighbouring land around the site. The Exception Test also considers the wider sustainable benefits of the Scheme, including renewable energy generation benefits, ecological benefits and surface water drainage benefits.

## 2. National Planning Policy Requirements

### 2.1. National Policy Statements

- 2.1.1 The DCO Application will be determined in accordance with Section 104 of the Planning Act 2008 [Ref. 1]. An application for a DCO must be determined in accordance with any national policy statement that is in force for that type of development. National policy statements EN1 – Overarching National Policy Statement for Energy, EN-3 National Policy Statement for renewable energy infrastructure, and EN-5 National Policy Statement for electricity networks infrastructure have effect in respect of the development of the nature of the Scheme.
- 2.1.2 Section 104 also requires that in determining the application the Secretary of State must have regard to matters specified in the Section, including any other matters which the Secretary of State thinks are both important and relevant to their decision.

### 2.2. National Policy Statement for Energy (EN-1), November 2023

- 2.2.1 National Policy Statement EN-1 is the overarching National Policy Statement for Energy and covers all aspects of Nationally Significant Infrastructure energy projects, including solar generating stations, and includes reference to the provision of battery storage as associated development.
- 2.2.2 The NPS EN-1 considers the flood risk impacts associated with energy infrastructure developments, seeks to ensure that flood risk from all sources is taken into account, and emphasises that proposed developments located in areas of flood risk should be designed and constructed to remain operational in times of flood. The NPS EN-1 also provides guidance in relation to the Sequential Test and Exception Test and sets out the minimum requirements for FRAs.
- 2.2.3 Paragraph 3.3.60 of EN-1 refers to the generation technologies that are urgently required for both energy security and Net Zero. Paragraph 3.3.62 of EN-1 states *“Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure. Section 4.2 states which energy generating technologies are low carbon and are therefore CNP infrastructure.”*
- 2.2.4 Paragraph 3.36.3 states that *“Subject to any legal requirements, the urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general*

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

*outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible”.*

- 2.2.5 Section 4.10 of EN-1 considers climate change adaptation and resilience with NSIP Schemes. Paragraph 4.10.1 states *“Whilst we must continue to accelerate efforts to end our contribution to climate change by reaching Net Zero greenhouse gas emissions, adaptation is also necessary to manage the impacts of current and future climate change”.*
- 2.2.6 Paragraphs 4.10.1–3 of set out the risks and effects of climate change and the associated importance for new energy infrastructure to be resilient to these effects.
- 2.2.7 Paragraph 4.10.5 notes that climate change adaptation measures themselves can give rise to additional impacts and paragraph 4.10.8 states the aspects for which the direct and indirect impacts of climate change should be considered within the applicant’s assessment, these include: location, design, build, operation and decommissioning.
- 2.2.8 Paragraphs 4.10.12–15 sets out the requirement to use the latest climate change projections and a high emissions scenario when assessing the impacts of climate change. Should adaptation measures give rise to consequential impacts, the implementation of these measures could be delayed until the need arises, and this impact should be considered in relation to the application as a whole during the decision-making process, as set out in paragraphs 4.10.16–19.
- 2.2.9 Section 5.8 of EN-1 sets out the policy approach for flood risk matters with NSIP energy Schemes. Whilst the entire content of this section has been considered for the purposes of producing this Sequential Assessment and Exception Test Report, we consider that the following paragraphs of EN-1 are particularly pertinent to the Scheme.
- 2.2.10 Paragraph 5.8.2 of EN-1 states *“The effects of weather events on the natural environment, life and property can be increased in severity both as a consequence of decisions about the location, design and nature of settlement and land use, and as a potential consequence of future climate change. Having resilient energy infrastructure not only reduces the risk of flood damages to the infrastructure, it also reduces the disruptive impacts of flooding on those homes and businesses that rely on that infrastructure. Although flooding cannot be*

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

*wholly prevented, its adverse impacts can be avoided or reduced through good planning and management.”*

- 2.2.11 Paragraph 5.8.5 of EN-1 states *“Climate change is already having an impact and is expected to have an increasing impact on the UK throughout this century. The UK Climate Projections 2018 show an increased chance of milder, wetter winters and hotter, drier summers in the UK, with more intensive rainfall causing flooding. Sea levels will continue to rise beyond the end of the century, increasing risks to vulnerable coastal communities. Within the lifetime of energy projects, these factors will lead to increased flood risks in areas susceptible to flooding, and to an increased risk of the occurrence of floods in some areas which are not currently thought of as being at risk. A robust approach to flood risk management is a vital element of climate change adaptation; the applicant and the Secretary of State should take account of the policy on climate change adaptation in Section 4.10.”*
- 2.2.12 Paragraph 5.8.6 of EN-1 sets out the ‘sequential’ approach to direct new energy development proposals to the lowest possible area of flood risk from all sources of flooding.
- 2.2.13 Paragraph 5.8.7 of EN-1 does explain that in ‘exceptional’ situations, where it is necessary to site energy infrastructure in areas of flood risk, the development has to be made safe for the duration of its lifetime without affecting flood risk elsewhere and should seek to reduce flood risk overall.
- 2.2.14 Paragraph 5.8.9 of EN-1 states *“If, following application of the Sequential Test, it is not possible, (taking into account wider sustainable development objectives), for the project to be located in areas of lower flood risk the Exception Test can be applied as defined in Table 2<sup>2</sup>, a matrix showing flood risk vulnerability and flood zone ‘incompatibility. The test provides a method of allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available. Therefore, the Exception Test must be undertaken in accordance with the relevant guidance in the NPPG.”*
- 2.2.15 Paragraph 5.8.10 of EN-1 states *“The Exception Test is only appropriate for use where the Sequential Test alone cannot deliver an acceptable site. It would only be appropriate to move onto the Exception Test when the Sequential Test has identified reasonably available, lower risk sites appropriate for the proposed development where, accounting for wider sustainable development objectives,*

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<sup>2</sup> <https://www.gov.uk/guidance/flood-risk-and-coastal-change#table2>

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

*application of relevant policies would provide a clear reason for refusing development in any alternative locations identified. Examples could include alternative site(s) that are subject to national designations such as landscape, heritage and nature conservation designations, for example Areas of Outstanding Natural Beauty (AONBs), SSSIs and World Heritage Sites (WHS) which would not usually be considered appropriate.*

- 2.2.16 The Applicant notes that the last part of paragraph 5.8.10 is not an exhaustive list and is used as examples ('for example'). The Applicant considers that features such as Registered Parks and Gardens and locally important landscape areas of great value (as defined and designated in a recently adopted Local Plan), would also be constraints that would need to be taken account of when considering the wider availability/sustainability of any alternative sites, as part of the Sequential Test.
- 2.2.17 Paragraph 5.8.11 of EN-1 states *"Both elements of the Exception Test will have to be satisfied for development to be consented. To pass the Exception Test it should be demonstrated that:*
- the project would provide wider sustainability benefits to the community that outweigh flood risk; and*
  - the project will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible will reduce flood risk overall."*
- 2.2.18 Paragraph 5.8.12 of EN-1 states *"Development should be designed to ensure there is no increase in flood risk elsewhere, accounting for the predicted impacts of climate change throughout the lifetime of the development. There should be no net loss of floodplain storage and any deflection or constriction of flood flow routes should be safely managed within the site. Mitigation measures should make as much use as possible of natural flood management techniques."*
- 2.2.19 EN-1 explains that for NSIP sites in Flood zone 1 a Flood Risk Assessment (FRA) is required in specific circumstances, but where a site is within Flood Zones 2 and 3 in England, a Flood Risk Assessment (FRA) should be carried out. The FRA for the Tween Bridge Project is included at Appendix 6.3.10.1 of the DCO submission.
- 2.2.20 EN-1 sets out that Flood Risk Assessments should *"identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account."* EN-1 paragraph 5.8.15 sets out the minimum requirements for the FRA to address.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 2.2.21 EN1 paragraph 5.8.18 states that *“Applicants for projects which may be affected by, or may add to, flood risk should arrange pre-application discussions before the official pre-application stage of the NSIP process with the EA or NRW, and, where relevant, other bodies such as Lead Local Flood Authorities, Internal Drainage Boards, sewerage undertakers, navigation authorities, highways authorities and reservoir owners and operators.”*
- 2.2.22 Paragraph 5.8.21 defines what the sequential test is. It states *“the Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites with medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas”.*
- 2.2.23 Paragraph 5.8.22 explains that *“the technology specific NPSs set out some exceptions to the application of the Sequential Test”* However, EN-3 does not include any exceptions to the application of the Sequential Test for Solar PV.
- 2.2.24 From Paragraph 5.8.24 to 5.8.35, EN-1 explains what mitigation measures should be carried out to manage flood risk and are relevant to the Scheme.
- 2.2.25 Paragraph 5.8.26 of EN-1 states *“Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts to manage flood risk.”*
- 2.2.26 Paragraph 5.8.27 of EN-1 states *“The surface water drainage arrangements for any project should, accounting for the predicted impacts of climate change throughout the development’s lifetime, be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site arrangements are made and result in the same net effect.”*
- 2.2.27 Paragraph 5.8.29 of EN-1 states *“The sequential approach should be applied to the layout and design of the project. Vulnerable aspects of the development should be located on parts of the site at lower risk and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities should be taken to lower flood risk by reducing the built footprint of previously developed sites and using SuDS.”*



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 2.2.28 Paragraph 5.8.32 of EN-1 states *“Where development may contribute to a cumulative increase in flood risk elsewhere, the provision of multifunctional sustainable drainage systems, natural flood management and green infrastructure can also make a valuable contribution to mitigating this risk whilst providing wider benefits.”*
- 2.2.29 Paragraph 5.8.35 of EN-1 states *“Flood resistant and resilient materials and design should be adopted to minimise damage and speed recovery in the event of a flood.”*
- 2.2.30 For decision making by the Secretary of State, EN-1 sets out the following important considerations for determining energy NSIP schemes:
- 2.2.31 Paragraph 5.8.36 of EN-1 states *“In determining an application for development consent, the Secretary of State should be satisfied that where relevant:*
- the application is supported by an appropriate FRA*
  - the Sequential Test has been applied and satisfied as part of site selection*
  - a sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk*
  - the proposal is in line with any relevant national and local flood risk management strategy*
  - SuDS (as required in the next paragraph on National Standards) have been used unless there is clear evidence that their use would be inappropriate*
  - in flood risk areas the project is designed and constructed to remain safe and operational during its lifetime, without increasing flood risk elsewhere (subject to the exceptions set out in paragraph 5.8.42)*
  - the project includes safe access and escape routes where required, as part of an agreed emergency plan, and that any residual risk can be safely managed over the lifetime of the development*
  - land that is likely to be needed for present or future flood risk management infrastructure has been appropriately safeguarded from development to the extent that development would not prevent or hinder its construction, operation or maintenance”*

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 2.2.32 Paragraph 5.8.37 of EN-1 states *“For energy projects which have drainage implications, approval for the project’s drainage system, including during the construction period, will form part of the development consent issued by the Secretary of State. The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with any National Standards published by Ministers under paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010”.*
- 2.2.33 Paragraph 5.8.38 of EN-1 states *“In addition, the Development Consent Order, or any associated planning obligations, will need to make provision for appropriate operation and maintenance of any SuDS throughout the project’s lifetime. Where this is secured through the adoption of any SuDS features, any necessary access rights to property will need to be granted.”*
- 2.2.34 Paragraph 5.8.39 of EN-1 states *“Where relevant, the Secretary of State should be satisfied that the most appropriate body is being given the responsibility for maintaining any SuDS, taking into account the nature and security of the infrastructure on the proposed site. Responsible bodies could include, for example the landowner, the relevant lead local flood authority or water and sewerage company (through the Ofwat approved Sewerage Sector Guidance), or another body, such as an Internal Drainage Board.”*
- 2.3. National Policy Statement for Renewable Energy Infrastructure (EN-3), November 2023.**
- 2.3.1 National Policy Statement EN-3 covers NSIP policy matters for various types of renewable energy generation development, including solar. Fundamental policy consideration for the Scheme in terms of flood risk and sequential approach under EN-3 include the following paragraphs. Key policy in sections 2.3 (Factors influencing site selection and design) and 2.4 (Climate change adaption and resilience) are of general application, and Section 2.10 (Solar photovoltaic generation) applies specifically to solar NSIPs.
- 2.3.2 Paragraph 2.3.9 states *“As most renewable energy resources can only be developed where the resource exists and where economically feasible, and because there are no limits on the need established in Part 3 of EN-1, the Secretary of State should not use a consecutive approach in the consideration of renewable energy projects (for example, by giving priority to the re-use of previously developed land for renewable technology developments).”* This is specifically relevant to Flood Risk in relation to the application of the Sequential Test.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 2.3.3 Paragraph 2.4.2 states *“Section 4.10 of EN-1 sets out generic considerations that applicants and the Secretary of State should take into account to help ensure that renewable energy infrastructure is safe and resilient to climate change, and that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime.”*
- 2.3.4 Paragraph 2.4.11 states *“Solar photovoltaic (PV) sites may also be proposed in low lying exposed sites. For these proposals, applicants should consider, in particular, how plant will be resilient to:*
- ***increased risk of flooding; and***
  - ***impact of higher temperatures.”***
- 2.3.5 Paragraph 2.8.59 states *“Applicants should consider important issues relating to network connection at Section 4.10 of EN-1.*
- 2.3.6 Paragraph 2.10.22 is particularly relevant in the application of the Sequential Test. It states *“Many solar farms are connected into the local distribution network. The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical and commercial feasibility of a development proposal.”*
- 2.3.7 Paragraph 2.10.23 states *“Larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure.”*
- 2.3.8 Paragraph 2.10.24 states *“In either case the connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal.”*
- 2.3.9 Paragraph 2.10.25 states *“To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs applicants may choose a site based on nearby available grid export capacity.”*
- 2.3.10 Paragraph 2.10.26 states *“Where this is the case, applicants should consider the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure.”*
- 2.3.11 Paragraph 2.10.60 states *“Applicants will consider several factors when considering the design and layout of sites, including proximity to available grid*

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

*capacity to accommodate the scale of generation, orientation, topography, previous land-use, and ability to mitigate environmental impacts and flood risk."*

- 2.3.12 Paragraph 2.10.84 states *"Where a Flood Risk Assessment has been carried out this must be submitted alongside the applicant's ES. This will need to consider the impact of drainage. As solar PV panels will drain to the existing ground, the impact will not, in general, be significant."*
- 2.3.13 Paragraph 2.10.85 states *"Where access tracks need to be provided, permeable tracks should be used, and localised Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, should be used to control any run-off where recommended."*
- 2.3.14 Paragraph 2.10.86 states *"Given the temporary nature of solar PV farms, sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses."*
- 2.3.15 Paragraph 2.10.87 states *"Culverting existing watercourses/drainage ditches should be avoided."*
- 2.3.16 Paragraph 2.10.88 states *"Where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period."*
- 2.3.17 Paragraph 2.10.154 states *"Water management is a critical component of site design for ground mount solar plants. Where previous management of the site has involved intensive agricultural practice, solar sites can deliver significant ecosystem services value in the form of drainage, flood attenuation, natural wetland habitat, and water quality management."*

### **2.4. National Policy Statement for Electricity Networks (EN-5)**

- 2.4.1 National Policy Statement EN-5 covers matters for NSIP schemes relating to electricity network infrastructure such as substations and grid connection infrastructure.
- 2.4.2 Relevant policy in EN-5 for the Sequential Assessment is contained within sections 2.2 (Factors influencing site selection and design), 2.3 (Climate change adaptation and resilience), 2.4 (Consideration of good design for energy infrastructure) and 2.10 (mitigation). Relevant policy from EN-5 for the Sequential Assessment includes the following paragraphs.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

2.4.3 Paragraph 2.3.2 of EN-5 states *“As climate change is likely to increase risks to the resilience of some of this infrastructure, from flooding for example, or in situations where it is located near the coast or an estuary or is underground, applicants should in particular set out to what extent the proposed development is expected to be vulnerable, and, as appropriate, how it has been designed to be resilient to:*

- ***flooding, particularly for substations that are vital to the network; and especially in light of changes to groundwater levels resulting from climate change;***
- ***the effects of wind and storms on overhead lines;***
- ***higher average temperatures leading to increased transmission losses;***
- ***earth movement or subsidence caused by flooding or drought (for underground cables); and***
- ***coastal erosion – for the landfall of offshore transmission cables and their associated”***

2.4.4 Paragraph 2.3.3 of EN-5 states *“Section 4.10 of EN-1 advises that the resilience of the project to the effects of climate change must be assessed in the Environmental Statement (ES) accompanying an application. For example, future increased risk of flooding would be covered in any flood risk assessment (see Sections 5.8 in EN-1). Consideration should also be given to coastal change (see sections 5.6 in EN1). substations in the inshore and coastal locations respectively.”*

## 2.5. National Planning Policy Framework (NPPF) (December 2024)

2.5.1 The National Planning Policy Framework (NPPF) outlines the policy requirements in relation to flood risk when determining planning applications that are non-NSIP projects. As noted above applications are to be determined in accordance with national policy statements but in deciding the application the Secretary of State must have regard to, amongst other specified matters, any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State’s decision: this can include the NPPF. The NPPF was recently updated by the current Government in December 2024 and therefore shows an up-to-date picture of how the current Government wants to approach flood risk and the associated sequential approach to the siting of new development. We have simply included references here for completeness and to ensure a comprehensive approach is taken to the application of the Sequential and

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

Exception Tests for the proposed NSIP development at Tween Bridge, which is consistent with both relevant policy and the direction of thought from the current Government.

- 2.5.2 Annex 3 of the NPPF is also aligned to the Flood Risk and Coastal Change chapter of the National Planning Practice Guidance (NPPG), and the NPPG is referred to in the National Policy Statements (NPS).
- 2.5.3 Annex 3 of the NPPF contains the flood risk vulnerability classification, which identifies solar farm development as forming 'Essential Infrastructure'. Associated development comprising essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems is also classed as essential infrastructure for the purpose of the classification.
- 2.5.4 Paragraphs 170 – 182 deal with Planning and Flood Risk. Paragraph 170 states that *"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where 49 development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere"*.
- 2.5.5 Paragraph 174 of the Framework states that *"the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source"*. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding.
- 2.5.6 Paragraph 175 explains that *"The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk)"*.
- 2.5.7 Paragraph 177 explains that *"If it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3."*

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

2.5.8 Paragraph 178 states that *“to pass the Exception Test it should be demonstrated that:*

- a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.”*

2.5.9 Paragraph 179 states that *“Both elements of the exception test should be satisfied for development to be allocated or permitted”.*

2.5.10 Paragraph 181 stipulates that:

*“When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where supported by a site-specific flood risk assessment following the Sequential Test, and if required the Exception Test, it can be demonstrated that:*

- a) Within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and*
- b) the development is appropriately flood resilient and resistant, such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- d) any residual risk can be safely managed; and*
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.”*

## **2.6. National Planning Practice Guide – Flood Risk and Coastal Change chapter**

2.6.1 The National Planning Practice Guidance (NPPG) should be used as a resource to provide context and detail to the National Planning Policy Framework (NPPF) and relevant National Policy Statements (NPS).

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 2.6.2 With regards to the Sequential Assessment for flood risk, the NPPG says the following – *“The approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding. Avoiding flood risk through the sequential test is the most effective way of addressing flood risk because it places the least reliance on measures like flood defences, flood warnings and property level resilience features. Even where a flood risk assessment shows the development can be made safe throughout its lifetime without increasing risk elsewhere, the sequential test still needs to be satisfied. Application of the sequential approach in the plan-making and decision-making process will help to ensure that development is steered to the lowest risk areas, where it is compatible with sustainable development objectives to do so, and developers do not waste resources promoting proposals which would fail to satisfy the test. Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.”*
- 2.6.3 In terms of identifying reasonably available sites, this is explained in the NPPG (Paragraph: O28 Reference ID: 7-O28-20220825) – What is a “reasonably available” site? The NPPG states that *“Reasonably available sites’ are those in a suitable location for the type of development with a reasonable prospect that the site is available to be developed at the point in time envisaged for the development. These could include a series of smaller sites and/or part of a larger site if these would be capable of accommodating the proposed development. Such lower-risk sites do not need to be owned by the applicant to be considered ‘reasonably available’.”*
- 2.6.4 Whilst the applicant acknowledges this content within the NPPG of what a ‘reasonably available’ site is, it is not viable to split electricity generating development into smaller sites which are far apart from each other, this is simply not viable in the same way it may be for other forms of development due to generation losses and increase infrastructure costs.
- 2.6.5 Paragraph 3.10.35 of EN-3 states that *“Many solar farms are connected into the local distribution network. The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical and commercial feasibility of a development proposal.”*



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 2.6.6 Paragraph 3.10.36 of EN-3 states that *“Larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure”*.
- 2.6.7 Paragraph 3.10.37 acknowledges that *“In either case the connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal”*.
- 2.6.8 This approach has been acknowledged in other approved DCO schemes for generating electricity, including the West Burton Solar DCO. Paragraphs 2.1.19 and 2.1.20 of the approved Site Selection Assessment for the West Burton DCO explained that it would not be viable to split the proposal into multiple smaller land parcels too far apart from each other, and what the minimum land parcel size needed to be for project viability; this Site Selection Assessment was accepted by the Secretary of State and the application was granted in January 2025.
- 2.6.9 The NPPG contains a table (‘table 2’) for flood risk vulnerability and flood zone incompatibility. The proposed NSIP Scheme, being for a solar generating station with associated development including battery energy storage is classed as ‘Essential Infrastructure’ in flood risk planning terms.
- 2.6.10 The key to ‘table 2’ explains that *“In Flood Zone 3a, essential infrastructure should be designed and constructed to remain operational and safe in times of flood.”* Information of how the proposals have been designed to remain operational in times of flood events are set out in the second part of the Exception Test of this report.

### 3. Order Limits & Existing Hydrology

#### 3.1. Order Limits Location

- 3.1.1 The Scheme is located within the Yorkshire and Humber regions and straddles the administrative boundaries of City of Doncaster Council and North Lincolnshire Council. At a local level, the Scheme is located on land east of Thorne; south of Tween Bridge Moors; west of Crowle; north and northwest of Sandtoft & Sandtoft Industrial Estate; north of Hatfield Moors; and northeast of Hatfield. The Scheme is located on land either side of the M180, High Level Banks (the A18) and the Stainforth and Keadby Canal.
- 3.1.2 The Order Limits extend to approximately 1831 hectares (ha) (4524.5 acres) of land, presented in **Environmental Statement (ES) Figure 1.1 Order Limits [Document Reference 6.4.1.1]**. The Order Limits is made up of five Land Parcels located together (described as Land Parcels A to E) as shown on **ES Figure 1.2 Land Parcel Plan [Document Reference 6.4.1.2]**. Each parcel is further described in **Table 3-1** and are almost entirely within Flood Zone 3.

**Table 3 – 1: Land Parcels**

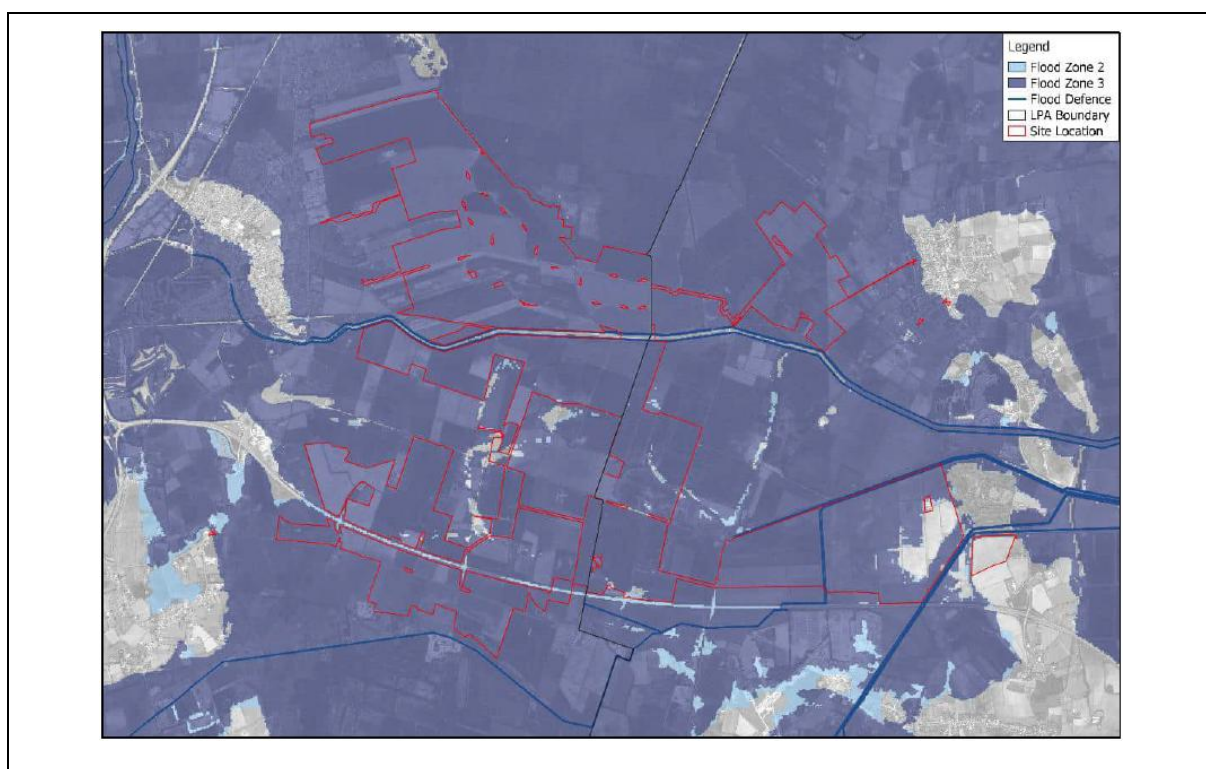
Land Parcels	Location of Parcel	Area (hectares)
Land Parcel A	Land to the east of Thorne and north of the Stainforth & Keadby Canal.	569.96 (1,408 acres)
Land Parcel B	Land to the west of Crowle and north of the Stainforth & Keadby Canal.	129.96 (321 acres)
Land Parcel C	Land south of the Stainforth & Keadby Canal and north of the High Levels Bank (A18).	351.73 (869 acres)
Land Parcel D	Land south of the High Levels Bank (A18) and north of the Hatfield Moors Nature Reserve.	335.83 (830 acres)

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

Land Parcel E	Land south of the High Levels Bank (A18) and north of Sandtoft and the M180.	460.17 (1,137 acres)
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- 3.1.3 A breakdown of the Land Parcels within the Order Limits is shown on **ES Figure 1.2 Land Parcel Plan [Document Reference 6.4.1.2]** to assist with the identification of particular fields with Scheme in relation to the EIA findings.
- 3.1.4 A topographic survey of the Order Limits was carried out and shows that land is currently situated between approximately -0.2mAOD and 2.6mAOD and exhibits very low or negligible gradients.
- 3.1.5 The Flood Map for Planning (2025) defines the majority of the Order Limits as Flood Zone 3, at High risk of flooding, predicted to be impacted by a 1 in 100 year fluvial flood event. This essentially places the majority of the Order Limits within Flood Zone 3a as shown below.

**Figure 3.2 – Flood Map for Planning**



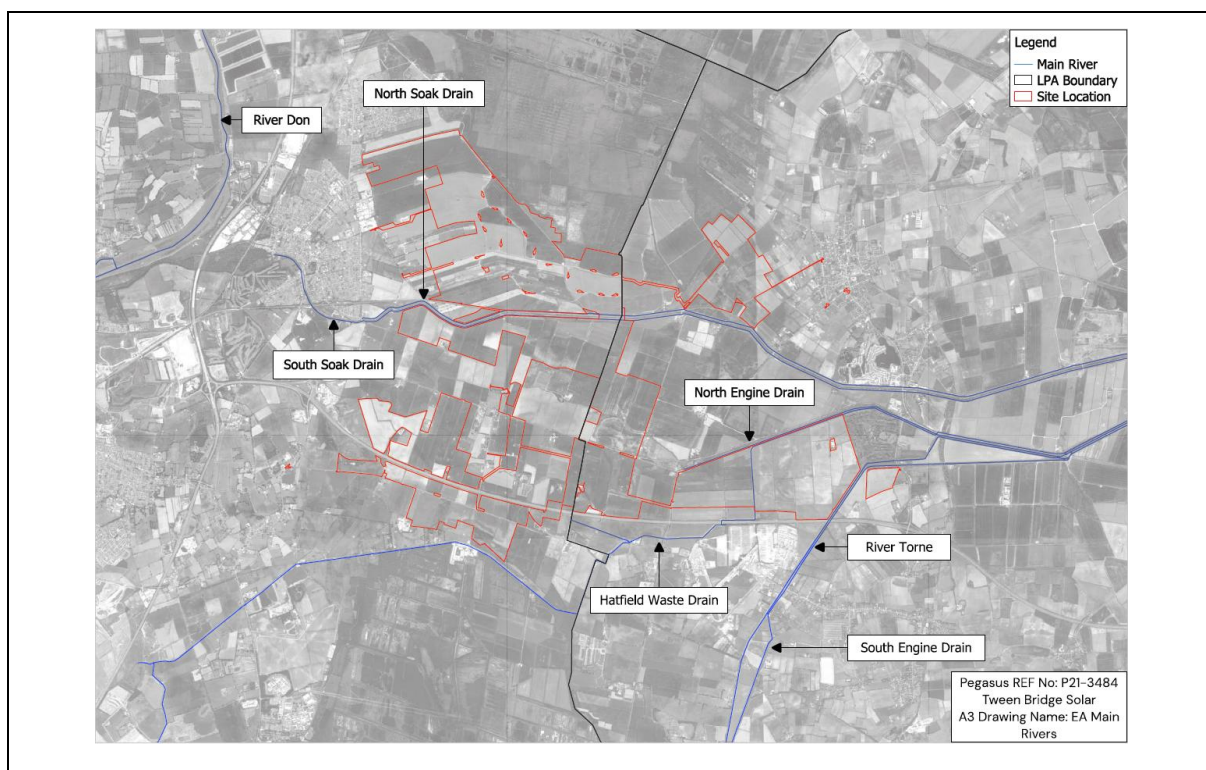
### 3.2. Existing Drainage and Hydrology

- 3.2.1 There are a large number of watercourses located within the Order Limits and in the immediate vicinity. These include several Main Rivers which are managed by

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

the Environment Agency (EA) including: the North Soak Drain, the South Soak Drain, the North Engine Drain, the South Engine Drain, the River Torne and the Hatfield Waste Drain. Main Rivers within the Order Limits and in the immediate vicinity are shown in **Figure 3.3 below**. The River Don and River Trent (both Main Rivers) are located to the west and east of the Order Limits, respectively.

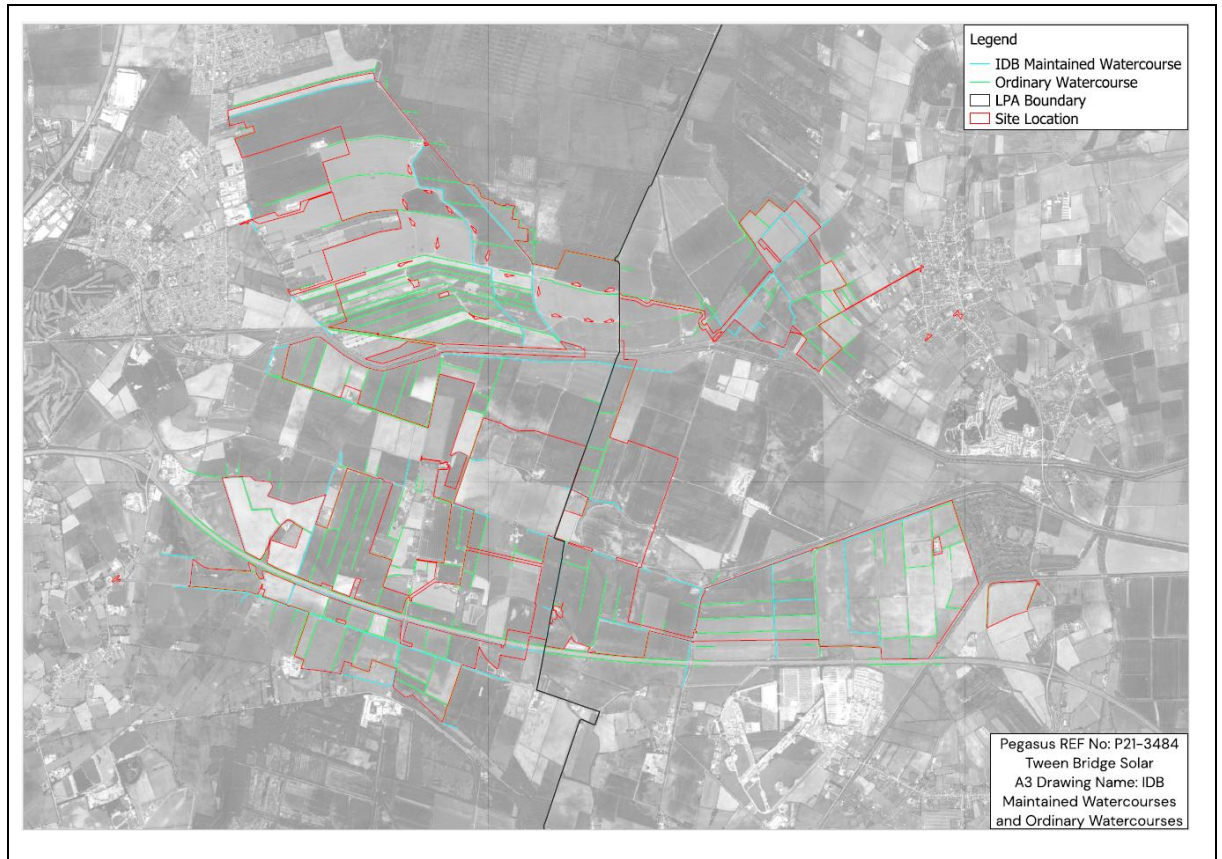
**Figure 3.3 – Main Rivers**



3.2.2 In addition to the Main Rivers discussed above, there are a large number of Ordinary Watercourses, as defined in the **Flood Risk Assessment [Document Reference 6.3.10.1]** running through the Order Limits. A large number of these fall under the control of two Internal Drainage Boards (IDBs): the Isle of Axholme & North Nottinghamshire Water Level Management Board and the Doncaster East Internal Drainage Board. Ordinary Watercourses not maintained by an IDB would fall under the jurisdiction of the Lead Local Flood Authority (LLFA). IDB maintained watercourses and other Ordinary Watercourses within the Order Limits are shown in **Figure 3.4**. It is noted that only the extent of those watercourses within the redline boundary has been shown.



**Figure 3.4 – IDB Maintained Watercourses and Ordinary Watercourses**



- 3.2.3 Geological data from the British Geological Survey (BGS) show that the bedrock geology within the Order Limits is 'Sherwood Sandstone Group – Sandstone' in the west and 'Mercia Mudstone Group – Mudstone' in the east (see **Figure 3.4**).
- 3.2.4 The BGS also record a wide range of superficial deposits within the Order Limits. These deposits include: 'Alluvium – Clay, Silt, Sand and Gravel', 'Hemingbrough Glaciolacustrine Formation – Clay, Silty', 'Warp – Clay and Silt', 'Peat', 'Glaciofluvial Deposits, Devensian – Sand and Gravel', 'Brighton Sand Formation – Sand, Silty' and 'Sutton Sand Formation – Sand'.
- 3.2.5 Soils data details the soil types found within the Order Limits to comprise of: 'slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils', and 'loamy and clayey soils of coastal flats with naturally high groundwater'.
- 3.2.6 No Drinking Water Safeguard Zones for either groundwater or surface water are located within the Order Limits.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### 3.3. Summary

- 3.3.1 The Order Limits is located almost entirely in Flood Zone 3, at risk of fluvial and tidal flooding. To ensure the Order Limits remains safe and operational during an extreme 1 in 1,000 year tidally and fluvially dominated flood event, all proposed solar PV modules and infrastructure will be raised above the 2023 Tidal Trent modelled 1 in 1,000 year fluvially dominated flood levels plus 100mm freeboard allowance. This event shows greater flooding than the tidally dominated 1 in 1,000 year flood event.
- 3.3.2 A critical flood level of 4.1mAOD has been provided by the Environment Agency but it is not considered feasible to design mitigation measures against this extreme flood level. In addition, no detailed model data has been provided to back up this level. Should a 4.1mAOD flood event occur, the impacts would extend well beyond the Order Limits extent. The Scheme would be “switched-off” should such an event occur.
- 3.3.3 The Order Limits is not considered to be at significant risk of flooding from any other source.

## 4. Site Selection

- 4.1.1 Applicant's approach to site selection is set out in the **ES Chapter 3 Site Description, Site Selection and Iterative Design Process (Document Reference 6.1.3)**. There is no standard methodology for the selection of sites for renewable energy generation projects, however, assessing the environmental impacts of an NSIP requires consideration of how a 'site' was selected for development and how any alternatives to the Scheme were reviewed.
- 4.1.2 In seeking to determine a suitable location for the scheme the applicant took into account the following factors:
- To develop an NSIP scale Scheme the site would need to be of sufficient scale to justify the cost of a connection to the National Electricity Transmission System (NETS).
  - It was not possible to extend the existing Tween Bridge Wind Farm due to the potential effects this would have on the operational needs of Doncaster Sheffield Airport, which is currently closed, but has plans to re-open.
  - A solar farm would be capable of utilising some of the existing land between the wind turbines most efficiently through dual use of the land in order to generate the required amount of electricity.
  - Previous knowledge obtained through the development and ongoing operation of the Tween Bridge Wind Farm on site suggested that a solar farm could potentially be developed while avoiding sensitive landscapes and environments.
  - Access for construction and operation would be readily available through the use of existing access tracks and roads.
- 4.1.3 As set out in the **ES Chapter 3 Site Description, Site Selection and Iterative Design Process (Document Reference 6.1.3)**, the key stages for site selection were:
- Stage 1: Identifying available grid connection capacity
  - Stage 2: Land assembly
  - Stage 3: Consideration of environmental and planning constraints.
  - Stage 4: Initial identification of panel areas

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

4.1.4 These are described below:

### **Stage 1: Identifying available grid connection capacity**

- 4.1.5 In order for the Scheme to be feasible, it requires a connection to the national grid through which the energy it generates would be delivered and would contribute to the national energy supply. The grid connection capacity has informed both the site location and the overall size of the Scheme, as it has been sized for the availability of this connection capacity. In doing so, it seeks to ensure that the delivery of solar energy can be provided to the national grid when the construction of the solar farm is complete.
- 4.1.6 The Applicant received a Grid Connection Offer in 2022 for a 340MW connection and land assembly began on this basis. In 2023, a second Grid Connection Offer increased the connection capacity to 590MW. In 2024, a third Grid Connection Offer increased the connection capacity to 800MW.
- 4.1.7 At the time of the first Grid Connection Offer in 2022, the point of connection (POC) was assumed to be available on or close to the Site adjacent to the exiting 400KV overhead line. During 2024, the Applicant was informed that the POC location would be moved from its anticipated location due to other projects applying for grid capacity at the same location. At the end of 2024 it was confirmed likely that the POC is to be moved to the East of Area E. The likely POC and the associated 10km search area is shown on [ES Figure 1.4 Site Selection Buffer Plan [Document Reference 6.4.1.4]. In all cases, the POC is within close proximity of the Scheme and the Wind Farm.
- 4.1.8 Another factor in the availability of the POC in this location was the Applicant's ownership and operation of the Tween Bridge Wind Farm. This meant that the Scheme would be capable of co-location with the wind farm, sharing infrastructure and lowering potential environmental effects. The Applicant also had pre-existing relationships with landowners due to the Tween Bridge Wind Farm who were amenable to further development.
- 4.1.9 The approach to land assembly focussed on proximity to the anticipated POC and co-location with the existing Wind Farm. This approach minimised as far as possible the length of the cable corridor to the POC.

### **Stage 2: Land assembly**

- 4.1.10 The Applicant began engagement with relevant landowners to receive expressions of interest. From the outset, the Applicant has sought to deliver the Scheme via landowner agreement rather than relying on executing compulsory



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

acquisition rights. The Applicant approached landowners with a sufficient area of land for panel areas, mitigation and enhancement to enter into an option agreement. At the point of submission of the Scoping Report, approximately 1500 h was sought for the generation of 600MW of electricity. Following the increase in the available grid capacity of approximately 800MW, this requirement increased to approximately 1831ha. Further land was identified and added to deliver the increased capacity.

- 4.1.11 The Applicant had existing relationships with landowners at the location of the Tween Bridge Wind Farm and assumed original POC location due to its development and ownership of the Wind Farm. Given the anticipated location of the POC, The Applicant engaged with these landowners first to establish whether it would be feasible to use land around the Wind Farm for the Scheme.
- 4.1.12 As further grid capacity was identified, engagement with landowners was focussed to the south of the Scheme, due to the constraints to the west, north and east of the original site. Section 3.4 below sets out the design iteration of the Scheme, which responded to ongoing consultation and environmental assessment.

### **Stage 3: Consideration of environmental and planning constraints**

- 4.1.13 A search corridor of 10km was reviewed around the anticipated POC in order to identify potential alternatives to the land identified. This corridor was defined by the extent to which a solar farm of the proposed scale could be viable when taking into account the distance from the originally anticipated location of the POC and the cost of underground cabling. It was reviewed to confirm that the proposed location represented the most suitable alternative.
- 4.1.14 The analysis of environmental constraints reviewed within the search radius included the following constraints, as shown on Figure 4.1:
- Proximity to dwellings
  - Topography
  - Accessibility
  - Ecological designations
  - Environmentally Sensitive Areas (ESAs)
  - Local Nature Reserves (LNRs)

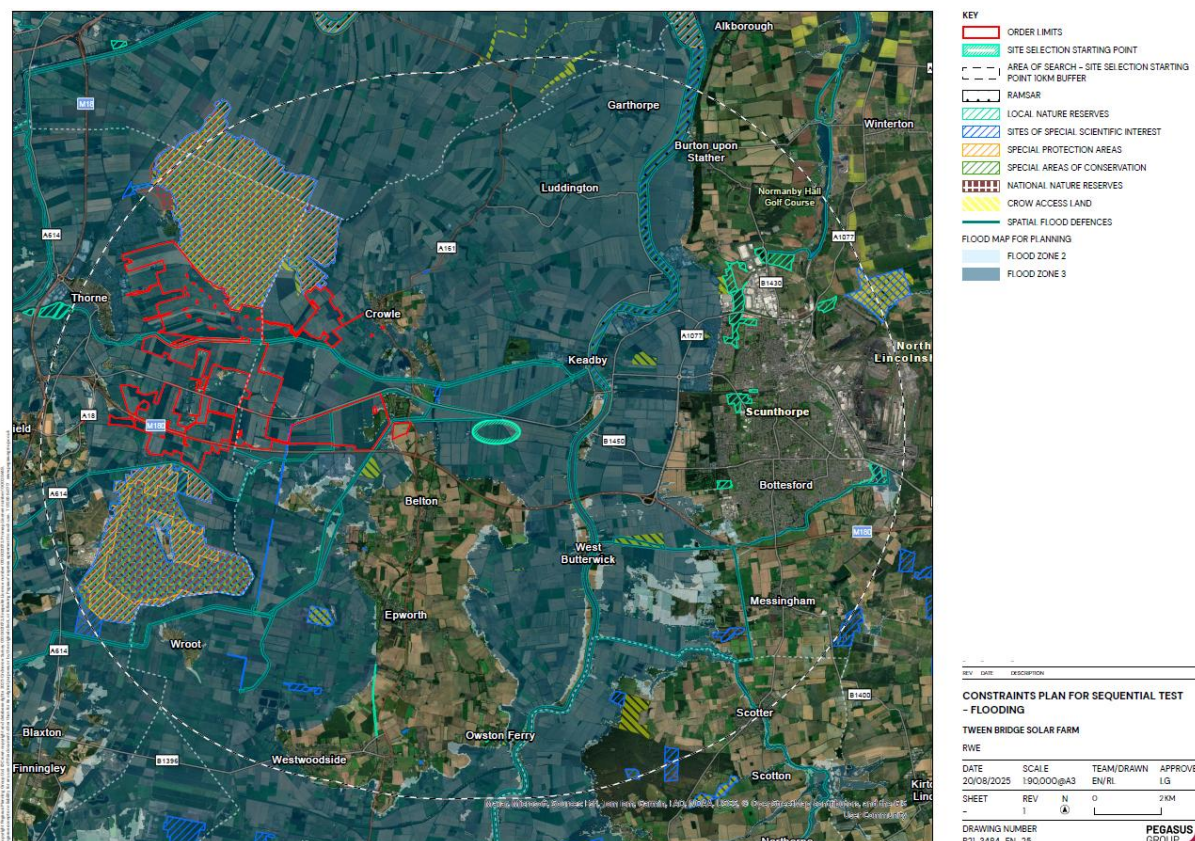
## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- Nature Improvement Areas (NIAs)
- Proposed Ramsar sites
- Ramsar sites
- Royal Society for Protection of Birds (RSPB) reserves
- Sites of Special Scientific Interest (SSSI)
- Special Areas of Conservation (SAC)
- Special Protection Area (SPA)
- National and Community Forest
- Flood Zones
- Cultural Heritage
- Battlefields
- Conservation areas
- Country Parks
- Heritage at Risk
- Listed Buildings
- Parks and Gardens
- Scheduled Monuments
- World Heritage Sites
- Landscape designations
- Greenbelt
- Area of Outstanding Natural Beauty (AONB)
- National Parks
- Countryside and Rights of Way Act 2000 Designations

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- Public Rights of Way (PROw)

**Figure 4.1 – Map showing the constraints identified within the POC search radius. A larger copy of Figure 4.1 is provided at Appendix 1**



- 4.1.15 The Order Limits broadly lies between the settlements of Thorne and Crowle, occupying separate parcels of land within a relatively flat agricultural landscape predominantly in arable use for the cultivation of cereal crops with some areas of modified grassland and short rotation coppice. Many of the field boundaries are subdivided into rectilinear parcels by long linear drainage ditches, some with partial or sporadic hedgerows. The Order Limits is dissected by several major roads and routes, including the M180 motorway, the A18, the South Humberside Main Line railway route and Stainforth and Keadby Canal.
- 4.1.16 Numerous other minor roads cross the landscape connecting scattered residential properties and farmsteads, many of which lie adjacent or in proximity to the Order Limits. The Tween Bridge Wind Farm and substation is situated in the northern part of the Order Limits. Overhead power lines and lattice pylons runs across the northern part of the Order Limits which creates other vertical elements within the landscape. There are wooden pole lines and masts within the Order Limits.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 4.1.17 Bar the two areas of significant woodland to the north and south of the Order Limits associated with former peat extraction at Hatfield Moors and Thorn Moors, the landscape contains relatively limited areas of vegetation, largely limited to field boundaries in the form of hedgerows, which many are incomplete and gappy. There are occasional scattered trees or groups of trees and some small woodland copses.
- 4.1.18 There are a number of Public Rights of Way (PRoW) that are located within or close to the Order Limits. Public Footpath FP19 (Thorne) lies in the central northern part of the Order Limits and forms part of the access to the Scheme. Public Footpath FP15 (Thorne) lies just beyond the most northwestern boundary of the Order Limits. Public Right of Way (Footpath 17) lies beyond the north eastern part of the Order Limits forming a continuation of an unnamed north-east/south west Byway. Footpath 18 runs from the unnamed Byway south eastwards into the western side of Crowe.
- 4.1.19 **ES Figure 3.1 Environmental Designations Plan [Document Reference 6.4.3.1]** provides an overview of identified environmental constraints. Further detail on individual environmental constraints within, and outside of, the Order Limits are set out in further detail within the individual ES Environmental Aspect Chapters of the ES.
- 4.1.20 In considering the above, The Applicant concluded that no other available site within the search area would have lower potential environmental constraints due to the cumulative proximity of residential receptors, Conservation Areas, Listed Buildings, Landscape Designations etc.
- 4.1.21 This was supported by the benefits of the proposed Scheme location in terms of minimising the length of any cable corridor and dual location with the existing Tween Bridge Wind Farm and making efficient use of land for renewable energy generation.

### **Stage 4: Initial identification of panel areas**

- 4.1.22 Stage 2 and Stage 3 of the site selection process established that within the search radius, there was sufficient available land, secured via agreement, located outside of major environmental and planning constraints. This was considered to fulfil the requirement to deliver a viable solar farm, and the process progressed to developing an initial layout design for the Scheme.
- 4.1.23 The panel areas changed in response to the increased grid connection capacity. Sufficient land was identified which formed the basis for the submission of the

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

Scoping Report and non-statutory consultation. Following the non-statutory consultation, further land was added to accommodate the increase in the grid connection capacity to 800MW. Land was also removed following the non-statutory consultation in response to matters raised at consultation and ongoing environmental assessment. This version of the Scheme was consulted on at statutory consultation.

- 4.1.24 To form an effective cluster of PV arrays to generate a similar amount of power as the proposed Order Limits, the alternative site search has considered that the any alternative site must constitute a cluster of adjoining land parcels forming a minimum of 1,831 hectares to meet critical mass of energy generation to be an effective as a 'like for like' comparison, this equates to the total area of the Order Limits Land Parcels A, B, C, D & E).
- 4.1.25 The splitting up of the site, into separate clusters or parcels would introduce greater landscape and environmental impact, require additional infrastructure, increased lengths of sub surface cabling resulting in electrical losses and inefficiencies which would threaten the viability of the Scheme.

## 5. Sequential Assessment – Suitability of Alternative Sites

5.1.1 The Applicant undertook a phased approach to the sequential assessment.

### **Stage 1 – Establishing the Area of Search**

5.1.2 For stage 1, the Applicant defined the area of search of 10km from the site selection starting point. This is based on the prerequisite requirement that the grid connection offer presented by the National Grid Electricity Transmission (NGET) must be financially feasible and achievable for the Applicant. NGET has commenced their siting process for the NGET 400kV substation, and the exact location of the NGET 400kV substation will not be confirmed until this process is concluded. The final location of the NGET 400kV substation will be dependent on many factors such as technical, design and environmental factors, as well as other factors outside the control of the Applicant. This includes the requirements of NGET, the owners of the national distribution network infrastructure, and their further appraisal and connection considerations.

5.1.3 Taking into consideration the discussions held between the Applicant and NGET, the Applicant understands that the NGET preliminary siting process is centred on an area to the east of Area E. The Applicant has therefore applied a 10km areas of search from this area as this would allow for a proportionate sequential assessment based on the Applicant's understanding of the potential point of connection.

5.1.4 The 10km search area is presented at Appendix 1 and this is repeated at Figure 5.1 below.

5.1.5 Having identified the area of search for the sequential test, the next stage of the assessment was to identify the availability of alternative sites, of appropriate size and massing, that were deemed to be at a lower risk of flooding. Areas of land that were categorised as Flood Risk 3 within the search area were discounted as such sites are not sequentially preferred.

5.1.6 Within the search area a total of 3 No. alternative sites were sequentially identified as being of lower flood risk. There are, however, multiple factors relevant to considering whether such Schemes are suitable at a particular location. These can be technical or environmental matters, which affect deliverability, and/or environmental and planning considerations that would outweigh the 'sequential selection'. Accordingly, having identified a site that may

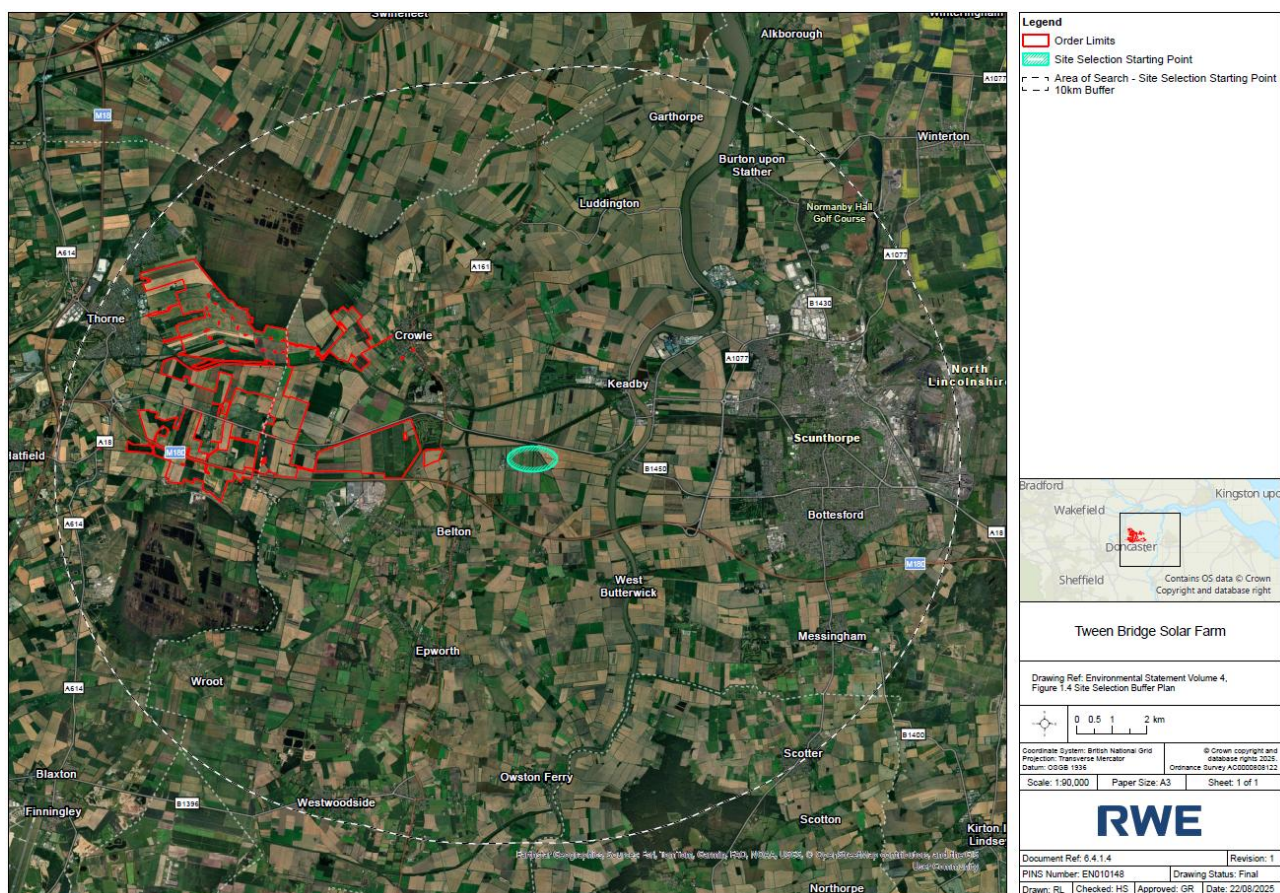


## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

be sequentially preferable, it is then necessary to consider whether the site is a reasonable alternative and is available for development.

- 5.1.6.1. Sites 1 and 2 are on the periphery of the 10km search area whilst Site 3 is entirely within it.

**Figure 5.1 – The 10Km search radius.**

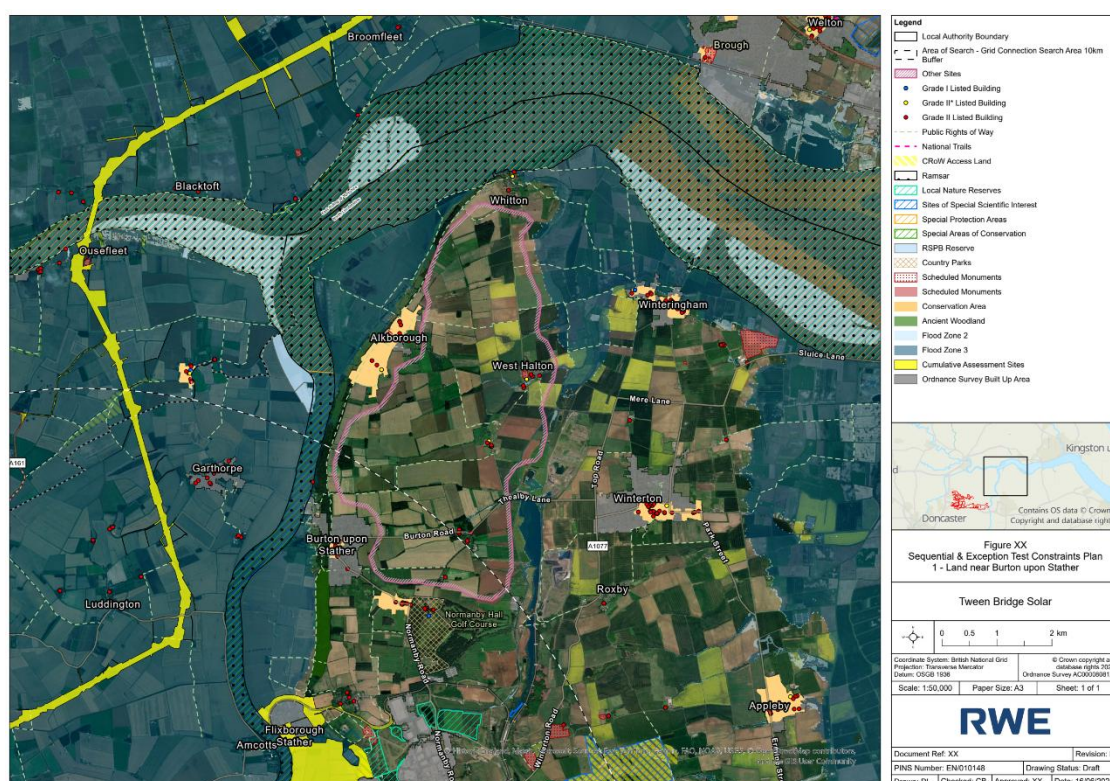


## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### 5.2. Site 1 – Land near Burton upon Stather.

5.2.1 Alternative Site '1' (as shown below at Figure 5.2) has an area of 1,750 ha (4,324 acres) and lies within Flood Zone 1 and is characterised as a network of agricultural fields to the northeast of Burton on Stather. The site is affected by small, localised pockets with a high risk or surface water flooding near Thealby Lane and West Halton as shown on Figure 5.2 below.

**Figure 5.2 – Site 1 located to the northeast of Burton on Stather.**



5.2.2 Site 1 lies within Flood Zone 1 and is sequentially preferable when considering all sources of flooding when compared to the proposed Order Limits, which lies within Flood Zone 3.

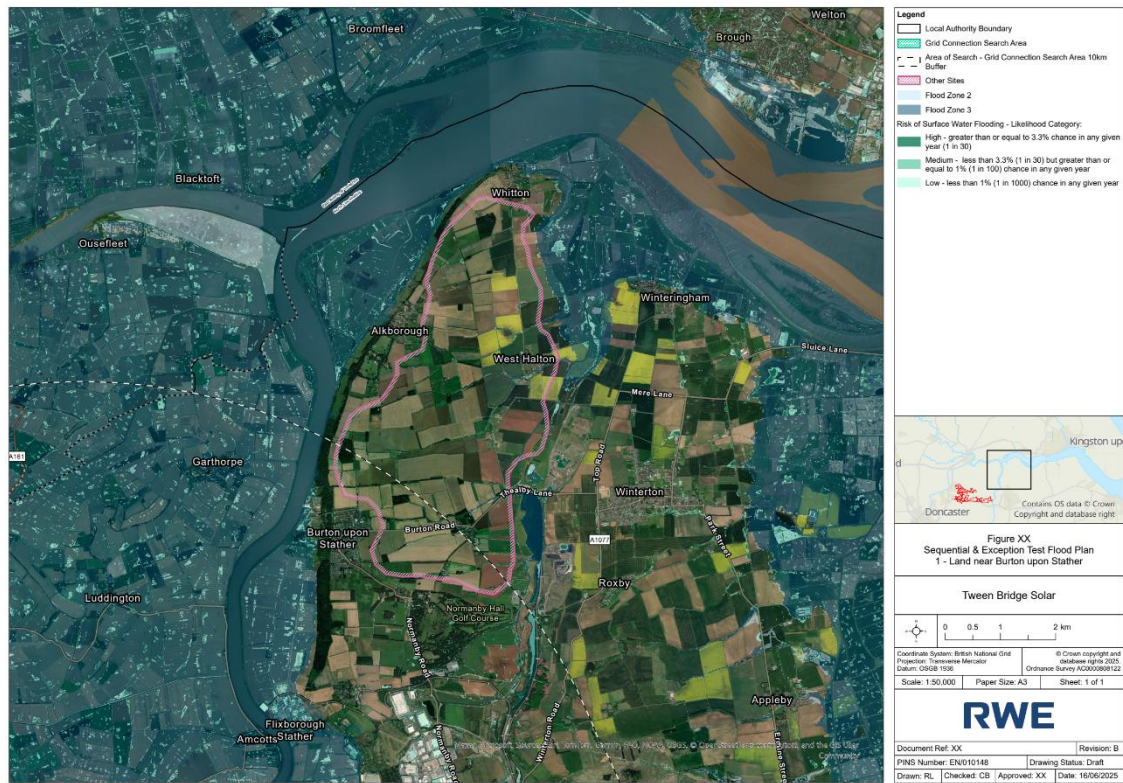
5.2.3 For surface water, like the Order Limits, there are small pockets of areas of 'high chance' of flooding from surface water up to >1.2m in depth around field boundaries and low points. But these areas are fewer within Site 1 when compared to the Order Limits.

5.2.4 There appear to be no other artificial sources of flooding located in the vicinity of Site 1 that would present a flood risk.



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

**Figure 5.3 – Fluvial/Surface Water flood risk map showing Site 1 in Flood Zones 1. With pockets of Surface Water flooding.**



- 5.2.5 Although the site may be sequentially preferable it is necessary to consider whether the site is a reasonable alternative and is available for development.
- 5.2.6 When considering the wider planning constraints with Site 1, the location of this site in relation to the wider DCO Limits and the POC is such that the vast majority of the site lies on the periphery of the 10km search area, with constraints limiting development within its southern extent (proximity to the historic Normanby Country Park and Normanby Conservation Area, as well as the cluster of nearby Listed Buildings at Thealby), it is likely that any suitable developable areas would sit outside of the search area owing to landscape mitigation and offsets.
- 5.2.7 Furthermore, the physical challenges of connecting to this site include increased costs of cabling due to the requirement to directional drill under or cross over, the tidal River Trent, a SSSI and Ramsar.
- 5.2.8 Given the distance from the POC, and the proximity of the heritage assets and designations in its southern extent, Site 1 is not considered to be a suitable alternative site to the proposed Order Limits.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

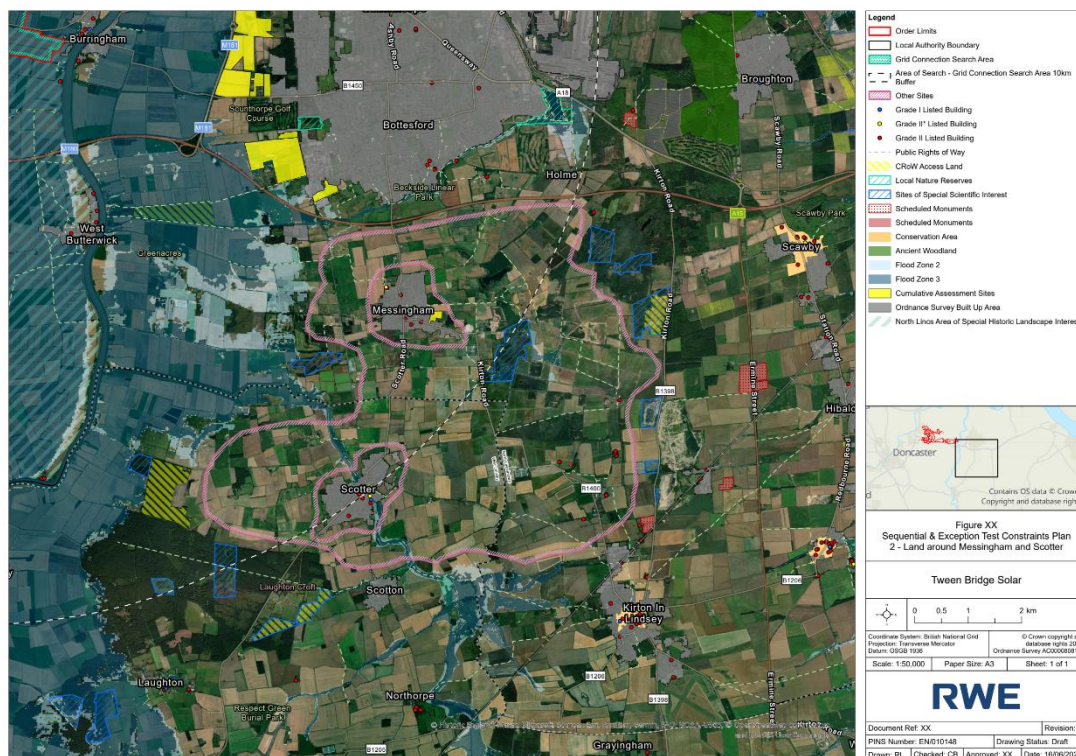
- 5.2.9 With Site 1 being located within Flood Zone 1 – albeit at some risk from small pockets of surface water flooding – it is a sequentially preferable site. However, for the reasons discussed above, Site 1 has been discounted as a reasonable suitable alternative site for the proposals as a result of the wider sustainable development constraints.

# FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

## 5.3. Site 2 – Land around Messingham and Scotter.

5.3.1 Site 2 has an area of 3,322 ha (8,209 acres) and is located within Flood Zone 1 on the Southeast extent of the 10km search radius. Site 2 encircles the settlements of Messingham and Scotter and is at risk of flooding from both surface water and fluvial sources (as shown in the Figure 5.5 below).

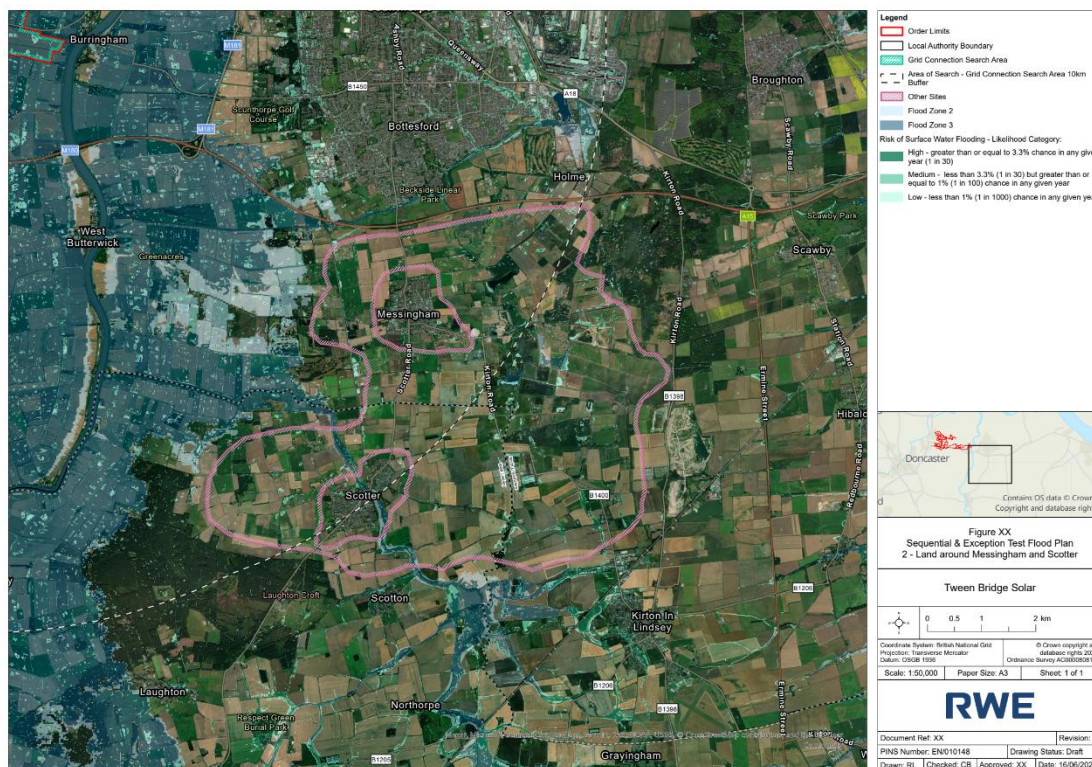
**Figure 5.4 – Site 2 located to the northeast of Burton on Stather.**





## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

**Figure 5.5 – Fluvial/Surface Water flood risk map for site 2, showing small parts of the site affected by flood zones 2 and 3 with areas of Surface Water flooding.**



- 5.3.2 Like the Order Limits, Site 2 is affected by areas fluvial and surface water sources. However, in a sequential sense, the fluvial flood risk to Site 2 is considerably less than it is to the proposed Order Limits, with only a small part of Site 2 being situated within Flood Zone 2 and 3, alongside watercourses and the River Eau running North of Scotter.
- 5.3.3 When only considering fluvial sources of flood risk, Site 2 is sequentially preferable to the Order Limits and there appear to be no other artificial sources of flooding located in the vicinity of the Site 2 that would present a flood risk.
- 5.3.4 Although the site may be sequentially preferable it is necessary to consider whether the site is a reasonable alternative and is available for development.
- 5.3.5 When considering the wider planning merits of Site 2 it is important to note that the site includes residential receptors and farmsteads throughout and forms the open aspect of, and land between the settlements of Messingham and Scotter.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

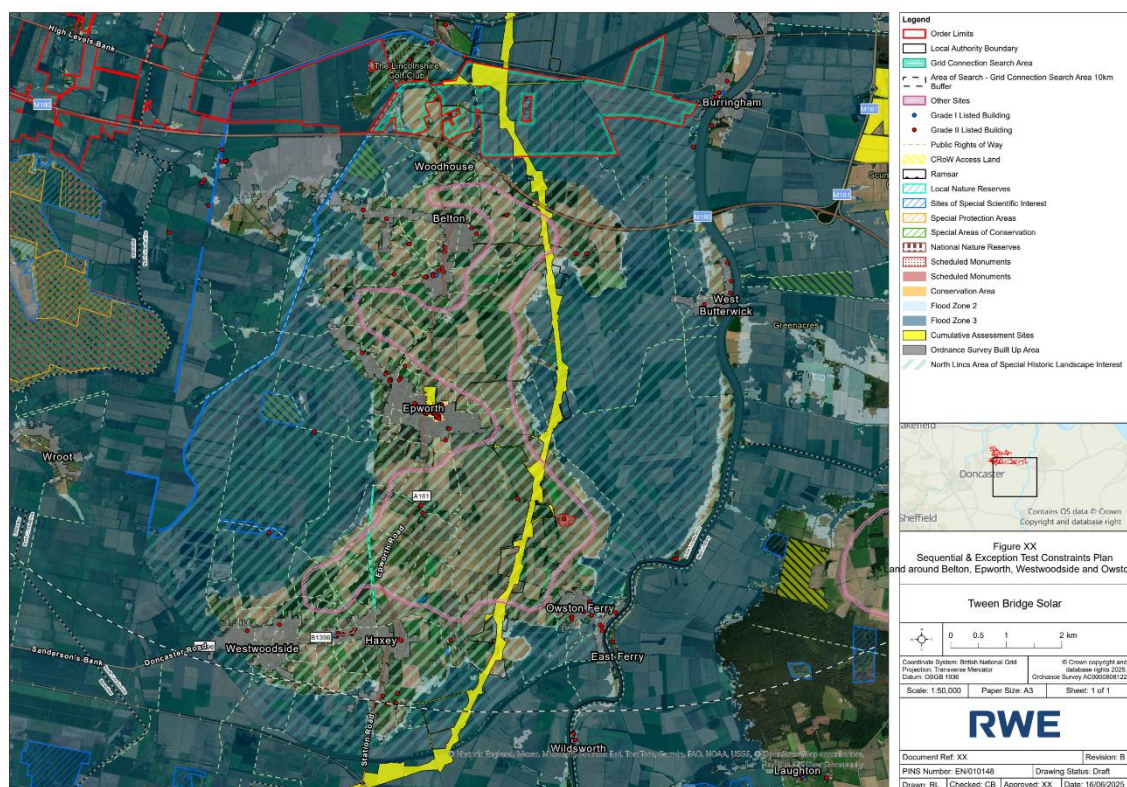
- 5.3.6 Several SSSIs are located within or close to the site, namely the Messingham Heath SSSI, Scotton and Laughton Forrest SSSI, Scotton Beck Fields SSSI, Tuetoos Hills SSSI and Manton and Twigmoor SSSI.
- 5.3.7 The Messingham Sand Quarry SSSI occupies the central swathe of Site 2 and is also a Nature Reserve characterised as a mix of lagoons, woodland, grassland and marsh add varied habitats and support a vast array of flora including seven orchid species. The richness of wildlife reflects this diversity of habitat and includes more than 180 species of bird, 20 species of butterfly, over 250 species of moth, and over 100 species of bee and wasp.
- 5.3.8 Natural England data for the Messingham Sand Quarry SSSI indicates that the site is of special interest for assemblages of breeding birds with outstanding dragonfly assemblage. The SSSI is also of importance to a variety of migratory birds that use the habitat while on passage.
- 5.3.9 As this SSSI is important to breeding and migratory birds that may use nearby neighbouring fields, there is a higher degree of potential risk on birds of interest to the Messingham Sand Quarry SSSI (and those aforementioned nearby SSSIs) with developing alternative Site 2, than developing the proposed Order Limits.
- 5.3.10 When the wider sustainable development aspects of affecting the nearby Messingham Sand Quarry SSSI, and why this designation is important to breeding and migrating birds, dragonfly and wildlife in general it considered that Site 2 is not sequentially preferable and has therefore been discounted.
- 5.3.11 In terms of planning history, a planning application for a large scale ground mounted solar farm near Manton, was refused by North Lincolnshire Council in 2015 (Decision Notice PA.2015/O387) and subsequently dismissed at appeal (APP/Y2003/W/16/3144447).
- 5.3.12 Given the weight of the above planning constraints in combination, Site 2 has been discounted as a suitable alternative site.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### 5.4. Site 3 – Land around Belton, Epworth, Westwoodside, Haxey and Owston Ferry.

- 5.4.1 Site 3 has an area of 1,682 ha (4,156 acres), sits within Flood Zone 1 and consists of land parcels around the settlements of Beltoft, Belton and Epworth to the north, with Westwoodside, Haxey and Owston Ferry situated towards the southern extent. The northern extent of Site 3 is positioned close to the POC Search Area whilst the southern extent of the site approaches the 10km search radius limit.

**Figure 5.6 – Site 3 on land surrounding Belton, Epworth, Westwoodside, Haxey and Owston Ferry**

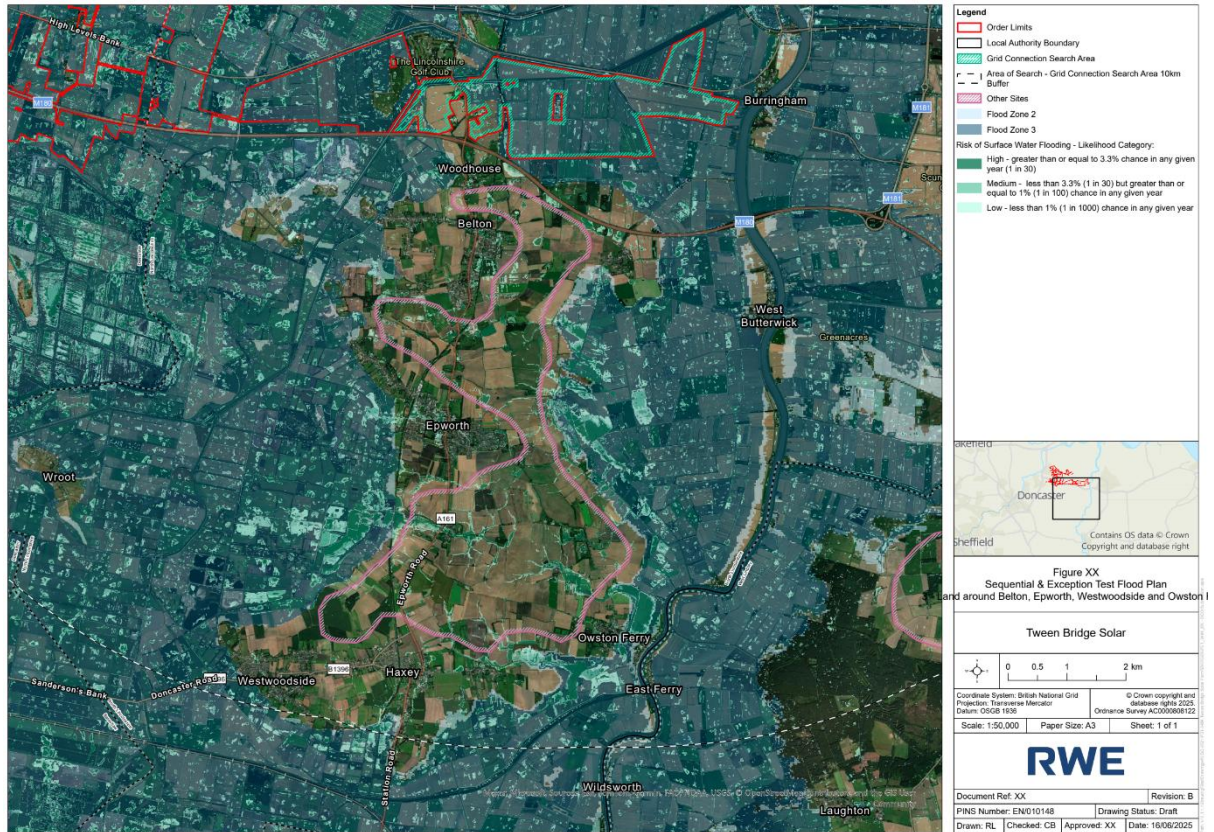


- 5.4.2 Site 3 is located in Flood Zone 1 and is not affected by fluvial flood risk but does have small areas of surface water flood risk. See Figure 5.7 below.



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

**Figure 5.7 – Fluvial flood risk map for Site 3 showing the site is within Flood Zone 1. Pockets of the site are affected by Surface Water flooding.**



- 5.4.3 The fluvial flood risk to Site 3 is sequentially preferable to the proposed Order Limits area, by reason of it not being affected by Flood Zone 2 or 3, and there appear to be no other artificial sources of flooding located in the vicinity of the Site 3 that would present a flood risk.
- 5.4.4 For surface water, like the Order Limits, there are small pockets of areas with a 'high chance' of flooding from surface water up to >1.2m in depth. But these areas are fewer within Site 3 which compared to the Order Limits.
- 5.4.5 Site 3 is sequentially preferable when considering all sources of flooding compared to the proposed Order Limits.
- 5.4.6 Although the site may be sequentially preferable it is necessary to consider whether the site is a reasonable alternative and is available for development.

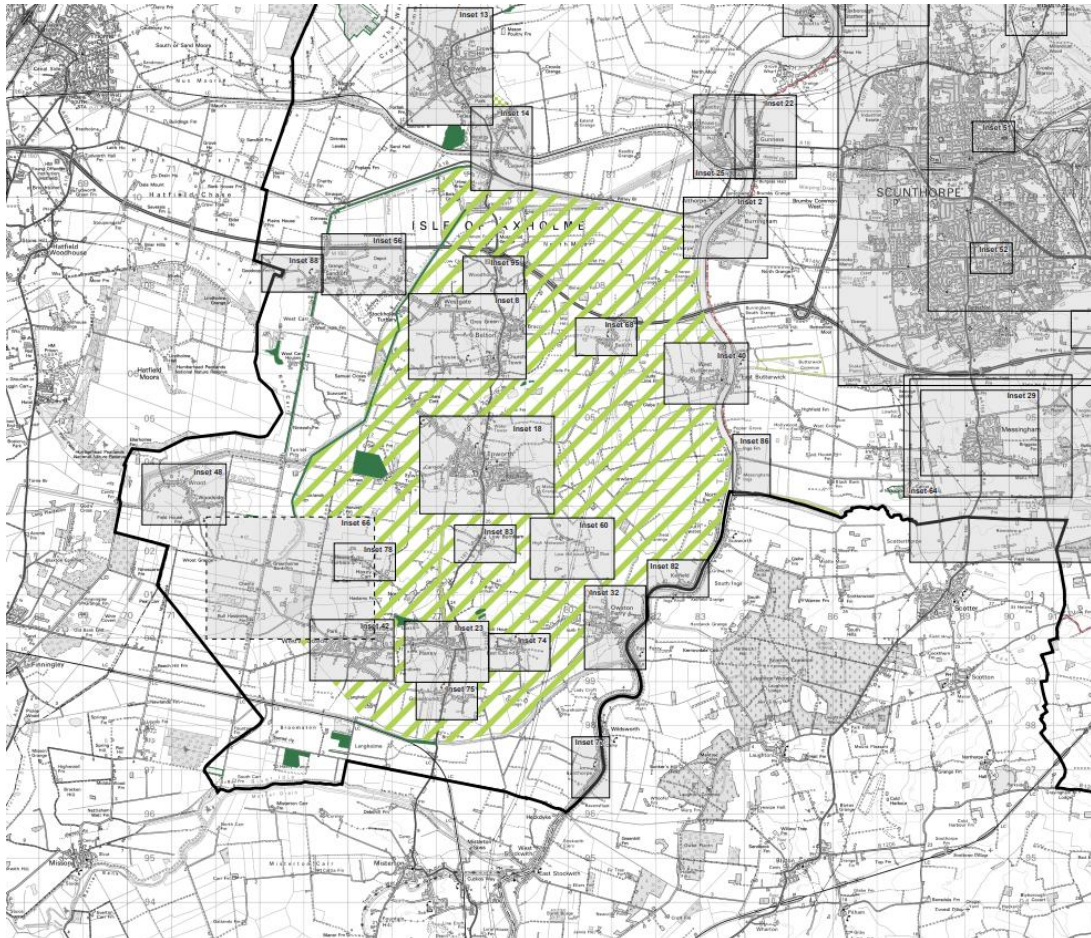
## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 5.4.7 Site 3 is characterised by a series of agricultural fields that make up the space between a number of Conservation Areas and is located entirely within the 'North Lincs Area of Historic landscape Interest' as designated in the North Lincolnshire Core Strategy (adopted 2011) as shown on Figure 5.6 above.
- 5.4.8 Local policies pertaining to the Landscape Designation are summarised below and whilst not entirely relevant to the determination of a DCO, they do set the tone in terms of demonstrating that such development would normally be prevented within this landscape.
- 5.4.9 Core Strategy Policy 1 states that *"The character and landscape setting of the area's historic market towns will be safeguarded (especially Barton upon Humber, Crowle and Epworth) and the rich archaeological heritage of North Lincolnshire will be preserved and enhanced. The value of regionally and locally important sites will be enhanced and opportunities to improve green infrastructure will be included in all new development"*.
- 5.4.10 Policy CS6 seeks *"to protect, conserve and enhance North Lincolnshire's historic environment, as well as the character and setting of areas of acknowledged importance including historic buildings, conservation areas, listed buildings (both statutory and locally listed), registered parks and gardens, scheduled ancient monuments and archaeological remains. CS6 also seeks to safeguard and, where possible, improve the setting of buildings associated with its Methodist heritage"*.
- 5.4.11 Policy C16 seeks to *"ensure that the key strategic spaces are protected and enhanced, contributing to the formation of sustainable linked communities. Strategic landscape, greenspace, estuary and water environments and archaeology are of importance to North Lincolnshire as a whole in terms of its character, biodiversity value, recreation/sports value and its potential for improving and enhancing green tourism value"*.
- 5.4.12 Policy LC14 relates to Areas of Special Historic and Landscape Interest. The policy states that *"Within this area, development will not be permitted which would destroy, damage or adversely affect the character, appearance or setting of the historic landscape, or any of its features. Schemes to improve, restore or manage the historic landscape will be sought in connection with, and commensurate with the scale of, any new development affecting the area of Special Historic Landscape Interest."*
- 5.4.13 Figure 5.12 below is an extract taken from the policies map of the Central Lincolnshire Local Plan (2023) the green diagonal hatched areas shows that the Site 3 situated entirely within this designated landscape area.



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

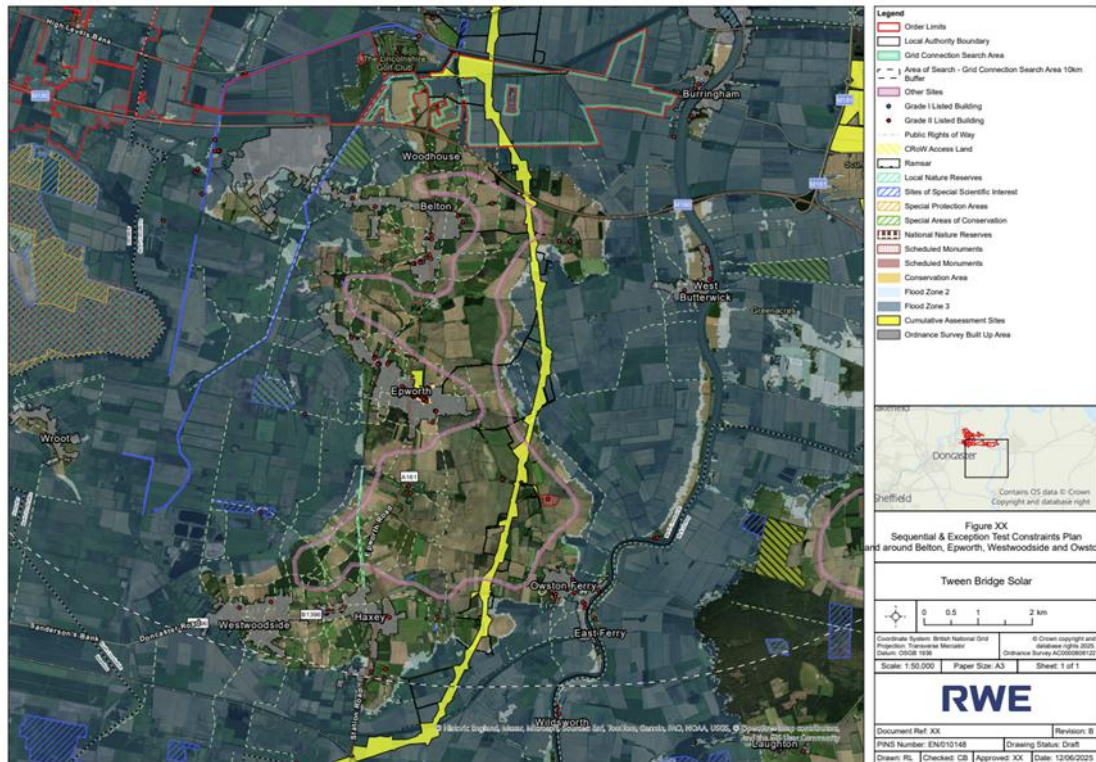
**Figure 5.8– Extract taken from the policies map of the Central Lincolnshire Local Plan (2023).**



- 5.4.14 The siting of the Order Limits within Site 3 means that the proposal would sit entirely within the Area of Historic and Landscape Interest and in addition to the Historic and Landscape credentials, the site is within proximity of multiple settlements and is bisected by a National Grid Electricity Transmission DCO proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham which effectively sterilises a large swathe of the site effectively annexing off the land around Owston Ferry. See Figure 5.9 below with application corridor highlighted yellow.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

**Figure 5.9 – National Grid Electricity Transmission DCO proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham highlighted yellow.**



- 5.4.15 In summary, Site 3 is not sequentially preferable when considering flood risk from all sources, despite the extent of surface water flooding within Site 3 being far less than the Order Limits.
- 5.4.16 On a wider sustainability basis, the historic landscape sensitivity in this area as well as the fragmented nature of the site closest to the Order Limits, encasing existing settlements – including Epworth Conservation Area – would require additional landscape mitigation and offsets leading to the conclusion that Site 3 is not considered to be sequentially preferable as a suitable alternative site, and has therefore been discounted.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### **6. Conclusions To Sequential Assessment for Flood Risk**

- 6.1.1 This Sequential Assessment has demonstrated the following points, when considering all sources of flooding and other planning constraints that would affect the sustainable delivery of the proposed NSIP development:
- 6.1.2 The Order Limits are at risk from both fluvial and surface water flooding sources being within Flood Zone 3.
- 6.1.3 Alternative sites which could comprise reasonable suitable alternatives are also at risk from some elements of flooding, some sources at the alternative sites are sequentially preferable (fluvial sources), others, such as surface water are not sequentially preferable to the Order Limits.
- 6.1.4 The alternative sites which have been assessed are more constrained by close proximity of other receptors and designations than the proposed Order Limits are.

### **6.2. Site 1**

- 6.2.1 Site 1 is located in Flood Zone 1 and is sequentially preferable considering fluvial sources of flooding when compared to the proposed Order Limits. For surface water, like the Order Limits, there are sporadic pockets of areas with a 'high chance' of flooding from surface water with no other artificial sources of flooding located in the vicinity of the Site that would present a flood risk.
- 6.2.2 However, the physical challenges of connecting to this site include increased costs of cabling due to the requirement to directional drill under or cross over, the tidal River Trent, a SSSI and Ramsar.
- 6.2.3 Given the distance from the POC, and the proximity of the heritage assets and designations in its southern extent, Site 1 is not considered to be a suitable alternative site to the proposed Order Limits.
- 6.2.4 With Site 1 being located within Flood Zone 1 – albeit at some risk from small pockets of surface water flooding – it is a sequentially preferable site. However, for the reasons set out in the previous section, Site 1 has been discounted as a reasonable suitable alternative site for the proposals as a result of the wider sustainable development constraints.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### 6.3. Site 2

- 6.3.1 Site 2 is located in Flood Zone 1 and, like the Order Limits, Site 2 is affected by areas fluvial and surface water sources. However, in a sequential sense, the fluvial flood risk to Site 2 is considerably less than it is to the proposed Order Limits, with only a small part of Site 2 being situated within Flood Zone 2 and 3, alongside watercourses and the River Eau running North of Scotter.
- 6.3.2 When only considering fluvial sources of flood risk, Site 2 is sequentially preferable to the Order Limits and there appear to be no other artificial sources of flooding located in the vicinity of the Site 2 that would present a flood risk.
- 6.3.3 Nevertheless, when considering the wider planning merits of Site 2 it is important to note that the site includes residential receptors and farmsteads throughout and forms the open aspect of land between the settlements of Messingham and Scotter.
- 6.3.4 Several SSSIs are located within or close to the site that are special interest for assemblages of breeding and migrating birds that may use nearby neighbouring fields.
- 6.3.5 Given the weight of the above planning constraints in combination and considering the wider sustainable development aspects of Site 2 it is clear the site is not sequentially preferable and has therefore been discounted as a suitable alternative site.

### 6.4. Site 3

- 6.4.1 Site 3 is located in Flood Zone 1 and is sequentially preferable when considering fluvial sources of flooding when compared to the proposed Order Limits. For surface water, like the Order Limits, there are small pockets of areas with a 'high chance' of flooding from surface water up to >1.2m in depth but these areas are fewer within Site 3 which compared to the Order Limits. There appear to be no other artificial sources of flooding located in the vicinity of the Site that would present a flood risk.
- 6.4.2 Site 3 is not sequentially preferable when considering flood risk from all sources, despite the extent of surface water flooding within Site 3 being far less than the Order Limits.
- 6.4.3 Further, on a wider sustainability basis, the historic landscape sensitivity in this area as well as the fragmented nature of the site closest to the Order Limits, encasing existing settlements – including Epworth Conservation Area – would

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

require additional landscape mitigation and offsets leading to the conclusion that Site 3 is not considered to be preferable as a suitable alternative site, and has therefore been discounted.

### **6.5. Summary**

- 6.5.1 In summary, across the three sites it is evident that sites may be sequentially preferable, but no alternative site is without some degree of flood risk, when all sources of flooding are considered, as set out in the NPPG.
- 6.5.2 However, it is clear that whilst other alternative sites are preferable from a flood risk perspective they are not considered to be reasonable alternatives for the purpose of other planning and environmental considerations.
- 6.5.3 It is therefore concluded that the Sequential Test is passed, but as the vast majority of the Order Limits is located in Flood Zone 3, in accordance with relevant policy in paragraph 5.8.9 of EN-1, the Exception Test must be applied to the Scheme in accordance with the guidance on how the Exception Test is to be applied in the NPPG.



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### 7. Exception Test

- 7.1.1 Paragraph 5.8.9 of EN-1, Section 2.16, explains that – *“If, following application of the Sequential Test, it is not possible, (taking into account wider sustainable development objectives), for the project to be located in areas of lower flood risk, the Exception Test can be applied as defined in <https://www.gov.uk/guidance/flood-risk-and-coastal-change>. (The NPPG).*
- 7.1.2 The National Policy Statement refers to the NPPG for how to apply the Exception Test, which is set out in Paragraph: 032 Reference ID: 7-O30-20220825, last updated on 25th August 2022.
- 7.1.3 The NPPG explains that *“The Exception Test requires two additional elements to be satisfied before allowing development to be allocated or permitted in situations where suitable sites at lower risk of flooding are not available following application of the Sequential Test.*

*It should be demonstrated that:*

- *development that has to be in a flood risk area will provide wider sustainability benefits to the community that outweigh flood risk; and*
- *the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.”*

- 7.1.4 Below, we have set out how both parts of the Exception Test would be met. Part 1 focuses on the wider sustainable benefits associated with the proposal, then Part 2 sets out how the development has been designed to remain operational in a ‘design’ flood event and how the development would not increase the risk of flooding elsewhere through the design of new sustainable drainage measures.

#### **Part 1 of the Exception Test – The Wider Sustainable Benefits to the Community presented by the Scheme**

##### Renewable Energy Generation benefits

- 7.1.5 Reducing Carbon Dioxide emissions is enshrined in UK legislation in the Climate Change Act (2008). Following the Paris Climate Change Agreement in 2015, the UK government amended the Climate Change Act (2008) in 2019, by introducing a target of at least a 100% reduction in the net UK territorial carbon account by 2050. This is otherwise known as the “Government Net Zero Target”.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 7.1.6 The UK Government has adopted a suite of policies in order to reach net zero, set out in two strategy publications: the Net Zero Strategy (2021) and Powering Up Britain: The Net Zero Growth Plan (2023). The UK has also committed to a 68% reduction in carbon emissions from 1990's levels by 2030 as part of its Nationally Determined Contribution (NDC) to the Paris Agreement.
- 7.1.7 The Government's Climate Change Committee published their annual progress report in July 2024 and set out that the new Labour Government *"will have to act fast to hit the country's commitments"*. It notes that low-carbon technologies are becoming cheaper, although uptake remains low, and there is an increasing need to focus on how the UK adapts to climate changes that have already happened.
- 7.1.8 The 2024 Climate Change Committee Progress Report (July 2024)<sup>3</sup> sets out 10 priority actions for 2025, with a strong focus on the following areas:
- making electricity cheaper
  - reversing the policy rollbacks of the previous Government
  - accelerating decarbonisation
  - strengthening adaptation
- 7.1.9 Since coming into power in July 2024, the Labour Government has placed a greater degree of weight on the importance of renewable energy development, clearly setting out that Decision makers should *"give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future."* This was a clear shift in national policy and gives a clear indication on the weight that the current Government expects to be afforded to sustainable proposals for renewable energy development.
- 7.1.10 On 11<sup>th</sup> March 2025, the Labour Government also published the Planning and Infrastructure Bill<sup>4</sup>, which is seeking to make amendments to the Planning Act 2008 to speed up the DCO regime, and also prioritising clean energy Schemes which are ready to connect to the grid, such projects are seen as a priority of the

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<sup>3</sup> [Progress in reducing emissions 2024 Report to Parliament – Climate Change Committee](#)

<sup>4</sup> [Planning and Infrastructure Bill](#)



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

current Government to meet the demand of increased needs of further energy production from renewable sources.

- 7.1.11 A House of Common Paper<sup>5</sup> on the current 'Energy Crisis' with supply and global prices that was published on 2<sup>nd</sup> June 2025 reports that *"global prices for gas, electricity, oil and other fuels started to increase from summer 2021 when economies began opening up after pandemic related lockdowns. This underlying increase was magnified by reduced supply of fuels from some producers and increased tensions between Russia and Ukraine. Prices increased further in late 2021/early 2022 and spiked after Russia launched a full-scale invasion of Ukraine on 24 February 2022."*
- 7.1.12 The above-described market conditions for energy prices caused a 54% increase in the UK energy price cap in April 2022. This significant increase in wholesale energy prices has led the UK Government to develop medium to long-term strategies to reduce dependence on imported fossil fuels and generate more of our own energy from renewable sources.
- 7.1.13 In response to the Russian Invasion of Ukraine and the impact this had on the global energy market, the Government published 'Powering Up Britain: Energy Security Plan in April 2023. This paper sets out that *"energy security necessarily entails the smooth transition to abundant, low-carbon energy. If we do not decarbonise, we will be less energy secure. We want our energy to be cheap, clean and British. Cheap, clean, and secure energy is not pursued as an end in itself. It is essential for enabling economic growth. Businesses and jobs in all sectors are dependent on energy. Britain led the world with the industrial revolution, off the back of a plentiful supply of coal. A future of abundant and clean energy will help to boost our economic prosperity, attract future investment and support our industrial heartlands. The cheaper our energy, the greater the competitive advantage we have."*
- 7.1.14 The Government's Clean Power 2030 Action Plan sets out the importance of renewable energy Schemes and battery storage as associated development. In getting consumer energy bills down. The Action Plan States that *"a significant increase in short-duration flexibility of 29-35 GW across battery storage, consumer-led flexibility and interconnection capacity from 2023 levels is possible and can play a role in achieving clean power in 2030. The opportunity is huge, as battery storage and consumer-led flexibility are scalable and could be relatively quick to deploy. Their deployment could not only cut bills for*

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<sup>5</sup> [CBP-9714.pdf](#)



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

*consumers but minimise the amount of more costly generation and associated network infrastructure that needs to be built, whilst maintaining security of supply.”*

- 7.1.15 Although the NPPF (December 2024 version) is not a relevant policy document for the consideration of DCO Schemes – it is a potentially important matter for the Secretary of State to consider under Section 104 of the Planning Act. It sets out the current Government’s planning policy thoughts on energy Schemes, through changes it made to the previous version of the NPPF. The latest NPPF at paragraph 168 makes it clear that all forms of renewable and low carbon energy Schemes should not require applicants to demonstrate the need for such development, and that significant weight should be afforded to such proposals for the contribution they will make towards a net zero future. For major scale energy projects that meet the DCO threshold, it is also considered that significant weight must be placed on the associated renewable energy benefits in climate change terms, as well as benefits of energy security and working towards reducing household bills.
- 7.1.16 Paragraph 3.3.62 of EN-1 states *“Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure. Section 4.2 states which energy generating technologies are low carbon and are therefore CNP infrastructure.”*
- 7.1.17 Paragraph 3.36.3 of EN-1 states that *“Subject to any legal requirements, the urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible”.*
- 7.1.18 It is clear that the generation, storage and distribution of 800MW from the proposed DCO solar farm will contribute towards national energy security for the UK and decarbonising our energy generation in accordance with the policy aims of the previous and current Governments. This is a significant benefit of the Scheme.

### Wildlife mitigation and Biodiversity Net Gains Benefits

- 7.1.19 The **ES Chapter 7 Ecology and Nature Conservation [Document Reference 6.3.7]** addresses the potential effects on ecological features during the construction, operation and decommissioning of the Scheme.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 7.1.20 Comprehensive ecological surveys have been undertaken since 2022 to inform this assessment. With the aim of providing the required information regarding habitats along with protected species, such as breeding and non-breeding birds, badger, otter, water voles, amphibians and invertebrates. These surveys were used to inform the iterative design of the Scheme and avoidance of ecological features of value, such as hedgerows, woodland and watercourses, has been a core design principle.
- 7.1.21 Mitigation measures are set out to avoid or mitigate against potentially adverse effects during both the construction, operation and decommissioning periods of the Scheme and these measures will be detailed within the **Outline Construction Environmental Management Plan [Document Reference 7.1]**, **Outline Ecological Construction Management Plan [Document Reference 7.5]**, **Outline Landscape and Ecological Management Plan [Document Reference 7.6]**, **Outline Operational Environmental Management Plan [Document Reference 7.2]** and **Outline Decommissioning Environmental Management Plan [Document Reference 7.3]**.
- 7.1.22 The habitat enhancement across the Order Limits will provide benefits by increasing opportunities for many of the species associated with designated sites and increase and improve ecological connectivity.
- 7.1.23 With embedded design measures and mitigation in place as described, the Scheme will not result in any significant adverse effects on any habitat or species, or non-statutory designated sites, with the exception of statutory designated sites, ground nesting birds and non-breeding birds. Major beneficial effects are anticipated as a result of habitat creation and diversification accompanied by long-term habitat management for the benefit of biodiversity.

### Surface Water Drainage Improvements

- 7.1.24 The **ES Chapter 10 Water Resources (Document Reference 6.2.10)** identifies the potential impacts on the water environment from the construction, operation and decommissioning of the Scheme.
- 7.1.25 The Flood Map for Planning (2025) generally defines the entire Order Limits as Flood Zone 3, at a high risk of flooding and the Risk of Flooding from Rivers and Seas dataset, also predicts the vast majority of the site to be at risk of flooding. Surface water flood depths on site are generally not predicted to exceed 300mm on site.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 7.1.26 The water environment within the Order Limits includes the surface waterbodies (e.g. rivers, streams, ditches, canals, lakes and ponds, etc.), groundwater bodies as well as flood risk and drainage. The potential impacts on the water environment resulting from the Scheme focus on four main events: erosion/sediment movement, chemical/pollution events, alteration/interruption of surface water flows, alteration/interruption of ground water flows. There are many field drain ditches running across the Order Limits, assumed to be used for agricultural drainage.
- 7.1.27 The likely significant effect during construction includes the effects on Flood Risk and Drainage and water resources, these effects would be temporary and short term. The significance of these effects is Moderate Adverse (Significant).
- 7.1.28 The likely significant effect during operation includes the effect on Flood Risk and Drainage and water resources. Increased impermeable areas associated with proposed infrastructure are generally considered to have a negligible impact on surface water drainage patterns. The sensitivity of people and property to increase flood risk during operation is considered medium and the significance of effect in Major Adverse. Surface watercourses and groundwater bodies are considered to be at risk to operational pollutants. Without mitigation the increase in highway spillage risk is considered to have an effect of a Low Adverse magnitude. The significance of effect is Minor Adverse (Not Significant) which is considered permanent if left unmitigated.
- 7.1.29 Mitigation measures are proposed on the site to reduce the effect on water resources and flood risk during the operation phase. Through the allocation of mitigation measures through the DCO, the residual effects of the Scheme during operation are considered to be Negligible (Not Significant).

### Economic Benefits

- 7.1.30 The **ES Chapter 11 Socio Economics (Document Reference 6.2.11)** analyses the baseline Socio Economic conditions and then assesses the likely Socio-Economic effects Scheme. It concludes the scheme will result in beneficial effects in terms of employment, economic contribution, accommodation demand, and business rates in all relevant phases of development, as relevant. No significant adverse effects are identified.

**Part 2 of the Exception Test – How the Scheme will be made safe from flood risk, level of vulnerability of users/workers, how the Scheme will remain operational in a ‘design’ flood event, and how the Scheme has sought to improve flood risk locally**

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- 7.1.31 Part 2 of Chapter 7 of this document demonstrates how the Scheme will be made safe from flooding, so that the Scheme can remain operational in the event of a 'design' flood event, and how surface water drainage will be carefully managed to ensure flood risk from surface water is not increased off-site.
- 7.1.32 A **Flood Risk Assessment [Document Reference 6.3.10.1]** has been undertaken to support the application and should be referenced for full details of flood risk in relation to the Scheme. The Flood Risk Assessment has been compiled in consultation with the relevant stakeholders. It assesses the flood risk to the Scheme from all sources of flooding, taking account of the effects of climate change over the lifetime of the Scheme. It also describes the mitigation measures that have been committed to in order to provide an overall reduction in flood risk as a result of the Scheme.
- 7.1.33 The Order Limits is shown to be located within fluvial Flood Zone 3 on the Environment Agency (EA) Flood Map for Planning. However, this mapping does not take into account the presence of flood defences along the River Trent. The Flood Map for Planning highlights flood defences at the Order Limits and defines the Order Limits as an area that benefits from a 'reduction in risk of flooding from rivers and sea due to defences'.
- 7.1.34 No proposed infrastructure associated with the Scheme falls within the defended flood outline, taking into consideration the effects of climate change over the lifetime of the Scheme. Therefore, there is a low risk of fluvial flooding from the River Trent affecting the Scheme. No physical mitigation measures, such as ground raising, are required to protect the Scheme or its occupants during a 'design' flood event. As good practice, a Flood Emergency Management Plan will be provided during the construction, operational and decommissioning phases and these would be secured through the relevant management plans, and such detail would accord with the Flood Emergency Management Plan set out at **Appendix H of the ES Technical Appendix 10.1 Flood Risk Assessment [Document Reference 6.3.10.1]**. Generally speaking, the site is unmanned. The operator will be registered with the EA to receive flood warnings so that advance warning will be available enabling any personnel in attendance to leave the Order Limits.
- 7.1.35 An assessment has been made of the fluvial flood risk associated with the smaller watercourses that are not included in the EA's River Trent fluvial flood model. These watercourses have been assessed as representing a low risk to the Scheme throughout the **Flood Risk Assessment [Document Reference 6.3.10.1]**. No significant risks have been identified to the Scheme from other sources of flooding. Localised areas of surface water flood risk (overland flow paths) exist

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

throughout the Order Limits but depths are generally expected to be shallow (less than 0.2m) and all sensitive equipment will be raised above expected flood levels.

- 7.1.36 In relation to the impact of the Scheme on flood risk elsewhere, the FRA demonstrates that there will be no appreciable off-site displacement of floodwater as all built development is proposed outside the design fluvial flood extent for the River Trent and outside any areas at significant risk of flooding from other sources. The impact on flood storage of solar panel supports within areas of potential shallow, localised flooding close to the watercourses is considered negligible. Any bridging or culverting of watercourses to provide access for the Scheme will be designed to ensure existing flows are accommodated. Development-free easements have been allowed each side of the watercourses (dependent on LLFA/IDB requirements) to ensure access is available for future maintenance of watercourses.
- 7.1.37 A surface water drainage strategy is proposed that will ensure runoff from the BESS locations, Inverters and Substations is controlled via attenuation and discharged at a rate no greater than in the pre-development scenario. Runoff from other aspects of the Scheme will also be controlled by drainage features.
- 7.1.38 A surface water drainage strategy will be implemented on Scheme. Details of the proposed drainage are included in the Flood Risk Assessment and Drainage Strategy for the Site. Full details of the proposed surface water drainage strategy are outlined within the FRA and the proposed Scheme has been designed to ensure surface water runoff rates from the Order Limits do not increase as a result of the Scheme.
- 7.1.39 In terms of mitigation, it is also noted that solar panels within the Order Limits will have their lowest edge, minimum 0.8m, raised above the ground and surface water across the vast majority of the site will continue to drain as per the existing conditions and a surface water drainage strategy has been prepared to provide additional betterment.
- 7.1.40 Overall, following the implementation of the mitigation measures through the DCO, the residual effects of the Scheme during operation are considered to be negligible.
- 7.1.41 The FRA demonstrates that the Scheme will remain safe for its lifetime, taking account of all sources of flooding and the vulnerability of users. It also demonstrates that there will be no increase in flood risk as a result of the Scheme.

### Conclusions to the Exception Test

7.1.42 Information set out above within chapter 7 of this report clearly indicates that the Scheme holds a number of significant wider sustainable public benefits. The following conclusions can be drawn for the Exception Test:

- Generation and storage of renewable energy for the National Grid supply, assisting to reduce carbon emissions, assist towards an increase in renewable energy production, in line with national targets and legislation, as assessed in the **ES Chapter 14 Air Quality and Greenhouse Gases [Document Reference 6.3.14]**.
- A contribution towards greater national energy security and affordability of energy prices for consumers, as set out in the **Planning Statement [Document Reference 5.5]**.
- Generation of further renewable energy to meet an increasing future demand for electricity, as set out in the **Planning Statement [Document Reference 5.5]**.
- The Scheme will achieve at least a 10% uplift in BNG and includes wildlife enhancement areas as set out in **ES Chapter 7: Ecology and Nature Conservation [Document Reference 6.2.7]** and the **ES Appendix 7.12 Biodiversity Net Gain [Document Reference 6.3.7.12]**.
- The **Flood Risk Assessment and Surface Water Drainage Strategy [Document Reference 6.3.10.1]** submitted in support of this DCO demonstrates that the Scheme can be made safe for a 'design' flood event and will not increase the risk of surface water run-off flooding in the vicinity.
- **ES Appendix 10.2: Water Framework Directive Assessment [Document Reference 6.3.10.2]** demonstrates that the Scheme will have a positive effect on the 'key challenges for the water environment' as identified within the River Basin Management Plans. The cessation of agricultural activities will have an overall benefit to the status of WFD water bodies, and a positive improvement in biodiversity will be achieved through the proposed species-rich grassland creation and watercourse avoidance buffers.
- The **Flood Risk Assessment and Surface Water Drainage Strategy [Document Reference 6.3.10.1]** demonstrates how the Applicant has applied the sequential approach at the site specific level to minimise risk by directing the most vulnerable uses to the lowest areas on flood risk within the Order Limits.

## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

- The Scheme would lead to significant temporary uplifts for the construction and decommissioning stages of the solar farm, as assessed in the **ES Socio-Economic Chapter [Document Reference 6.2.11]**.

- 7.1.43 Part 2 of Chapter 7 demonstrates how the Scheme will be made safe from flooding, so that the development can remain operational in the event of a 'design' flood, and how surface water drainage will be carefully managed to ensure flood risk from surface water is not increased off-site.
- 7.1.44 The Order Limits is approximately 1,831 ha (4524.5 acres) located almost entirely in Flood Zone 3, at risk of fluvial and tidal flooding. To ensure the Order Limits remains safe and operational during an extreme 1 in 1,000 year tidally and fluvially dominated flood event, all proposed solar PV modules and infrastructure will be raised above the 2023 Tidal Trent modelled 1 in 1,000 year fluvially dominated flood levels plus 100mm freeboard allowance. This event shows greater flooding than the tidally dominated 1 in 1,000 year flood event.
- 7.1.45 A critical flood level of 4.1mAOD has been provided by the Environment Agency but it is not considered feasible to design mitigation measures against this extreme flood level. In addition, no detailed model data has been provided to back up this level. Should a 4.1mAOD flood event occur, the impacts would extend well beyond the Order Limits extent. The Scheme would be "switched-off" should such an event occur.
- 7.1.46 The Order Limits is not considered to be at significant risk of flooding from any other source, and it is concluded that the terms of the Exception Test have been met for this Scheme.
- 7.1.47 The Applicant view is that development in Flood Zone 3 is unavoidable. The Applicant has demonstrated that there will be wider sustainability benefits to the community that outweigh flood risk and that the Scheme would be safe without increasing flood risk elsewhere. The Applicant has also applied the sequential approach at the site specific level to minimise risk by directing the most vulnerable uses to the lowest areas on flood risk within the Order Limits.



## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### Appendix 1 – Alternative Sites and Constraints Map







## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### Appendix 2 – Fluvial/Surface Water Flood Risk Map for Site 1





KEY

LOCAL AUTHORITY BOUNDARY

AREA OF SEARCH - SITE SELECTION STARTING POINT 10KM BUFFER

OTHER SITES

FLOOD ZONE 2

FLOOD ZONE 3

RISK OF SURFACE WATER FLOODING - LIKELIHOOD CATEGORY:

HIGH - GREATER THAN OR EQUAL TO 3.3% CHANCE IN ANY GIVEN YEAR (1 IN 30)

MEDIUM - LESS THAN 3.3% (1 IN 30) BUT GREATER THAN OR EQUAL TO 1% (1 IN 100) CHANCE IN ANY GIVEN YEAR

LOW - LESS THAN 1% (1 IN 1000) CHANCE IN ANY GIVEN YEAR

REV	DATE	DESCRIPTION

APPENDIX 2 - FLUVIAL/SURFACE WATER FLOOD RISK MAP FOR ALTERNATIVE SITE 1

TWEEN BRIDGE SOLAR FARM

RWE

DATE	SCALE	TEAM/DRAWN	APPROVED
20/08/2025	1:35,000@A3	EN/RL	CB

SHEET	REV	N	0	1KM
-	1			

DRAWING NUMBER

P21-3484\_EN\_93

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## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### Appendix 3 – Fluvial/Surface Water Flood Risk Map for Site 2








## KEY

-  LOCAL AUTHORITY BOUNDARY  
 AREA OF SEARCH - SITE SELECTION STARTING POINT 10KM BUFFER  
 OTHER SITES  
 FLOOD ZONE 2  
 FLOOD ZONE 3

RISK OF SURFACE WATER FLOODING - LIKELIHOOD CATEGORY:



- |   |   |
|---|---|
|  | HIGH - GREATER THAN OR EQUAL TO 3.3%<br>CHANCE IN ANY GIVEN YEAR (1 IN 30)                                  |
|  | MEDIUM - LESS THAN 3.3% (1 IN 30) BUT<br>GREATER THAN OR EQUAL TO 1% (1 IN 100)<br>CHANCE IN ANY GIVEN YEAR |
|  | LOW - LESS THAN 1% (1 IN 1000) CHANCE IN ANY<br>GIVEN YEAR  |

REV	DATE	DESCRIPTION
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### APPENDIX 3 - FLUVIAL/SURFACE WATER FLOOD RISK MAP FOR ALTERNATIVE SITE 2

TWEEN BRIDGE SOLAR FARM

RWE

DATE	SCALE		TEAM/DRAWN	APPROVED
20/08/2025	1:35,000@A3		EN/RL	CB
SHEET	REV	N	1KM	
-	1			

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## FLOOD RISK SEQUENTIAL ASSESSMENT AND EXCEPTION TEST

### Appendix 4 – Fluvial/Surface Water Flood Risk Map for Site 3





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KEY

ORDER LIMITS

LOCAL AUTHORITY BOUNDARY

AREA OF SEARCH - SITE SELECTION STARTING POINT 10KM BUFFER

OTHER SITES

FLOOD ZONE 2

FLOOD ZONE 3

RISK OF SURFACE WATER FLOODING - LIKELIHOOD CATEGORY:

HIGH - GREATER THAN OR EQUAL TO 3.3% CHANCE IN ANY GIVEN YEAR (1 IN 30)

MEDIUM - LESS THAN 3.3% (1 IN 30) BUT GREATER THAN OR EQUAL TO 1% (1 IN 100) CHANCE IN ANY GIVEN YEAR

LOW - LESS THAN 1% (1 IN 1000) CHANCE IN ANY GIVEN YEAR

APPENDIX 4 - FLUVIAL/SURFACE WATER FLOOD RISK MAP FOR ALTERNATIVE SITE 3

TWEEN BRIDGE SOLAR FARM

RWE

DATE	SCALE	TEAM/DRAWN	APPROVED
20/08/2025	1:35,000@A3	EN/RL	CB

SHEET

REV

N

0

1KM

DRAWING NUMBER

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