Meridian Solar Farm

EN010169

Volume 6

Environmental Statement

6.1 ES Chapter 11: Hydrology and Flood Risk

APFP Regulation 5(2)(a)

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

March 2026

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11 Hydrology and Flood Risk

11.1. Introduction

11.1.1. This chapter of the Environmental Statement (ES) presents the findings of an assessment of the likely significant effects on the water environment as a result of the Scheme. For more details about the Scheme, refer to **ES Chapter 2: The Scheme** (Doc Ref. 6.1).

11.1.2. This chapter identifies and proposes measures to address the potential impacts and likely significant effects of the Scheme on the water environment, during the construction, operation and decommissioning phases of the Scheme.

11.1.3. The following aspects of the water environment have been scoped in and are presented within this chapter.

- Relevant surface water features[1];
- Flood risk; and
- Demand on local water resources.

11.1.4. Any impact on ponds is assessed in **ES Chapter 9: Ecology and Biodiversity** (Doc Ref. 6.1). Potential impacts on groundwater were scoped out of the assessment, and this is discussed in more Section 11.4 of this chapter.

11.1.5. This chapter is supported by the following figures (Doc Ref. 6.2):

- **ES Figure 11-1: Surface Water Features and Their Attributes;**
- **ES Figure 11-2: Groundwater Features and Their Attributes;**
- **ES Figure 11-3: Fluvial Flood Risk;**
- **ES Figure 11-4: Surface Water Flood Risk; and**
- **ES Figure 11-5: WFD River Water Body Catchments.**

11.1.6. This chapter is also supported by the following technical appendices (Doc Ref. 6.3):

[1] Such as rivers, streams, drains and ditches.

- **ES Appendix 11-1: Hydrology and Flood Risk Legislation, Policy and Guidance;**
- **ES Appendix 11-2: Water Framework Directive Assessment;**
- **ES Appendix 11-3: Flood Risk Assessment;**
- **ES Appendix 11-4: Outline Drainage Strategy;**
- **ES Appendix 11-5: Hydrology and Flood Risk Baseline; and**
- **ES Appendix 11-6: Hydrology Impact Assessment Summary Tables.**

11.2. Legislation and Planning Policy.

11.2.1. Full details of the legislation, policy, and guidance of relevance to the assessment of the water environment are provided in **ES Appendix 11-1: Hydrology and Flood Risk Legislation, Policy and Guidance** (Doc Ref 6.3).

11.3. Stakeholder Engagement

11.3.1. A request for an EIA Scoping Opinion supported by an EIA Scoping Report (**ES Appendix 1-1** (Doc Ref. 6.3)), was obtained from the Secretary of State through the Planning Inspectorate in 2024. A summary of consultation responses in relation to water environment are presented in Table 11-1.

11.3.2. Further pre-application engagement was undertaken through the publication of the Preliminary Environmental Information Report (PEIR). Table 11-2 outlines the main matters raised during the statutory consultation relating to water environment and how these have been addressed through this assessment and the ES. No further comments from statutory stakeholders requiring response were received as part of the targeted consultations which ran from 24 September 2025 to 22 October 2025, and from 8 January to 5 February 2026.

11.3.3. Table 11-3 provides a summary of further meetings held and key correspondence with relevant stakeholders for the water environment impact assessment.

Table 11-1: Scoping Opinion responses in relation to Water Environment

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
Planning Inspectorate	**Groundwater aquifers** - the Scoping Report proposes to scope out groundwater aquifers due to the presence of unproductive superficial and bedrock strata which is of negligible sensitivity. The Inspectorate is content that this matter can be scoped out of further assessment.	Noted - assessment of groundwater aquifers has not been included in this ES.	Justification of the scoping out of groundwater aquifers is included in paragraph 11.4.38 of this chapter.
Planning Inspectorate	**Impacts upon hydrology, hydrogeology, flood risk or WFD water bodies during operation within in grid connection and cable connection** - the Scoping Report has not provided information to support its statement that "the grid connection and cable connection is not considered to give rise to impacts upon hydrology, hydrogeology, flood risk or WFD water bodies". The grid connection is located within areas of Flood Zones 2 and 3. The introduction of foundations and hardstanding for pylons and granular fills within cable trenches have the potential to impact upon flood storage and flood risk elsewhere. It could similarly impact upon surface water drainage and quality which are matters proposed to be scoped in. Similarly, it is not clear at	This chapter includes assessment of impacts to the water environment from the Grid Connection Route and Inter-Array Connections during operation. Whilst there is potential for impacts upon the 'water environment' during construction/installation of cabling, once the cabling infrastructure (including pylons and associated foundations) is 'in situ' (and noting the embedded mitigation measures included within the Scheme), cabling infrastructure would be 'neutral' in	The likely significant effects associated with the operational phase are discussed in Section 11.8 of this chapter.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	this stage whether any watercourses would need to be crossed, and therefore potentially affected, by the cable connection (or grid connection should it not be an overhead line). The Inspectorate therefore does not agree this matter can be scoped out at this stage.	terms of impacts upon the 'water environment'.	
Planning Inspectorate	**Decommissioning** - The Scoping Report states that effects during the decommissioning phase will have a similar effect upon the water environment as construction. On the basis that likely significant effects have been identified for the construction phase, the Inspectorate does not agree to scope out an assessment of decommissioning. The ES should provide an assessment of decommissioning as well as further details on the specific mitigation measures required to avoid likely significant effects.	This chapter includes a description of the decommissioning works which have been assessed as part of the ES.	Likely significant effects associated with the decommissioning phase are discussed in Section 11.8 of this chapter.
Planning Inspectorate	**Use of concrete ballast for photovoltaic (PV) panel foundations** - The Scoping Report refers to the use of concrete ballast to avoid the requirement for ground penetration for mounting the PV panels. The ES should explain how this would be considered a viable option in a known area of Flood Risk Zones 2 and 3. The potential for damage to, or removal of, the ballast in a flood event should be considered as	The use of concrete ballast has been excluded as an option for any panels in Flood Zone 3a or 3b. In other areas the preferred option is galvanised steel poles rather than feet going into concrete ballast. If on feet, concrete pads would be installed at a depth below ground level up to approximately 0.3 m. The	Not applicable.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	well as the potential for such infrastructure to increase flood risk elsewhere.	potential for damage to, or removal of, the ballast in a flood event is therefore considered to be minimal	
Planning Inspectorate	**Baseline figure** - Figure 2.1 identifies South Holland main drain and its catchment area. The legend shows a purple/grey colour for watercourses/drains and ponds, but none are identifiable on the figure. The location of watercourses should be clearly identifiable on figures within the ES.	Figures have been updated to ensure the locations of watercourses are identifiable.	Refer to **ES Figures 11-1 to 11-5** (Doc Ref. 6.2).
Planning Inspectorate	**Water Framework Directive (WFD) Screening** - the Scoping Report states that there are four WFD waterbodies which have the potential to be impacted by the Scheme, however only two are screened in. No evidence is provided to support this matter. The Inspectorate considers that potential impacts on Vernatt's Drain and North Level Main Drain should be assessed, where significant effects are likely. Should they be screened out of the WFD assessment, the ES should present the evidence used to justify this approach, and demonstrate, where possible, consultation with the relevant statutory bodies.	A WFD Screening and Scoping Assessment has been prepared. The following water bodies were screened in: • Welland – confluence Greatford Cut to tidal (ID: GB205031050685), • South Holland Main Drain (ID: GB205032050405). • Moulton River (ID: GB205031050755). Vernatt's Drain (ID: GB205031050705) has been	The WFD Screening and Scoping Assessment in **ES Appendix 11-2** (Doc Ref 6.3) includes justification of why each WFD water body within the Study Area has been screened in or

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		screened out of WFD assessment. This water body is located approximately 200 m west of the proposed works, on the opposing left bank of the River Welland. Despite its proximity, the Vernatt's Drain water body is not directly hydrologically connected to the proposed works and as a result any environmental impacts from the proposed works are unlikely to impact this water body's WFD status and objectives. North Level Main Drain (ID: GB205032050395) has been screened out of WFD assessment. Although Land Parcel C is located approximately 200 m north of the water body, the proposed works will not take place within the water body and the water body is not hydrologically connected to the proposed works.	out of further assessment.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
Planning Inspectorate	**Surface water abstractions** - the Scoping Report identifies surface water abstractions within 1 km of the application site. The proposed scope of assessment does not consider these receptors. The Applicant should seek to agree relevant receptors with the Environment Agency and the ES should assess the potential impacts on these receptors from all phases of the Scheme, where significant effects are likely.	More recent information received from the Environment Agency on 12th June 2025 shows that there are no surface water abstractions within a 2km buffer of the Site boundary. Additional data requested from the Environment Agency in January 2026 shows that there are surface water abstractions within 1km of the Site boundary and those which are potentially impacted by the Scheme have been scoped in for assessment within Section 11.6.	Details on water resources within the Study Area are presented in the Section 11.6 Baseline Conditions.
Planning Inspectorate	**Groundwater** - the Scoping Report proposes to scope out groundwater as an environmental receptor due to the presence of unproductive superficial and bedrock strata which is of negligible sensitivity. The Inspectorate is content that this matter can be scoped out of further assessment.	Assessment of groundwater aquifers has not been included in this ES.	No further comment.
Anglian Water	Anglian Water notes the absence of any reference to Anglian Water in the Scoping Report in terms of: • Whether the management of surface water will require a public sewer connection;	The water supply and demand requirements of the construction and operational phases has been outlined within Section 11.4 of this chapter. This includes an estimate of the	The ES contains an estimate of likely water usage during construction and

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	• If water recycling/sewerage services are required for the construction or operation of the Scheme; and • If a water supply is required for the construction and operation of the Scheme. Anglian Water considers that they should be included on the list of consultees to be drawn up by the applicant to follow their proposed approach to assessment and consultation and recommend discussion on the following issues: • The Draft Development Consent Order (DCO), including Protective Provisions specifically to ensure Anglian Water's services are maintained during construction; • Requirement for potable and raw water supplies; Requirement for wastewater services; • Impact of development on Anglian Water's assets and the need for mitigation; • The design of the project to minimis interaction with Anglian Water assets/ critical infrastructure and specifically to avoid the need for mitigation works and diversions which have associated carbon costs; and	likely potable water usage for the Scheme based on the number of proposed full-time employees for construction and operation. Section 11.4 also provides an estimate of the likely requirement for panel cleaning during operation. Estimates of demand requirements during construction are considered to be minor and temporary. During construction, the provision for water supply will be from commercial sources. It is not proposed that water supply is drawn from mains water for the construction of the Scheme, unless otherwise agreed by Anglian Water (mains water supplier). Estimates of demand requirements during operation are limited and proposed to be sourced from local licensed suppliers or from the mains if agreed with Anglian Water.	operation. This is included in Section 11.4 of this chapter. The **Outline Drainage Strategy** is provided in **ES Appendix 11-4** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	• Pre-construction surveys. Anglian Water welcomes that the surface water drainage has been scoped into the EIA (at paras 2.5.33 and 2.5.34). We consider that SuDS and the potential for rainwater harvesting to serve any non-potable water requirements, should be used. Notwithstanding the lead roles of the Lead Local Lead Local Flood Authority, the Environment Agency and the Internal Drainage Boards, Anglian Water would welcome clarification that the use of and consequent impacts on the local drainage/ sewerage network will be designed out of the Scheme given that there will be no mains foul connection and SuDS will be used for both construction and operational stages.	Anglian Water were consulted during the Statutory Consultation stage and will continue to be engaged throughout the DCO application and examination process, including in respect of protective provisions as necessary. **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3) has been developed to minimise flood risk through the proposed drainage measures, which have been detailed in the strategy report. These measures ensure that sustainable drainage solutions are incorporated and no connection to the local foul sewer network is proposed.	
Boston Borough Council	**Hydrology and flood risk** - Boston Borough Council are concerned there is insufficient analysis of potential flood risks in areas like Gedney Hill and Fleet Fen. We suggest Meridian Solar conduct detailed hydrological studies and incorporate robust	Detailed hydraulic models have been developed to assess potential flood risk at the identified locations. This modelling provides an understanding of the existing flood risk and potential effects it has on the Scheme. The Environment Agency	The **FRA** is presented in **ES Appendix 11-3** (Doc Ref 6.3)**.**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	flood mitigation strategies such as sustainable drainage systems (SuDS).	has been consulted on both the modelling and its results to agree the assessment approach and any necessary mitigation. This ensures the Scheme does not increase flood risk to the Site or surrounding the Site, with sustainable drainage measures incorporated where required.	
Cowbit Parish Council	**Hydrology and flood risk** - Cowbit Parish Council are concerned there is insufficient analysis of potential flood risks in areas like Gedney Hill and Fleet Fen. We suggest Meridian Solar conduct detailed hydrological studies and incorporate robust flood mitigation strategies such as sustainable drainage systems (SuDS).	Detailed hydraulic models have been developed to assess potential flood risk at the identified locations. This modelling provides an understanding to the existing flood risk and potential effects it has on the Scheme. The Environment Agency has been consulted on both the modelling and its results to agree the assessment approach and any necessary mitigation. This ensures the Scheme does not increase flood risk to the Site or surrounding the Site, with sustainable drainage	The **FRA** is presented in **ES Appendix 11-3:** (Doc Ref 6.3)**.**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		measures incorporated where required.	
Deeping St James Parish Council	**Hydrology and flood risk** - Deeping St James Parish Council are concerned there is insufficient analysis of potential flood risks in areas like Gedney Hill and Fleet Fen. We suggest Meridian Solar conduct detailed hydrological studies and incorporate robust flood mitigation strategies such as sustainable drainage systems (SuDS).	Detailed hydraulic models have been developed to assess potential flood risk at the identified locations. This modelling provides an understanding of the existing flood risk and potential effects it has on the Scheme. The Environment Agency has been consulted on both the modelling and its results to agree the assessment approach and any necessary mitigation. This ensures the Scheme does not increase flood risk to the Site or surrounding the Site, with sustainable drainage measures incorporated where required.	The **FRA** is presented in **ES Appendix 11-3:** (Doc Ref 6.3).
Gedney Hill Parish Council	**Flood risk and the natural environment**: The Parish Council would like to see a detailed and independent evaluation of the measures that will be taken to enhance the natural landscape. The ES should clearly	Detailed hydraulic models have been developed by to assess potential flood risk at the identified locations. This modelling provides an understanding of the existing flood risk and potential effects it has on	The **FRA** is presented in **ES Appendix 11-3:** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	set out how this stark and intrusive construction will be blended into the existing landscape. The Parish Council believes that any change of use to the current landscape could increase the area's flood risk. The report should contain details of any drainage systems that will be required, where the water will discharge and the effect of this on the surrounding area, specifically land in and around Gedney Hill.	the Scheme. The Environment Agency has been consulted on both the modelling and its results to agree the assessment approach and any necessary mitigation. Drainage for the Scheme has been designed to ensure that there is no increase in flooding to the Site, or the surrounding area, with sustainable drainage measures incorporated where appropriate.	
Lincolnshire County Council	**Hydrology and hydrogeology** - The Council as Local Lead Flood Authority (LLFA) has reviewed the Scoping Report and have the following comments to make. Table 4.4 within the Scoping Report identifies the proposed scope of the EIA to assess Hydrology, Hydrogeology, Flood Risk and Water Framework Directive waterbody receptors. The Council raises no issues or concerns at this stage with regard to the proposed scope outlined for surface water flood risk.	Noted.	This chapter plus the **WFD Assessment** presented in **ES Appendix 11-2** (Doc Ref 6.3) and **FRA** is presented in **ES Appendix 11-3** (Doc Ref 6.3).
Natural England	For the purposes of the Scoping exercise Natural England have highlighted, in regards to the water environment, potential risk to the named	This ES has acknowledged the presence of the three internationally important designated sites and	These three designated sites have been

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	international designated sites below; where the development is within or may impact on the following sites: • The Wash & north Norfolk Coast SAC - The Wash SAC is hydrologically connected to the Scheme site; as such, there may be scope for impacts to both the habitats and species within The Wash via pollution of surface waters as a result of the construction of the development. It is noted that surface water contamination during construction is scoped into the assessment (EIA Scoping Report Table 5.1). • The Wash SSSI - The features of The Wash SSSI mirror those of the three European designations it also holds. In considering impacts to the European Site Features, the ES should consider impacts to the features of the SSSI. • The Nene Washes SSSI - The features of the Nene Washes SSSI mirror those of the three European designations it also holds. In considering impacts to the European Site Features, the ES should consider impacts to the features of the SSSI.	discuss flow pathways and whether they are at risk of any adverse impacts.	referenced in Section 11.6.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
South Holland District Council	**Hydrology, Hydrogeology and Flood Risk** - Lincolnshire County Council act as Lead Local Flood Authority and may comment directly to the Scheme. having reviewed the information put forward within the Scoping Report, the approach taken appears reasonable in the methodology and we have no specific comments to offer.	Noted.	Not applicable.
South Holland Internal Drainage Board	**Hydrology, Hydrogeology and Flood Risk** - the Scheme would be primarily located within the South Holland Internal Drainage District (SHIDB), SHIDB has been aware of the Scheme prior to the current consultation, through direct engagement with the applicant and their agents. We intend to continue this engagement throughout the planning process to discuss matters within the IDB remit, i.e. consideration of flood risk and water management infrastructure.	The assessment has been completed in consultation with the SHIDB, A meeting with the SHIDB took place on 17th October 2025.	A meeting with the SHIDB took place on 17th October 2025 and the outcome of this consultation is summarised in Table 11-3.
South Holland Internal Drainage Board	SHIDB strongly agrees that flood risk and hydrology should be scoped into the EIA, because of the relatively high flood risk across the entire area and because of the existing drainage network that is critical to protecting people, property, infrastructure and businesses in the area. There is an extensive network of drainage ditches (including main drains and ordinary watercourses) in this area.	The FRA has been prepared to consider relevant sources of flooding and components of the Scheme. The assessment is being undertaken in consultation with the Environment Agency and SHIDB to ensure alignment with current guidance and	The **FRA** is presented in **ES Appendix 11-3** (Doc Ref 6.3)**.**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	SHIDB is in discussion with the applicant over a proposed "Main Drain Model" that will underpin the Flood Risk Assessment. The assessment should consider the potential for flood risks to increase as a result of all of the different aspects of the proposed project, including (but are not necessarily restricted to) the construction of the photovoltaic area, the associated substation, transformers, storage areas, inter-array cable connections, and grid connection to Weston Marsh. Associated activities that should also be assessed include (but are not necessarily restricted to) construction of additional impermeable areas, temporary and permanent access roads, watercourse crossings, vegetation clearance works and earthworks, etc.).	to confirm that appropriate allowances and methodologies are applied.	
South Holland Internal Drainage Board	Further, SHIDB strongly supports the development of a Drainage Strategy to set out how surface water from the development will be managed in relation to flood risk.	An Outline Drainage Strategy has been developed to demonstrate how surface water from the development will be managed to ensure there is no increase in flood risk to the Site.	The **Outline Drainage Strategy** is available in **ES Appendix 11-4** (Doc Ref 6.3).
South Holland Internal	It is noted that the Scoping Report states that "decommissioning of the Scheme is considered to have similar effects upon the water environment as those during the construction phase (Table 5.1, p.	This chapter includes a description of the decommissioning works which have been assessed.	Refer to section 11.7 of this chapter for embedded

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
Drainage Board	158).” SHIDB requests clarification on whether such decommissioning effects would therefore be scoped into the EIA; Table 5.1 appears to say that all decommissioning works are scoped out of the Flood Risk/Hydrology section of the EIA.		mitigation and permits and consents, Refer to section 11.8 for the impact assessment, which includes an assessment on decommissioning.
South Holland Internal Drainage Board	SHIDB would also like to highlight that works affecting watercourses (e.g. watercourse crossings, works within 9 m of a watercourse, discharges to a watercourse) within the SH Internal Drainage District would require consent from the Board under the Land Drainage Act 1991 including the Board’s Byelaws, in a process separate from the Development Consent Order. The Board will liaise directly with the applicant in that process and is likely to require further information (i.e. in addition to that provided in the EIA) to inform our decision-making for such consents.	SHIDB’s comments in respect of works affecting watercourses within the SH Internal Drainage District are noted. A meeting with the SHIDB took place on 17th October 2025 and the outcome of this consultation is summarised in Table 11-3 where it was proposed that buffering watercourses from new development by a minimum of 10m other than where the watercourses are crossed (by access or cabling) or have drainage connections. Such crossings will be managed by	Refer to section 11.7 of this chapter for embedded mitigation and permits and consents.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		protective provisions to be agreed between the parties.	

Table 11-2: Key matters raised by prescribed or statutory consultees in relation to Water Environment

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
Environment Agency	The physical characteristics of waterbodies may be adversely affected through the use of culverts, with associated implications for Water Frameworks Directive (WFD) assessment.	The impacts of waterbodies from the use of culverts have been assessed within this chapter and the WFD assessment.	An assessment against WFD requirements (including ensuring no deterioration or prevention of future improvement in WFD elements of waterbodies) is provided in **ES Appendix 11-2 WFD Assessment** (Doc Ref 6.3).
Environment Agency	North Level Main Drain (ID: GB205032050395) is proposed to be screened out of WFD assessment – with the reasoning that Land Parcel C and the nearest crossing point are both located upstream (north) of this water body and are unlikely to impact the water body. However, there is the potential risk that contaminated drainage from Land Parcel C and	There are no crossing points located within the land parcel closest to North Level Main Drain WFD water body. Therefore, it is unlikely that there are any impacts that would propagate downstream and impact on the North Level Main Drain.	An assessment against WFD requirements (including ensuring no deterioration or prevention of

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	from the crossing point could move downstream and affect the water body.		future improvement in WFD elements of water bodies) is provided in **ES Appendix 11-2 WFD Assessment** (Doc Ref 6.3). This includes justification of screening of WFD water bodies.
Environment Agency	Incorrect terminology ('Supports Good') used in reference to Hydromorphological Supporting elements for South Holland Main Drain and for Moulton River.	Terminology has been updated to 'Not Good' in reference to Hydromorphological Supporting elements for South Holland Main Drain and for Moulton River where relevant.	Refer to **ES Appendix 11-2: WFD Assessment** (Doc Ref 6.3).
Environment Agency	The use of culverts for watercourse crossings has been recognised as a worst case in terms of impacts but has not been ruled out.	The use of culverts has been assessed as the worst case scenario and appropriate mitigation outlined	Likely significant effects from the use of culverts

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		should they be included in final detailed design.	are described in Section 11.8.
Anglian Water	For water recycling/ sewerage services Section 14.5.97 of the PEIR Volume 1 Chapter 14: Other Environmental Topics states "*For all phases of the Scheme, wastewater and sewage from welfare facilities would be stored on-Site and removed by tanker to an approved wastewater and sewage treatment centre. Associated waste is anticipated to be of a low volume and therefore is not considered likely to give rise to significant effects and not considered further.*" Whilst it is not expected to make any connections into existing Anglian Water infrastructure, it is not explicitly clear if the foul water would be directed to an Anglian Water facility and any agreement sought on this. The ES should also demonstrate agreement with the relevant consultation bodies.	No connection to the public sewer is proposed for foul sewage. The foul water flows will be dealt with via a sealed cesspit with no overflow to ground pipe system).	The Proposed Foul Water Drainage Strategy is detailed in the **Outline Drainage Strategy** presented in **ES Appendix 11-4** (Doc Ref 6.3).
Anglian Water	Anglian Water does not consider that sufficient information has been provided to reach a conclusion on the project impacts regarding water supply. Impacts of climate change in terms of water availability are also of relevance. Anglian Water	During construction, the provision for water supply will be from commercial sources. It is not proposed that water supply is drawn from mains water for the construction of the Scheme, unless	The ES contains an estimate of likely water usage during operation. This is included under

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	requests that these points are covered in the EIA for all three stages.	otherwise agreed by Anglian Water (mains water supplier). Climate change is unlikely to influence the water supply needed during construction as it is temporary and over a short period of time. During the operational period, only a relatively small supply is needed to support approximately 10 site staff, which is considered would have a negligible impact on water supply, even if sourced from mains water. Therefore, it has been scoped out from further assessment.	'Water Supply and Water Resources' in Section 11.4 of this chapter.
Anglian Water	The project should not assume that water will be available for construction and operation. If that water supply is not available from Anglian Water, then alternative supplies through local abstraction may cause environmental harm and so not be consented by the Environment Agency. The construction of alternative water supplies may themselves generate GHG.	During construction, the provision for water supply will be from commercial sources. It is not proposed that water supply is drawn from mains water for the construction of the Scheme, unless otherwise agreed by Anglian Water (mains water supplier). Any water tankered in is assumed to be sourced in accordance with appropriate	The ES contains an estimate of likely water usage during operation. This is included under 'Water Supply and Water Resources' in

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		permits at its source. Therefore, impacts of construction water supply have been scoped out from further assessment. During operation, the provision for water supply will be from commercial sources with dedicated clean water tanks provided. It is not proposed that water supply is drawn from mains water for the operation of the Scheme, unless otherwise agreed by Anglian Water (mains water supplier). This includes any maintenance activities during operation, including panel cleaning. However, connection to the mains supply for potable water for the permanent on-site offices remains an option to be considered in consultation with Anglian Water during detailed design post DCO consent. Based on the small number of employees to be present at the operational Scheme (10 full time	Section 11.4 of this chapter.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		equivalent (FTE)), it is considered the Scheme would cause no significant impact to the area of water stress, even if mains supply is utilised. Therefore, it has been scoped out from further assessment.	
Anglian Water	The Meridian project is located within the Water Resource Zones (WRZ) of Lincolnshire Bourne and designated as being within a 'seriously water stressed' region. In view of the potential impacts on water resources, the Applicant is advised to consider the published Water Resources East Regional Plan which sets out the collective water companies position. The AWS draft Water Resource Management Plan (WRMP) is available on our website Water resources management plan (anglianwater.co.uk). The WRMP should therefore be added to the data sources listed.	The Anglian Water draft WRMP as referred to in the consultation response has been considered within this chapter.	Refer to 'Water Supply and Water Resources' in Section 11.4 of this chapter.
Anglian Water	Anglian Water has adopted a 'Non-Domestic Water Requests Policy - December 2024' (copy attached) which states that requests over 20 m^3/day will be declined. However, for NSIPs that are requesting over 20 m^3/day of non-domestic water (as defined above) for a scheme, a Water Resources Assessment	The Scheme will not require a supply from Anglian Water during construction, with any water requirements to be tankered in. This remains the case for any maintenance activities during	The ES contains an estimate of likely water usage during operation. This is included under

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	(WRA) form must be completed. This is so we can better understand water demands, water efficiency measures and more effectively forecast water supply requirements. This will help enable us to support projects that help achieve national ambitions such as achieving net zero carbon and unlocking sustainable growth.	operation, including panel cleaning. However, connection to the mains supply for potable water for the permanent on-site offices remains an option to be considered in consultation with Anglian Water during detailed design post DCO consent. Based on the small number of employees to be present at the operational Scheme (10 FTE), it is considered the Scheme would cause no significant impact to the area of Water Stress, even if mains supply is utilised. Therefore, it has been scoped out from further assessment.	'Water Supply and Water Resources' in Section 11.4 of this chapter.
Anglian Water	To support appropriate water resource planning, Anglian Water now requires that significant new nondomestic water demands be set out in a WRA. For applications under the 2008 Act the WRA (or its summary) should form part of the EIA sufficient to enable regulators including the Environment Agency to advise the Examining Authority and the Secretary of State that the supply of water to the project is deliverable and sustainable. A WRA would include	The Scheme will not connect into Anglian Water during construction and any water requirements will be tankered in. Potential connection for site offices during occupation of the Site will be considered post DCO consent. However, based on the small number of employees to be present at the operational Scheme	The ES contains an estimate of likely water usage during operation. This is included under 'Water Supply and Water Resources' in

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	setting out a daily demand for each stage of the project and whether this is for domestic or non-domestic uses. Anglian Water recommends that the WRA is an integral part of the PEIR Volume 1 Chapter 8: Hydrology, Flood Risk and WFD.	(10 FTE), it is considered the Scheme would cause no significant impact to the area of Water Stress, even if mains supply is utilised. Therefore, it has been scoped out from further assessment.	Section 11.4 of this chapter.
Anglian Water	Anglian Water recommends that new water supply connections are not sought during construction and that potable water supply for welfare facilities, for example, are served by tanker to reduce the embedded (capital) carbon from providing new connections. The Applicant should confirm that there will be no temporary concrete batching facilities with consequent water demands and would be offsite and so not require an on-site supply. Water requirements for firefighting measures and construction traffic (dust suppression/ wheel washing areas) should also be explained.	No connection to Anglian Water mains is required during construction. It is anticipated that any concrete required for the construction would be obtained from a local batching plant. In addition, it is anticipated that the use of water for concrete curing and internal road construction may not be required where rainfall can be utilised. The provision of fire water is a one off demand and does not represent an ongoing supply need. It would only need to be replaced if the water is used in an emergency. If water for the water storage tanks for firefighting is to be obtained from the mains supply, a water supply	The ES contains an estimate of likely water usage during operation. This is included under 'Water Supply and Water Resources' in Section 11.4 of this chapter. Also refer to the **Outline Battery Safety Management Plan (OBSMP)** (Doc Ref. 7.18).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		request would be made to Anglian Water, accompanied by a Water Resource Assessment. The need for the mains supply connection will be confirmed at detailed design stage. Further details will be established through the detailed Outline Battery Safety Management Plan (OBSMP) and Emergency Response Plan (ERP) to be prepared in accordance with the OBSMP post-DCO consent.	
Anglian Water	Anglian Water welcomes that the Flood Risk Assessment (FRA) will assess all applicable sources of flooding to and identify any mitigation measures required to ensure flood resilience, taking climate change into account, and to prevent any off-site impacts. We consider that this should help to avoid increased risk of ground water infiltration/ surface water ingress to our wastewater networks	The FRA considers all applicable sources of flooding, including fluvial, surface water, groundwater and tidal flooding, and identifies appropriate mitigation measures to ensure resilience of the development. Climate change has been factored into the assessment in line with current guidance, and the Environment Agency has been consulted on the hydraulic modelling to confirm approach and findings. **ES Appendix 11-4: Outline Drainage**	The **FRA** is included as **ES Appendix 11-3 (Doc Ref 6.3)**.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		Strategy (Doc Ref. 6.3) has been developed alongside this work to manage surface water runoff effectively and ensure there is no increase in flood risk on Site and in the surrounding areas.	
Anglian Water	Anglian Water welcomes that the surface water drainage has been scoped into the EIA (PEIR Volume 1 Chapter 8: Hydrology, Flood Risk and WFD) as referenced in Table 14-6-5 Preliminary Assessment of Major Accidents and Disasters - "*Surface water flooding would be managed through a Drainage Strategy, development in alignment with the EIA.*"	Surface water management has been integrated into the Scheme through **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3). This strategy ensures surface water runoff is appropriately managed and that the flood risk is not increased on site and in surrounding areas. Sustainable drainage measures form a key part of this approach.	The **Outline Drainage Strategy** is included as **ES Appendix 11-4** (Doc Ref 6.3).
Anglian Water	We consider that SuDS and the potential for rainwater harvesting to serve any non-potable water requirements, should be used. Notwithstanding the lead roles of the Lead Local Flood Authority, the Environment Agency and the Internal Drainage Boards, Anglian Water would welcome clarification on how consequent impacts on the local drainage/ sewerage network will be designed as part of the	**ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) incorporates sustainable drainage systems to manage surface water runoff. No connection will be made into the foul sewer network, and no discharges to the public foul system are proposed.	The **Outline Drainage Strategy** is included as **ES Appendix 11-4** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	Scheme for both construction and operational stages.		
Anglian Water	As a result, we would want to ensure that there should be no right to connect powers included within the draft DCO on a temporary or permanent basis. Anglian Water reserves its position on the need to be a consultee pre commencement Requirement on the final drainage strategy for the Scheme to be submitted to the Councils, until the FRA is produced alongside the detailed design.	Noted. No right to connect powers have been included in the **Draft DCO** (Doc Ref. 3.1), and Anglian Water have been added as a consultee to the drainage strategy requirement.	Refer to the **Draft DCO** (Doc Ref. 3.1)
Environment Agency	Flood risk impacts have not been sufficiently assessed. Further mitigation may be required to ensure flood risk is not increased on or off site. We look forward to reviewing the Flood Risk Assessment (FRA) and associated modelling as it is developed.	The FRA has been developed to assess all relevant sources of flooding and to identify appropriate mitigation measures for the worst-case scenario. The assessment concludes that flood risk is not increased on or off site with embedded mitigation in place.	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3).
Environment Agency	Flood risk impact categorisation could be inappropriate for the “negligible” classification.	Table 11-5 sets out the updated definition for negligible impact. Negligible impact is considered to	The **FRA** is included as **ES Appendix 11-3**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	In terms of Flood Risk, the table states that 'negligible' would constitute no consequences in terms of flood risk. The table then states that change in flood risk causes more frequent inconvenience and triggering of emergency response measures but does not result in increased risk of damage to property and infrastructure. The EA considers that more frequent triggering of emergency response measures and inconvenience would not be deemed a 'negligible' impact.	result in impact on attribute, but of insufficient magnitude to affect the use or integrity.	(Doc Ref 6.3) and Table 11-5.
Environment Agency	This paragraph [8.8.41] notes that flood sensitive infrastructure would be elevated above the peak water level associated with breach of defences or pumping station failure during a 1 in 1000 year plus climate change flood event. This is welcomed. This paragraph notes that this may necessitate localised ground raising which has the potential to reduce storage volume within the floodplain.	The FRA includes volumetric loss calculations to quantify the minimal floodplain storage displacement associated with the PV panels and solar stations, where these are located within Flood Zone 3b.	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3).
Environment Agency	The PEIR notes that the receptors are considered to be of low sensitivity and the magnitude of impact would be negligible on account of the significant extent of floodplain relative to the localised scale of	The FRA includes volumetric loss calculations to quantify the minimal floodplain storage displacement associated with the PV panels and	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	any ground raising. No evidence is presented regarding impact magnitude within the PEIR.	solar stations, where these are located within Flood Zone 3b.	
Environment Agency	Potential errors within figure 8-4. The outlines presented look more extensive than the existing (January 2025) and previous Risk of Flooding from Surface Water (RoFSW) mapping outputs for this area.	All mapping and figures have been reviewed and updated to ensure consistency with the latest surface water flood risk data and modelling outputs.	Figures relating to flood risk are available as **ES Figure 11-3: Fluvial Flood Risk** and **ES Figure 11-4: Surface Water Flood Risk** (Doc Ref. 6.2).
Environment Agency	The report states that building floor levels would be set at an appropriate freeboard above modelled flood levels but the height of this freeboard has not been specified.	The Flood Risk Assessment specifies appropriate freeboard allowances that have been confirmed by the Environment Agency.	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3).
Environment Agency	The applicant has not committed to undertaking an assessment of the credible maximum scenario.	The credible maximum scenario has been assessed as part of the hydraulic modelling for the Site, and the results are included within the FRA.	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
Environment Agency	There is no commitment to avoid culverts where new watercourse crossings may be required.	Crossings associated with existing farm tracks will be used, where possible, to reduce the number of new tracks and crossings. New haul route of stone construction will be required for the overhead line in the Grid Connection Route. For new access crossings, options for culverting and bridge crossings will be considered at detailed design stage. No culverting of main rivers is proposed (there are no main rivers within the Order Limits). Where bridge crossings are provided, EA's proposed design principles will be applied. For a worst-case assessment within the ES, the use of culverts has been assumed. It will be expected that where culverts are necessary, the least impacting design that is reasonably practicable is proposed (e.g. arch rather than box culverts,	Refer to Section 11.8 where likely significant effects have been outlined. Embedded mitigation for culverts is included in Section 11.7.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		and box culverts in preference to pipes etc.). Where channel will be lost for a temporary access track crossing, or for a trenched crossing, a Pre-works Hydromorphological and Riparian Corridor Survey will be undertaken to record channel features and provide the baseline against which reinstatement will be provided. Reinstatement will aim to provide an improved channel form with enhancement works to be carried out (where relevant and appropriate to do so) between 5 and 15 m upstream and downstream of the open trench or access track crossing (within an easement of up to 15 m either side) to ensure the reinstated improved channel form merges into the existing channel form. However, any enhancement would need the permission of the IDBs and be compatible with their current and	

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		future management and maintenance requirements.	
Environment Agency	The schemes discusses both trenched and trenchless crossings of watercourses and there is no clarity regarding which techniques will be used in different circumstances.	An indicative crossing schedule has been produced which outlines which crossing technique will be used across the Scheme.	Refer to the Indicative Watercourse Crossing Schedule in **ES Appendix 2-1 Indicative Watercourse Crossing Schedule** (Doc Ref 6.3).
Environment Agency	The physical characteristics of waterbodies may be adversely affected through the use of culverts, with associated implications for Water Framework Directive (WFD) assessment.	The physical characteristics of water bodies that may be affected through the use of culverts have been assessed within the WFD Assessment.	Refer to the **WFD Assessment** available as **ES Appendix 11-2** (Doc Ref 6.3).
Environment Agency	Additional information is required to ensure potential impacts on surface water quality are mitigated. We request the opportunity to review the outline	Mitigation is included in the Outline Construction Environmental Management Plan (CEMP), Outline Operational Environmental	The **Outline CEMP** (Doc Ref 7.10), **Outline OEMP** (Doc Ref

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	Environment Management Plans and associated topic plans as they are developed.	Management Plan (OEMP) and Outline Decommissioning Environmental Management Plan (DEMP).	7.11) and **Outline DEMP** (Doc Ref 7.12).
Environment Agency	This development is in an area of serious water stress and the water demands of the project have been inadequately assessed. A Water Supply Strategy should be completed.	During construction and operation, the provision for water supply will be from commercial sources. It is not proposed that water supply is drawn from mains water for the construction of the Scheme, unless otherwise agreed by Anglian Water (mains water supplier). This includes any maintenance activities during operation, including panel cleaning. However, connection to the mains supply for potable water for the permanent on-site offices remains an option to be considered in consultation with AWS during detailed design post DCO consent. Based on the small number of employees to be present at the operational Scheme (10 FTE), it is considered the Scheme would cause	This is included under 'Water Supply and Water Resources' in Section 11.4 of this chapter.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		no significant impact to the area of Water Stress, even if mains supply is utilised. Therefore, it has been scoped out from further assessment.	
Environment Agency	Further detail is required regarding mitigation of potential risks to water quality arising from the development, operational and decommissioning phases of the development.	The mitigation of potential risks to water quality arising from the construction, operation and decommissioning phases of the Scheme have been outlined within this ES.	Embedded mitigation, including mitigation of the potential risks to water quality is included within Section 11.7 of this chapter.
Environment Agency	The report describes the proposed implementation of automatic fire detection and fire suppression systems at BESS Containers and the placement of above ground water storage tanks at each of the BESS and On-Site Substation Compounds. In the event of an incident fire water is stated to be contained within the attenuated subbase of the gravel compound by a penstock valve, to be pumped out and disposed of off-site. The Section does not clearly identify that the gravel sub-base at BESS and On-Site Substation Compounds would be lined with	The BESS and substation areas will be line with an impermeable membrane, and the proposed attenuation basin located in the BESS area will be lined with an impermeable membrane or similar impermeable barrier to prevent any pollution associated with fire water runoff from entering the ground.	'Management of Fire Risk' is included within Section 11.7 of this Chapter. Also refer to the **Outline Battery Safety Management**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	an impermeable base or layer to prevent loss of potentially contaminated fire water to ground and would be of sufficient storage capacity to contain the anticipated volumes of fire water.		**Plan (OBSMP)** (Doc Ref. 7.18).
Environment Agency	The PEIR does not identify or evaluate the sustainability of sources of water supply for activities which include (but may not be limited to) dust suppression, concrete production; wheel washing; potable and domestic water supply and HDD which will impact on surface water sources via direct abstraction or as a result of increased mains water supply from the water company.	During construction, the provision for water supply will be from commercial sources. It is not proposed that water supply is drawn from mains water for the construction of the Scheme, unless otherwise agreed by Anglian Water (mains water supplier). This includes any maintenance activities during operation, including panel cleaning. However, connection to the mains supply for potable water for the permanent on-site offices remains an option to be considered in consultation with AWS during detailed design post DCO consent. Based on the small number of employees to be present at the operational Scheme (10 FTE), it is considered the Scheme would cause	Refer to 'Water Supply and Water Resources' in Section 11.4 of this chapter.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		no significant impact to the area of Water Stress, even if mains supply is utilised. Therefore, it has been scoped out from further assessment.	
Lincolnshire County Council	With regard to surface water flood risk, paragraph 8.8.34 is agreed, subject to future details: "The solar PV modules themselves would have a negligible effect upon the surface water drainage regime, as rainwater would be shed to ground, such that it infiltrates. The battery storage system (BESS) and On-Site Substation Compounds, would give rise to an increase in the impermeable area within the catchment, thereby increasing surface run-off to the adjacent drains. This has the potential to increase flood risk to existing development/infrastructure/third party assets/land downstream. However, such effects would be controlled by the embedded mitigation measures outlined above, specifically a Drainage Strategy that controls surface water flows such that the surface water run-off regime replicates that existing prior to development. Full details of provisions for surface	**ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) has been developed to ensure that surface water runoff from the development is managed appropriately. Sustainable drainage measures are incorporated to ensure that flood risk is not increased either on site or to surrounding areas.	The **Outline Drainage Strategy** is included as **ES Appendix 11-4** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	water drainage will be set out in the FRA prepared in support of the DCO application." The Council await the details for the surface water drainage provision in the forthcoming FRA and Drainage Strategy. The Council will require mitigations and the Drainage Strategy to be compliant with general SUDs guidance (as referenced in paragraph 8.2.23).		
Natural England	NE advise that impacts to qualifying features caused by pollution events during construction should be considered. Details of pollution management measures should be included in the oCEMP submitted with the ES.	Mitigation of surface water pollution is provided in the **Outline CEMP** (Doc Ref 7.10).	The **Outline CEMP** (Doc Ref 7.10).
Natural England	Lincolnshire County Council act as Lead Local Flood Authority and may comment directly to the Scheme. having reviewed the information put forward, the approach taken appears reasonable in the methodology and we have no specific comments to offer.	Noted	N/A
South Holland Internal	SHIDB strongly agrees that flood risk and hydrology should be scoped into the EIA, because of the relatively high flood risk across the entire area and because of the existing drainage network that is	The FRA has been prepared to consider all relevant sources of flood risk to the Scheme and its infrastructure. The assessment is	The FRA is included as **ES Appendix 11-3** (Doc Ref 6.3),

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
Drainage Board	critical to protecting people, property, infrastructure and businesses in the area. There is an extensive network of drainage ditches (including main drains and ordinary watercourses) in this area. SHIDB is in discussion with the applicant over a proposed "Main Drain Model" that will underpin the Flood Risk Assessment. The assessment should consider the potential for flood risks to increase as a result of all of the different aspects of the proposed project, including (but are not necessarily restricted to) the construction of the photovoltaic area, the associated substation, transformers, storage areas, inter-array cable connections, and grid connection to Weston Marsh. Associated activities that should also be assessed include (but are not necessarily restricted to) construction of additional impermeable areas, temporary and permanent access roads, watercourse crossings, vegetation clearance works and earthworks, etc.)	being undertaken in consultation with the Environment Agency. The Outline Drainage Strategy incorporates sustainable drainage measures to manage surface water appropriately and to ensure that flood risk is not increased either on-site or to the surrounding area.	and the **Outline Drainage Strategy** is included as **ES Appendix 11-4** (Doc Ref 6.3).
South Holland Internal Drainage Board	Further, SHIDB strongly supports the development of a Drainage Strategy to set out how surface water from the development will be managed in relation to flood risk.	A Outline Drainage Strategy has been prepared to set out how surface water from the development will be managed to ensure there is no increase in flood risk.	The **Outline Drainage Strategy** is included as **ES**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
			Appendix 11-4 (Doc Ref 6.3).
South Holland Internal Drainage Board	It is noted that the Scoping Report states that "decommissioning of the Scheme is considered to have similar effects upon the water environment as those during the construction phase (Table 5.1, p. 158)." SHIDB requests clarification on whether such decommissioning effects would therefore be scoped in to the EIA; Table 5.1 appears to say that all decommissioning works are scoped out of the Flood Risk/Hydrology section of the EIA.	This chapter includes a description of the decommissioning works which have been assessed as part of the ES.	Decommissioning of the Scheme is presented in Section 11.8 of this Chapter.
South Holland Internal Drainage Board	We therefore welcome the project's commitment to undertake a Flood Risk Assessment, and to scope in the assessment of effects on the surface water drainage regime. We also welcome the intention, as set out within Chapter 8 of the PEIR, to mitigate impacts to surface water drainage and water flow, using embedded mitigation including, but not limited to: • Following best practice to be set out in a Construction Environmental Management Plan and a Decommissioning Environmental Management Plan;	The FRA includes consideration of the effects on the surface water drainage strategy and sets out measures to ensure that impacts are appropriately mitigated. The Outline Drainage Strategy incorporates sustainable drainage systems and pollution control measures to manage surface water. The Outline CEMP and Outline DEMP set out the mitigation measures to be followed during	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3), and the **Outline Drainage Strategy** is included as **ES Appendix 11-4** (Doc Ref 6.3). Refer to the **Outline CEMP**

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	• Utilising sediment management plans; • Agreement of protective provisions in the Development Consent Order (DCO) for the benefit of drainage authorities to govern the procedure and allow for specified works in proximity to drainage authority drainage assets; • Use of Sustainable Drainage Systems (SuDS); • Agreement and application of a Drainage Strategy; and • Pollution control measures.	construction and decommissioning. This includes measures to control fine sediment laden runoff and manage the risk from chemical spillages, physical damage to water features, any dewatering or flood risk during the works. The DCO is seeking to disapply land drainage consents and specified works adjacent to drainage authority assets will instead be managed by protective provisions within the draft DCO.	(Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12). Refer to **Schedule of Other Consents and Licences** (Doc Ref 3.3).
South Holland Internal Drainage Board	Further, we would seek commitment from the project to develop, through further direct consultation with the IDBs, a Watercourse Crossing Plan and Schedule. We also note that the detailed design drawings for any structures that could affect watercourses in the IDB districts would need to be consented or approved by the relevant IDB.	An indicative crossing schedule has been produced. Further consultation with IDBs has been undertaken and is reported in Table 11-3. The details of detailed design, including layout will be submitted	Refer to **ES Appendix 2-1: Indicative Watercourse Crossing Schedule** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
		and approved by the relevant planning authority.	
South Holland Internal Drainage Board	In terms of future baselines, we would like to emphasise that South Holland IDB may need to increase the capacity of its drainage assets (watercourses and pumping stations) within the lifetime of the proposed project, for example by increasing the width of watercourses. This needs to be factored in during watercourse crossing design.	No permanent infrastructure will be located within 10 m of any SHIDB drains, as measured from the top of the bank or water's edge, whichever is greater, other than for watercourse crossings or drainage connections etc. that must be located closer. Watercourse crossing proposals are based on maximum parameters and the final design of watercourse crossings will be done at the detailed design stage post DCO consent. Appropriate protective provisions in favour of drainage authorities are included within the draft DCO to manage necessary approvals from SHIDB in respect of such crossings at the point of detailed design.	Refer to **ES Appendix 2-1 Indicative Watercourse Crossing Schedule** (Doc Ref 6.3). Refer to Embedded Mitigation in Section 11-7.

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
South Holland Internal Drainage Board	With regards to cumulative impacts, in addition to the projects scoped in (listed in section 8.11 of the PEIR), we consider the proposed Ossian Transmission Project should also be scoped in, because a part of its works are likely to be located very close to the Meridian project's grid connection works at Weston Marsh.	Cumulative effects, including from the Ossian Wind Farm, have been considered in Section 11.11.	See Section 11.11 of this chapter.
South Holland Internal Drainage Board	SHIDB strongly agrees that flood risk and hydrology should be scoped into the EIA, because of the relatively high flood risk across the entire area and because of the existing drainage network that is critical to protecting people, property, infrastructure and businesses in the area. There is an extensive network of drainage ditches (including main drains and ordinary watercourses) in this area. SHIDB is in discussion with the applicant over a proposed "Main Drain Model" that will underpin the Flood Risk Assessment. The assessment should consider the potential for flood risks to increase as a result of all of the different aspects of the proposed project, including (but are not necessarily restricted to) the construction of the photovoltaic area, the associated substation, transformers, storage areas, inter-array cable connections, and grid connection to Weston	The FRA has been developed to consider all relevant sources of flooding and the components of the Scheme. Mitigation against the worst-case flood event has been assessed and proposed for the PV panels, substations, solar stations and construction compounds.	The **FRA** is included as **ES Appendix 11-3** (Doc Ref 6.3).

Consultee	Summary of main matters raised	How has the matter been addressed?	Location of response in the ES
	Marsh. Associated activities that should also be assessed include (but are not necessarily restricted to) construction of additional impermeable areas, temporary and permanent access roads, watercourse crossings, vegetation clearance works and earthworks, etc.)		
South Holland Internal Drainage Board	Further, SHIDB strongly supports the development of a Drainage Strategy to set out how surface water from the development will be managed in relation to flood risk.	An Outline Drainage Strategy has been developed to set out how surface water from the development will be managed to ensure there is no increase in flood risk.	The **Outline Drainage Strategy** is included as **ES Appendix 11-4** (Doc Ref 6.3).

Table 11-3: Direct stakeholder engagement relating to water environment

Meeting date	Attendees (organisation)	Summary of discussion
Pre-Statutory Consultation		
November 2023	Welland and Deepings Internal Drainage Board (WDIDB)	Confirmed Scheme would be outside of WDIDB catchment. No further action required.
October to December 2023	Lincolnshire County Council (LCC)	LCC confirmed they do not hold any bespoke surface water flood risk data for this location and that the EA should be contacted regarding flood defences. LCC agree, that rainwater landing on the solar PV arrays falls off the lower edges of those panels and infiltrates into the ground beneath, within a metre or so of where those drops would have fallen had the arrays not been there. The surface water is thus evenly distributed across the whole of the Solar Development Area, rather than say being collected and concentrated in any specific areas, and therefore follows sustainable drainage best practice. LCC stated if grass can be cultivated or allowed to self-set around the solar PV arrays, then that would help to avoid the drips causing any topical erosion. The formation of swales at the bases of the solar PV arrays would not necessarily provide any enhanced performance. Swales would be recommended though, along the edges of the internal roads for the Solar Development Area infiltration of any surface water that does not infiltrate through what are likely to be unsealed surface roads themselves. The ground conditions in the Solar Development Area are not ideally suited for the use of soakaways but the area is very large and there is therefore likely to be a sufficient area to allow the infiltration of surface water run-off from the roofs of any ancillary buildings within the development without increasing flood risk to the site itself or to any neighbouring land. Alternatively, the whole area is drained by a network of watercourses, and it should therefore be possible to design the above ground infrastructure to take advantage of that facility.

Meeting date	Attendees (organisation)	Summary of discussion
November to December 2023	North Level District Internal Drainage Board (NLDIDB)	The NLDIDB confirmed any designs would also need to account for potential flooding from the Board's network and other sources and that defences are in the form of pumping stations and open watercourse, with some water level control structures such as penstocks and sluices. There are no raised defences in relation to the NLDIDB maintained drainage channels.
October 2023 to January 2024	Environment Agency	The EA confirmed the existing fluvial defences reducing the risk of flooding to this Site consist of Crowland-Cowbit Washes and embankment. They are in fair condition and provide protection against a flood event with a 0.1% chance of occurring in any year (1 in 1000). The EA stated that these defences are inspected regularly to ensure that any potential defects are identified early. The EA confirmed that the principal source of flooding to be considered is the River Welland, specifically breaching of the adjacent flood defence and that the 2017 SFRA is the most up to date and provides the best available information. In December 2023 the EA advised: 'The 2017 SFRA breach locations are considered adequate for the site. Further modelling analysis is not required, the 2017 SFRA hazard mapping can be used and is appropriate for the type of development and its location. The SFRA may be used to inform design of the Meridian Solar project and preparation of the FRA supporting the DCO submission.' EA advised that flood-sensitive infrastructure should be elevated above the 0.1% +climate change breach flood level.
October 2023 to March 2024	South Holland Internal Drainage Board (SHIDB)	SHIDB stated they do not hold level data across different flood events for the Board's arterial network, however, modelling was undertaken 10+ years ago and whilst may provide useful indicative information, these results would now be outdated specifically where climate change allowance has been considered for the 1 in 100-year event.
18 April 2024	South Holland Internal Drainage Board (SHIDB)	SHIDB do not hold any information on reported flooding across the study area where it falls within the Board's district. SHIDB flood defences are in the form of arterial

Meeting date	Attendees (organisation)	Summary of discussion
		watercourses, pumping stations and water control structures. SHIDB raised various controls that exist for works in watercourses and related to discharges to watercourses in their existing byelaws. These are subject to further negotiations between the Applicant and SHIDB as to their disapplication in favour of protective provisions directly within the DCO.
5 July 2024	North Level District Internal Drainage Board (NLDIDB)	NLDIDB raised various controls that exist for works in watercourses and related to discharges to watercourses in their existing byelaws. These are subject to further negotiations between the Applicant and NLDIDB as to their disapplication in favour of protective provisions directly within the DCO.
19 December 2024	Environment Agency	Meeting with representatives from EA National Infrastructure Team to discuss/agree scope of hydraulic modelling analysis required to inform Scheme design and the FRA.
Post Statutory Consultation		
n/a	North Levels Internal Drainage Board	NLIDB were contacted to discuss the continued use of existing access tracks within the Scheme. Confirmation that this was acceptable was received by email. The use of existing access tracks, which are within 9m of the bank top, is included within the Scheme description.
n/a	South Holland Internal Drainage Board	SHIDB were contacted to discuss the continued use of existing access tracks within the Scheme. Confirmation that this was acceptable was received by email. The use of existing access tracks, which are within 9m of the bank top, is included within the Scheme description.
24/4/25	Environment Agency	Discussed approach to hydraulic modelling parameters and design requirements for mitigation approach.
28/7/25	Environment Agency	Provided an update of the hydraulic model results for the River Welland and Postland Pumped Catchment and discussed how these results are being used to assess flood risk in the Flood Risk Assessment. Discussed potential mitigation for the solar PV

Meeting date	Attendees (organisation)	Summary of discussion
		panels as a result of the modelling, and summarised volumetric loss calculations that were undertaken for the solar PV panel legs/poles.
9/10/2025	North Levels Internal Drainage Board	Discussed scope and approach to the Flood Risk Assessment, emerging Drainage Strategy including buffering watercourses from new development by a minimum of 10 m other than where there are crossed or have drainage connections, and initial access and cable crossing proposals.
17/10/2025	South Holland Internal Drainage Board	Discussed scope and approach to the Flood Risk Assessment, emerging Drainage Strategy including buffering watercourses from new development by a minimum of 10 m other than where there are crossed or have drainage connections, and initial access and cable crossing proposals.
20/01/2026	Environment Agency	Discussed approach and results of the Flood Risk Assessment. Within the Gotts catchment (northern part of Land Parcel D), six solar stations are located within Flood Zone 3b. Due to their operational requirement to remain close to the associated solar arrays, it is not practicable to relocate these stations outside the functional floodplain. During consultation, the Environment Agency advised that 600mm freeboard would be preferred for these pieces of critical infrastructure located within Flood Zone 3b rather than 300mm freeboard, to mitigate flood risk from potential debris accumulation beneath raised structures and to allow for potential uncertainties in the hydraulic modelling, providing greater confidence that infrastructure would remain operational in times of flood. It is noted the FRA has assessed a 300mm freeboard for the 1% AEP plus climate change event. However, critical infrastructure within the Gotts Catchment has been raised on plinths to provide 600mm freeboard above the design flood level. Discussed that the increase in flood depth caused by submerged panels (including mounting infrastructure) in a worst case scenario for the River Welland breach event

Meeting date	Attendees (organisation)	Summary of discussion
		scenario is approximately 9mm in land parcel A. The Environment Agency noted they had no significant concerns with the 9mm increase in flood depth, as this is for the breach scenario, and requested that the FRA is clear that this is a breach scenario, residual risk, rather than it being 9mm increase in depth in an undefended scenario. The FRA clearly confirms this depth increase arises solely under the breach scenario and represents a residual risk.

11.4. Assessment Methodology

Study Area

11.4.1. The Scheme would comprise the construction, operation (including maintenance) and decommissioning of a solar PV electricity generating station with associated infrastructure, including co-located Battery Energy Storage System (BESS), Inter-Array Connections to link the land parcels that form the Solar Development Areas, and an up to 13km overhead line Grid Connection (with one short undergrounded section) which would run north towards a point of connection (PoC) at the proposed Weston Marsh B National Grid Electricity Transmission (NGET) substation, to the north of Weston. There is an alternative option for an additional undergrounded section at the northern extent of the Grid Connection Route, which has been used as a worst case scenario for assessment of significant effects.

11.4.2. The Solar PV generating station, associated BESS, on-site substations and other associated infrastructure would be located within four land parcels (A, B, C and D) referred to collectively as the Solar Development Area, as shown in **ES Figure 1-1** (Doc Ref. 6.2).

11.4.3. The Inter-Arrays would be the areas within which 132kV connection cables (the 'Inter-Array Connections') would link the land parcels of the Solar Development Area. The configuration of the Inter-Array Connections would comprise underground cabling between Land Parcels A and B ('the Underground Inter-Array') and an overhead line between Land Parcels C and D ('the Overground Inter-Array').

11.4.4. The Grid Connection Route would be the area between the Solar Development Area and the National Grid Weston Marsh B Substation in which a 400kV overhead line (the 'Grid Connection') would be located. There is one section where the Grid Connection would route underground to avoid conflicts with an existing 132kV overhead line. Cable Sealing End Compounds (CSECs) would join the proposed underground cable at that section with the proposed overhead line.

11.4.5. The Site constitutes the total land area within the Order Limits of the Scheme, including the Solar Development Area, Inter-Array Connections and Grid Connection Route.

11.4.6. For the purposes of this assessment, a general Study Area of 1km around the Order Limits has been considered in order to identify water features that are

hydrologically connected to the Order Limits and potential works associated with the Scheme that could cause, or lead to, impacts.

11.4.7. Given that watercourse flow and water quality and flood risk impacts can propagate downstream, the assessment also considers a wider Study Area where relevant. This is difficult to define as it depends on many dynamic factors. However, it should be as far downstream as a potential significant impact may occur, which is typically up to a few kilometres. In this case, watercourses across the Study Area ultimately drain to the Welland (land parcels A, B and C) and Rivers Nene (land parcels B and D). The Grid Connection Route is also located within these catchments. The River Welland is considered to be the final receiving water feature in the catchment draining to it that could conceivably be significantly affected due to its size and factor of dilution available. However, in the case of the River Nene, this is approximately 13km to the east, and significant effects would not be expected at this distance, thus the South Holland Main Drain is considered the final receptor in that catchment.

Baseline Methodology

11.4.8. To assess the potential water environment impacts of the Scheme, it is necessary to determine the baseline conditions. The baseline conditions are the current (at the time of writing the ES) conditions of the Site and surroundings within the defined Study Area. The current baseline has been determined through both desk top survey and assessment and supported by walkover surveys.

Desktop Study

11.4.9. The water environment baseline conditions have been determined by a desk study of available Site and Scheme information, online data and requests for information from third parties including:

- Online Ordnance Survey (OS) maps[2];
- Online aerial photography[3];
- Anglian River Basin District River Basin Management Plan (RBMPs)[4];

2 Ordnance Survey maps. Available: https://os.openstreetmap.org/. [Accessed January 2026].
3 Aerial Photographic maps. Available: https://www.bing.com/maps [Accessed October 2025]
4 Environment Agency. Anglian river basin district river basin management plan: updated 2022. 2022. Available at: https://www.gov.uk/guidance/anglian-river-basin-district-river-basin-management-plan-updated-2022 [Accessed October 2025]

- The Met Office website[5];
- National Rivers Flow Archive website[6];
- Environment Agency's Catchment Data Explorer Tool[7];
- Environment Agency's Water Quality Explorer website[8];
- Environment Agency's Fish & Ecology Data Viewer[9];
- Multi-agency geographical information for the countryside (MAGIC) website[10];
- British Geological Survey (BGS) Borehole and Geology Mapping Geoindex website[11];
- The Cranfield University Soilscape website[12];
- Natural England Designated Site website[13];
- Department for Environment, Food and Rural Affairs (DEFRA) Hydrology Data Explorer website[14];
- Environment Agency information on pollution incidents and water activity (discharge consent) permits received by request; and
- Environment Agency Flood Maps[15]
  - Online flood map for planning (rivers and sea).
  - Online risk of flooding from surface water map.

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5 Met Office website. Available at:https://www.metoffice.gov.uk/public/weather/observation/map/u10q3cdwd#?map=WeatherCode&zoom=8&lon=-0.19&lat=51.73&fcTime=1600041600 [Accessed October 2025]
6 National River Flow Archive website, Available at: https://nrfa.ceh.ac.uk/data/station/info/37003 [Accessed October 2025]
7 Environment Agency Catchment Data Explorer website. Available: https://environment.data.gov.uk/catchment-planning/ [Accessed October 2025]
8 Environment Agency Water Quality Archive website. Available at https://environment.data.gov.uk/water-quality-beta [Accessed October 2025]
9 Environment Agency. Fish & Ecology Data Viewer. Available at: https://environment.data.gov.uk/ecology/explorer/. [Accessed October 2025].
10 Defra. Multi-Agency Geographical Information for the Countryside (MAGIC) map. Available at: https://magic.defra.gov.uk/MagicMap.aspx [Accessed October 2025]
11 British Geology Survey. 2018. Geoindex viewer. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed October 2025]
12 Cranfield Soils and Agrifood Institute website. Available at: https://www.landis.org.uk/soilscapes/ [Accessed October 2025]
13 Natural England Designated Sites website. Available at https://designatedsites.naturalengland.org.uk/SiteSearch.aspx [Accessed October 2025]
14 Defra Hydrology Data Explorer website. Available at: https://environment.data.gov.uk/hydrology/explore [Accessed October 2025]
15 Environment Agency Flood risk mapping. Available at: https://www.gov.uk/check-long-term-flood-risk. [Accessed October 2025].

- Online risk of flooding from reservoirs map.
- Online flood warning areas and risk map.

11.4.10. The FRA presented within **ES Appendix 11-3** (Doc Ref 6.3) provides further details of relevant catchment and flood risk data, and flood risk desktop survey information.

Surveys

11.4.11. A walkover survey was undertaken on 21 July 2025 along the Grid Connection Route, the Inter-Array Connections, and the Solar Development Areas. The visit was a general and hydromorphological survey of the Site to visit the watercourses which will be crossed by the Grid Connection, Inter-Arrays or are in the vicinity of the various Solar Development Areas. The hydromorphological characteristics of the watercourses has been confirmed during the field surveys undertaken. For the survey walkover, the antecedent weather conditions were dry, resulting in generally low flow conditions being observed.

11.4.12. No water quality monitoring has been carried out for the assessment of the Scheme. The Environment Agency currently carries out monitoring of the more significant watercourses in the area. This data has been used as a proxy for watercourses within the area of the Scheme. Importance of water features has been determined from a holistic review of water feature attributes. The importance level does not rely on whether water quality is Poor, or Good, due to the principle that no controlled water (i.e. essentially all water features that are not sewers and drains to sewers) may be polluted (with a controlled water having the meaning as set out on Section 104 Part 3 of the Water Resources Act 199116). Water quality impacts have also been based on a qualitative risk assessment that does not require input of raw background water quality data.

Assessment Methodology

11.4.13. This section outlines the methodology which has been used to undertake the impact assessment for this Scheme for the water environment.

[16] HMSO, 1991, The Water Resources Act 1991. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents [Accessed October 2025]

Impact Assessment Methodology

Source-Pathway-Receptor Approach

11.4.14. Based on professional judgement and experience of other similar developments, a qualitative assessment of the likely significant effects on the water environment has been undertaken.

11.4.15. The qualitative assessment of the likely significant effects has considered the construction, operation, and decommissioning phases, as well as cumulative effects with other committed developments. It is based on a source-pathway-receptor approach. For an impact on the water environment to exist, the following is required:

- An impact **source** (e.g. such as the release of polluting chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or the loss or damage to all or part of a water body, or the change to water volume or flow rate within a watercourse);
- A **receptor** that is sensitive to that impact (i.e. water features and the services they support); and
- A **pathway** by which the two are linked.

11.4.16. The first stage in applying the source-pathway-receptor approach is to identify the causes or 'sources' of potential impact from a development. The sources have been identified through a review of the details of the Scheme, including the size and nature of the Scheme, potential construction methodologies and timescales.

11.4.17. The next step in the model is to undertake a review of the potential receptors, that is, the water environment receptors themselves that have the potential to be affected. Water features, including their attributes, have been identified through desk study and site surveys.

11.4.18. The last stage of the model is, therefore, to determine if there is a viable exposure pathway or a 'mechanism' linking the source to the receptor. This has been undertaken in the context of local conditions relative to water receptors within the Study Area, such as topography, geology, climatic conditions and the nature of the impact (e.g. the mobility of a liquid pollutant or the proximity to works that may physically impact a water body).

11.4.19. To support the assessment, a number of sub-topic specific assessments will be undertaken. These are described in more detail in the following sections.

Hydromorphology

11.4.20. The hydromorphological character of the watercourses within the Study Area of the Solar Development Areas, the Grid Connection Route and Inter-Array Connections has been determined from desk study, site walkovers, and professional judgement. This has considered aspects such as valley form, river type, substrate characteristics, bank material, and erosional and depositional processes.

11.4.21. Potential hydromorphological impacts have been qualitatively appraised based on a desk study, and a review of the Scheme components that may affect the physical form of water features.

11.4.22. Consideration has also been given to how the Scheme is likely to impact upon the WFD objectives for the relevant watercourses within **ES Appendix 11-2: Water Framework Directive Assessment** (Doc Ref 6.3). Effects are described according to the method for determining effect significance set out in **ES Chapter 4: Overview of the EIA Process** (Doc Ref 6.2).

11.4.23. Information on the hydromorphology of the watercourses is included within the baseline and as part of the WFD Assessment that is presented within **ES Appendix 11-2: Water Framework Directive Assessment** (Doc Ref 6.3).

Flood Risk Assessment

11.4.24. A site-specific Flood Risk Assessment (FRA) has been prepared for the Scheme. This is presented within **ES Appendix 11-3: Flood Risk Assessment** (Doc Ref 6.3). The FRA has been prepared in accordance with the requirements of the relevant National Policy Statements (NPS) EN-117, EN-318 and EN-519, the National Planning Policy Framework 202520 and the accompanying Planning Practice Guidance21, regional and local policy, and

17 Department for Energy Security & Net Zero (2025). Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/media/6915ba42bc34c86ce4e6e726/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf [Accessed 5 February 2026]
18 Department for Energy Security & Net Zero (2025). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf [Accessed 5 February 2026]
19 Department for Energy Security & Net Zero (2025). National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdff [Accessed 5 February 2026]
20 Ministry of Housing, Communities & Local Government (2024). National Planning Policy Framework. Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf [Accessed October 2025]
21 Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance. Available at: https://www.gov.uk/government/collections/planning-practice-guidance [Accessed October 2025]

taking into account future climate change. It includes a full review of the flood risk to the Solar Development Area and the Grid Connection Route as separate entities. The FRA presents mitigation measures included within the design and demonstrates how the Sequential Test and Exception Test have been met.

Outline Drainage Strategy

11.4.25. An Outline Drainage Strategy has been prepared for the Solar Development Areas and Grid Connection Route and is presented within **ES Appendix 11-4 Outline Drainage Strategy** (Doc Ref 6.3). The Outline Drainage Strategy relates to the outline drainage design of the Solar Development Areas, with regards to handling surface water generated by new impermeable areas such as the Battery Energy Storage Systems (BESS) and on-site substations. The design includes above ground attenuation features, which will attenuate surface water from new impermeable areas to equivalent greenfield runoff rates before discharge to the nearest watercourse. The Grid Connection Route Drainage Strategy forms an Annex to **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) and assesses the 400kV overhead line route from the 400kV Substation and BESS to the Weston Marsh National Grid Substation. The Outline Drainage Strategy have been prepared in consultation with the Environment Agency and local IDBs.

Assessment of Surface Water Runoff for the Operational Phase

11.4.26. During operation, surface water runoff from the Scheme may contain pollutants derived from impermeable surfaces (e.g. inert particulates, litter, hydrocarbons, metals, nutrients and de-icing salts). This mixture of pollutants is collectively known as 'urban diffuse pollutants,' and although each pollutant may itself not be present in harmful concentrations, the combined effects over the long term can cause chronic (i.e. persistent and long lasting) adverse impacts. Changes in impermeable surface area within the Solar Development Areas and some aspects of the new infrastructure included within the Grid Connection Route (but to a much less extent) may lead to increases in the rate and quantities of these pollutants being runoff to receiving watercourses. An assessment is therefore undertaken to determine the potential risk to the receiving water features and to inform the development of suitable mitigation and treatment measures.

11.4.27. The appropriateness of design within the Outline Drainage Strategy has been assessed with reference to the Simple Index Assessment method described in

the SuDS Manual[22]. This is included within the **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3). The Simple Index Approach follows three steps:

- **Step 1** – Determine suitable pollution hazard indices for the land use(s);
- **Step 2** – Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index (for three key types of pollutants - total suspended solids, heavy metals and hydrocarbons). Only 50% efficiency should be applied to second, third etc. treatment train components; and
- **Step 3** – If the discharge is to a water body protected for drinking water, consider a more precautionary approach.

Water Framework Directive Assessment

11.4.28. A WFD Assessment (WFDa) has been prepared as part of the DCO Application for the Scheme and is presented in **ES Appendix 11-2: Water Framework Directive Assessment** (Doc Ref 6.3). The Scheme interacts with several WFD water bodies. Thus, each activity associated with the Scheme, such as the solar panels, infrastructure and cable crossings of water bodies, overhead Line (OHL) crossings of watercourses, have been assessed against the biological, physico-chemical and hydromorphological, and groundwater quality elements that comprise the WFD.

11.4.29. **ES Appendix 11-2: Water Framework Directive Assessment** (Doc Ref 6.3) considers the compliance of the Scheme against the WFD objectives for those WFD water features which are within or close to the Order Limits and that may be impacted. It assesses the impact of relevant aspects of the Scheme on relevant WFD quality elements of each WFD water body. This includes the evaluation of the potential construction, operational and decommissioning phase impacts of the Scheme on hydromorphological, biological and physico-chemical parameters with respect to the WFD objectives of no deterioration and failure to prevent improvement.

11.4.30. The WFDa also takes into account any impact on improvement measures that the Environment Agency has already proposed for waterbodies that are not already at Good Ecological Status / Potential or better. It also considers where there are opportunities for environmental enhancement that could support improving water body status. The WFDa is based on available baseline and

22 CIRIA (2016) Report C753 The SuDS Manual 2nd Edition.

Scheme design information, data from open sources, and the general/hydromorphological walkover.

Water Supply and Water Resources

Construction

11.4.31. The area of the Scheme is located within a water stressed area[23]. There is also a need to consider water resources and supply within the assessment as confirmed from the scoping response from the Planning Inspectorate, which includes a response from Anglian Water (refer to Table 11-2). The Anglian Water Resources Management Plan has also been considered within this ES[24].

11.4.32. During construction there would be a need for water usage but this would be temporary. Water needed during construction would be for use in concrete production/concrete curing, and internal road construction works. However, it is anticipated that any concrete required for the construction would primarily be obtained from an existing, third party source and delivered to Site ready mixed. The batching plant would be a plant that is currently in operation, and not a new construction specifically for this Scheme. This plant is currently in existence and therefore, this is not considered further in this assessment.

11.4.33. During construction there will also be a need to supply water for construction works. This would be assumed to be the industrial standard for industrial use, of 90 litres per day. This is assumed to be purchased and tankered in to supply the various construction compounds. There are anticipated to be a maximum of 855 construction staff using the site per day, however, this will only be for a short period of time.

11.4.34. It is not proposed to have a permanent connection to mains water during the construction, unless otherwise agreed by Anglian Water (mains water supplier). The provision for water supply will be from commercial sources with dedicated clean water tanks provided to supply the various temporary welfare facilities. Given the temporary nature of the demand, it is anticipated that the Scheme will not result in any significant changes to the water stress. Therefore, it has been scoped out from further assessment.

[23] Environment Agency (2021) Water Stressed areas – final classification 2021. Available at: https://www.gov.uk/government/publications/water-stressed-areas-2021-classification [Accessed October 2025]
[24] Water resources management plan (anglianwater.co.uk). [Accessed October 2025]

Operation

11.4.35. During the operational phase there will be a requirement once a year for washing of the panels. This will use clean water with no added chemicals. This will be at 3 m^3 for every 1,000 panels, with a requirement for approximately 3,386 m^3 of water once per year, as set out in the **Outline OEMP** (Doc Ref. 7.11). The clean water will be sourced from third party, local commercial water suppliers, so as not to put stress on local water supply. Its use will therefore not lead to any pollution risk and avoids any impact on local water resources, and thus will not be assessed further.

11.4.36. The water supply for the office facilities at the On-Site Substation Compounds will either be tankered in or come from the mains supply. There are anticipated to be up to 10 permanent staff during operation on site, which would result in an estimated usage of 900 litres per day (0.9 m^3/day) based on the industry standard on 90 litres per person. This is less than the Anglian Water development proposal for dwellings of 110 litres per person per day. No local water abstraction is proposed for this purpose. Given the relatively small potable water demand and since water supply is a regulated industry, no further assessment is proposed. Anglian Water will be consulted post-DCO consent to review options for mains connection. However, if this is not possible, an alternative commercial potable water supply will be considered with static tanks incorporated into the buildings. Overall, it is considered that the Scheme would cause no significant impact to the area of water stress. Therefore, it has been scoped out from further assessment.

11.4.37. **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3) has proposed the requirements for fire water storage required on the Site. An attenuation basin, underlain with an impermeable liner, will be required on Site to store fire water. In the event of a fire, firewater will be captured and removed off site by a tanker to an accredited lab for testing or disposal. An allowance has also been made that a 1 in 2 year event could occur at the same time as a fire. Therefore, the basin will need to contain the 1 in 2 year event plus the fire water storage runoff volume. The minimum required volume for the attenuation basin is 1,147 m^3. The National Fire Chiefs Council guidance[25]

[25] National Fire Chiefs Council (NFCC) (2025), Grid scale energy storage system planning - Guidance for fire and rescue services– Guidance for FRS.

states that the volume of water required 'should be capable of delivering no less than 1,500 litres per minute for at least 2 hours. The Scheme proposes to provide 1,500 litres per minute for 4 hours as a conservative value in excess of minimum requirements; this equates to 360,000 litres (360m^3). This volume would not cause an ongoing demand for the area of water stress. If water for the water storage tanks for firefighting is to be obtained from the mains supply, a water supply request would be made to Anglian Water, accompanied by a Water Resource Assessment. The need for the mains supply connection will be confirmed at detailed design stage. Alternatively, water would be obtained from another suitable commercial source during commissioning of the storage tanks. Further details will be established through the detailed BSMP and ERP to be prepared in accordance with the **OBSMP** (Doc Ref. 7.18) post-DCO consent. Therefore, no further assessment is proposed.

Further Matters Scoped out of the Assessment

11.4.38. Within the Planning Inspectorate's Scoping Opinion (refer to **ES Appendix 1-2: Scoping Opinion**) (Doc Ref 6.3), as tabulated in Table 11-1, the following matters are agreed to be scoped out from this assessment:

- Assessment of potential impacts on groundwater aquifers and groundwater due to the presence of unproductive superficial and bedrock strata, which are considered to be of negligible importance;
- Assessment of potential impact to Cowbit Wash SSSI;
- Assessment of potential impact to Baston & Thurlby Fens SSSI;
- Assessment of potential impact to Baston Fen SAC;
- Assessment of potential impact to Nene Washes SAC; and
- Assessment of potential impact to aquatic invertebrates.

11.4.39. **ES Appendix 11-3 Flood Risk Assessment** (Doc Ref. 6.3) has assessed the risk of the Scheme from groundwater. The vast majority of the Scheme proposes to drain new impermeable areas to existing watercourses, with only very small areas of the Scheme discharging to ground where a watercourse is not present. 15 proposed swales that do not have a nearby watercourse will intercept runoff and will infiltrate the Solar PV parcel runoff volume to ground, mimicking the existing drainage conditions. The proposed attenuation for the 132 kV substation within Land Parcel A will also rely on infiltration to ground as the primary means of drainage. Groundwater flood risk is considered to be scoped out of further assessment. Refer to Section 5.9 of **ES Appendix 11-3**: **Flood Risk Assessment** (Doc Ref. 6.3) for further details.

11.4.40. **ES Appendix 11-3 Flood Risk Assessment** (Doc Ref. 6.3) has also assessed the risk of the Scheme for sewer flood risk. The with-Scheme scenario does not propose to interact or alter any existing sewer infrastructure and therefore will result in no change to flood risk from such sources. Construction risk of exposing or damaging sewers during the construction phase of the Scheme will be included and managed within the **Outline CEMP** (Doc Ref. 7.10). Therefore, it is considered sewer flood risk can be scoped out of further assessment. Refer to Section 5.9 of **ES Appendix 11-3: Flood Risk Assessment** (Doc Ref. 6.3) for detail.

11.4.41. Finally, **ES Appendix 11-3 Flood Risk Assessment** has assessed the risk of the Scheme for flood risk artificial sources. There remains a residual risk of flooding from large reservoirs south of the Scheme. The Scheme does not interact with the reservoirs and will not materially impact the breach extents of the reservoirs. As reservoir flood risk is a low residual risk, it is considered to be scoped out of further assessment. Refer to Section 5.9 of **ES Appendix 11-3: Flood Risk Assessment** (Doc Ref. 6.3) for detail.

Determining the Significance of Effects

11.4.42. The significance of effects has been determined using the principles of the guidance and criteria set out in the Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water environment[26] and LA104 Environmental Assessment and Monitoring[27] adapted for this assessment to take account of hydromorphology. Although these assessment criteria were developed for road infrastructure projects, this method is suitable for use on any development project, and it provides a robust and well tested method for predicting the significance of effects. The criteria that have been used to determine receptor importance is presented in Table 11-1. Further information on the general assessment methodology is included within **ES Chapter 4: Overview of the EIA Process** (Doc Ref 6.1).

11.4.43. Whilst other technical assessments within the ES may consider 'receptor sensitivity', this chapter refers to 'receptor importance' instead when determining the significant of effects on the water environment. This is because, when considering the water environment, the availability of dilution means that there can be a difference in the sensitivity and importance of a water body. For example, a small drainage ditch of low value and biodiversity

[26] National Highways (2020) Design Manual for Roads and Bridges (DMRB) LA 113 Road Drainage and the Water environment.
[27] National Highways (2020) LA 104 Environment Assessment and Monitoring

with limited other socio-economic attributes is very sensitive to impacts, whereas an important regional scale watercourse, that may have conservation interest of international and national significance and support a wider range of important socio-economic uses, is less sensitive by virtue of its ability to assimilate discharges and physical effects. Irrespective of importance, all controlled waters in England are protected by law from being polluted.

11.4.44. In accordance with the stages of the methodology, there are three stages to the assessment of effects on the water environment, which are as follows:

- **Identification of Receptors** - Each identified receptor is assigned a level of importance (negligible to very high) based on a combination of attributes (such as the size of the watercourses, WFD designation, water supply and other uses, biodiversity, and recreation etc.) and on receptors to flood risk based on the vulnerability of the receptor to flooding;
- **Identification of Magnitude of Potential Impacts** - The magnitude of potential and residual impact (or change) (classed as neutral, negligible, low, medium or high both adverse and beneficial) is determined based on the criteria listed in Table 11-5 and the assessor's professional judgement. Embedded or standard mitigation measures are taken into account in the initial assessment, but any other mitigation is not considered under the assessment of residual effects; and
- **Assessment of the Significance of Effects** - This is typically a function of the importance of a receptor and magnitude of the impact results in an assessment of the overall significance of the effect on the receptor using the matrix presented in Table 11-6. The significance of each identified effect (both potential and residual) is classed as negligible, neutral, minor, moderate and major – for both beneficial or adverse significance.

11.4.45. Effects may be adverse and beneficial, direct or indirect, and permanent or temporary (including comments as to whether the effect could be reversed in the future). The duration of the effect may also be either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 0 - 5 years, medium-term is considered to be between 6 and 10 years and long-term is considered to be greater than 10 years.

11.4.46. Approaches to mitigating potential impacts during construction and operational phases have been described with reference to good practice guidance and design.

Importance of Receptors, and Magnitude of Impact

11.4.47. The importance of the receptor (refer to Table 11-4) and the magnitude of impact (refer to Table 11-5) are determined independently from each other and are then used to determine the overall significance of effects as per the matrix in Table 11-6. Options for mitigation are considered and secured where possible to avoid, minimise and reduce adverse impacts, particularly where significant effects may otherwise have occurred. The residual effects of the Scheme with identified mitigation in place are then reported. Effects of moderate or greater significance are considered significant.

Table 11-4: Criteria to Determine Receptor Importance[26]

Importance	General Criteria	Surface Water	Groundwater	Hydromorphology	Flood Risk
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.	Salmonid fishery. Watercourse having a WFD classification as shown in a RBMP and Q95 ≥ 1.0m^3/s; site protected / designated under international or UK habitat legislation (SAC, SPA, SSSI, WPZ, Ramsar site. Critical social or economic uses (e.g. public water supply and navigation).	Source Protection Sone (SPZ) 1; Principal aquifer providing a regionally importance resource and/or supporting a site protected under international and UK legislation; Groundwater locally supports Groundwater Dependent Terrestrial Ecosystems (GWDTE); Water Abstraction <1000 m^3/day.	Unmodified, pristine (or near to) conditions, with well-developed and diverse geomorphic forms and processes characteristic of river and lake type.	Essential Infrastructure or highly vulnerable development.
High	The receptor has low ability to absorb change without fundamentally altering its present character is of high	Watercourse having a WFD classification as shown in a RBMP and Q95 < 1.0 m^3 /s; Major Cyprinid Fishery; Species protected under international or UK habitat legislation.	Principal Aquifer providing locally important source supporting rover ecosystem; SPZ2; Groundwater supports GWDTE; Water abstraction: 500- 1,000 m^3 /day.	Conforms closely to natural, unaltered state and will often exhibit well-developed and diverse geomorphic forms and processes characteristic of river and lake type. Deviates from natural conditions due to direct and/or indirect channel, floodplain, bank modifications	More vulnerable development.

Importance	General Criteria	Surface Water	Groundwater	Hydromorphology	Flood Risk
	environmental value or of national importance.	Critical social or economic uses (e.g. water supply and navigation). Important social or economic uses such as water supply navigation or mineral extraction.		and/or catchment development pressures.	
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value or is of regional importance.	Watercourse detailed in the Digital River Network but not having a WFD classification as shown in a RBMP. May be designated as a local wildlife site (LWS) and support a small / limited population of protected species. Limited social or economic uses.	Secondary Aquifer providing water for agricultural or industrial use with limited connection to surface water SPZ 3; Water abstraction: 50-499m^3 /day.	Shows signs of previous alteration and/or minor flow / water level regulation but still retains some natural features, or may be recovering towards conditions indicative of the higher category	Less vulnerable development.

Importance	General Criteria	Surface Water	Groundwater	Hydromorphology	Flood Risk
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or of local importance.	Surface water sewer, agricultural drainage ditch; non-aquifer WFD Class 'Poor' or undesignated in its own right. Low aquatic fauna and flora biodiversity and no protected species. Minimal economic or social uses.	Generally Unproductive strata. Water abstraction: <50m^3 /day	Substantially modified by past land use, previous engineering works or flow / water level regulation. Watercourses likely to possess an artificial cross-section (e.g. trapezoidal) and will probably be deficient in bedforms and bankside vegetation. Watercourses may also be realigned or channelised with hard bank protection or culverted and enclosed. May be significantly impounded or abstracted for water resources use. Could be impacted	Water compatible development.
Negligible	The receptor is resistance to change and is of little environmental value.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Table 11-5: Magnitude of Impact Criteria[26]

Magnitude of Impact	General Criteria
Major Adverse	Results in a loss of attribute and/or quality and integrity of the attribute.
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute.
Minor Adverse	Results in some measurable change in attribute's quality or vulnerability.
Negligible	Results in impact on attribute, but of insufficient magnitude to affect the use or integrity.
Minor Beneficial	Results in some beneficial impact on attribute or a reduced risk of negative impact occurring.
Moderate Beneficial	Results in moderate improvement of attribute quality.
Major Beneficial	Results in major improvement of attribute quality.
No Change	No change to baseline conditions.

Significance of Effect

11.4.48. The importance of the receptor and the magnitude of impact are determined independently from each other and are then used to determine the overall significance of effects (refer to Table 11-6). Options for mitigation are considered and secured where possible to avoid, minimise and reduce adverse impacts, particularly where significant effects may have otherwise occurred. The residual effects of the Scheme with identified mitigation in place are then reported. Effects of moderate, large of very large are considered significant.

11.4.49. The significance of effect in relation to Hydrology and Flood Risk has been assessed in accordance with the criteria provided in **ES Chapter 4: Overview of the EIA Process** (Doc Ref 6.1). Effects that are very large, large or moderate are considered to be significant. Where the matrix includes multiple significance levels, professional judgement has been used to determine the most likely outcome.

Table 11-6: Matrix for Assessment[27]

Receptor Importance	Magnitude of Impact				
	Major	Moderate	Minor	Negligible	No change
Very High	Very Large	Large or very large	Moderate or large	Slight	Neutral
High	Large or Very Large	Moderate or large	Slight or moderate	Slight	Neutral
Medium	Moderate or Large	Moderate	Slight	Neutral or slight	Neutral
Low	Slight or moderate	Slight	Neutral or slight	Neutral or slight	Neutral
Negligible	Slight	Neutral or slight	Neutral or slight	Neutral	Neutral

11.5. Assessment Assumptions and Limitations

11.5.1. The assessment is based on the Scheme design set out in **ES Chapter 2: The Scheme** (Doc Ref 6.1) and shown on **ES Figures 2-1 to 2-7** (Doc Ref 6.2).

11.5.2. The quality of the water environment receptors has been defined using published data sources and observations from walkover hydromorphological surveys of the watercourses crossed by the Scheme. The availability of data with which to define the receptor importance of these attributes is considered robust and therefore this approach is considered acceptable.

11.5.3. Hydromorphological impacts as a result of new structures have been considered under the construction phase only as this is when the impact first occurs. Although these impacts are permanent and long term (for as long as the structure remains in place) it is not necessary to report an operational phase effect as this would be double counting the effect already reported.

11.5.4. The methodology for cable route construction and installation below watercourses is outlined in Section 11.7 of this chapter and will follow good industry practice methods. The dimensions stated are indicative but represent the likely maximum parameters, with the exact dimensions of excavations for send and receive pits to be determined following future site and ground investigations within the detailed design stage which will take place after receipt of any DCO consent.

11.5.5. The route assessed in the Grid Connection Route from the Solar Development Area up to High Road is the preferred route, with a specific number of indicative crossing locations. There may be a variation in the location and number of crossing points if there is a slight variation in the exact route chosen. Should this occur, it is not considered there would be any significant variation to the level of impact as a result of the Scheme due to the variation in the exact number of crossings, or the location.

11.5.6. Due to uncertainty in the overhead line routing of neighbouring cumulative developments (Grimsby to Walpole and Weston Marsh to East Leicestershire overhead lines), the Scheme needs to consider the alternative option of undergrounding the proposed 400kV overhead line between High Road and the proposed Weston Marsh B Substation. For the purposes of this assessment, it has been assumed that undergrounding of the proposed 400kV overhead line (facilitated through Work Number 14 of the **Draft DCO** (Doc Ref. 3.1)) could occur north of High Road. Therefore, north of High Road, indicative underground crossing locations of watercourses have been considered either side of Wool Hall Farm up to the proposed Weston Marsh B Substation.

11.5.7. The following design assumptions have been applied:

- Trenchless crossings (e.g. HDD or thrust bore crossings) will be installed at a maximum depth of 7 m below typical ground level and a minimum depth of 3 m below the hard, true bed of watercourses.
- Where existing access tracks cannot be utilised, new access tracks up to 4 m wide, consisting of hardcore or gravel over a levelling layer of substrate will be constructed. This is with the exception of the main operational access roads through the Solar Development Area, which will be up to a maximum of 6 m wide, with occasional passing places up to 8 m wide. 1:2 gradient slopes will be provided on one or both sides. Soil stripping up to a depth of 600 mm has been assumed to be required.
- Within the Grid Connection Route, it is proposed for a temporary construction access track to follow the alignment to enable the construction works. The indicative design would be up to 21 m wide, including the working area, allowing flexibility for the detailed design stage for the inclusion of for a stone access road, passing places, soil stockpile along the tracks, temporary drainage and fencing.
- An overhead line solution is proposed for the Inter-Array Connection between the 132 kV substations in land parcels C and D. More details can be viewed in **ES Chapter 2: The Scheme** (Doc Ref. 6.1). An indicative

total of approximately 50 wooden H poles are proposed, which are located approximately every 120 m. This is subject to refinement at detailed design stage post-DCO consent. The poles have been assumed to be installed to a maximum depth of 2.5m.

- The Grid Connection would be up to 13km in length, dependent on the final location of the proposed National Grid Weston Marsh substation.
- The Grid Connection would be 400kV and utilise a steel lattice pylon designs with a pylon located approximately every 350 m. Span distances would vary dependent on the proposed alignment to take account of topography, crossings and routeing to avoid constraints in the area, but currently up to 44 pylons are proposed. Each leg of the pylon will be supported by a foundation. Depending on ground conditions, this may comprise either a pad and column foundation or a piled foundation. Foundation design is to be confirmed following further ground investigation and detailed design post-DCO consent. However, it is assumed that for pad and column foundation each leg would be supported on a concrete base measuring approx. 4.3 m x 4.3 m footprint, and 4.8m deep. If piled foundations are used there would be an approx. 4.6m x 4.6 m concrete pad up to 2.1 m deep with eight piles of 0.6 m diameter and up to 20 m deep;
- It is currently anticipated that construction work will commence in 2029, with the construction phase taking approximately three to four years if all sites are constructed concurrently. The peak construction year for the purpose of the EIA is anticipated to be 2031 for the Solar Development Area and Inter Array Connections, and 2030 for the Grid Connection Route;
- The risk from surface water runoff to surface water features has been assessed qualitatively on the basis of design principles that have been presented in **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3). For assessment purposes it has been assumed that the proposed surface water drainage system discharges to the nearest watercourse, or, in the cases of Solar PV field edge swales, to ground where a watercourse is not present; and
- The mode of any underground cable decommissioning will be dependent upon Government policy, best practice and landowner agreement at that time. If required, the cables can be removed by opening the ground at

regular intervals and pulling the cable through to the extraction point, avoiding the need to open up the entire length of the cable route.

11.5.8. Please also refer to **ES Appendix 11-2: WFD Assessment** (Doc Ref. 6.3), **ES Appendix 11-3: FRA** (Doc Ref. 6.3) and **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) for details of additional technical assumptions and limitations.

11.5.9. Two cumulative assessment scenarios are set out in **ES Chapter 4: Overview of the EIA Process** (Doc Ref. 6.1) which are considered to capture the worst-case cumulative effects. For this chapter, the below scenario is considered to result in a worst-case assessment in relation to the cumulative schemes assessment:

- Scenario 2: The projects are built out sequentially, with no overlap in peak construction periods but a longer overall cumulative construction period between 2028 and 2038.

11.5.10. This is because in this scenario, the magnitude of cumulative impacts would be the greatest.

11.6. Baseline Conditions

11.6.1. This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to water environment. It provides a summary of the baseline with full details included in **ES Appendix 11-5: Hydrology and Flood Risk Baseline** (Doc Ref. 6.3).

Summary Current Baseline: Solar Development Areas and Inter-Array Connections

Topography, Climate and Land Use

11.6.2. The topography of the area is very flat, with existing ground levels in the region of 0 m to 4 m Above Ordnance Datum (AOD) [28]. The current land use of the Solar Development Area and Inter Array Connections is mainly agricultural, with a mosaic of arable fields. The main villages include Spalding, Cowbit, Crowland, Holbeach, Weston, Moulton Whaplode and Surfleet.

[28] Topographical mapping, available at: https://en-gb.topographic-map.com/map-kb57/England/?center=52.76684%2C-0.01459&zoom=12&popup=52.72654%2C0.02129 [Accessed October 2025]

11.6.3. The Solar Development Area and Inter Array Connections lie within two Internal Drainage Boards (IDB), the North Level District IDB (NLDIDB) and the South Holland IDB (SHIDB).

11.6.4. Using data from the nearest weather station located at Wittering for the period 1991-20205, it is estimated that the Solar Development Area and Inter Array Connections experiences approximately 613mm of rainfall per year, with it raining more than 1mm on approximately 113 days per year, which are both low in the UK context. Rainfall is highest from early to mid-winter and late summer and generally peaks in October, with the least rainfall occurring in February on average.

Geology, Groundwater and Soils

11.6.5. Both the superficial and bedrock strata are designated as unproductive[10]. Bedrock geology underlying the majority of the Solar Development Areas and Inter Array Connections is mudstone. The superficial geology is predominantly tidal flat deposits of clay and silt, with the exception of alluvial deposits of clay, silt sand and gravel to the west associated with the floodplain of the River Welland.

11.6.6. Some superficial deposits between Crowbit and Crowland are classed as Secondary A and Secondary (undifferentiated) aquifers. However, these are only likely to yield limited amounts of water and be of limited importance at a local level. As agreed in the Scoping Opinion provided in **ES Appendix 1-2** (Doc Ref 6.3), potential impacts on groundwater have been scoped out, and this information is provided here for context only (see also Table 11-1). Groundwater may still be present as perched water due to poor infiltration of clay bedrock and thus may be present at a shallow depth and in hydraulic continuity with ditches and drains. Standard construction measures will account for this.

11.6.7. The soils of the area are shown on the Soilscape website[12] and are described as loamy and clayey soils of coastal flats with naturally high groundwater[12].

Surface Water features

11.6.8. There are a large number of watercourses within the Solar Development Area and Inter Array Connections Study Area, which have been identified and labelled according to a desk-based study. **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3) lists and summarises the water features within the Solar Development Area and Inter Array Connection.

WFD Classifications

11.6.9. The present (i.e. Cycle 3, 2022) WFD classifications of the surface water bodies underlying the Scheme are provided in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3), as identified through the **WFD Assessment** presented in **ES Appendix 11-2** (Doc Ref 6.3).

Surface Water Quality and Flow

11.6.10. There are four Environment Agency surface water monitoring locations in the Study Area. These are shown on **ES Figure 11-1 Surface Water Features and Attributes** (Doc Ref 6.2): east of Cowbit and the Crowland Bypass, on South Holland Main Drain at the Eaugate Road Crossing. The water quality data is summarised in **ES Appendix 11-5** (Doc Ref 6.3).

11.6.11. There are no gauging stations on the River Welland or Nene in this area as the watercourses are tidal in this zone. However, it is considered that as a result of the topography and the pumped flows, that the channels would be low flow channels, maybe with a flow that is exceeded 95% of the time (or Q95) of 1 l/s (0.001 m3/s). Although they may offer more dilution by volume, the lack of flow will limit dispersion of fine sediment and chemical substances.

Hydromorphology

11.6.12. A description of the hydromorphological characteristics of these watercourses is provided in **ES Appendix 11-5: Hydrology and Flood Risk Baseline** (Doc Ref 6.3). The Scheme interacts with multiple large watercourses and several smaller channels within the Solar Development Area and Inter Array Connections, with the majority being low quality ditches for agricultural drainage.

Aquatic Ecology

11.6.13. The Environment Agency Freedom of Information request includes searches for protected aquatic species in the area. This states that there are no protected species such as Salmon (*Salmo Salar*) or white clawed crayfish (*Austropotamobius pallipes*) within a 500m search area. However, protected species European Eel (*Anguilla anguilla*), Spined Loach (*Cobitis taenia*) and River Lamprey (*Lampetra fluviatilis*) are shown within 2km of the sites, and care should be taken for any migratory routes. This includes the European Eel on the South Holland Main Drain downstream of the Solar Development Area and on the River Welland upstream of the Solar Development Area.

11.6.14. According to the Environment Agency, European Water Vole (*Arvicola amphibus*) are shown as present within 1,239m from the Solar Development

Area. This includes records on South Holland Main Drain, adjacent to Land Parcel D, Wheat Mere Drain and watercourses connected to Lambert Drain. Water vole surveys have been undertaken where crossings are required.

11.6.15. None of the watercourses in the Study Area are considered to be chalk rivers[10].

11.6.16. A full description of the baseline is outlined within **ES Chapter 9: Ecology and Biodiversity** (Doc Ref. 6.1) and associated appendices.

Nature Conservation Sites

11.6.17. Statutory sites that are designated for nature conservation and with the potential for a hydrological link were identified through a review of the Multi Agency Geographic Information for the Countryside (MAGIC)[10] (refer also to **ES Chapter 9: Ecology and Biodiversity** (Doc Ref 6.1). There are no international or national sites designated for nature conservation within the Order Limits.

11.6.18. The Nene Washes SSSI (which is of relevance to the water environment assessment) is located approximately 10km to the south of the Solar Development Area, as summarised in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3). No further assessment is proposed of this designated ecological site as it is outside of the water environment Study Area and it is unlikely that there would be any significant effects on water quality at this distance when taking into account dilution and dispersion.

11.6.19. There are three Local Wildlife Sites (LWS) that intersect the Order Limits of the Solar Development Area. These are non-statutory designated sites. The Slys Connection LWS is within Land Parcels D-2 and D-3 and South Holland Main Drain (West) is within Land Parcel B-5. The Lambert Drain to Highstock Drain Connection LWS crosses the Order Limits at Langary Gate Road. These are discussed in more detail in **ES Chapter 9: Ecology and Biodiversity** (Doc Ref 6.1).

Water Resources

11.6.20. A Freedom of Information (FoI) request was made, under the Environmental Information Regulations 2004[29], to the Environment Agency and received in May 2025. A further request for updated data was received in February 2026.

29 HMSO (2004) The Environmental Information Regulations. Available at: https://www.legislation.gov.uk/uksi/2004/3391/contents [Accessed October 2025]

The request sought access to environmental data relevant within the Solar Development Area and Inter Array Connections. The details of the request and the response received are outlined below in the relevant sections.

11.6.21. The South Holland District Council was contacted to provide details of Private Water Supplies (PWS) within the Solar Development Area and Inter Array Connections. A response was received in June 2025. The details of the response received is outlined below in the relevant sections.

Pollution Incidents

11.6.22. Information on pollution incidents which have occurred in the area have been obtained from the Environment Agency. Pollution incidents to water are classified as Category 1 (serious impact) through to Category 4 (No impact). Category 1 to Category 3 (minor impact) incidents have been reviewed within the last 5 years (2020–2025).

11.6.23. There have been seven water pollution incidents within the Solar Development Areas and Inter Array Connections Study Area (see **ES Figure 11-1** (Doc Ref. 6.2)). These are summarised in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3).

Drinking Water Protected Areas and Safeguard Zones

11.6.24. There are no surface or groundwater Drinking Water Protected Areas or Safeguard Zones in the Solar Development Area and Inter Array Connections [10].

Surface Water Abstractions

11.6.25. Information received from the Environment Agency on abstractions show there are eight surface water abstractions within 1km of the Solar Development Area and Inter-Array Connections. These are shown in **ES Figure 11-1 Surface Water Features and their Attributes** (Doc Ref. 6.2) and summarised in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3) together with a summary of why these are scoped in, or out, of further assessment.

Groundwater Abstractions

11.6.26. According to the Environment Agency there are no licenced active groundwater abstractions in the Solar Development Area and Inter Array Connections.

Private Water Supplies

11.6.27. According the South Holland District Council, there are no surface water or groundwater PWS within the Solar Development Area and Inter Array Connections.

Groundwater Source Protection Zones and aquifers

11.6.28. There are no groundwater source protection zones in the Solar Development Area and Inter Array Connections.

11.6.29. There are no Groundwater Support Schemes in the Solar Development Area and Inter Array Connections.

11.6.30. The Bedrock Aquifer is designated as Unproductive Strata. The Superficial Aquifer is largely designated as Unproductive Strata, with small areas of Secondary A and Secondary (Undifferentiated) aquifer associated with sand and alluvial deposits.

Nitrate Vulnerable Zones (NVZ)

11.6.31. A small section in the southwest of the Site is contained within a NVZ. NVZs are areas designated as being at risk from agricultural nitrate pollution. The designations are made in accordance with the Nitrate Pollution Prevention Regulations 2015[30]. The Solar Development Area and Inter Array Connections are unlikely to impact nitrate levels in the water environment and so the NVZ will not be considered any further.

Flood Risk

11.6.32. The existing flood risk to the Solar Development Area and Inter Array Connections is summarised below, details of which have been taken from **ES Appendix 11-3: Flood Risk Assessment** (Doc Ref 6.3).

Fluvial Flood Risk

11.6.33. The mapping indicates the flood risk level of fluvial flooding to the Solar Development Area and Inter Array Connections is high. The majority of the Solar Development Area and Inter Array Connections is located in Flood Zones 2 and 3. The mapping does not take into account the flood defences, although defences are shown in the mapping. Land Parcel A is entirely within

30 HMSO (2015) Nitrate Pollution Prevention Regulations. Available at: https://www.legislation.gov.uk/uksi/2015/668/contents/made [Accessed July 2025]

Flood Zone 3, and Land Parcels B and D are predominantly within Flood Zones 2 and 3, with small areas that are not Flood Zone. Land Parcel C is located within Flood Zone 2 and 3, however, the eastern half of this parcel lies outside any Flood Zone. Refer to **ES Figure 11-3** (Doc Ref 6.2). Existing land use across the Solar Development Area and Inter Array Connections is agricultural.

Rivers and Sea Flood Risk – Long Term Flood Risk

11.6.34. **ES Figure 11-3: Fluvial Flood Risk** (Doc Ref 6.2) shows the risk of flooding from rivers and sea across the Solar Development Area and Inter Array Connections ranges from very low to medium from the long term flood map for planning[31]. This is due, for the majority of the Scheme being protected by flood defences, providing protection against a flood event with a 0.1% chance of occurring in any year (1 in 1000), including climate change, by the Crowland-Cowbit Washes and embankment, for the River Welland.

Surface Water Flood Risk

11.6.35. **ES Figure 11-4: Surface Water Flood Risk** (Doc Ref 6.2) shows the majority of the Site is generally considered to be at low risk of surface water flooding, with very small areas of medium to high risk of surface water flooding. These areas are likely associated with areas of low topography where surface water sits and pools rather than draining away.

Tidal Flood Risk

11.6.36. The tidal limit of the River Welland is controlled by the tidal sluices, at Fulney Lock, in Spalding. Therefore, tidal risk is a low residual risk from the River Welland, if the lock was to fail or overtop.

11.6.37. The River Nene tidal limit is at Dog in a Doublet Lock, north of Peterborough. Review of the River Nene hydraulic model, notes the Scheme is not at risk of tidal flooding, or from a breach or overtopping of the River Nene Defences in Wisbech.

Artificial Sources Flood Risk

11.6.38. The Solar Development Area and Inter Array Connections is seen to be at residual risk of flooding from reservoirs, apart from the east of the boundary, which shows no risk of flooding. This is due to the nearby reservoirs, Eyebrook Reservoir and Rutland Water that are located far west of the Scheme.

[31] Long Term Flood Map for Planning: https://check-long-term-flood-risk.service.gov.uk/postcode [Accessed October 2025]

Ground Water Flood Risk

11.6.39. Online data has been reviewed to establish the existing groundwater risk. The GOV website for flood risk summary was used to obtain information regarding ground water flooding in the Solar Development Area and Inter Array Connections[32]. It is said that flooding from groundwater is unlikely in this area.

Current Baseline: Grid Connection Route

Topography, Climate and Land Use

11.6.40. The topography, climate and land use for the Grid Connection Route is considered to be the same as for the Solar Development Areas and Inter Array Connections.

Geology, Groundwater and Soils

11.6.41. The geology, groundwater and soils for the Grid Connection Route is considered to be similar to the Solar Development Areas and Inter Array Connections.

Surface Water features

11.6.42. There are a large number of watercourses within the Grid Connection Route Study Area, which have been identified and labelled according to a desk-based study. **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3) lists and summarises the water features within the Grid Connection Route.

WFD Classifications

11.6.43. The present (i.e. Cycle 3, 2022) WFD classifications of the surface water bodies underlying the Grid Connection Route are given in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3), as identified through **ES Appendix 11-2 WFD Assessment** (Doc Ref 6.3).

Surface Water Quality and Flow

11.6.44. There are three Environment Agency surface water monitoring locations in the Grid Connection Route Study Area. These are the Lower Welland A151 and the Lower Welland Runway. The monitoring is summarised in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3) and the locations shown on **ES Figure 11-1 Surface water features and their attributes** (Doc Ref 6.2).

[32] Long Term Flood Map for Planning: https://check-long-term-flood-risk.service.gov.uk/postcode [Accessed October 2025]

Hydromorphology

11.6.45. The Grid Connection Route interacts with multiple large watercourses and several smaller channels within the Grid Connection Route Study Area and the hydromorphology of these is described in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3). The majority of the channels within the Order Limits are low quality ditches used for agricultural purposes.

Aquatic Ecology

11.6.46. The Environment Agency Freedom of Information request includes searches for protected aquatic species in the area. This states that there are no protected species such as Salmon (*Salmo Salar*) or white clawed crayfish (*Austropotamobius pallipes*) within 500m of the Grid Connection Route Study Area. However, protected species European Eel (*Anguilla anguilla*), Spined Loach (*Cobitis taenia*) and River Lamprey (*Lampetra fluviatilis*) are shown within 2km of the sites, and care should be taken for any migratory routes.

11.6.47. According to the Environment Agency, European Water Vole (*Arvicola amphibus*) are shown as present within 1,239m from the Grid Connection Route. Water vole surveys have been undertaken where crossings are required.

11.6.48. None of the watercourses in the Study Area are considered to be chalk rivers[10].

11.6.49. A full description of the baseline is outlined within **ES Chapter 9: Ecology and Biodiversity** (Doc Ref. 6.1) and associated appendices.

Nature Conservation Sites

11.6.50. Statutory sites that are designated for nature conservation and with the potential for a hydrological link were identified through a review of the MAGIC website[10] (refer also to **ES Chapter 9: Ecology and Biodiversity** (Doc Ref. 6.1). There are no international or national sites designated for nature conservation within the Grid Connection Route.

11.6.51. The Wash & North Norfolk Coast SAC and Wash SSSI is approximately 10km downstream of the Order Limits of the Grid Connection Route. However, due to the likely high dilution of the River Welland, it is unlikely that water quality impacts would propagate this far downstream and no further consideration of this site within this assessment has been undertaken.

11.6.52. The Wheatmere Drain is a receptor located within the Order Limits that may be impacted and that is also a LWS. Details of the LWS designation are provided in **ES Chapter 9: Ecology and Biodiversity** (Doc Ref 6.1).

Water Resources

11.6.53. A FoI request was made, under the Environmental Information Regulations 2004[33], to the Environmental Agency and received in May 2025. A further request for updated data was received in February 2026. The request sought access to environmental data relevant to the area within Grid Connection Route. The details of the request and results are outlined below in the relevant section.

11.6.54. The South Holland District Council was contacted to provide details of PWS within the Grid Connection Route. A response was received in June 2025. The details of the response received are outlined below in the relevant section.

Pollution Incidents

11.6.55. Information on pollution incidents which have occurred in the Grid Connection Route have been obtained from the Environment Agency. Pollution incidents to water are classified as Category 1 (serious impact) through to Category 4 (No impact). Category 1 to Category 3 (minor impact) incidents have been reviewed within the last 5 years (2020–2025).

11.6.56. There have been seven water pollution incidents within the Grid Connection Route Study Area (see **ES Figure 11-1 Surface water features and their attributes** (Doc Ref 6.2)). These incidents have been summarised in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3).

Drinking Water Protected Areas and Safeguard Zones

11.6.57. There are no surface or groundwater Drinking Water Protected Areas or Safeguard Zones in the Grid Connection Route[10].

Surface Water Abstractions

11.6.58. Information received from the Environment Agency on abstraction show there are two surface water abstractions within 1 km of the Grid Connection Route. These are shown in **ES Figure 11-1 Surface Water Features and their**

33 HMSO (2004) The Environmental Information Regulations. Available at: https://www.legislation.gov.uk/uksi/2004/3391/contents [Accessed 05 July 2025]

Attributes (Doc Ref. 6.2) and summarised in **ES Appendix 11-5 Hydrology and Flood Risk Baseline** (Doc Ref 6.3).

Groundwater Abstractions

11.6.59. According to the Environment Agency there are no licenced active groundwater abstractions in the Grid Connection Route.

Private Water Supplies

11.6.60. According to South Holland District Council there are no known surface water or groundwater PWS within the Grid Connection Route.

Nitrate Vulnerable Zones

11.6.61. A small section in the southwest of the Grid Connection Route is contained within a NVZ. However, as discussed earlier, no further consideration of NVZs is required.

Flood Risk

11.6.62. A summary of flood risk of the Scheme for all sources of the Grid Connection Route has been provided in below, details of which have been taken from **ES Appendix 11-3 FRA** (Doc Ref 6.3).

Fluvial Flooding

11.6.63. Pre-Scheme fluvial flood risk is high, as online mapping indicates the majority of the Site is located in Flood Zones 2 and 3[15]. the Grid Connection Route generally lies within a combination of Flood Zones 2 and 3 with limited and localised areas in the south falling within Flood Zone 1. Existing land use across the Site is agricultural.

Tidal Flooding

11.6.64. This Site is not considered to be at risk of tidal flooding[15]. The west of the Scheme is protected against a flood event with a 0.1% chance of occurring in any year (1 in 1,000) by the Crowland-Cowbit Washes and embankment.

Pluvial (surface water) Flooding

11.6.65. The Environment Agency 'Flood Risk from Surface Water' Map[15] shows areas that may be susceptible to surface water flooding following an extreme rainfall event. The mapping shows that the majority of the Grid Connection Route is at a 'Very Low' risk of surface water flooding. Only isolated and localised areas are shown to be at high, medium and low risk of surface water flooding. Surface water flooding is also likely to be very localised. Risks range from low

chance to high chance. The areas of risk are likely areas of low topography where surface water sits and pools rather than draining away.

Groundwater Flooding

11.6.66. The Strategic Flood Risk Assessment (SFRA) and online data has been reviewed to establish the existing groundwater risk. The GOV website[34] for long term flood risk[15] was used to obtain information regarding ground water flooding in the Site. The website said that flooding from groundwater is unlikely in this area.

Sewer Flood Risk

11.6.67. It is considered unlikely that flooding from sewers will impact the Site as it is located within arable fields. The South Holland SFRA does not identify any public sewers or historic flood incidents.

Artificial Sources Flood Risk

11.6.68. The Environment Agency Reservoirs Map[1515] shows the Site is seen to be at risk of flooding from reservoirs, apart from the east of the Order Limits, which shows no risk of flooding. This is due to the nearby reservoirs, Eyebrook Reservoir and Rutland Water that are located far west of the Scheme.

Future Baseline

Future Baseline: Solar Development Areas, Inter-Array Connections and Grid Connection Route

11.6.69. The future baseline scenarios are set out in **ES Chapter 4: Overview of the EIA Process** (Doc Ref 6.1).

Future Baseline: 2029 – 2033, 2033 onwards Operation

11.6.70. One of the surface WFD water bodies has already met its objective (Welland, with an objective of Moderate by 2015). The remaining two of the surface WFD waterbodies are predicted to improve in the future; the remaining WFD water bodies have a target of Good by 2021 (South Holland Main Drain) and Good by 2024 (Moulton River).

11.6.71. It is likely that through the action of new legislative requirements and ever more stringent planning policy and regulation, the health of the water

[34] GOV.UK (2024). Check your long term flood risk. [online] check-long-term-flood-risk.service.gov.uk. Available at: https://check-long-term-flood-risk.service.gov.uk/risk#. [Accessed October 2025].

environment will continue to improve post-2027. The Environment Act 2021[35] and the Levelling-Up and Regeneration Act 2023[36] include measures to tackle storm sewage discharges and set new requirements on phosphate removal from sewage treatment works, although there do not appear to be any sewage treatment works that discharge into the watercourses within the Study Area, and the possibility of combined sewer overflows is low given it is a rural catchment. There are, however, significant challenges such as adapting to a changing climate and pressures of population growth that could have a retarding impact. It is also difficult to forecast these changes with any certainty. Added to this is the low topography of the area, and the drainage being controlled by IDBs, with pumping stations. On the other hand, temporary conversion of agricultural land for solar PV development will reduce the need for irrigation of crops and the use of organic/inorganic fertilisers and other agro-chemicals to manage pests. There is no information on the lands irrigation requirements or the use of fertilisers and agro-chemicals, so the benefit of this cannot be quantified, but it will be a beneficial change as a result of the Scheme.

11.6.72. Regardless of the above, the current receptor importance criteria presented in Table 11-4 is largely based on the presence or not of various attributes (e.g. Drinking Water Protected Area, designated nature conservation site or WFD designation) and flow (i.e. the size of the watercourse). The application of these criteria is therefore not sensitive to more subtle changes or improvements in water quality as may be experienced over time. Thus, no significant changes to current baseline conditions are predicted for the future baseline in the absence of the Scheme, as the principal reasons for differences in water body importance are unlikely to change. For this reason, the impact assessment within this chapter is undertaken against existing baseline conditions.

11.6.73. In terms of flood risk, climate change is predicted to alter the future tidal, fluvial and pluvial flood risk with changing rainfall intensity and sea level rise, and thus it is important that it is taken into account by **ES Appendix 11-3 FRA** (Doc Ref 6.3). Climate change resilience has been accounted for within the

[35] HMSO (2021) Environment Act. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted. [Accessed October 2025].
[36] HMSO (2023) Levelling up and Regeneration Act https://www.legislation.gov.uk/ukpga/2023/55/contents [Accessed October 2025].

outline surface water drainage strategy for the Scheme, accommodating current government climate change projections.

Future Baseline (Decommissioning, 2073)

11.6.74. It is considered that continued environmental improvements, tighter regulation at both national, regional and local scales, and environmental enhancements will lead to a gradual improvement over current baseline conditions in terms of water quality. However, the current receptor importance criteria presented in Table 11-4 is largely based on the presence or not of various attributes. Therefore, the application of this criteria is not sensitive to more subtle changes or improvements in water quality as may be experienced over time. Thus, no significant changes to current baseline conditions are predicted for the future for surface water.

11.6.75. Climate change has the potential to significantly impact on drainage and flood risk, for example through increased storm intensity and changes in future rainfall patterns. The future decommissioning would take place under a decommissioning environmental management plan (An **Outline DEMP** is submitted as part of this DCO Application (Doc Ref. 7.12)). This would take into account any climate change induced changes regarding flood risk to ensure that potentially increased surface water flows are accounted for and managed during decommissioning

Importance of Receptors

11.6.76. Table 11-7 provides a summary of the water features that may be impacted by works in the Solar Development Area and Table 11-8 for the Grid Connection Route (i.e. there is a source and a possible pathway), a description of their attributes, and states the importance of the water feature as used in this environmental impact assessment. Importance is based on the criteria presented in Table 11-4. Separate importance classifications are provided for water quality and morphological aspects of water features as it is not always appropriate to have the same rating (e.g. a water body may be heavily modified or even artificial and thus have a low morphology importance, but the water quality may be high by virtue of supporting protected species or other important potable or socio-economic and recreational uses). Refer to **ES Figure 11-1: Surface Water Features and Their Attributes** (Doc Ref 6.3) for surface water features.

Table 11-7: Importance of Receptors for Solar Development Areas and Inter Array Connections

Water Feature	Water Feature ID	Importance
River Welland	WEL01	**Water quality/resources:** High importance for water quality/resources on the basis of being a WFD designated watercourse and its scale and flow profile. However, there is expected to be pressure on water quality in the watercourse from agricultural pollution. There have been eels recorded upstream on the River Welland. The river also has socio-economic value due to it being navigable. Abstractions for 'transfer between sources' (SW3) and spray irrigation (SW5) from the River Welland are located within the Study Area. **Hydromorphology:** Not assessed for hydromorphology as there will be no physical impacts.
New River	NEW01	**Water quality/resources:** Medium importance for water quality/resources. The watercourse is not a designated as a WFD water body in its own right but adopts the classification of its receiving water body (River Welland). Low flow estimated to be Q95 <1.0 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Postland Main Drain	PMD01	**Water quality/resources:** Medium importance for water quality/resources on the basis of not having a WFD classification; likely Q95 <1.0 m^3/s to >0.001 m^3/s **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.

Water Feature	Water Feature ID	Importance
Postland Main Drain tributaries	PMD02 PMD03	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Cloot Drain and tributaries	CLD01 CLD02 CLD03 CLD04	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Brother-house Bar and tributary	BHB01 BHB02	**Water quality/resources:** Medium importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s; surface water abstractions for 'transfer between sources' (SW2) and spray irrigation (SW4) from Brotherhouse Bar. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Drain adjacent to Crowland Bypass and tributaries	CRW01 CRW02 CRW03 CRW04	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.

Water Feature	Water Feature ID	Importance
Cox's Drain South	CXD01	**Water quality/resources:** Medium importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s; surface water abstraction for spray irrigation (SW6) from Cox's Drain South. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Queen's Bank Drain and tributaries	QBD01 QBD02 QBD03	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Wheat Mere Drain	WMD01	**Water quality/resources:** Medium importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s however water vole are present and Wheatmere Drain LWS connects to the water feature. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Wheat Mere Drain tributaries	WMD01 WMD02 WMD03	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.

Water Feature	Water Feature ID	Importance
Unnamed Drain 1	UND01	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Whitehall Drain and tributary	WHD01 WHD02	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Martin's Road Drain	MRD01	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Unnamed Drain 2	UND02	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Eaugate Road Drain	ERD01	**Water quality/resources:** Low importance for Water quality/resources on the basis of not

Water Feature	Water Feature ID	Importance
		having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Donnington's Drain	DND01	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Division Drain and tributary	DIV01 DIV02	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Tinsley's Drain and tributary	TIN01 TIN02	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Lambert Drain	LAM01	**Water quality/resources:** Medium importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s however water vole are present.

Water Feature	Water Feature ID	Importance
		Hydromorphology: Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Lambert Drain tributaries	LAM02 LAM03 LAM04 LAM05	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Langary Gate Road Drain	LGR01	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Fleet Drain and tributaries	FLD01 FLD02 FLD03 FLD04 FLD05 FLD06	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
South Holland Main Drain	SHD01	**Water quality/resources:** High importance for water quality/**resources** on the basis of being a WFD designated watercourse. Water vole presence is recorded on the South Holland Main Drain and South Holland Main Drain (West) LWS and Sly's Connection LWS connects to the watercourse. However, there is

Water Feature	Water Feature ID	Importance
		expected to be pressure on water quality in the watercourse from agricultural pollution. **Hydromorphology:** Low Importance for morphology on the basis of showing evidence of substantial modification and realignment, being artificially straight with steep, incised banks in places.
South Holland Main Drain tributaries	SHD02 SHD03 SHD04	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Flood Risk	Fluvial	Fluvial flood risk receptors across the Site may be impacted by the Scheme are set out below and will be assessed accordingly against the importance for the significance of impacts from the Scheme: **High Importance** – More Vulnerable Development associated with isolated residential dwellings **Medium Importance** – Less Vulnerable development, associated with farm buildings and local access roads **Low Importance –** Water compatible development associated with farmland and pumping water infrastructure
Flood Risk	Surface water	Land uses are the same as described for fluvial flood risk. With surface water flood risk consistent across the Scheme, it will be assessed as **High Importance** to assess a worst case.

Table 11-8: Importance of receptors for the Grid Connection Route

Water Feature	Water Feature ID	Importance
Wheat Mere Drain tributaries	WMD04 WMD05 WMD06	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Unnamed Drain 3	UND03	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Delgate Drain and tributaries	DGD01 DGD02 DGD03 DGD04 DGD05 DGD06 DGD07 DGD08 DGD09 DGD10	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Moulton Mere Drain and tributaries	MMD01 MMD02 MMD03 MMD04 MMD05 MMD06	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence

Water Feature	Water Feature ID	Importance
	MMD07 MMD08 MMD09	of modification including channel straightening, a trapezoidal planform and being over-deep.
Austendyke Drain and tributaries	ADD01 ADD02 ADD03 ADD04	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Moulton Mere Drain North	MDN01	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Delgate Drain North and tributaries	DDN01 DDN02 DDN03 DDN04 DDN05 DDN06 DDN07 DDN08	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Old Exeter Drain tributaries	OED02 OED03 OED04 OED05 OED06	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence

Water Feature	Water Feature ID	Importance
		of modification including channel straightening, a trapezoidal planform and being over-deep.
Lord's Drain	LOD01	**Water quality/resources:** Medium importance for Water quality/resources on the basis of not having a WFD classification; likely Q95>0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Lord's Drain tributaries	LOD02 LOD03 LOD04 LOD05 LOD06 LOD07 LOD08 LOD09 LOD10 LOD11 LOD12	**Water quality/resources:** Low importance for Water quality/resources on the basis of not having a WFD classification; likely Q95 ≤0.001 m^3/s. **Hydromorphology:** Low importance for morphology on the basis of showing evidence of modification including channel straightening, a trapezoidal planform and being over-deep.
Flood Risk	Fluvial	Fluvial flood risk receptors across the Site may be impacted by the Scheme are set out below and will be assessed accordingly against the importance for the significance of impacts from the Scheme: **High Importance** – More Vulnerable Development associated with isolated residential dwellings **Medium Importance** – Less Vulnerable development, associated with farm buildings and local access roads

Water Feature	Water Feature ID	Importance
		Low Importance – Water compatible development associated with farmland and pumping water infrastructure
Flood Risk	Surface water	Land uses are the same as described for fluvial flood risk. With surface water flood risk consistent across the Scheme, it will be assessed as **High Importance** to assess a worst case.

11.7. Embedded Mitigation

11.7.1. This section contains the mitigation measures relevant to this chapter that are already incorporated into the Scheme's design and the management plans submitted with the DCO application, as described in **ES Chapter 2: The Scheme** (Doc Ref 6.1). This includes measures that form part of the **Outline CEMP** (Doc Ref 7.10), the **Outline Operational Environmental Management Plan** (OEMP) (Doc Ref 7.11) and the **Outline DEMP** (Doc Ref. 7.12), and **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3). Some of these are standard mitigation, and some have been developed as the Scheme design has progressed (i.e. embedded). These measures are taken into account by the initial impact assessment. The application of additional mitigation measures is only considered prior to stating residual effects.

Construction Phase Mitigation

Good Practice Environmental Management Measures

11.7.2. The **Outline CEMP** (Doc Ref. 7.10) details the measures that will be undertaken during construction to mitigate temporary effects on the water environment. The measures within the **Outline CEMP** (Doc Ref. 7.10) focus on managing the risk of pollution to surface waters and the groundwater environment. It also considers the management of activities within floodplain areas.

11.7.3. The **Outline CEMP** (Doc Ref. 7.10) sets out the structure and content for the detailed CEMP, which will be produced once a Contractor is appointed once the DCO is granted. The final CEMP will be supported by a Water Management Plan (WMP) that will provide greater detail regarding the mitigation to be implemented to protect the water environment from adverse effects during construction.

11.7.4. The WMP will include details of pre, during and post-construction water quality monitoring. Reflecting the level of risk, it is anticipated that this will be based on a combination of visual observations and in situ monitoring upstream and downstream of the working area.

11.7.5. Please refer to the Section 11.4 for details of temporary water supply proposals and the management of foul drainage.

Management of Flood Risk

11.7.6. Four indicative temporary construction compounds are located in Flood Zone 2 and 3 extents for Rivers and Sea. Whilst located in this extent, they benefit

from defences associated with the floodplain of the River Welland, resulting in low residual long term flood risk. The indicative construction compound located in land parcel A, north of the proposed 132kV Substation, and the construction compound located south of the 400kV Substation and BESS Compound, are both located within the Welland Breach flood extents.

11.7.7. As set out within the **Outline CEMP** (Doc Ref. 7.10), it is proposed that safe refuge is provided at these two compounds by locating a welfare cabin, either raised on a platform or stacked on top of the ground floor unit, set at a minimum of 4.3m AOD to provide freeboard for the River Welland breach event.

11.7.8. The indicative construction compound located south of Moulton Chapel Road will also provide safe refuge using the same approach as the other compounds and will be set at a minimum of 4.3m AOD. The indicative construction compound located northeast of Spalding, within the northern end of the Order Limits, will have the same mitigation measures as it is located in Flood Zone 3 extents and benefits from the defences associated with the floodplain of the River Welland.

11.7.9. Assuming a worst-case scenario and using the results from the River Welland breach model to assume 2m maximum flood depth in this area, safe refuge will be set at a minimum of 5.3m AOD. As the indicative temporary construction compound would be in place during the period of construction only, and will be returned to the existing current conditions, it is considered there would be no change to long term flood risk from all sources.

Watercourse Cable Crossings

11.7.10. Proposed cable crossings of watercourses are listed in **ES Appendix 2-1: Indicative Watercourse Crossing Schedule** (Doc Ref. 6.3) and their locations are shown on **ES Figure 2-3: Watercourse Crossings Locations** (Doc Ref 6.2).

11.7.11. In most cases, open-cut techniques will be used to install cables beneath water features. In such cases, water flow will be maintained and a dry working area temporarily created (e.g. by over-pumping or fluming around the works). The watercourses will be reinstated as found and water quality monitoring will be undertaken prior to, during, and following on from construction activity. Reinstatement will be informed by a Pre-works Hydromorphological and Riparian Corridor Survey. It will aim to maintain the baseline as a minimum but where possible provide an improved channel form and riparian corridor between 5m and 15m upstream and downstream of the open trench (or culverted access track crossing as discussed later) (within an easement of 15m

either side). This would be subject to agreement with relevant bodies and any management or maintenance commitments. Enhancements may consist of soft engineering techniques (where suitable) and improvements to the riparian corridor to improve channel diversity and biodiversity. Proposed survey and reinstatement proposals will be set out in a WFD Mitigation and Enhancement Strategy secured through the **Outline CEMP** (Doc Ref 7.10).

11.7.12. Trenchless crossings will be used to install cables beneath water features where considered appropriate. There are currently two watercourse crossings where the Scheme commits to only use trenchless watercourse crossings being, although this technique may also be used at other locations through the site, where considered appropriate or necessary:

- South Holland Main Drain connecting the northernmost section of land parcel D with the rest of land parcel D to the south of the South Holland Main Drain; and
- The Underground Inter-Array Connection which is required to cross the A16 and CRW01, connecting land parcel A to the rest of the Solar Development Area.

11.7.13. Although trenchless crossing methods avoids the need to excavate a cable trench through the channel, there are risks associated with the use of drilling fluids and plant close to the channel. For example, although rare, without due care there is a risk that drilling fluids, including naturally occurring minerals, can 'break out' into watercourses leading to pollution. There is also a need to manage drilling fluids and wastewater so that this will not be spilt into the channel when working close to the banks of a watercourse. Dewatering of excavations either side of the watercourse may also be required.

11.7.14. The method of trenchless, or non-intrusive watercourse crossings, seeks to minimise the risk of pollution of nearby watercourse. The send and receive pit excavations will be located at least 10m from the watercourse (measured from the water's/channel edge under normal flows) under which they will be directional drilled. Cables will be installed at a suitable depth to avoid impacting the channel or the bed, subject to design and ground conditions (at a minimum of 3m depth and maximum of 7m bgl). Details as to the parameters and controls for any trenchless crossings are further set out within the **Outline CEMP** (Doc Ref 7.10).

Watercourse Overhead Line Crossings

11.7.15. The methodology for the construction of the overhead lines will include the construction of the bases of the pylons, for the 400 kV OHL, and for the

insertion of the wooden H poles for the 132 kV OHL. The construction working area for the bases will be located a minimum of 10m from the nearest edge of surface water features, where practicable, and will comply with general construction good practice as detailed above. However, a number of the temporary construction working areas will be within 10m of watercourses. These include watercourse DGD02 for the working area of 4SV8; MMD02 for 4SV19; MMD04 for 4SV20; MMD09 for 4SV23; DDN06 for 4SV29; DDN08 for 4SV30; OED03 for 4SV33; and LOD08 for 4SV41. The locations of the pylons are shown in **ES Figures 2-4 and 2-7** (Doc Ref. 6.2).

Watercourse Temporary Crossings

11.7.16. Where there are 'field to field' watercourse crossing within the Grid Connection Route, these will be temporary and removed following completion of the construction works and the watercourses reinstated as described under 'Watercourse Cable Crossings'.

11.7.17. These temporary structures will be designed post DCO-consent with the same consideration as set out above for permanent crossings, but are expected to likely be of a pipe culvert design laid on gravel and a suitable geotextile across the bed and banks. Design principles for culverts are described in **ES Chapter 2: The Scheme** (Doc Ref. 6.1).

Operational Phase Mitigation

11.7.18. Detailed information on Scheme design and infrastructure is provided in **ES Chapter 2: The Scheme** (Doc Ref 6.1). These parameters are secured within **Design Parameters** (Doc Ref 7.4).

General Design Measures

11.7.19. The solar PV panels will be offset from watercourses by a buffer of 10m from the edge of wetted channel or the top of the bank of watercourses, whichever is greatest. This may require survey work (prior to construction) in some locations to adequately define and agree the top of bank position as this is variable.

11.7.20. New access tracks will also be buffered from watercourses other than where crossings are required. The watercourse buffer may be breached where surface water outfalls are required.

Management of Flood Risk

11.7.21. All substations, except the 132kV substation in Land Parcel D, will be bunded (either a bund or a wall) within the 0.1% Annual Exceedance Probability (AEP)

breach extents of the River Welland, or within the 0.1% AEP extent from the Postland or South Holland Main, Flood Extents, with bund or wall heights set above the highest flood depth of each extent where they overlap with each other, along with a freeboard of 0.3m. The boundary of 132kV Substation in Land Parcel D marginally encroaches into the 0.1% AEP plus climate change (Pump Off) scenario; however where the extents are present within the boundary there will be no infrastructure located; the remainder of the substation lies outside of the flood extents; therefore, bunding or a wall is not required.

11.7.22. The lower edge of solar PV panels will have a minimum height of 0.8m and can be raised by an additional 0.5m in areas of the flood extents discussed, up to 1.3m above ground, to remain operational in times of flood. The maximum height of any plinths used to raise solar stations above flood depths will be 0.8m in Parcels A, B, C and D with the exception of Parcel D-1, where it is 1.35m. Where solar stations are located within the flood extents and the plinths do not raise the solar stations above the worst-case flood depths and provide 0.3m freeboard (or 0.6m freeboard in Parcel D-1 only), they are to have a flood defence wall or bund for protection. A bund, wall or other suitable measure with a maximum crest height of 1.3m above ground is required for the southern CSEC to provide flood protection for the CSECs. These mitigation measures ensure residual fluvial flood risk to vulnerable infrastructure is low.

Access Track Crossings of Watercourses

11.7.23. Proposed access track crossings of watercourses are shown on **ES Figure 2.3: Watercourse Crossing Locations** (Doc Ref 6.2) and listed in **ES Appendix 2.1 Crossing Schedule** (Doc Ref 6.3).

11.7.24. Within the Solar Development Area, the majority of the proposed access tracks will utilise existing farm tracks, upgrading surfaces as required. The creation of new tracks will be minimised. Where existing access tracks cannot be utilised, access tracks up to 4m wide, consisting of hardcore or gravel over a levelling layer of substrate will be constructed. This is with the exception of the main operational access roads through the Solar Development Area, which will be up to a maximum of 6m wide, with occasional passing places up to 8m wide. In some locations new watercourse crossings will be required. As a worst-case adopting a precautionary approach, the use of culverts has been assessed.

11.7.25. During the operational phase within the Grid Connection Route, existing farm tracks will also be used to provide access for maintenance where possible. However, there will also need to be some permanent watercourse crossings installed where new access provision required from the local highway network. Although the access tracks surface will be temporary and removed following construction, for these locations the culvert crossing will be retained as a permanent feature should access be required during the operational phase or decommissioning phase. These locations are shown on **ES Figure 2-3** (Doc Ref 6.2) and listed in **ES Appendix 2-1** (Doc Ref 6.3).

11.7.26. The design of each crossing will be done post-DCO consent during the detailed design phase. Where culverts are required for permanent access watercourse crossings, the least impacting design that is reasonably practicable will be installed (e.g. arch rather than box culverts, and box culverts in preference to pipes etc.). Crossings may be up to approximately 10m wide, depending on the width of the relevant access. Other factors which will be addressed at detailed design include flow conveyance, peak flow rate, natural bed levels, angle to the flow and ensuring connectivity of aquatic species and riparian mammals.

11.7.27. The crossings will be sized at detailed design in order to not impact on flow conveyance and be sized to ensure capacity for the peak flow rate. The culvert inverts will be buried below the natural bed level to allow for natural bed formation and passage of sediments, at least 0.3m below. Where arch culverts are not provided, it has been assumed that the design of the structure will allow for a naturalised bed to be formed through the structure.

11.7.28. Also to be considered at detailed design stage is to ensure the crossing is perpendicular to the flow, located preferably on straight sections of channel, connectivity is maintained for aquatic species and riparian mammals, and with a mammal ledge if there is sufficient room. Perched inverts that create a drop from the structure to the downstream bed level will be avoided.

11.7.29. Unless they are an upgrade to an existing crossing in which case they will be retained, all temporary crossings will be removed after completion of the construction works and the watercourses reinstated informed by a Pre-works Hydromorphological and Riparian Corridor Survey as discussed earlier under ‘Watercourse Cable Crossings’.

Management of Fire Risk

11.7.30. An **Outline Battery Safety Management Plan (BSMP)** (Doc Ref. 7.18) has been prepared to support the DCO Application. This sets out the parameters for the management of fire risk associated with the BESS.

11.7.31. BESS containers would have automatic fire detection systems in place along with fire suppression systems. Water storage tanks and hydrants would be provided to have a storage volume up to approximately 360,000 litres to allow a discharge rate of approximately 1,500 litres per minute over a 4-hour period.

11.7.32. The specific measures to suppress fire will depend on the type of BESS that is selected for the Scheme at detailed design stage, but active fire-fighting is not proposed as this is typically ineffective for BESS fires (which are instead left to 'burn out').

11.7.33. In the unlikely event of a fire and water being used to cool adjacent structures, the runoff will be captured and removed off site by a tanker to an accredited lab for testing or disposal. In order to contain the external fire water runoff, the BESS compounds will be located over an impermeable foundation, with a basin with penstock valve proposed to be located north of the 400kV Substation and BESS compound, for any potentially contaminated water to run off to and be held.. The basin will then be cleaned of all contaminants. The fire water basin will be underlain with an impermeable liner to prevent any contaminants entering the ground via infiltration. During the cleaning of contaminants, inspection of the structure will be undertaken and repairs will be completed where any liner damage is detected.

Maintenance and Solar PV Panel Cleaning

11.7.34. An **Outline OEMP** (Doc Ref. 7.11) submitted alongside the DCO application will be in place for the operation and maintenance of the Scheme. The final OEMP (to be produced post-construction and prior to operation) will include measures to regulate the environmental effects of the operational phase of the Site, and to ensure any maintenance activities take place in a way to avoid and minimise any potential environmental impacts. This will include measures to manage the risk from pollution from small leaks and spillages from proposed infrastructure and maintenance activities. However, it is noted PV panels are not known to include any liquid components and so the potential for chemical leaks is minimal.

11.7.35. As stated in the **Outline OEMP** (Doc Ref 7.11), it is assumed that the solar PV panels will be cleaned around once per year, using clean water with no added

chemicals. This water will be sourced from commercial third-party local water suppliers, and not from the main supply or abstracted from a local source.

Outline Drainage Strategy

11.7.36. The outline surface water drainage strategy for the Scheme has been set out in **ES Appendix 11-4** (Doc Ref 6.3) for the Solar Development Area and the Grid Connection Route. The following is a summary of the embedded mitigation measures described within.

Solar Development Area and Inter-Array Connection

11.7.37. Surface water runoff for the Site will be intercepted with the use of swales placed across the Solar Development Area, where the water will collect in the swales and discharge into a local watercourse via a piped outfall or, where possible, via a new open green ditch at the QBar rate (i.e. the mean annual flood flow from a rural catchment). If a swale is located where there are no nearby watercourses, the water will infiltrate to ground, mimicking the existing drainage conditions. Two attenuation basins will be located north of the 400kV substation and BESS Compound to allow surface water runoff from the 400kV substation and BESS Compound to discharge into it by gravity, and to store firewater runoff in the event of a fire in the case of the BESS attenuation. The BESS attenuation basin will be lined to ensure that in the event of a fire and the capture of fire-fighting runoff, it can be contained. This is considered in more detail under 'Management of Fire Risk' in this section.

11.7.38. New operational access roads will be permeable. Therefore, the Site's access roads will not lead to an increase in impermeable area. The drainage regime of the access roads is therefore assumed to remain consistent with its pre-developed state.

Grid Connection Route

11.7.39. The Grid Connection Route construction compounds and CSEC compounds are proposed to drain via gravel filter trenches to a detention basin prior to a restricted discharge to the nearest watercourse. The basins have been sized to retain adequate surface water runoff for the 1 in 100-year (1% AEP) plus climate change event to ensure no flooding occurs downstream and for sufficient time to allow the settlement of sediments and pollutants.

11.7.40. The construction access tracks are proposed to drain to roadside swales which have been sized to retain adequate surface water runoff for the 1 in 100-year (1% AEP) plus climate change event to ensure no flooding occurs downstream and for sufficient time to allow the settlement of sediments and pollutants.

The discharge of surface water runoff from the swales is proposed to the nearest appropriate open watercourse. Access tracks for the most part will be temporary and thus upon completion shall be removed.

11.7.41. The OHL pylons will comprise a stone working area around the base during construction, with concrete footings which will result in a comparatively small amount of surface water runoff. The stone working area will be more than sufficient intercepting the minimal surface water runoff generated by the footings. Any surface water runoff from the stone working area would also be expected to be minimal and would be intercepted by the surrounding grass/vegetation. Following construction, the stone working area is to be removed with the existing surface reinstated, with the vegetation acting to intercept low order surface water runoff from the footings for the lifetime of the pylons. As such, no formal outfall to a watercourse will be required.

Drainage Outfalls

11.7.42. It is proposed that surface water will drain from the Scheme's surface water drainage system via swales to local receiving watercourses via a pipe outfall supported by a concrete headwall. This has been assessed as the reasonable worst-case option. However, in keeping with the current National Standards for SuDs Guidance[37] where possible, surface water will connect to receiving watercourses via a new open green ditch. Further detail is described in **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3). Where an engineered outfall is required, the following standard mitigation will be adopted:

- The design of the final connection of these ditches to the receiving watercourse will be done post-planning permission and during applications for Secondary Consents where not disapplied or otherwise in accordance with Protected Provisions.
- Outfalls (and ditches) will be angled downstream to meet the channel at between 30° and 60° angle downstream, with the topography of the bed of the ditch graded to the bed level in the receiving watercourse.
- The number and size of engineered outfalls will be kept to a minimum.

[37] Defra (2025) National standards for sustainable drainage systems (SuDS). Available online [Last accessed October 2025]. https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds [Accessed October 2025]

- They would be located to avoid the apex of any meandered or significant changes in channel sinuosity, recessed slightly into the bank so as not to protrude into the channel and to avoid the creation of 'dead spaces'.
- It is expected that pre-fabricated headwalls can be used avoiding the need to pour wet concrete close to a watercourse.

Foul Drainage

11.7.43. Once the Solar Development Area is operational, foul water drainage will only be required for the staffed control buildings within the On-Site Substation Compounds. These buildings will only be used by a small number of staff (estimated 10 operational employees); therefore, the anticipated foul flows from the building will be low. There are no public sewers within the vicinity of the On-Site Substation Compounds. As such, the foul water flows will be captured by a sealed cesspit, from where waste can be regularly pumped out by a specialist contractor for off-site disposal at a licenced waste facility (i.e. no discharges to ground or a watercourse are proposed).

Water Supply

11.7.44. Please refer to the Section 11.4 for details of water supply proposals.

Decommissioning Phase Mitigation

11.7.45. At the decommissioning stage the potential impacts to the water environment would be controlled by a DEMP. This would ensure that potential impacts are considered and controlled within the decommissioning process. An **Outline DEMP** (Doc Ref 7.12) is submitted with the DCO application.

Additional Permissions and Consents

11.7.46. The **Schedule of Other Consents and Licences** (Doc Ref 3.3) sets out the status of any secondary consents and how they will be applied or disapplied by the DCO. This includes Flood Risk Activity Permits, and Land Drainage Consents and Trade Effluent Consents which will be replaced by Protected Provisions. Please note that the electrical cable service crossing over a main river (FRA2) exemption[38] applies. With this exemption you can erect an electrical cable way and associated supports across a Main River where certain conditions are met.

[38] The Overhead Lines (Exemption) (England and Wales) Regulations 2009. Available at: https://www.legislation.gov.uk/uksi/2009/640/contents/made [Accessed October 2025]

11.7.47. The following water related permissions may still be required as they are not currently proposed to be disapplied, where regulatory position statements or exemptions do not apply:

- Water activity permit(s) from the Environment Agency under the Environmental Permitting Regulations (England and Wales) 2016[39] during construction;
- Full or Temporary Water Abstraction Licence under Section 24 of the Water Resources Act 1991[16];
- Temporary Water Impoundment or Transfer Licence under Section 25 of the Water Resources Act 1991[16].

11.7.48. Where additional permissions and consents are implemented, these are considered to form part of tertiary mitigation within the EIA, as they would be required regardless of the outcome of this assessment.

11.8. Assessment of Potential Impacts and Likely Significant Effects

11.8.1. The Scheme as outlined in **ES Chapter 2: The Scheme** (Doc Ref 6.1) has been considered in assessing the likely impacts and effects of the Scheme on the water environment, whilst considering the embedded mitigation described within this chapter.

Construction Phase

11.8.2. During construction, the following adverse impacts on the water environment may occur:

- Pollution of surface water (and any designated ecology sites that are water dependent and connected by other water features) due to deposition or spillage of soils, sediments, oils, fuels, or other construction chemicals, or through uncontrolled site run-off including dewatering of excavations;
- Temporary impacts on the hydromorphology of watercourses from open-cut watercourse crossings or temporary vehicle access as may be required;

[39] HM Government (2016) The Environmental Permitting (England and Wales) Regulations 2016, Available at: The Environmental Permitting (England and Wales) Regulations 2016 [Accessed: 13 March 2026].

- Temporary changes in flood risk from changes in surface water runoff (e.g. disruption of stream flows during any potential culvert construction works) and exacerbation of localised flooding, due to deposition of silt, sediment in drains, ditches; and
- Changes in flood risk due to the construction of solar PV panels, BESS Compound and On-site substations which may alter runoff from the Solar Development Area.

11.8.3. Any significant effects are summarised at the end of this section, with discussion presented below in the following paragraphs.

Pollution Risk To Surface Water Features

11.8.4. Construction activities such as earthworks, excavations, site preparation, levelling and grading operations result in the disturbance of soils. Exposed soil is more vulnerable to erosion during rainfall events due to loosening and removal of vegetation to bind it, compaction, and increased runoff rates. Surface runoff from such areas can contain excessive quantities of fine sediment, which may eventually be transported to watercourses where it can result in adverse impacts on water quality, flora and fauna.

11.8.5. Construction works within, along the banks and across watercourses can also be a direct source of fine sediment mobilisation. Other potential sources of fine sediment during construction works include water runoff from earth stockpiles, dewatering of excavations (surface and groundwater), mud deposited on site and local access roads, and that which is generated by the construction works themselves or from vehicle washing.

11.8.6. Generally, excessive fine sediment in runoff is chemically inert and affects the water environment through smothering riverbeds and plants, temporarily changing water quality (e.g. increased turbidity and reduced photosynthesis) and causing physical and physiological adverse impacts on aquatic organisms (such as abrasion or irritation).

11.8.7. During construction, fuel, hydraulic fluids, solvents, grouts, paints and detergents and other potentially polluting substances will be stored and/or used on-site. Leaks and spillages of these substances could pollute the nearby surface watercourses if their use or removal is not carefully controlled, and spillages enter existing flow pathways or water features directly. Like excessive fine sediment in construction site runoff, the risk is greatest where works occur close to and within water features.

11.8.8. Where a trenchless method is proposed for cable installation beneath a watercourse there is less direct impact on the channel and a lower risk from chemical spillages. However, trenchless methods require the excavation of launch and receiving pits, that may interact with groundwater, or require dewatering, which may need to be discharged to a watercourse. There is also a risk of drilling fluids breaking out and this can lead to pollution of the overlying watercourse.

11.8.9. The predicted effects on surface water receptors during construction are summarised in Table 11-9 and Table 11-19 with further details on impact pathways in the following sections.

11.8.1. As there are numerous small watercourses of low importance for water quality within the Solar Development Area, and the development will be set back from these drains by a minimum of 10 m from the top of the bank or water's edge (whichever is greater), direct impacts are unlikely to occur. It is possible that during construction surface water runoff will be discharged to these watercourses. Minor drains that have the same importance as one another but are not subject to a specific crossing or in close proximity to a construction compound, the BESS or substations, have been assessed and the effect reported together..

Construction of Solar Development Area and Associated Infrastructure

11.8.2. The watercourses within the Solar Development Area include the South Holland Main Drain and many unnamed channels. It is likely there are more minor surface water channels within the catchment contained within the Solar Development Area which feed into these watercourses. However, these channels may be so small as not to be mapped on OS, shrouded by hedgerows and other vegetation/visual obstructions, and / or ephemeral or intermittently flowing making them hard to identified. However, by their very nature, any unnamed drains such as this will be small and are considered to be of low importance for water quality and hydromorphology.

11.8.1. There is a potential for indirect temporary short-term pollution of surface water features during construction works to install the PV solar array and associated infrastructure, or spillages of potentially polluting chemical substances. This risk is greater in the location of the 400kV Substation and BESS Compound, 132kV Substations and construction compounds. The predicted effects on water quality during construction of the Solar Development Area and Inter-Array Connection are summarised in Table 11-9.

11.8.2. There is one access required over the South Holland Main Drain which will use an upgraded existing bridge. A single cable crossing is required, and this will be done using a trenchless technique. However, there are other direct works for access to drains that flow into the South Holland Main Drain, and Site runoff may need to be discharged directly into the watercourse. The predicted effects on South Holland Main Drain during construction of the Solar Development Area and Inter-Array Connection are summarised in Table 11-9.

Construction of Grid Connection Route

11.8.3. For all watercourses, whether the temporary works areas for pylons are outside of the 10m buffer zone or for the seven locations where the temporary works area for new pylons will be inside the 10m buffer zone of watercourses, indirect adverse impacts can be effectively managed by the implementation of standard mitigation measures as described in Section 11.7 Embedded Mitigation. All minor drains of the same importance as one another and not subject to a specific crossing or in close proximity to a construction compound, the BESS or substations, have been considered generically and summarised in Table 11-19.

On-site cabling

11.8.4. There will also be a requirement to cross water features for internal cabling connections between solar PV modules, solar stations and substations. The location of internal cabling crossings within the Solar Development Area are shown in **ES Figure 2-3** (Doc Ref 6.2) and **ES Appendix 2-1** (Doc Ref. 6.3). There are no monitored WFD reaches within the Solar Development Area as shown on **ES Figure 11-5** (Doc Ref 6.3) and these open cuts are on smaller, often ephemeral unnamed agricultural ditches crossings of low importance. The predicted effects on water quality during construction of on-site cabling within the Solar Development Area and Inter-Array Connection are summarised in Table 11-9.

Inter Array Cabling and Grid Connection Route

11.8.5. The predicted effects on the channel morphology, their riparian habitats, and the hydrological and sediment regimes during construction of the underground and overhead line sections of the Inter Array cabling and Grid Connection Route are summarised in Table 11-9 and Table 11-10. Open cut techniques have been assessed as a reasonable worst case scenario and will likely cause unavoidable short term, temporary adverse impacts on water quality. Given mitigation measures in place, these impacts will be a direct,

temporary and short term low adverse magnitude of impact in terms of water quality.

Access

11.8.6. For any watercourses within the Solar Development Area, the Inter Array Connection and Grid Connection Route that are to be permanently crossed by a new structure for access, there would be localised and permanent adverse impacts to the water feature's riparian and bank habitat, and localised shading effects to the watercourse bed habitat. The permanent crossings are outlined within **ES Appendix 2-1: Watercourse Crossing Schedul**e (Doc Ref. 6.3) and their location shown on **ES Figure 2-3 Watercourse Crossing Locations** (Doc Ref 6.2). This is on the assumption that other than the South Holland Main Drain, the design of the crossing is an arch or box culvert (with sunken invert) up to 10m long and noting the design mitigation described in Section 11.7 (e.g. no interruption of flow or sediment conveyance). Overall, with the proposed mitigation measures, including reinstatement of the channel as found, this would result in a likely direct, temporary and localised minor adverse impact.

Outfalls

11.8.7. Given the underlying ground conditions of the Solar Development Area, where the soils underlying the Site are classified as loamy and clayey soil with coastal flats with naturally high groundwater levels, it is preferred to utilise surface water bodies to discharge runoff from the Solar Development Area. Therefore, surface water runoff from the swales is proposed to be prioritised to local watercourses. The discharge to these watercourses will be via pipe outfall. The flow control will use a restriction on the outlet of the swale which will hold water back within the swale and release it at a controlled rate. Temporary drainage outfalls will also be baffled to dissipate flow and sediment input and sandbags to prevent bed and bank erosion.

Temporary Impacts on the Hydromorphology of Watercourses

11.8.8. For the open cut crossings of watercourses for the underground cables for the Inter-Array Connection and where required for the Grid Connection Route, there will be short term, temporary adverse impacts on the channel morphology, their riparian habitats, and the hydrological and sediment regimes during construction.

11.8.9. There is also a requirement to cross water features for on-site solar PV cabling, this includes unnamed drains. For small unnamed ditches of low importance it is proposed that intrusive techniques will be used.

11.8.10. Where trenchless methods are used for crossing watercourses, it is considered unlikely that there would be any impact on the hydromorphology of watercourse.

11.8.11. There is also a requirement for the temporary crossing of watercourses during the construction of the Grid Connection Route for access tracks. These are likely to be pipe structures supported by gravel and sand bags and laid on a suitable geotextile. They will cause unavoidable impacts to channel morphology but the impact will be temporary as the structure would be removed following completion of the works and the channel reinstated based on a Pre-Works Hydromorphology and Riparian Corridor Survey.

11.8.12. The predicted effects on hydromorphology during construction of the Solar Development Area and Inter-Array Connection, and Grid Connection Route are summarised in Table 11-9 and Table 11-10 respectively.

Table 11-9: Summary of the potential impacts and effects on water quality and hydromorphology during construction of the Solar Development Area and Inter-Array Connections

(see **ES Appendix 11-6 Hydrology Impact Assessment Summary Tables** (Doc Ref. 6.3) for details of the potential impacts and effects per each water feature).

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
WEL01	Watercourses that are a tributary to the River Welland may be impacted by the Scheme and these impacts may propagate downstream.	High importance for water quality	Indirect, temporary, negligible adverse impacts to WEL01 and its abstractions via pollution risk to other watercourses. Although there are multiple pollution pathways along different watercourses, there will be dilution and dispersion of chemical pollutants, and settlement of particulates in the immediately affected watercourses upstream of the River Welland. Additional dilution and dispersion will take place in the River Welland itself.	Slight adverse (not significant)
PMD01	Upgrade of existing culvert for access track crossing; open cut on-site cabling	Medium importance for water quality	Direct, temporary, minor adverse impact for upgrade of access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport processes during construction.	Slight adverse (not significant)
PMD02 ERD01 DND01 SHD03 FLD03	New culvert for access track crossing; open cut on-site cabling.	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade of access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport processes during construction.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
FLD04 FLD05				
PMD03	New culvert for access track crossing; open cut on-site cabling. Potential for indirect impacts from construction compound runoff.	Low importance for water quality	Direct, temporary and minor adverse impact for new access track culvert construction. Potential for indirect impacts from construction compound runoff.	Slight adverse (not significant)
	New culvert for access track crossing; open cut on-site cabling.	Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport processes during construction.	Slight adverse (not significant)
CLD01	One new culvert and one existing culvert upgrade for access track crossings; open cut underground cable crossing; Potential for indirect impacts from construction compound and substation site runoff.	Low importance for water quality	Direct, temporary, minor adverse impact for new and upgraded access track culvert. Potential for indirect impacts from construction compound and substation site runoff. Direct, temporary, low adverse impact for open cut cable crossing.	Slight adverse (not significant)
	One new culvert and one existing culvert upgrade for access track crossings; open cut underground cable crossing.	Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
CLD02	Upgrade of existing culvert for access track crossing; open cut on-site cabling; Potential for indirect impacts from construction compound runoff.	Low importance for water quality	Direct, temporary, minor adverse impact for new access track culvert. Potential for indirect impacts from construction compound runoff.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
CLD04	Potential for indirect impacts from construction compound runoff.	Low importance for water quality	Potential for indirect, temporary, minor adverse impacts from construction compound runoff.	Slight adverse (not significant)
BHB01 BHB02	Open cut cable crossing	Medium importance for water quality	Direct, temporary, minor adverse impact to BHB01/BHB02 and their abstractions for new open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
CRW02 WMD02 WMD03	Open cut cable crossing	Low importance for water quality	Direct, temporary, minor adverse impact for new open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
CRW01	Trenchless cable crossing	Low importance for water quality	Direct, temporary, negligible adverse impact for trenchless cable crossing.	Neutral (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
		Low importance for hydromorphology	No change impact on hydromorphology.	Neutral (not significant)
CRW03	One new culvert and one culvert upgrade for access track crossings; open cut on-site cabling	Low importance for water quality	Direct, temporary, minor adverse impact for new access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
CLD03 CRW04 QBD03 UND01 DIV02 TIN02 LAM02 LAM03 LAM04 LAM05 SHD04	Upgrade of existing culvert for access track crossing; open cut on-site cabling	Low importance for water quality	Direct, temporary, minor adverse impact for new access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
CXD01	Two upgrades to existing culverts for access track crossings; open cut cable crossing; Potential for	Medium importance for water quality	Direct, temporary, minor adverse impact to CXD01 and its abstractions for upgrades to existing access track culvert. Direct, temporary, low adverse impact for open cut	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
	indirect impacts from construction compound runoff.		cable crossing; Potential for indirect impacts from construction compound runoff.	
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
QBD01	Open cut or trenchless cable crossing (assumed open cut as worst-case scenario)	Low importance for water quality	Direct, temporary, minor adverse impact for open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
QBD02	Open cut cable crossing. Potential for indirect impacts from construction compound and substation site runoff.	Low importance for water quality	Direct, temporary, minor adverse impact for open cut cable crossing. Potential for indirect impacts from construction compound and substation site runoff.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
WHD01 WHD02	Upgrade of existing culvert for access track crossing; open cut on-site cabling	Lowimportance for water quality	Direct, temporary, minor adverse impact for upgrade of access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
MRD01	Upgrade of existing culvert for access track crossing; open cut on-site cabling and trenchless cable crossing.	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade of existing access track culvert. Direct, temporary, negligible adverse impact for trenchless cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction. No change impact from trenchless crossing method.	Slight adverse (not significant)
UND02	New culvert for access track crossing; open cut on-site cabling; Potential for indirect impacts from construction compound runoff.	Low importance for water quality	Direct, temporary, minor adverse impact for new access track culvert. Potential for indirect impacts from construction compound runoff.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
DIV01 TIN01	Overhead Inter-Array Connection	Low importance for water quality	No change impact	Neutral (not significant)
		Low importance for hydromorphology	No change impact	Neutral (not significant
LGR01	Upgrades of existing culverts for access tracks; open cut on-site cabling; trenchless cable crossing	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade of access track culvert. Direct, temporary, negligible adverse impact for trenchless cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction. No change impact for trenchless cable crossing	Slight adverse (not significant)
LAM01	Overhead Inter-Array Connection	Medium importance for water quality	No change impact	Neutral
		Low importance for hydromorphology	No change impact	Neutral
FLD02	Two new culverts for access track crossings; open cut on-site cabling	Low importance for water quality	Direct, temporary, minor adverse impact for new access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
FLD06	Trenchless cable crossing	Low importance for water quality	Direct, temporary, negligible impact for trenchless cable crossing.	Neutral (not significant)
		Low importance for hydromorphology	No change impact on hydromorphology	Neutral (not significant)
SHD01	Trenchless cable crossing	High importance for water quality	Direct, temporary, negligible impact for trenchless cable crossing.	Neutral (not significant)
		Medium importance for hydromorphology	No change impact on hydromorphology	Neutral (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
SHD02	One new culvert and one existing culvert upgrade for access track crossings; open cut on-site cabling	Low importance for water quality	Direct, temporary, minor adverse impact for new culvert and upgrades to existing access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport during construction.	Slight adverse (not significant)
Numerous unnamed drains and ditches	Potential for indirect impacts from site runoff including construction compounds.	Low importance for water quality	Indirect, temporary, minor adverse impacts from Site runoff.	Slight adverse (not significant)

Table 11-10 Summary of the potential impacts and effects on water quality and hydromorphology during construction of the Grid Connection Route

(see **ES Appendix 11-6 Hydrology Impact Assessment Summary Tables** (Doc Ref. 6.3) for details of the potential impacts and effects per each water feature)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
SHD01	An existing bridge will be upgraded for access track crossing	High importance for water quality	Direct, temporary, minor adverse impact for new bridge for access track crossing.	Slight adverse (not significant)
		Medium importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary bridge.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
WMD01	New culvert for permanent access track crossing, and two new open-cut cable crossings	Medium importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open-cut cable crossings.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open-cut cable crossings.	Slight adverse (not significant)
WMD02	Upgrade of existing culvert for permanent access track crossing. Potential for indirect impacts from construction runoff discharged from swales.	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade to culvert for temporary access track crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
WMD03 DGD01 ADD01 ADD03	Upgrade of existing culvert for permanent access track crossing	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade to culvert for permanent access track crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from permanent access track culvert.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
WMD04 DGD02 DGD03 DGD05 DGD06 DGD08 DGD09 MMD03 MMD04 MMD06 ADD02 MDN01 DDN04 DDN07 DDN08 OED02 OED03 OED04 OED05 OED06	New culvert for temporary access track crossing	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
LOD06 LOD07	New culvert for temporary access track	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open-cut cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
LOD08 LOD09 LOD11 LOD12	crossing; open-cut cable crossing	Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open-cut cable crossing.	Slight adverse (not significant)
UND03	Upgrade of existing culvert for permanent access track crossing. Potential for indirect impacts from construction runoff discharged from swales.	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade to culvert for temporary access track crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
DGD04 MMD07 WMD05 WMD06 DGD10	New culvert for permanent access track crossing	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
DGD07	Open cut or trenchless cable crossing (assumed open cut as worst-case scenario). Potential for indirect impacts from construction runoff discharged from swales.	Low importance for water quality	Direct, temporary, minor adverse impact for open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from open cut cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
MMD01	Upgrade of existing culvert for permanent access track crossing. Potential for indirect impacts from construction runoff discharged from swales.	Low importance for water quality	Direct, temporary, minor adverse impact for upgrade to culvert for temporary access track crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
MMD02	One upgrade of existing culvert for permanent crossing and one new culvert for temporary access track crossing	Low importance for water quality	Direct, temporary, minor adverse impact for open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
MMD05	New culverts for permanent and temporary access track crossing; trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cabling.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
MMD08	New culvert for permanent access track crossing; trenchless or	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
	open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert. Direct, temporary, minor adverse impact on hydromorphology for open cut cable crossing.	Slight adverse (not significant)
MMD09	Trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology for open cut cable crossing.	Slight adverse (not significant)
ADD04	Trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for open cut crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from open cut crossing.	Slight adverse (not significant)
DDN02	New culverts for permanent access track crossing; trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from permanent access track culvert and open cut cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
DDN01	New culvert for permanent access track crossing; trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, permanent, minor adverse impact on hydromorphology and sediment transport from permanent access track culvert and open cut cable crossing.	Slight adverse (not significant)
DDN03	Two new culverts for temporary access track crossing	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert.	Slight adverse (not significant)
DDN05	New culvert for temporary access track crossing; trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
DDN06	New culvert for temporary access track crossing; trenchless or	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
	open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
DDN07	New culvert for temporary access track crossing; trenchless or open-cut crossing for undergrounding of existing power cables (assume open-cut)	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open cut cable crossing.	Slight adverse (not significant)
LOD01	Three new culverts for temporary access track crossing.; two open-cut cable crossing. Potential for indirect impacts from construction runoff discharged from swales.	Medium importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert and open-cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert and open-cut cable crossings.	Slight adverse (not significant)
LOD02	Upgrade of existing culvert and two new	Low importance for water quality	Direct, temporary, minor adverse impact for new culverts and upgrade to culvert for	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
	culverts for temporary access track crossing; open-cut cable crossing		temporary access track crossing, and open-cut cable crossing.	
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from new temporary access track culverts, culvert upgrades and open-cut cable crossing.	Slight adverse (not significant)
LOD03	New culvert and upgrade of existing culvert for temporary access track crossings; open-cut cable crossing	Low importance for water quality	Direct, temporary, minor adverse impact for new culvert and upgrade to culvert for temporary access track crossing, and open-cut cable crossing	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culverts, and open-cut cable crossing.	Slight adverse (not significant)
LOD04 LOD05	Two new culvert for temporary access track crossing; open-cut cable crossing	Low importance for water quality	Direct, temporary, minor adverse impact for new temporary access track culvert; open-cut cable crossing.	Slight adverse (not significant)
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from temporary access track culvert; open-cut cable crossing.	Slight adverse (not significant)
LOD10	Open-cut cable crossing	Low importance for water quality	Direct, temporary, minor adverse impact for open-cut cable crossing.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
		Low importance for hydromorphology	Direct, temporary, minor adverse impact on hydromorphology and sediment transport from open-cut cable crossing.	
DGD01	Temporary construction area for pylon 4SV8 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
MMD01	Temporary construction area for pylon 4SV19 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
MMD04	Temporary construction area for pylon 4SV20 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
MMD09	Temporary construction area for pylon 4SV23 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
DGD06	Temporary construction area for pylon 4SV29 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)

Water feature	Interaction with Scheme	Importance	Magnitude of Impact	Significance of Effect
DGD08	Temporary construction area for pylon 4SV30 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
OED03	Temporary construction area for pylon 4SV33 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
LOD08	Temporary construction area for pylon 4SV41 encroaches within 10 m buffer	Low importance for water quality	Potential for indirect, temporary minor adverse impacts from Site runoff.	Slight adverse (not significant)
Numerous unnamed drains and ditches	Potential for indirect impacts from site runoff including construction compounds.	Low importance for water quality	Indirect, temporary, minor adverse impacts from Site runoff.	Slight adverse (not significant)

Flood Risk Solar Development Area and Inter-Array Connections

11.8.13. During the construction phase, flood risk resulting from the construction within the Solar Development Area is not envisaged to impact fluvial, tidal, groundwater, sewers, or artificial sources of flooding within or surrounding the Site. The increase in surface water runoff rates as a result of the with-Scheme scenario will be managed by the construction of sustainable drainage techniques proposed to mimic the pre-Scheme conditions detailed within **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3), resulting in no impact to flooding from surface water sources within or surrounding the Site during the construction phase.

11.8.14. A summary of the pre- and construction phase scenario flood risk levels for all sources within the Site on construction activities and infrastructure is provided below, and the adverse effect of each flood risk is assessed based on Table 11-6 above. The receptor of importance is assessed with the magnitude of impact to provide an adverse effect category.

Fluvial Flood Risk

11.8.15. The pre-development fluvial flood risk to the Site is high. The construction phase flood risk level is considered to be high. The discharge from impermeable areas detailed in **ES Appendix 11-4 Outline Drainage Strategy** (Doc Ref 6.3) are to be restricted to Greenfield rates, mitigating increases to peak river flow rates. Solar PV Panel infrastructure within Flood Zones 2/3 is not envisaged to alter the existing flood extents' topography. Where solar stations, the 400kv substation and BESS, and 132kV substations are located within the flood extents, they are to have a flood defence wall or bund for protection, with no material increase in flood risk. The Inter Array Connections require no mitigation to existing flood risk. The adverse effect of each flood risk is classified based on Table 11-6 above. For fluvial flood risk, the magnitude of impact is considered to be no change in flood risk level. For all receptors, a no change impact results in a neutral effect (not significant). Therefore, the Solar Development Area and Inter-Array Connections are assessed to result in a **neutral effect (not significant)**.

Tidal Flood Risk

11.8.16. The pre-development tidal flood risk level is low. The construction phase flood risk level is also considered to be low. The tidal limit of the River Welland is controlled by the tidal sluices, at Fulney Lock, in Spalding. Therefore, tidal risk is a low residual risk from the River Welland, if the lock was to fail or overtop. The River Nene tidal limit is at Dog in a Doublet Lock, north of Peterborough;

tidal flood risk or overtopping of the Nene defences does not impact the Scheme, resulting in a **neutral effect (not significant)**. This is because, based on Table 11-6, the magnitude of impact for tidal flood risk is considered to be no change in flood risk, and for all receptors, a no change impact results in a neutral effect (not significant).

Rivers and Sea Flood Risk

11.8.17. The pre-development flood risk from rivers and sea ranges from low to medium. The construction phase flood risk level is also considered to have the same range of flood risk. This is due, for the majority of the Scheme being protected by flood defences, providing protection against a flood event with a 0.1% AEP, plus climate change, chance of occurring in any year (1 in 1000) by the Crowland-Cowbit Washes and embankment, for the River Welland. Therefore, **no change** in flood risk level.

11.8.18. The receptor of importance is assessed with the magnitude of impact to provide an adverse effect category, based on Table 11-6 above. With embedded mitigation being commenced during the construction phase to ensure the Scheme's contribution to flood risk is not increased, the construction of the Scheme will result in a no change magnitude of impact for rivers and sea flood risk, and for all receptors, a no change impact results in a **neutral effect (not significant)**.

Surface Water Flood Risk

11.8.19. The pre-development flood risk from surface water ranges from low to high. The construction phase flood risk level ranges from low to high. Increased surface water runoff is proposed to be managed to mimic the pre-development conditions for up to and including the 1 in 100 + 40% climate change event. Therefore, there is **no change** in flood risk level.

11.8.20. With the drainage design mimicking the natural flow from the Site, and this being commenced during the construction phase, the construction of the Scheme will result in a no change magnitude of impact for surface water flood risk, and for all receptors, a no change impact results in a **neutral effect (not significant)**.

Groundwater Flood Risk

11.8.21. The pre-development groundwater flood risk level is low. The construction phase flood risk level is also considered to be low. Groundwater risk will be mitigated by discharging surface runoff to watercourses and using shallow swales, therefore not increasing risk of groundwater flooding. Platform levels

will be set above the fluvial flood risk levels by at least 0.3m which will mitigate against groundwater emergence. Any infiltration that will occur if proposed swales are not in close proximity to a nearby watercourse where they will be able to discharge excess runoff, will mimic pre-development conditions. The construction of the Scheme will result in a no change magnitude of impact for groundwater flood risk, resulting in a **neutral effect (not significant)**.

Sewer Flood Risk

11.8.22. The pre-development sewer flood risk level is low. The construction phase flood risk level is also considered to be low. The Scheme has no proposed connection to public foul or surface water sewers. The construction of the Scheme will result in a no change magnitude of impact for sewer flood risk, resulting in a **neutral effect (not significant).**

Artificial Sources Flood Risk (Reservoir)

11.8.23. The pre-development artificial sources flood risk level is high from Reservoirs, there are no other artificial sources of flood risk within or in the vicinity of the Scheme. The construction phase flood risk level is also considered to be high. The Environment Agency's Reservoirs Map on the long term flood mapping online[40] shows the Site is seen to be at risk of flooding from reservoirs, apart from the east of the Site boundary, which shows no risk of flooding. This is due to the nearby reservoirs, Eyebrook Reservoir and Rutland Water that are located far west of the Scheme. The Scheme does not interact with the reservoir flood extents and so will result in a no change magnitude of impact for reservoir flood risk. This results in a **neutral effect (not significant)**.

11.8.24. The change of land use within the Site has the potential to result in a change in flood potential to off-site receptor, such as more vulnerable residential housing, high importance receptor. Based on the flood risk summary of the construction phase above, there will be a no change magnitude of impact on the high importance receptor. Based on Table 11-6, this results in a **neutral effect** (not significant).

Flood Risk: Grid Connection Route

11.8.25. During the construction phase, the flood risk resulting from the construction within the Grid Connection Route is not envisaged to impact fluvial, tidal, groundwater, sewers, or artificial risk levels of flooding within or surrounding

[40] Long Term Flood Risk map: https://www.gov.uk/check-long-term-flood-risk [Accessed October 2025]

the Site. The increase in surface water runoff rates as a result of the with-Scheme scenario will be managed by the construction of sustainable drainage techniques proposed to mimic the pre-Scheme conditions detailed within and secured through the **Outline CEMP** (Doc Ref 7.10) , resulting in no impact to flooding from surface water sources within or surrounding the Site during the construction phase.

11.8.26. A summary of the pre- and construction phase scenario flood risk levels for all sources within the Site is provided below, and the adverse effect of each flood risk is assessed based on Table 11-6 above. The receptor of importance is assessed with the magnitude of impact to provide an adverse effect category.

Fluvial Flood Risk

11.8.27. The pre-development fluvial flood risk to the Site is high. The construction phase flood risk level is considered to be medium to high. The discharge from impermeable areas detailed in the **ES Appendix 11-4 Outline Drainage Strategy** (Doc Ref 6.3) are to be restricted to Greenfield rates, mitigating increases to peak river flow rates. Access road and Steel Lattice Pylon infrastructure within Flood Zones 2/3 is not envisaged to alter the existing flood extents' topography and are considered to cause no increase in flood risk to the Scheme or elsewhere. For fluvial flood risk, the magnitude of impact is considered to be no change in flood risk level. For all receptors, a no change impact results in a **neutral effect (not significant)**.

Tidal Flood Risk

11.8.28. Pre-development fluvial flood risk to the Site is high. The construction phase flood risk level is considered to be medium to high. The scheme is not influenced by tidal flooding, unless during a breach of the Welland defences. The Scheme does not involve any impact on existing flood defences, resulting in a **neutral effect (not significant)**. This is because, based on Table 11-6, the magnitude of impact for tidal flood risk is considered to be no change in flood risk, and for all receptors, a no change impact results in a neutral effect (not significant).

Groundwater Flood Risk

11.8.29. The pre-development groundwater flood risk level is low. The construction phase flood risk level is also considered to be low in the Grid Connection Route with minimal disturbance to ground during construction of the steel lattice pylons. Groundwater risk will be mitigated by discharging surface runoff to watercourses and using shallow swales form access roads and impermeable compounds, including the Cable Sealing End Compounds (CSEC), therefore

not increasing risk of groundwater flooding. Finished Floor levels of compound buildings will be set by at least 0.3m which will mitigate against groundwater emergence. Any infiltration that will occur if proposed swales are not in close proximity to a nearby watercourse will mimic pre-development conditions. The construction of the Scheme will result in a no change magnitude of impact for groundwater flood risk, resulting in a **neutral effect (not significant)**.

Artificial Sources Flood Risk

11.8.30. The pre-development artificial sources flood risk level is high from Reservoirs, there are no other artificial sources of flood risk within or in the vicinity of the Scheme. The construction phase flood risk level is also considered to be high. The Environment Agency's Reservoirs Map on the long term flood mapping online shows the Site is seen to be at risk of flooding from reservoirs in the southern portion of the Grid Connection Route. This is due to the nearby reservoirs, Eyebrook Reservoir and Rutland Water that are located far west of the Scheme. The Scheme does not interact with the reservoir flood extents. This results in a **neutral effect (not significant)**.

Operational Phase

Solar Development Area

11.8.31. During the operational phase for the Solar Development Area, the following potential adverse impacts may occur:

- Impacts on surface water quality from run-off and the potential for accidental spillages during maintenance activities;
- Impacts surface water quality as a result of the use of firewater in the event of a fire in the BESS Compound;
- Impacts on hydrology including subsequent impacts on aquatic habitats and water-dependent nature conservation sites;
- Permanent hydromorphological impacts to watercourses;
- Impact on local water supplies from water usage in a 'water stressed' area; and
- Impacts on the rate and volumes of surface water run-off entering local watercourses and subsequent increase in flood risk.

11.8.32. These are summarised in Table 11-11 at the end of this section, with discussion presented below in the following paragraphs. In addition to the above, there is the potential for indirect beneficial impacts to the water

environment through a possible reduction of agricultural chemical inputs to watercourses / reduction in pesticide use on crops within the local area resulting in an increase in invertebrate abundance and diversity, though this is hard to quantify and no effect score has been reported.

Impacts from Operational Site Runoff and Spillage Risk

11.8.33. The drainage arrangements propose to attenuate surface water runoff within lined swales within the Solar Development Area once operational, whilst minimising flood risk to the Scheme and surrounding areas (see Section 11.7). More detailed surface water drainage proposals are presented in the **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3).

11.8.34. Within the area of solar PV panels, the impermeable area will remain largely consistent with its pre-development state as solar PV panels are elevated above ground and incident rainfall will run off them to ground as it does now. Evidence of this was found in a study by Cook and McCuen (2013)[41], where it states that solar panels have a non-significant impact on peak run-off volumes and time to reach peak runoff. The study also states that it is recommended grass is well maintained under the panels or that a buffer strip is placed after the most downgradient row of panels to prevent increase in runoff and soil erosion.

11.8.35. In order to limit the potential for channelisation from rainfall dripping off the end of the solar PV panels, the areas between, under and surrounding the solar PV panels will be planted with semi-improved grassland, of which an indicative species mix can be found in the **Outline Landscape and Ecology Management Plan** (OLEMP) (Doc Ref. 7.16). This planting will intercept and absorb rainfall running off the panels, preventing it from concentrating and potentially forming channels in the ground.

11.8.36. The chemical pollutant risk from surface water runoff will mainly be low. In addition to solar PV panels, there will be runoff from hardstanding areas such as the On-Site 400kV Substation and BESS Compound, 132kV Substations, and access tracks. The buildings within the substations will be investigated for the viability of rainwater harvesting during detailed design stage. The Pollution Hazard Index and suitability of the proposed treatment trains is included

[41] Cook and McCuen (2013) Hydrologic Response of Solar Farms, Journal of Hydrologic Engineering 18(5):536-541.

within **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3). This concludes the treatment train provided is sufficient for the level of risk, noting that electrical equipment containing oils (e.g. transformers) will be self-bunded and SuDS lined to prevent infiltration. However, if required additional proprietary measures could be added.

11.8.37. Overall, given the implementation of a drainage strategy, it is predicted that there would be a negligible adverse impact to receiving watercourses during operation. On low important water features (i.e. PMD02, PMD03, CLD01, CLD02, CLD04, CRW01, CRW02, CRW03, QBD02, QBD03, WHD02, UND02, LAM01, LGR01, FLD03, FLD04, SHD02, SHD03, SHD04) this results in a **neutral effect (not significant).** For medium and high importance watercourses this results in a **slight adverse effect (not significant).**

Risk of surface water pollution from a fire affecting the BESS

11.8.38. The management of battery fire safety is provided in the **OBSMP** (Doc Ref 7.18). Compliance with this plan will be secured through the **Draft DCO** (Doc Ref 3.1).

11.8.39. With the embedded mitigation measures around the management of fire risk, and the **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3) that will ensure any fire water is intercepted and prevented from discharging to a watercourse, it is considered there will be a very low risk to the water environment and a minor adverse impact is predicted on a precautionary basis. On watercourses of low importance this results in a **neutral effect (not significant).** For medium and high importance watercourses this results in a **slight adverse effect (not significant).**

Potential impacts on hydrology

11.8.40. Once the Solar Development Area is operational, there is the potential for hydrological changes to the flow in local watercourse. This may occur from a change in the rate and volume of surface water runoff to receiving watercourses or from changes to catchment flow pathways. However, the **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3) has been designed so as to mimic the natural drainage conditions within the Order Limits and ensure no impact on the flow in receiving surface water features. Surface water runoff will be collected and treated in swales and will be discharged to watercourses at existing greenfield runoff rates by restricting rates using a flow control device. The watercourses potentially impacted have been informed by **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3)), where surface water runoff will be discharged from the proposed swales to

the closest watercourse. The exact locations will be confirmed at detailed design and therefore the watercourses assessed may be subject to change, although all watercourses that might receive surface water runoff are considered to be of low importance for hydromorphology. Therefore, it is considered that there would be no material changes to baseline conditions. A no change impact results in a **neutral effect (not significant).**

Access

11.8.41. Hydromorphological impacts associated with the placement of new structures for crossing watercourses has been assessed under the Construction Phase as this is the point at which the impact first occurs regardless of the fact that the physical impact is permanent and long term for the lifetime of the development or as long as the structure remains in place. These impacts are therefore not reported under the Operational Phase to avoid double counting.

Outfalls

11.8.42. The Scheme may require new pipe outfalls for operational drainage. Exact locations will be determined after the DCO at detailed design stage. Soft green ditch connections will be used where possible (noting that uninterrupted access along the bankside of IDB watercourses is required for maintenance) but engineered outfalls have been assessed as the reasonable worst case option. The final location, position and orientation of any new outfall will be carefully determined and informed by a Hydromorphological Survey at detailed design stage post-DCO consent to minimise any adverse local impacts on river processes, as described in Section 11.7. Although the precise location of outfalls is not known, all potential receiving watercourses are considered to be of low importance for hydromorphology across the Solar Development Area. Overall, the presence of new engineered outfalls providing discharge of surface water runoff will result in a localised, direct, permanent and long term low adverse impact, which will result in a **negligible adverse effect (not significant).**

Potential impacts on the rate and volume of surface water discharge and flooding potential from the Solar Development Area

11.8.43. The proposed Solar Development Area incorporates a sustainable drainage strategy designed to manage surface water runoff in accordance with current best practice and relevant guidance. The strategy ensures that post-development runoff rates and volumes will not exceed existing (greenfield) conditions. As a result, the proposed development will not increase flood risk either on-site or off-site.

11.8.44. Given the effective management of surface water within the Solar Development Area and the absence of any measurable change to existing hydrological conditions or flood risk, the potential impact on surface water discharge and flooding results in a negligible adverse impact. Accordingly, the effect is considered to be not significant in EIA terms, resulting in a **negligible adverse effect (not significant)**.

Inter-Array Connections and Grid Connection Route

11.8.45. Hydromorphological impacts associated with the placement of new structures for crossing watercourses has been assessed under the Construction Phase as this is the point at which the impact first occurs regardless of the fact that the physical impact is permanent and long term for the lifetime of the development or as long as the structure remains in place. These impacts are therefore not reported under the Operational Phase to avoid double counting.

Decommissioning Phase

11.8.46. Potential impacts from the decommissioning of the Scheme are similar in nature to those during construction, as some ground works would be required to remove infrastructure installed. A separate assessment of decommissioning effects is therefore not provided. A **Outline Decommissioning Environmental Management Plan (DEMP)** (Doc Ref 7.12) is included with the DCO Application. This sets out the general principles to be followed in the decommissioning phase of the Scheme. A detailed Decommissioning Environmental Management Plan (DEMP) will be prepared prior to decommissioning to identify required measures to prevent pollution and flooding during this phase of the development. This must be prepared in substantial accordance with the **Outline DEMP** (Doc Ref 7.12) as per the **Draft DCO** (Doc Ref 3.1).

11.8.47. The mode of cable decommissioning for the underground cable in the Grid Connection Route, On-Site Cables within the Solar Development Area and Underground Inter-Array Connection will be dependent upon government policy, good practice and the agreed approach with landowners at that time. If required, the cables can be removed by opening up the ground at regular intervals and pulling the cable through to the extraction point, avoiding the need to open up the entire length of the cable routes.

11.8.48. Overall, with the implementation of good practice and noting that site access would have been already installed, **no significant adverse effects (not significant)** on any water feature is predicted.

11.9. Additional Mitigation, Monitoring and Enhancements

11.9.1. Commitments to embedded design mitigation and measures to manage the pollution risk to the water environment during construction, operation or decommissioning works have been described in Section 11.7 Embedded Mitigation and are secured through the **Outline CEMP** (Doc Ref 7.10), **Outline OEMP** (Doc Ref 7.11), **Outline DEMP** (Doc Ref 7.12) and **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref 6.3). They are therefore considered to be part of the Scheme and not 'additional' mitigation.

11.9.2. Opportunities to provide enhancement of watercourses impacted by new physical structures (e.g. culverts) will be considered in consultation with SHIDB and NLIDB. Enhancement opportunities would be commensurate to the modified nature of the watercourses on the Site and may be limited to simple bedforms or riparian enhancement, subject to agreement with the IDB. This is secured through the **Outline CEMP** (Doc Ref 7.10). However, as opportunities for enhancement are not considered required as no significant adverse effects on water features are predicted, they have not been considered in the assessment of residual effects.

11.10. Residual Effects

11.10.1. The residual effects of the Scheme during the construction, operational and decommissioning phases are outlined within Table 11-11. Based on this assessment no significant adverse effects have been identified.

Table 11-11: Summary of Residual Effects in relation to hydrology and flood risk

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
Construction and Decommissioning Phase					
WEL01 (and abstractions)	Water quality impacts to watercourses that are a tributary of the River Welland may propagate downstream.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – Not significant	No additional measures	Slight adverse -Not significant
PMD01 and tributaries CLD01 and tributaries	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open-cut cabling. Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – Not significant	No additional measures	Slight adverse- Not significant
BHB01 and tributary (and abstractions)	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments,	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – Not significant	No additional measures	Slight adverse – Not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	accidental spillages) of open cut cabling. Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.				
CRW01	Water quality impacts to surface water feature from trenchless crossing.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10). Appropriate trenchless crossing methodology	Neutral (not significant)	No additional measures	Neutral
	Potential impact on hydromorphology and sediment transport processes.	Not applicable	Neutral	No additional measures	Neutral
CRW02	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.				
CRW03/CRW04	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling. Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
CXD01 (and abstractions)	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.				
QBD01/QBD02	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of open cut cabling. Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
QBD03	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.				
WMD01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks. Impacts on hydromorphology for the construction of permanent access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
WMD02/WMD03	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access track and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.				
WMD04/WMD05/WMD06	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
WHD01 and tributaries	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling. Impacts on hydromorphology for the construction of permanent	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	access tracks and open cut cabling.				
MRD01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling. Impacts on hydromorphology for the construction of access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
ERD01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling. Impacts on hydromorphology for the construction of permanent	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	access tracks and open cut cabling.				
DND01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling. Impacts on hydromorphology for the construction of permanent access tracks and open cut cabling.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
DIV02	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open cut cabling. Impacts on hydromorphology for the construction of permanent	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	access tracks and open cut cabling.				
DIV01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages).	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
TIN01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages).	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
TIN02	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of permanent access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	Impacts on hydromorphology for the construction of access tracks.				
LGR01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks, open cut and trenchless cable crossings. Impacts on hydromorphology for the construction of permanent access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12). Appropriate trenchless methodologies.	Slight adverse – not significant	No additional measures	Slight adverse -not significant
LAM01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages).	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
LAM02-LAM05	Water quality impacts to surface water features during construction and	Application of measures set out in the **Outline CEMP**	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks and open-cut crossings. Impacts on hydromorphology for the construction of permanent access tracks and open cut crossings	(Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).			
FLD01 and tributaries	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of access tracks, open-cut and trenchless crossings. Impacts on hydromorphology for the construction of permanent access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12). Appropriate trenchless methodology	Slight adverse – not significant	No additional measures	Slight adverse –not significant
SHD01	Water quality impacts to surface water features during construction and	Application of measures set out in the **Outline CEMP**	Slight adverse – not significant	No additional measures	Slight adverse –not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	decommissioning (i.e. runoff containing fine sediments, accidental spillages) of new bridge and for trenchless crossing.	(Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12). Appropriate trenchless crossing methodology			
SHD01 tributaries	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of permanent access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12). Appropriate trenchless crossing methodology	Neutral	No additional measures	Neutral
DGD01-DGD06/DGD08/DGD09/DGD10	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporaryaccess tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
DGD07	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks and open cut cable.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
MMD01-MMD04/MMD06 / MMD07/MMD09	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
MMD05/MMD08	Water quality impacts to surface water features during construction and	Application of measures set out in the **Outline CEMP**	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks and open cut crossing for undergrounding of existing power cables. Impacts on hydromorphology for the construction of access tracks and undergrounding of existing power cables.	(Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).			
ADD01-ADD03	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse - not significant	No additional measures	Slight adverse -not significant
ADD04	Water quality impacts to surface water features during construction and	Application of measures set out in the **Outline CEMP**	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks and open cut crossing for undergrounding of existing power cables. Impacts on hydromorphology for the construction of access tracks and undergrounding of existing power cables.	(Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).			
DDN01/ DDN02/ DDN05/DDN06/ DDN07	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks and open cut crossing for undergrounding of existing power cables. Impacts on hydromorphology for the construction of access tracks	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse –not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	and undergrounding of existing power cables.				
DDN03/ DDN04/ DDN08	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
OED01 tributaries	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
LOD01	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
LOD01 tributaries	Water quality impacts to surface water features during construction and decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of permanent access tracks.	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Slight adverse – not significant	No additional measures	Slight adverse -not significant
Unnamed Drains	Water quality impacts to surface water features during construction and	Application of measures set out in the **Outline CEMP**	Slight adverse – not significant	No additional measures	Slight adverse -not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
	decommissioning (i.e. runoff containing fine sediments, accidental spillages) of temporary access tracks. Impacts on hydromorphology for the construction of access tracks.	(Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).			
Scheme and off-site receptors	Flood Risk	Application of measures set out in the **Outline CEMP** (Doc Ref. 7.10) and **Outline DEMP** (Doc Ref. 7.12).	Neutral – not significant	No additional measures	Neutral – not significant
Operational phase					
PMD01 CXD01 (and abstractions) BHB01 and tributaries (and abstractions)	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)	Slight adverse - not significant	No additional measures	Slight adverse - not significant
PMD01 tributaries CLD01 and tributaries	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc	Neutral - not significant	No additional measures	Neutral - not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
CRW01/ CRW03/CRW04 QBD01/QBD02 WHD01 WHD02 MRD01 DND01 DIV01/DIV02 TIN01/TIN02 LGR01 LAM01 and tributaries FLD01 and tributaries SHD01 tributaries		Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)			
CRW02	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc	Slight adverse – not significant	No additional measures	Slight adverse –not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
		Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)			
QBD03	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)	Slight adverse – not significant	No additional measures	Slight adverse –not significant
WMD01	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)	Slight adverse – not significant	No additional measures	Slight adverse -not significant
WMD02/WMD03	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)	Neutral- not significant Slight adverse – not significant	No additional measures	Neutral - not significant Slight adverse -not significant
ERD01	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc	Neutral - not significant Slight adverse – not significant	No additional measures	Neutral - not significant

Receptor	Description of Impact	Embedded Mitigation	Significance of Effect Without Additional Mitigation	Additional Mitigation/Enhancement Measure	Residual Effect
		Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)			Slight adverse –not significant
SHD01	Water quality impacts from operational runoff.	Implementation of **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) and **Outline OEMP** (Doc Ref. 7.11)	Slight adverse – not significant	No additional measures	Slight adverse –not significant
Scheme and off-site receptors	Flood Risk	Implementation of **Design Parameters** (Doc Ref. 7.4) and **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3)	Neutral – not significant	No additional measures	Neutral – not significant

11.11. Cumulative Effects

11.11.1. Cumulative effects are the combined effects of several development schemes (in conjunction with the Scheme) which may, on an individual basis be insignificant but, cumulatively, have a significant effect. Cumulative effects with other development schemes are also referred to as inter-project cumulative effects. An assessment of the likely significant inter-project cumulative effects in relation to the water environment is provided below.

11.11.2. The assessment of cumulative effects has considered other committed developments outlined within **ES Appendix 4-1: List of Cumulative Schemes** (Doc Ref. 6.3) and shown in **ES Figures 4-1 and 4-2** (Doc Ref 6.2).

11.11.3. The Zone of Influence (ZoI) for the consideration of cumulative effects for the water environment is 1 km, although downstream effects up to a few kilometres have also been considered. Cumulative schemes within the ZoI for the water environment are listed within Table 11-12 and screened for whether they need to be assessed. An assessment of cumulative effects is then provided within Table 11-13.

Table 11-12 Potential cumulative effects in relation to the water environment

ID and Application Reference	Location	Application and Description	Distance from Scheme	Potential overlap in Temporal Scope	Potential for Cumulative Effects?
H23-0216-25	Orchard Farm Dowsdale Bank Shepeau Stow Spalding PE12 0UA	Proposed conversion of existing agricultural buildings to 10 no. dwellings and associated works	0.6 km	Construction period not currently known but could be within 2029 which may overlap with construction phase of the Scheme.	No - there are no shared receptors that would be potentially impacted that have been scoped in for assessment for the Scheme. The scale of the committed development is also small.
H13-0897-22	Centurion Street South of Roman Road Moulton Chapel Spalding PE12 0XQ	Residential Development - Comprising 58 dwellings and associated works - approved under H13-1096-19. Modification of Condition 1 to allow amendments to previously approved plans.	1 km	Development has been granted permission but extent of the construction period is not currently known.	**Yes** – potential receptor is a tributary of the South Holland Main Drain.
H13-0483-24	Land North Of: Roman Road Moulton Chapel Spalding	Erection of 86 dwellings and associated works - approved under H13-1215-18. Modification of Condition 2 to allow	1 km	Development has been granted but extent of construction period is not currently known.	**Yes** – potential receptor is a tributary of the South Holland Main Drain.

ID and Application Reference	Location	Application and Description	Distance from Scheme	Potential overlap in Temporal Scope	Potential for Cumulative Effects?
		amendments to previously approved plans.			
H22-0077-25	Land off Broadgate Weston Hills Spalding	Rural exception site of 24 affordable homes.	1 km	Awaiting decision, extent of construction period is not currently known.	**Yes** – potential receptor is a tributary of DDN01.
H01-1204-22	Former Station Yard Mill Drove South Cowbit Spalding	Residential Development comprising 21 dwellings	2 km	Development has been granted permission and construction is to begin no later than January 2027 and therefore may overlap with the construction phase of the Scheme.	No - there are no shared receptors that would be potentially impacted that have been scoped in for assessment for the Scheme.
EIA/11/24	Land to the East of Surfleet Bank and West of Woad Farm, Spalding	For a proposed anaerobic digester operation and associated infrastructure.	1 km	The proposed development is at EIA Scoping Opinion stage and so construction programme is not yet known.	No - there are no receptors that would be potentially impacted that have been scoped in for assessment for the Scheme.
Grimsby to Walpole	Various	The project will be a new c.140 km long 400kv overhead line and five new	Adjacent	This is at pre-application stage, and so construction	**Yes** – the development has the potential to interact with

ID and Application Reference	Location	Application and Description	Distance from Scheme	Potential overlap in Temporal Scope	Potential for Cumulative Effects?
		substations stretching from a new substation to the west of Grimsby in the north to a new substation at Walpole near Wisbech in the south. Three further substations will be built, two to the south west of Mablethorpe and one to the north east of Spalding		programme is not yet known. For a worst-case assessment, it is assumed that the construction programme would overlap with the Scheme.	watercourses scoped in for assessment – LOD01, OED02, OED03, OED04, OED05, WMD01, WMD05, DDN01, DDN02, DDN03, DDN05, DDN06, DDN07, DDN08, MDN01, ADD01 and ADD02.
Eastern Green Link 3 and 4	Not applicable	Eastern Green Link 3 (EGL3) comprises a converter station in the Walpole area of Norfolk along with associated development. Eastern Green Link 4 (EGL4) comprises a converter station in the Walpole area of Norfolk alone or together with a switching station and a converter station in the East Lindsey area of	4 km	This is at pre-application stage, and so construction programme is not yet known. For a worst-case assessment, it is assumed that the construction programme would overlap with the Scheme.	**Yes** – South Holland Main Drain is a receptor so there are potential cumulative impacts during construction. However, above ground development associated with this Proposed Development is not located in a river catchment that might also be affected by the Scheme.

ID and Application Reference	Location	Application and Description	Distance from Scheme	Potential overlap in Temporal Scope	Potential for Cumulative Effects?
		Lincolnshire, along with associated development.			
Outer Dowsing Offshore Wind	Not applicable	The Outer Dowsing Offshore Wind project comprises an offshore wind farm and associated onshore infrastructure including high voltage electricity cables, electricity substation(s), connection(s) to the National Grid and ancillary and temporary works.	Adjacent	Development has been granted permission overlap in construction period between 2029 and 2032.	**Yes** – Lord's Drain is a receptor so there are potential cumulative impacts during construction. However, above ground development associated with this Proposed Development is not located in a river catchment that might also be affected by the Scheme.
Ossian Wind Farm	Not applicable	Ossian Offshore Wind Farm Ltd is intending to develop transmission infrastructure to connect the Ossian Offshore Wind Farm Array to National Grid at substations in Lincolnshire. The Proposed Development comprises the installation	Adjacent	This is at pre-application stage, and so construction programme is not yet known. For a worst-case assessment, it is assumed that the construction programme would	**Yes** - Lord's Drain is a receptor so there are potential cumulative impacts during construction. However, above ground development associated with this Proposed Development is not

ID and Application Reference	Location	Application and Description	Distance from Scheme	Potential overlap in Temporal Scope	Potential for Cumulative Effects?
		of high voltage direct current offshore export cables, landfall structures, HVDC onshore export cables and onshore converter stations, and all other development integral to the construction, operation and maintenance of the Proposed Development, including access.		overlap with the Scheme.	located in a river catchment that might also be affected by the Scheme.
Weston Marsh to East Leicestershire	Various	A new circa 60 kilometre 400kV overhead electricity transmission line which connects into the Weston Marsh substation infrastructure (to be constructed under the Grimsby to Walpole Project), in the Spalding region of Lincolnshire, and runs west to a new 400kV transmission substation	Adjacent	This is at pre-application stage, and so construction programme is not yet known. For a worst-case assessment, it is assumed that the construction programme would overlap with the Scheme.	Yes - Lord's Drain and its tributaries are receptors so there are potential cumulative impacts during construction.

ID and Application Reference	Location	Application and Description	Distance from Scheme	Potential overlap in Temporal Scope	Potential for Cumulative Effects?
		(WMEL-B) near Wartnaby in Leicestershire, via a new 400kV transmission substation (WMEL-A) near Corby Glen in Lincolnshire.			

Table 11-13 Cumulative Effects Assessment in relation to Water Environment

Development	Residual effect of the Scheme alone	Assessment of cumulative effects with other developments listed within Table 11-25	Proposed additional mitigation applicable to the Scheme including any apportionment	Residual cumulative effects
H23-0216-25	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction runoff containing pollutants and fine sediment and chemical spillages, which could lead to cumulative impacts to South Holland Main Drain.	Good practice construction measures are assumed to be adopted through the use of a CEMP (or similar), with appropriate adherence to planning and permit conditions.	Slight adverse (not significant)
H13-0897-22	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction site runoff containing pollutants and fine sediment; chemical spillages, which could lead to cumulative impacts to South Holland Main Drain.	Good practice construction measures are assumed to be adopted through the use of a CEMP (or similar), with appropriate adherence to planning and permit conditions.	Slight adverse (not significant)

Development	Residual effect of the Scheme alone	Assessment of cumulative effects with other developments listed within Table 11-25	Proposed additional mitigation applicable to the Scheme including any apportionment	Residual cumulative effects
Grimsby to Walpole	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction site runoff containing pollutants and fine sediment; chemical spillages. During operation, there may be indirect impacts on water quality from operational runoff from the substation to the River Welland (WEL01).	Good practice construction measures are assumed to be adopted through the use of a CEMP (or similar)[42], with appropriate adherence to DCO requirements and permit conditions. It is assumed that an appropriate drainage strategy for the substation will be adopted for the operational phase.	Slight adverse (not significant)
Eastern Green Link 3 and 4	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction site runoff containing pollutants and fine sediment; chemical spillages, which could lead to cumulative impacts to South Holland Main Drain.	Good practice construction measures are assumed to be adopted through the	Slight adverse (not significant)

[42] Grimsby to Walpole. Preliminary Environmental Information Report. Appendix 5A.Preliminary Code of Construction Practice . Available at: https://www.nationalgrid.com/document/561116/download. [Accessed October 2025].

Development	Residual effect of the Scheme alone	Assessment of cumulative effects with other developments listed within Table 11-25	Proposed additional mitigation applicable to the Scheme including any apportionment	Residual cumulative effects
			use of a CEMP (or similar)[43], with appropriate adherence to DCO requirements and permit conditions.	
Outer Dowsing Offshore Wind	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction site runoff containing pollutants and fine sediment; chemical spillages, which could lead to cumulative impacts to Lord's Drain.	Good practice construction measures are assumed to be adopted through the	Slight adverse (not significant)

[43] Eastern Green Link 3 and 4. Preliminary Environmental Information Report (PEIR). Appendix 1.5.B Outline Code of Construction Practice (CoCP) Available at: https://www.nationalgrid.com/the-great-grid-upgrade/eastern-green-link-3-and-4/document-library#4257225834-179637554. [Accessed October 2025].

Development	Residual effect of the Scheme alone	Assessment of cumulative effects with other developments listed within Table 11-25	Proposed additional mitigation applicable to the Scheme including any apportionment	Residual cumulative effects
			use of a CEMP (or similar)[44], with appropriate adherence to DCO requirements and permit conditions.	
Ossian Wind Farm	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction site runoff containing pollutants and fine sediment; chemical spillages, which could lead to cumulative impacts to Lord's Drain.	Good practice construction measures are assumed to be adopted through the	Slight adverse (not significant)

[44] Outer Dowsing Offshore Wind. Environmental Statement. 8.1 Outline Code of Construction Practice. Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010130-000579-8.1%20Outline%20Code%20of%20Construction%20Practice.pdf. [Accessed October 2025].

Development	Residual effect of the Scheme alone	Assessment of cumulative effects with other developments listed within Table 11-25	Proposed additional mitigation applicable to the Scheme including any apportionment	Residual cumulative effects
			use of a CEMP (or similar)[45], with appropriate adherence to DCO requirements and permit conditions.	
Weston Marsh to East Leicestershire	Slight adverse (not significant)	Potential temporary pollution risk to local watercourses from construction site runoff containing pollutants and fine sediment; chemical spillages which could lead to cumulative impacts to Lord's Drain and tributaries.	Good practice construction measures are assumed to be adopted through the use of a CEMP (or similar), with appropriate adherence to DCO requirements and permit conditions. It is assumed that an appropriate drainage strategy will be adopted for the operational phase, and as such, no	Slight adverse (not significant)

[45] Ossian Offshore Wind Farm. Environmental Impact Assessment. Appendix 21: Environmental Management Plan. Available at: https://ossian-eia.com/. [Accessed October 2025].

Development	Residual effect of the Scheme alone	Assessment of cumulative effects with other developments listed within Table 11-25	Proposed additional mitigation applicable to the Scheme including any apportionment	Residual cumulative effects
			likely significant cumulative effects have been identified.	