Light Valley Solar

Environmental Statement Volume 1

Chapter 15: Water Resources and Flood Risk

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Light Valley Solar

DCO Submission

Chapter 15: Water Resources and Flood Risk

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15 Water Resources and Flood Risk

15.1 Introduction

15.1.1 This chapter of the Environmental Statement (ES) presents the findings of the likely significant effects arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development in respect of water resources and flood risk.

15.1.2 This chapter sets out the relevant legislation, policy, standards and guidance applied to the assessment process; consultation undertaken to inform the assessment; assessment methodology; the relevant baseline conditions upon which the assessment is based; embedded mitigation considered in place before the assessment is undertaken; the likely significant effects that may arise as a result of the Proposed Development considering embedded mitigation; further mitigation requirements to reduce or remove any identified likely significant effects; the remaining residual effects following further mitigation; and any monitoring required for remaining significant effects.

15.1.3 The following aspects have been assessed as part of this chapter for all phases:

1) Surface water quality and quantity
2) Groundwater quality and quantity
3) Water Dependent Terrestrial Ecosystems (WDTEs)
4) Flood risk and drainage

15.1.4 The conclusions of the following topic assessments are considered relevant to the receptors considered within this assessment, and as such are taken into account in the overall assessment for water resources and flood risk:

1) Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**];
2) Chapter 8: Cultural Heritage (ES Volume 1) [**EN0110012/APP/LVS/06.01.08**];
3) Chapter 13: Socioeconomics (ES Volume 1) [**EN0110012/APP/LVS/06.01.13**]; and
4) Appendix 16.3: Ground Conditions Preliminary Risk Assessment (PRA) (ES Volume 3) [**EN0110012/APP/LVS/06.03.16.03**].

15.1.5 This chapter is supported by the following figures (ES Volume 2) [**EN0110012/APP/LVS/06.02.15**]:

1) Figure 15.1: Surface Water Features [**EN0110012/APP/LVS/06.02.15.01**];
2) Figure 15.2: Bedrock Geology [**EN0110012/APP/LVS/06.02.15.02**];
3) Figure 15.3: Superficial Geology [**EN0110012/APP/LVS/06.02.15.03**];
4) Figure 15.4: Groundwater and Surface Water Designations [**EN0110012/APP/LVS/06.02.15.04**];

5) Figure 15.5: WER - Surface Water Bodies [**EN0110012/APP/LVS/06.02.15.05**];
6) Figure 15.6: Groundwater Bodies [**EN0110012/APP/LVS/06.02.15.06**];
7) Figure 15.7: Environmental Designations [**EN0110012/APP/LVS/06.02.15.07**];
8) Figure 15.8: Abstractions and Discharges [**EN0110012/APP/LVS/06.02.15.08**];
9) Figure 15.9: Risk of Flooding from Surface Water [**EN0110012/APP/LVS/06.02.15.09**];
10) Figure 15.10: Risk of Flooding from Rivers and Seas [**EN0110012/APP/LVS/06.02.15.10**];
11) Figure 15.11: Risk of Flooding from Reservoirs [**EN0110012/APP/LVS/06.02.15.11**];
12) Figure 15.12: Susceptibility to Groundwater Flooding [**EN0110012/APP/LVS/06.02.15.12**];
13) Figure 15.13: Surveyed Sites [**EN0110012/APP/LVS/06.02.15.13**];
14) Figure 15.14: Spatial Flood Defences [**EN0110012/APP/LVS/06.02.15.14**].

15.1.6 This chapter is supported by the following appendices (ES Volume 3):

1) Appendix 15.1: Flood Risk Assessment [**EN0110012/APP/LVS/06.03.15.01**];
2) Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment [**EN0110012/APP/LVS/06.03.15.02**];
3) Appendix 15.3: Water Resources and Flood Risk Assessment Table [**EN0110012/APP/LVS/06.03.15.03**]; and
4) Appendix 15.4: Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**].

15.2 Scope of the assessment

15.2.1 The EIA Scoping Report (see Appendix 1.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.01.01**]) set out the proposed scope for the assessment of water resources and flood risk. The scope of the water resources and flood risk assessment is summarised in Table 15-1 below.

Table 15-1 Water resources and flood risk assessment scope

Aspect	Phase	Scoped in / out	Summary comments
Surface water quality	All	Scoped in	A site walkover has been undertaken to establish receptor importance, where access was permitted. The result of which have
Surface water quantity	All	Scoped in	
Groundwater quality	All	Scoped in	

Aspect	Phase	Scoped in / out	Summary comments
Groundwater quantity	All	Scoped in	informed receptor importance in Section 15.7 with assessment of likely impact for each aspect considered in Section 15.9.
WDTEs	All	Scoped in	
Flood Risk and Drainage	All	Scoped in	Targeted hydraulic modelling and calculations have made best use of the available information supplied by the Environment Agency (EA), including existing models for the River Aire and River Ouse. Targeted surveys have been completed to supplement the flood risk modelling, the results of which have informed the Flood Risk Assessment (FRA) (Appendix 15,1. (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]).

15.2.2 It was proposed at scoping stage to assess the potential ecological impacts of routine runoff from highways on surface waters using the Highways England Water Risk Assessment Tool (HEWRAT). This assessment is required where Annual Average Daily Traffic (AADT) volumes are greater than 10,000 vehicles. Baseline traffic flow data has been received and has been assessed within Chapter 14: Traffic and Movement (ES Volume 1) **[EN0110012/APP/LVS/06.01.14]**. This indicates that the AADT will be lower than 10,000 vehicles for all roads close to the sites other than the A63, which passes next to Solar Development Site 2.

15.2.3 The detailed design of the Proposed Development will not be available until post consent and the appointment of contractors, meaning not all of the inputs required for a HEWRAT assessment are known. It is therefore not possible to undertake a HEWRAT assessment. Chapter 14: Traffic and Movement (ES Volume 1) [**EN0110012/APP/LVS/06.01.14**] provides the increased construction and operational traffic movements. Should they wish to, National Highways will therefore be able to incorporate these into their models and to consider the capability of their drainage systems to cope with the additional routing runoff and spillage pollution risks. Not undertaking a HEWRAT assessment is consistent with other similar solar projects. The Outline Construction Environment Management Plan (oCEMP) [**EN0110012/APP/LVS/07.02**], submitted as part of the DCO Application, identifies appropriate mitigation measures to reduce potential impacts from routine runoff from highways.

15.2.4 A Hydrogeological Impact Assessment (HIA) has not been completed as it is not anticipated that any dewatering will be required in the construction of below ground features – the BESS and substations. This is on the assumption that groundwater level is sufficiently below the base of excavations, which is based upon information from existing groundwater level monitoring boreholes in the area. During detailed design, targeted ground investigations will be carried out at the BESS and substation locations, which will provide further information on groundwater levels. The requirement for temporary construction dewatering and

therefore HIA will subsequently be revisited, as outlined in the oCEMP [**EN0110012/APP/LVS/07.02**].

Study area

15.2.5 The Study Area for water resources and flood risk is defined by the Order Limits plus a 1 km buffer, as shown in Figure 15.1: Surface Water features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

15.2.6 The 1 km Study Area was selected based on professional judgement of the potential impacts and pathways related to the Proposed Development, and alignment on approach with other solar schemes. The Study Area has been reviewed during design development to take into account any activities which have the potential to impact water resources at greater distance (such as dewatering or discharges). The final Study Area presented in this chapter ensures that all receptors that are potentially in hydraulic continuity with the Proposed Development are included (such as downstream receptors and wider flood risk areas). All associated documents including Appendix 15.1: Flooding Risk Assessment (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**], and Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.02**], and Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**] use the same final Study Area.

15.3 Relevant legislation, policy, standards and guidance

15.3.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for water resources and flood risk and have informed the assessment, including the identification of mitigation.

Legislation

Table 15-2 Water resources and flood risk - Legislation

Legislation	Relevance to the Assessment
Environment Act, 2021 (Ref 1)	The Environment Act 2021 includes binding targets on water quality.
The Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017 (Ref 2)	The Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017, transpose into English and Welsh law the Water Framework Directive 2000/60/EC and contain provisions to protect rivers, lakes, estuaries, coastal waters and groundwater. The regulations remain in force following the UK's withdrawal from the European Union. These regulations provide for protection of all types of water bodies and include environmental objectives, compliance parameters to be assessed, and bring in the protection of areas with specific requirements such as shellfish waters for example. These requirements underpin the impact assessment for the water environment.

Legislation	Relevance to the Assessment
Conservation of Habitats and Species Regulations, 2017, as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019 (Ref 3)	The regulations provide for the designation and protection of important habitats and species as part of the National Site Network (NSN). The protection of water dependent NSN sites also forms part of the requirements established under the Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017. The regulations remain in force following the UK's withdrawal from the European Union. The 'Dutch Nitrogen Case' ruled that where an internationally important site (i.e. Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar Sites) is failing to achieve the required condition due to nutrient pollution, additional nutrient inputs, even very small, must be assessed and cannot be permitted unless it can be demonstrated beyond reasonable scientific doubt that there will be no adverse effect on site integrity. This has informed the way in which the regulations apply to pollution related pressures and incidents and informs the assessment regarding sensitivity of water environment receptors.
Environmental Permitting (England and Wales) Regulations, 2016 (Ref 4)	These regulations are intended to manage and reduce pollution from certain industrial activities through permitting. These regulations are relevant as they set out the requirements in relation to environmental permits, including for discharges into the water environment.
Flood and Water Management Act, 2010 (Ref 5)	The Flood and Water Management Act, 2010, relates to the management of risks related to flooding and coastal erosion. The aim is to reduce the risk of flooding due to extreme weather events, which are likely to increase as a result of climate change. These regulations are relevant because they require design to consider changes to flood risk.
The Flood Risk Regulations, 2009 (Ref 6)	Outlines requirements for the assessment of existing flood risk and the need to design new developments to ensure that they are safe from flooding and do not increase flood risk for surrounding receptors and transposes the Floods Directive 2007/EC/60 into law in England and Wales.
Water Resources Act, 1991 (Ref 7)	The Water Resources Act, 1991, makes it an offence to cause or knowingly permit polluting, noxious, poisonous or any solid waste matter to enter controlled waters. It also establishes regulatory controls for water abstraction, water impoundment and protection of water resources
Land Drainage Act, 1991 (Ref 8)	The Land Drainage Act, 1991, identifies the responsible parties for the management and maintenance of land drainage including maintaining flows in watercourses. It provides relevant authorities with the powers to ensure landowners carry out works to maintain flows within watercourses and obtain the relevant consent(s) as required. This is relevant to design that could affect flows in Ordinary Watercourses.
Infrastructure Planning (Environmental Impact	5(2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the Proposed Development on the following factors: (c)land, soil, water, air and climate.

Legislation	Relevance to the Assessment
Assessment) Regulations 2017 (Ref 9)	

Policy

Table 15-3 Water resources and flood risk - Policy

Policy	Legislation
Overarching National Policy Statement for Energy (EN-1), 2025 (Ref 10)	Section 4.10 of EN-1 sets out generic considerations that applicants and the Secretary of State should take into account to help ensure that renewable energy infrastructure is safe and resilient to climate change, and that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime. Section 4.10 of EN-1 advises that the resilience of the project to climate change should be assessed in the ES accompanying an application. For example, the impact of increased risk of drought as a result of higher temperatures should be covered in the water quality and resources section of the ES. Section 5.6 Coastal Change and Section 5.8 Flood Risk of EN-1 set out generic considerations that applicants and the Secretary of State should take into account in order to manage coastal change and flood risks. Generic environmental, biodiversity, ecology, geological and water management impacts are covered, including generic impacts and their mitigation. Section 5.8 of EN-1 refers to Flood Risk. The Secretary of State must ensure that: ▪ an appropriate FRA is provided; ▪ the Sequential Test is applied and satisfied for site selection; ▪ a sequential approach is used at site level; ▪ there is alignment with national/local flood risk strategies; ▪ SuDS are used unless inappropriate and comply with National Standards; ▪ the project is safe and operational in flood risk areas without increasing risk elsewhere; ▪ there is safe access/escape and management of residual risk; ▪ there is safeguarding of land for flood risk management; ▪ there is drainage system approval and maintenance; ▪ there is appropriate responsibility for SuDS maintenance; ▪ all reasonable steps taken to resolve objections from flood risk authorities; ▪ projects are not normally in functional floodplain/Zone C2 unless no net loss of storage/impedance; and ▪ any unavoidable increase in flood risk is mitigated to an acceptable level and justified against project benefits, climate change, and expert advice. Section 5.16 of EN-1 refers to Water Quality and Resources, the Secretary of State decision making lists out that schemes must: ▪ apply pollution control interface principles; ▪ give greater weight to impacts affecting WFD objectives; ▪ consider duties under the Environment Act 2021 and the Environmental Improvement Plan;

Policy	Legislation
	▪ ensure compliance with River Basin Management Plans and WFD (including regulation 19), refusing consent if the project would cause deterioration or prevent good status unless regulation 19 is met; ▪ consider interactions with Water Resources and Shoreline Management Plans; and ▪ consider and, if necessary, require mitigation and enhancement measures via consent requirements or obligations.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2025 (Ref 11)	NPS EN-3 in Section 2.10 flags the need for applicants for solar photovoltaic sites to consider how plant will be resilient to increased risk of flooding. NPS EN-3 Section 2.3 covers factors influencing site selection and design, Section 2.4 covers climate change adaptation and resilience. The policy sets out that applicants should consider several factors when considering the design and layout of sites, including ability to mitigate environmental impacts and flood risk. Sets out requirements for solar farms: ▪ Where a Flood Risk Assessment (FRA) has been carried out this must be submitted alongside the applicant's ES. This will need to consider the impact of drainage. ▪ Where access tracks need to be provided, permeable tracks should be used, and localised Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, should be used to control any run-off where recommended. ▪ Sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses. ▪ Culverting existing watercourses/drainage ditches should be avoided. ▪ Where culverting for access is unavoidable, the policy requires that Applicants should demonstrate that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period. The Secretary of State decision making considers a non-exhaustive list of the impacts of water management in the Proposed Development: ▪ Water management is a critical component of site design for ground mounted solar plants. Where previous management of the site has involved intensive agricultural practice, solar sites can deliver significant ecosystem services value in the form of drainage, flood attenuation, natural wetland habitat, and water quality management. ▪ The Secretary of State must consider the worst-case effects in its consideration of the application and consent.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2025 (Ref 12)	NPS EN-5 addresses policy for energy transmission, including the Horlock Rules (paragraph 2.9.18), which provide guidelines for the design and siting of sub-stations. Paragraph 2.3.2 of NPS EN-5 specifies, with regards to climate change adaptation and resilience, applicants must detail the extent to which the proposed development is expected to be vulnerable and, where appropriate, how it has been designed to be resilient to flooding, particularly for substations critical to the network, and especially in light of changes to groundwater levels resulting from climate change, and earth movement or subsidence caused by flooding for underground cables.

Policy	Legislation
	There is no specific reference to water quality issues within NPS EN-5.
National Planning Policy Framework (NPPF), 2024 (Ref 13)	The NPPF sets out the UK Government planning policies for England and seeks to ensure that flood risk is considered at all stages of the planning and development process. The NPPF states that new and existing development should not pose an unacceptable risk of water pollution, and that it should help to improve local environmental conditions, including water quality and actions set out in the River Basin Management Plans (RBMP). Additionally, development should be planned to avoid increased vulnerability to flooding, ensuring that it does not increase flood risk elsewhere. Where possible, development should also contribute to reducing the overall flood risk and manage residual risk through the appropriate application of SuDS. Annex 3 of the NPPF provides information on flood risk vulnerability classification of developments Solar farms are classified as essential infrastructure.
The Environmental Improvement Plan (EIP) (Ref 14)	The Environmental Improvement Plan is a 25-year plan that looks to improve all parts of the environment including the water environment. The key areas of focus sustainable water usage, improving water quality, and enhancing flood defences to protect communities and ecosystems. The plan also includes measures to increase resilience against climate change impacts.
Humber River Basin Management Plan (RBMP) (Ref 15)	The Humber RBMP was updated in 2022. It provides a baseline classification of the water environment in the Humber Basin District and highlights statutory objectives for protected areas such as waters used for drinking water, bathing, and designated sites. It lays out the actions needed to improve the water environment and achieve the objectives of the WER
City of York Local Flood Risk Management Strategy (Ref 16)	The Local Flood Risk Management Strategy aims to understand flood risk from all sources in the city, reduce its likelihood and impact on residents and visitors and take the opportunity to improve the city environment.
North Yorkshire Local Flood Risk Strategy (2022-2027 (Ref 17)	The Strategy is a legal document which provides a framework for addressing flood risk across the county. The development, maintenance and implementation of a strategy for the management of Local Flood Risk are statutory duties for the Lead Local Flood Authorities (LLFA) under the Flood and Water Management Act, 2010.
Selby District Core Strategy Local Plan (adopted 2013) (Ref 18)	The Selby District Core Strategy Local Plan aims to protect against pollution; improve the quality of air, land and water resources; avoid over-exploitation of water resources; prevent noise/light/soil pollution; and protect development from noise/light/soil pollution
Selby District Local Plan (adopted February 2005) (Ref 19)	The Selby District Local Plan includes policies on preventing groundwater pollution (Policy ENV2), development in areas with a high risk of flooding (Policy ENV5), and development within or which may affect a wildlife site including wetlands and geomorphological sites (Policy ENV7, Policy ENV8 & Policy ENV9).

Standards and guidance

Table 15-4 Water resources and flood risk - Standards and guidance

Standards and guidance	Legislation
Construction Industry Research and Information Association (CIRIA) (2023) Environmental good practice on site (5th edition) (C811) (Ref 21)	Provides practical advice about managing construction on site to minimise environmental impacts.
Environment Agency (EA) (2022) Flood risk assessments: climate change allowances (Ref 22)	When and how local planning authorities, developers and their agents should use climate change allowances in FRAs.
Department for Levelling Up, Housing and Communities (2025) Flood Risk and Coastal Change: National Planning Practice Guidance (NPPG) (Ref 23)	Advises how to take account of and address the risks associated with flooding and coastal change in the planning process.
North Yorkshire County Council (2022) SuDS Design Guidance (Ref 24)	Sets out standards for SuDS to manage surface water, reduce flood risk, and prevent pollution in new developments. It ensures compliance with local environmental protection and water quality requirements and is aligned with national policies.
Highways England (2020) Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment (Ref 25)	Sets out the requirements for the assessment and management potential impacts on the water environment for highway projects. This methodology is the standard for assessing risks from increases in traffic movements (routine runoff and spillage) associated with all construction projects, not just highways projects.
EA (2017) Protect groundwater and prevent groundwater pollution (Ref 26)	Understand when activities affect groundwater, what permissions may be needed and how to prevent pollution
EA (2017) Groundwater protection technical guidance (Ref 27)	If carrying out an activity that could lead to the input of substances to ground which could affect the quality or quantity of groundwater, need to understand: ▪ what type of input you can make; and ▪ how to assess the discernibility of hazardous substances. ▪ when geological formations can be determined as permanently unsuitable for other purposes
CIRIA (2015) The SuDS (sustainable drainage systems) Manual (C753) (Ref 28)	Outlines the planning, design, construction and maintenance of SuDS to assist with their effective implementation within both new and existing developments. It looks at how to maximise amenity and biodiversity benefits and deliver the key objectives of managing flood risk and water quality.
EA (2007) Pollution Prevention Guidance (PPG) notes (PPG1,	Although EA PPG notes were withdrawn in England on 17 December 2015, they still provide a good information source for

Standards and guidance	Legislation
PPG5, PPG8 and PPG21) (Ref 29)	pollution prevention measures, and to inform the oCEMP [**EN0110012/APP/LVS/07.02**] and embedded mitigation.

15.4 Stakeholder engagement and consultation

Scoping opinion

15.4.1 An EIA Scoping Report was submitted to the Planning Inspectorate (PINS) on 11 November 2024 and is available in Appendix 1.1: EIA Scoping Report (ES Volume 3) [**EN0110012/APP/LVS/06.03.01.01**]. The EIA Scoping Opinion was issued by PINS on 19 December 2024 (Appendix 1.2: EIA Scoping Opinion (ES Volume 3) [**EN0110012/APP/LVS/06.03.01.02**]). A summary of key comments from the EIA Scoping Opinion and how these have been addressed is presented in below in Table 15-5:

Table 15-5 Water resources and flood risk – Scoping Opinion comments

Scoping opinion I.D	Scoping opinion comment	How is this addressed
PINS [ID 3.15.2]	PINS stated that the Scoping Opinion is inconsistent in its approach to the study area. In general, it is stated as 1 km around the current scoping boundary, however some receptors have baseline data over a 5 km area. The ES should either present a consistent study area, or where specific receptors require an extension of this, a clear description and reasoning for the extended study area.	The ES have described and justified the Study Area for assessment in Section 15.2 as being 1km from the Order Limits, ensuring no inconsistency in approach.
PINS [ID 3.15.3]	PINS stated that in relation to the requirement for the Proposed Development to pass the Sequential and Exception tests, the Applicant is advised that the ES and / or accompanying Flood Risk Assessment should be able to differentiate between the extents of Flood Zone 3a and 3b, and if relied on as part of the Exception test, demonstrate no net loss of floodplain storage.	Clear documentation and assessment of impact on flood storage, including reference to breakdown of FZ3 into 3a and 3b, is provided in Section 15.7.59. None of the areas assessed are within FZ3b. The Flood Risk Assessment (FRA) in Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**] also considers this and the Sequential and Exception Tests in detail. Figure 15.10: Risk of Flooding from Rivers and Seas (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.10**] shows the Flood Zones across the Order Limits.
PINS [ID 3.15.4]	PINS stated that comments on the WER assessment are outside of the scoping process, and as such advises the Applicant	Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment (ES Volume 3)

Scoping opinion I.D	Scoping opinion comment	How is this addressed
	to agree the scope of the assessment with the relevant consultees.	[**EN0110012/APP/LVS/06.03.15.02**] documents all discussions with consultees regarding the WER assessment. The WER assessment approach was discussed and agreed with the EA in a meeting on 23 June 2025.
PINS [ID 3.15.5]	PINS states with reference to HEWRAT assessment that is unclear as to why this is being proposed as part of the ES for the Proposed Development, as it is not a road scheme and there is no evidence that the Proposed Development is near to a road which has 10,000 vehicle AADT.	The ES does not include a HEWRAT assessment, as justified in Section 15.2.
PINS [ID 3.15.6]	PINS states with reference to the scoping report an inconsistent description of the baseline environment, including the following: ▪ main rivers within study area and cable corridor options area. ▪ artificial waterbodies in the study area.	A consistent description of the baseline is stated in this ES. See Section 15.7.
Canal and River Trust (CRT) Section 19.11.3.6	CRT stated that any impact on exiting outfalls, or creation of new outfalls, to the River Ouse, Aire or Selby Canal should be identified within these drawings and that the impact to the peak velocity and volume of any new or amended outfall should be assessed, so that an assessment can be made with respect to the impact of these on passing craft.	No outfalls to CRT watercourses are proposed as part of the design. Consequently, there is no requirement to consider this form of interface between outfalls from the Proposed Development and CRT assets.
Environment Agency (EA) Flood Risk Assessment (FRA)	The EA stated that the FRA, or a separate assessment, should include full details of all flood defences and associated assets within the study area. This should include their current condition, crest levels, and standard of protection.	An assessment of interactions between existing flood defences and the proposed Cable Route Corridor has been carried out as agreed with the EA and is presented within Annex H of the FRA (Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]. Detailed design of the cable crossings will be progressed post-consent. The Applicant has committed to undertaking post-consent condition surveys (pre- and post-construction) for cable crossings of EA assets. This is secured pursuant to the EA being able to require these as part of Protective Provisions approvals. Further detail is set out in the FRA (Appendix 15.1 (ES

Scoping opinion I.D	Scoping opinion comment	How is this addressed
		Volume 3) **[EN0110012/APP/LVS/06.03.15.01]**.
EA 19.5.11.8	The EA stated that the influence of sea level rise, because of climate change, should be established and presented within the FRA.	These climate change allowances have been considered in the ES and the FRA in Appendix 15.1: Flooding Risk Assessment (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**. The FRA in Appendix 15.1: Flooding Risk Assessment (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01** for the Proposed Development has been completed and is supported by site-specific flood modelling that allows for the latest climate change allowances including assessment of a credible maximum scenario. Engagement with the EA occurred on 29 January 2025 on this matter where it was confirmed that the primary risk to the Proposed Development is from fluvial sources, not tidal. The impact of tidal flooding has been considered indirectly through sensitivity testing only.
EA Section 19	The EA noted that there are several ordinary watercourses which cross the PEIR Assessment Area for the development, which have no associated flood zone mapping due to the small size of their respective catchments. The flood risk from these watercourses, where they interact with the development during construction and operation, will need to be considered.	The flood risk from smaller watercourses is considered in the FRA, with site-specific hydraulic modelling for Sites 2 and Site 1 having been completed as agreed with the EA (29 January 2025) to better understand the risk from these watercourses. Furthermore, following publication of the updated Risk of Flooding from Surface Water (RoFSW) mapping on January 28 2025 and the updated NaFRA2 mapping on 28 March 2025, both datasets have been reviewed and the findings are reflected in the FRA (Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]).
EA Section 19.3	The EA indicated that the Standards and guidance, the Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment listed is not supported for assessing the water quality impacts of non-road elements of this project, because it sets out a method of	This reference has only been used to inform the assignment of receptor importance rather than as a guidance note to drive the assessment, see Section 15.5.18. Although these assessment criteria were developed for road infrastructure

Scoping opinion I.D	Scoping opinion comment	How is this addressed
	assessment (HEWRAT), agreed under a memorandum of understanding, specifically for assessing the risk of pollution from highways.	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.
EA Section 19.9	The EA stated that the receptor sensitivity and impact magnitude criteria with respect to water resources should state a sensitivity value for designated Secondary aquifer types in addition to Principal and unproductive strata and include non-licensed groundwater abstractions.	The EA's points regarding sensitivity values have been noted and these are corrected in the ES methodology. See Table 15-9.
EA Section 19	The EA stated that they consider that the potential receptors for impact from mobile contamination during the construction, operation (and maintenance) and decommissioning phases should be clarified to incorporate: ▪ superficial Secondary A aquifers ▪ bedrock Principal and Secondary B aquifers ▪ groundwater Source Protection Zones ▪ licensed and unlicensed water abstractions It should be clarified that disturbance of made or infilled ground causing increase in leaching and mobilisation of contamination, could impact groundwater receptors, in addition to surface water receptors.	An assessment of possible contaminants and information on measures to prevent contamination of the water environment has been provided in Section 15.9, and includes consideration of the receptor groups highlighted by the EA.
EA Section 19	The EA stated that Development Consent Order process will need to include the following: ▪ the 'source pathway receptor' approach which has yet to be fully applied ▪ need to understand the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, covering the construction and operational and decommissioning phases.	This information has been provided in Section 15.9.
EA Section 19	The EA stated that an accurate assessment must identify the onsite activities likely to generate effluent, to determine whether it constitutes a pollutant should it be discharged into the water environment.	Measures to manage wastewater impacts are secured within the oCEMP [**EN0110012/APP/LVS/07.02**] which accompanies the DCO Application.

Scoping opinion I.D	Scoping opinion comment	How is this addressed
	They acknowledge that the exact quantities and types of wastewater may not yet be known; however, it is a reasonable assumption that the following waste water sources require consideration: ▪ general site drainage ▪ welfare facility wastewater ▪ dewatering of excavations ▪ stockpile drainage ▪ wastewater from cleaning activities (e.g., wheel wash, concrete wash water, solar panel cleaning) ▪ wastewater from HDD ▪ access track drainage ▪ hardstanding run off	
EA Section 19	The EA stated that they should understand the disposal options for any effluent generated onsite.	The surface water drainage discharge hierarchy has been followed for uncontaminated runoff sources and information on disposal options for effluent has been detailed in the ES (see the Appendix 15.4 Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]).
EA Section 19	The EA stated that a further objective of the proposed site walkover should be to identify suitable monitoring point locations, to determine the baseline background quality of the relevant surface water and groundwater receptors.	This has been refined within Section 15.5.2. Photographs and in-situ water quality measurements were taken on the site walkover to inform receptor sensitivity for ES. These could be used after detailed design to inform monitoring strategies for the detailed CEMP(s).
EA Section 19	The EA stated that a monitoring plan should be implemented to ensure that routine runoff remains free of contaminants and is appropriate to release to the environment. The scoping assessment indicates a number of stand-alone documents will be developed to address the management of pollution. Plans will need to be included for monitoring, reporting and reviewing procedures, to ensure the project team and principal contractor have sufficient oversight of employed contractors.	Plans for monitoring, reporting and reviewing procedures are documented in the oCEMP [**EN0110012/APP/LVS/07.02**] which accompanies the DCO Application.
EA Section 19	The EA stated that various matters need to be scoped in including:	Water supply requirements have been considered in detail at ES stage with total construction phase water being

Scoping opinion I.D	Scoping opinion comment	How is this addressed
	▪ water demands for the construction, operation and decommissioning phases ▪ measures employed for dust suppression ▪ domestic and potable water supply to welfare stations ▪ wheel/machinery wash down ▪ bentonite clay mixing and continuous supply for driving HDD ▪ de-watering below ground excavation	33,904 m^3. The construction and operation waste demand and assumptions are presented in the Water Resource Assessment **[EN0110012/APP/LVS/07.16]**. The outline CEMP [**EN0110012/APP/LVS/07.02**] includes management measures for dust suppression, domestic and potable water supply to welfare stations, wheel/machinery wash down and HDD requirements (and the water supply requirements for these are included in the Water Resource Assessment). Dewatering is not considered necessary but will be reviewed should ground conditions dictate.
EA Section 19	The EA states that new consumptive groundwater licences from the Sherwood sandstone are not available. Any dewatering which affects this aquifer will need to demonstrate that it is non-consumptive, in order to obtain an abstraction licence. Abstraction from sands and gravels or other superficial geology or secondary aquifers may adhere to surface water policy with regards to potential licence restrictions. Surface water abstraction may be subject to conditions which restrict access to water to periods outside of low flow. The use of surface water on site may therefore need to consider on site storage to meet demand outside of these periods. Recommendations on water supply have been provided.	The recommendations on water supply provided have been acknowledged and has helped with optioneering. The likely sources for construction water are set out in Section 4 of the Water Resource Assessment **[EN0110012/APP/LVS/07.16]**. Currently it is planned that water will be transported to the Site by road from the water source. This could be an existing repurposed surface or groundwater abstraction (either licensed or unlicensed supply), mains water, a private tankering supplier or from a private water abstraction source. As a result, the assessment assumes that there will be no significant change in water abstracted from the water environment at the site compared to baseline – a private abstraction source is limited to abstraction of less than 20m^3 per day.
EA Section 19	The EA states that impacts to geomorphology and hydromorphology need to be scoped into the assessment.	Specific reference to geomorphology/ hydromorphology has been made in the assessment within Section 15.9 of this chapter. This aspect is also covered within the WER (WFD) Assessment (Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance

Scoping opinion I.D	Scoping opinion comment	How is this addressed
		Assessment [**EN0110012/APP/LVS/06.03.15.02**].
EA Section 19.11.4.2	The EA stated that it is not clear if "routine runoff" has been extended to construction activities, or whether this is referring to a highway element of the development. Water quality impacts from onsite activities can be assessed using the methods referred to on GOV.UK https://www.gov.uk/government/collections/riskassessments-for-specific-activities-environmental-permits.	Routine runoff for construction activities and the construction stage, and at operation stage is assessed within the water quality impact sections of the assessment in Section 15.9. Within the HEWRAT this would be applied to any highways elements of the assessment, if appropriate based on traffic loading. HEWRAT is not included in the ES as outlined in Section 15.2.
EA Section 12 and 19	The EA stated that the EIA will need to include potential impacts from: ▪ directional drilling ▪ any foundation works that may be required ▪ other elements of the construction may have the potential to cause or mobilise contamination	The potential impacts from trenchless solutions including HDD, foundation works and other construction works which may have the potential to cause contamination are considered in this ES – Section 15.9. Any additional mitigation where HDD or other trenchless methods is proposed will be provided in the final CEMP once the detailed design is confirmed.
EA General	The EA stated that the applicant should provide an outline drainage strategy to ourselves and the local planning authority. This should include, but not be limited to: ▪ in the event of an emergency, contaminated firewater can be adequately contained within the site, to ensure that there is no discharge of polluted water to ground or surface water bodies. ▪ an impermeable base or layer beneath the battery unit compound to ensure infiltration beneath the site can be controlled. ▪ any system for the storage of contaminated firewater should have sufficient capacity/headroom for the volumes expected in the event of a fire, even during periods of intense rainfall. ▪ the system for containing firefighting effluent should be automatic, with a backup system in place in case of power failure	An embedded mitigation measure for the Proposed Development includes firewater containment for the battery energy storage system (BESS). The drainage team have noted these stipulations and have worked with the design team of the BESS to ensure these points are taken forward and recognised in the design of the BESS. Appendix 15.4: Outline drainage strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**], which also considers the measures in the outline Battery Safety Management Plan (oBSMP) [**EN0110012/APP/LVS/07.06**] in respect of firewater.

Scoping opinion I.D	Scoping opinion comment	How is this addressed
EA Section 19	The EA stated that there are several notable activities cited that could result in pollution if not anticipated and managed: HDD (frac-outs are not uncommon and can result in fine sediments being released). Construction of concrete pad foundation (concrete is a known source of hazardous substances, particularly during the curing phase.) Compounds and hardstanding (You may need to install an oil separator (interceptor) or other device to remove oil from water that drains off hard surfaces). Fires affecting BESS and substation compounds (Hydrogen fluoride is a colourless gas that readily dissolves in water to form hydrofluoric acid. The applicant must take all the steps that are reasonably practicable to minimise pollution from firewater.	Construction drainage has been addressed in the Appendix 15.4: Outline drainage strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**], as have other potential sources of pollution requiring oil water separation (OWS). Other pollution management techniques associated with bespoke activities such as HDD (or other trenchless methods) is stipulated in the oCEMP [**EN0110012/APP/LVS/07.02**] which accompanies the DCO Application. The BESS will be designed to provide pollution, drainage and water control in the event of a BESS fire, managed through the oBSMP [**EN0110012/APP/LVS/07.06**]. The other pollution response techniques would be managed through the oCEMP [**EN0110012/APP/LVS/07.02**]
EA General	The EA stated general guiding principles to consider when designing watercourse crossings to avoid negatively affecting geomorphology and natural processes.	This is covered in the ES and the WER Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment [**EN0110012/APP/LVS/06.03.15.02**].
Ouse and Derwent Internal Drainage Board	The Ouse and Derwent IDB state that under the Land Drainage Act 1991 and the Boards' byelaws, the Board's prior written consent (outside of the planning process) is needed for:- a. any connection into a Board maintained watercourse, or any ordinary watercourse in the Board's district b. any discharge, or change in the rate of discharge, into a Board maintained watercourse, or any ordinary watercourse in the Board's district. This applies whether the discharge enters the watercourse either directly or indirectly (i.e. via a third-party asset such as a mains sewer). c. works within or over a Board maintained watercourse, or any ordinary watercourse in the Board's district – for example, land	The board's guidance has been consulted during development of the site layouts and accompanying drainage strategy for ES (Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]). An embedded mitigation measure for the Proposed Development includes the commitment to maintain a minimum offset of 10 m from bank top for all watercourses from all infrastructure (including fencing) and construction works, except where watercourse crossings are required. Any necessary consents from the IDB will be sought pursuant to the drainage authority Protective Provisions in the draft DCO.

Scoping opinion I.D	Scoping opinion comment	How is this addressed
	drainage, an outfall structure, bridges, culverting etc. d. any construction, building, hardstanding, fencing or planting within 9 m of the top of the embankment of a Board maintained watercourse.	
Ouse and Derwent Internal Drainage Board	The Ouse and Derwent IDB state that written consent must be obtained for the proposed cable under a watercourse. Would prefer for any cables crossing watercourses to be laid above any existing culverts so that they do not affect water flows and do not therefore require the Board's consent in terms of the cables themselves. If this is not feasible, directional drilling must be used. No open cut crossings will be accepted.	Engagement throughout the EIA process has been completed with the Ouse and Derwent IDB, with ongoing dialogue to finalise agreement. Any necessary consents from the IDB will be sought pursuant to the drainage authority Protective Provisions in the draft DCO.
Ouse and Derwent Internal Drainage Board	The Ouse and Derwent IDB state that the boards guidance should be consulted to ensure the board's recommendations and requirements on topic areas are met.	The Boards' guidance has been consulted during development of the design of the Proposed Development.
The Selby Area Internal Drainage Board	The Selby Area IDB state that if the surface water were to be disposed of via a soakaway system, the IDB would have no objection in principle but would advise that the ground conditions in this area may not be suitable for soakaway drainage. It is therefore essential that percolation tests are undertaken to establish if the ground conditions are suitable for soakaway drainage throughout the year. If surface water is to be directed to a mains sewer system the IDB would again have no objection in principle, providing that the Water Authority are satisfied that the existing system will accept this additional flow. If the surface water is to be discharged to any ordinary watercourse within the Drainage District, Consent from the IDB would be required in addition to	The drainage hierarchy has been followed, and constraints have been taken into consideration by the design team. The proposed Drainage Strategy (Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]) details the approach to managing surface water across the various elements of the Proposed Development. An embedded mitigation measure for the Proposed Development includes the commitment to maintain a minimum offset of 10 m from bank top for all watercourses all infrastructure (including fencing) and construction works and a minimum 50 m offset for all CRT watercourses, except where

Scoping opinion I.D	Scoping opinion comment	How is this addressed
	Planning Permission and would be restricted to 1.4 litres per second per hectare or greenfield runoff No obstructions within 7 m of the edge of an ordinary watercourse are permitted without Consent from the IDB. If surface water or works are planned adjacent to a Main River within the Drainage District, then the Environment Agency should be contacted for any relevant Permits.	watercourse crossings are required. Wherever practicable, the design will maintain existing catchments. Surface water will be managed such that existing greenfield runoff rates are maintained, this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**]. Any necessary consents from the IDB will be sought pursuant to the drainage authority Protective Provisions in the DCO Application.

Statutory consultation

15.4.2 A period of statutory consultation took place between 26 June to 7 August 2025 wherein consultees were able to respond to preliminary environmental information set out in the PEIR. Table 15-6 outlines the statutory consultation responses relating to water resources and flood risk and how these have been addressed through the ES.

15.4.3 Responses to the statutory consultation are outlined in the Consultation Report [**EN0110012/APP/LVS/05.1**]

Table 15-6 Statutory consultation comments

Consultee	Comments	How has this comment been addressed	Location of response in this ES
Canal & River Trust	Previous comments from the Trust highlighted a need to ensure that any new discharges to our watercourses are identified. The content of Table 15- suggests that this will be carried out. In addition, we note that our network is included in the list of likely waterway receptors in Table 15- (Selby Canal, and the Rivers Aire and Ouse) of PEIR. Paragraph 15.9.20 of PEIR highlights that construction works may require abstraction to provide a source of water for processes including dampening down and dust suppression. We wish to highlight that abstractions could result in a draw of water that could affect passing vessels and would require consideration in addition to the impact on hydromorphology processes and biodiversity otherwise identified in this paragraph. We therefore request that this is considered. Any abstraction from our network would	1. No new outfalls to CTR watercourses are proposed at this stage, nor to any Main Rivers including the Selby Canal, River Aire or River Ouse. 2. The Water Resource Assessment **[EN0110012/APP/LVS/07.16]** has been developed. The intention is to use mains water, tankering and/or repurpose existing abstractions rather than new licensed abstractions from the water environment, however private abstractions may be used if necessary. 3. Noted requirement for receptions/ launch pits and have been incorporated into the design for CRT watercourses. For other watercourses, a minimum standoff of 10 m will be applied. The launch and reception pits will be situated no closer than 10 m from all watercourses, though they may fall within 50 m depending on detailed	See Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]** , Water Resource Assessment **[EN0110012/APP/LVS/07.16]**, FRA **[EN0110012/APP/LVS/06.03.15.01],** and Appendix 2.1: Cable Route Corridor Construction Method Statement **[EN110012/APP/LVS/06.03.02.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	require co-ordination with the Trust's Code of Practice to ensure the safety of passing vessels. This would be required in addition to any consent from the Environment Agency. The reception and launch pits for Horizontal Direction Drilling present a potential source of pollution (through release of sediment) that could impact the water environment. We request that steps should be taken to ensure that the launch and reception pits are set out not less than 50 m away from the bank of any watercourse to avoid any impacts on the water's edge and introduction of sediments into the channel. Reference in section 15.9 of PEIR with regards to oil storage regulation would help to limit risks of contamination to the water environment. Fuel storage on site should be no less than 10 m from water's edge to forestall direct pathway for spillage into the channel.	design. In addition, there will be trenched crossings and culverts for some medium or low importance watercourses – none of which are CRT watercourses. 4. The 10 m standoff from all watercourses has been incorporated into layouts, and 50 m standoff to CRT watercourses. The requirement for no oil storage within 10 m of watercourses is included in the oCEMP [**EN0110012/APP/LVS/07.02**].	

Consultee	Comments	How has this comment been addressed	Location of response in this ES
Hillam Parish Council	The construction phase alone would result in air quality concerns, soil compaction, vegetation loss, and potential increases in surface water runoff due to changes in land structure. The cumulative impact on road safety, health, and infrastructure is unacceptable.	Surface water runoff from the development will be managed through a robust surface water drainage strategy, as set out in the Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] . The approach ensures that any increase in runoff will be appropriately controlled, following current national and local best practice guidance, such that the development will not increase flood risk on site or to areas downstream.	See Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**]
	The area is also vulnerable to surface water issues, especially given the clay and sandy soil composition, and the loss of vegetation during construction could exacerbate flood risks	Per the response above, surface water runoff and quality during construction is a key consideration and is addressed through the Outline Drainage Strategy and [**EN0110012/APP/LVS/06.03.15.04**] oCEMP [**EN0110012/APP/LVS/07.02**], such that the development will not increase flood risk on site or to areas downstream during the construction phase.	See Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] and oCEMP [**EN0110012/APP/LVS/07.02**]
Keir Mather MP	Concern that the cabling corridor might interfere with flood defence and the field drainage ditches on Wistow Lordship, putting villages	The cable will be buried below ground with no change to existing field drainage regimes once built, including no loss of floodplain storage, impedance of water flows,	See Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] , FRA [**EN0110012/APP/LVS/06.03.15.01**]

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	like Wistow at a heightened flood risk.	or increase in flood risk. During construction, measures will be in place to prevent any negative impacts associated with construction of the Cable Route Corridor on field drainage ditches and is outlined in the Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] and oCEMP [**EN0110012/APP/LVS/07.02**]. The project has engaged with the Environment Agency regarding interfaces with their assets and relevant approvals will be obtained from the EA pursuant to the DCO for any works beneath the River Ouse and associated set-back flood defences to the north of Wistow Lordship. The Cable Route Corridor shall be constructed below the defences via trenchless methods and pre and post-construction surveys will be carried out to ensure there is no loss of integrity to the flood defence by the proposed works. An assessment of interactions	and oCEMP [**EN0110012/APP/LVS/07.02**]

Consultee	Comments	How has this comment been addressed	Location of response in this ES
		between the Cable Route Corridor and flood defence assets is included in the FRA [**EN0110012/APP/LVS/06.03.15.01**] .	
Monk Fryston Parish Council	Flood risk - Flood risks near the River Aire	Flood risks from the River Aire are considered in the Flood Risk Assessment.	See FRA [**EN0110012/APP/LVS/06.03.15.01**]
Environment Agency	The design of clear span bridges has not been specified, including the offset of abutments for watercourse crossings, which could negatively affect the physical characteristics of waterbodies. Inappropriate design risks hardening banks, encroaching into watercourses, reducing flow capacity, and interfering with sediment transport and channel movement, leading to deterioration in WFD water quality status and reduced Biodiversity Net Gain. Bridge abutments should be set back at least 2 m from the riverbank, with consideration for 10 m where possible to avoid riparian encroachment. The Internal Drainage Board must be consulted for ordinary watercourse crossings. Additionally, documents should be	For very high to medium importance watercourse along the Cable Route Corridor, trenchless techniques will be used, with a minimum 10 m avoidance buffer around these watercourses. This will remove the requirement for bridges over major watercourses. Both the Selby IDB and the Ouse and Derwent IDB have been consulted or have provided responses during statutory consultation. Both IDBs have expressed a requirement for no new culverts over any IDB watercourse. Therefore proposed access tracks utilise existing watercourse crossings as far as is reasonably practicable, but there may be a need for a small number of new culvert crossings on low value	See Water Environment Regulations (Water Framework Directive) Compliance Assessment [**EN0110012/APP/LVS/06.03.15.02]** and Appendix 2.1: Cable Route Corridor Construction Method Statement **[EN110012/APP/LVS/06.03.02.01].**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	updated to reflect the recent terminology change in hydromorphological regime from "Supports Good" to "Not High" in Tables 5-2 to 5-6 of the Preliminary WER Assessment. (Paraphrased)	watercourses. Consultation with both IDBs has taken place to discuss these potential culverts. More widely, there is a commitment for a minimum offset of 10 m from the bank top for all watercourses and their associated riparian zones from all infrastructure (including fencing) and construction works. The old terminology has been updated within the final WER Assessment Report to use the new terminology. Comments on the WER Appendix **[EN0110012/APP/LVS/06.03.15.02]** have been incorporated for submission.	
	The water demand assessment for the project is inadequate. It is unclear whether the stated 4,312 m³ covers all consumptive uses or only potable and domestic needs, and mains water supply may not be practical in the area. This could lead to delays if water supply proves insufficient. Consultation with the water company is needed to confirm availability and practicality	A Water Resource Assessment **[EN0110012/APP/LVS/07.16]** has been produced and is included in the Environmental Statement which covers the potential sources of water. The WRA also includes calculations of water requirements (including dust suppression, HDD, wheel washing and BESS cooling) and potential sources of water. Both mains water supply and repurposing of existing licensed	See Water Resource Assessment **[EN0110012/APP/LVS/07.16]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	at required locations, and potential sources should be identified to meet full consumptive demand. The Environmental Statement should provide more detail to ensure robust planning and avoid issues before commencement. Consumptive uses typically include dust suppression, bentonite clay mixing for HDD, wheel and concrete washing, and cooling for Battery Energy Storage Systems. While it is positive that water quantities and alternative sources are being considered, a fuller account of uses is required. Chapter 15: Water Resources and Flood Risk (ES Volume 1) **[EN0110012/APP/LVS/06.01.15]** notes good surface water availability in the Aire and Calder catchment, but new licences may impose cessation conditions during drought or low-flow periods, which should be factored into planning. (Paraphrased)	abstractions were investigated as part of this piece of work.	
	Additional information is needed to ensure surface water quality impacts are properly mitigated. The current assessment does not clearly define the risk posed by concrete	The following containment measures to be used for all curing, mixing and pouring of concrete on site, such as lined pit or bunded areas have been proposed: a	See ES chapter 2 **[EN0110012/APP/LVS/06.01.02]**, and oCEMP **[EN0110012/APP/LVS/07.02]**.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	use during construction, even though concrete and cement contain hexavalent chromium, a specific pollutant with an annual average Environmental Quality Standard of 3.4 micrograms per litre. Concrete pad foundations present a contamination risk to surface water, particularly during curing, as runoff can introduce hazardous substances and deteriorate the WFD status of waterbodies. Further details should be provided on where concrete works will occur, whether they will be in situ or precast, and how timing, weather conditions, and runoff will be managed. Containment measures for concrete washout, such as lined pits or bunded areas, should be described, and a control-at-source approach adopted. Works should be minimised during heavy rainfall and scheduled for dry periods where possible. These management and mitigation measures must be included in the oCEMP. (Paraphrased)	control at source approach is to be adopted; and work is to be minimised during heavy rainfall and to be scheduled for dry periods where practicable. These are secured within the oCEMP [**EN0110012/APP/LVS/07.02**]. Concrete as a contaminant has been specifically listed in contaminants that have been considered in this chapter. At this stage, it is not practicable to commit to completing other works during dry periods and avoiding work during heavy rain.	Additionally see Section 15.9 of this chapter.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	Distances between HDD entry points and watercourses have not been specified, which increases the risk of surface water contamination and deterioration in WFD status. A minimum buffer of 10 m from the top of the bank should be maintained for HDD entry points, plant, and spoil. Insufficient separation can lead to bentonite breakout or trench collapse, creating pathways for sediment and drilling fluids to enter watercourses. A Bentonite Breakout Management Plan is required but is not listed in Table 4-6 of PEIR, despite being referenced in Chapter 15 of PEIR. This plan should be included in the Commitments Register alongside commitments to Water Features Surveys and Hydrogeological Risk Assessments at crossing points. HDD works should adopt trenchless installation measures and ensure robust mitigation under the oCEMP to prevent uncontrolled fluid loss and protect water quality. (Paraphrased)	Trenchless technologies will be used to cross watercourses and some ditches within the Cable Route Corridor. The entry and exit pits will be located a minimum of 10 m from the bank top of the watercourse, but at greater distances in some instances, and will always be located outside of the Avoidance Areas. These measures are secured within the oCEMP [**EN0110012/APP/LVS/07.02**]. The oCEMP also includes a commitment to complete a frac-out contingency plan. Hydrogeological Impact Assessments will be undertaken as required, which will include a Water Features Survey.	See ES Chapter 2 **[EN0110012/APP/LVS/06.01.02],** ES Chapter 4 **[EN0110012/APP/LVS/06.01.04],** the Commitments register - Appendix 1.3: Commitments Register (ES Volume 3) **[EN0110012/APP/LVS/06.03.01.0]** and Section 15.8 of this chapter.
	Key fuel management measures have been omitted, increasing the	These details are included in the oCEMP	See oCEMP **[EN0110012/APP/LVS/07.02]**,

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	risk of contaminants reaching watercourses and causing deterioration in WFD water quality status. Additional measures should be considered, such as installing oil separators in bunded storage areas on impermeable surfaces, restricting refuelling to designated areas away from sensitive receptors, and locating bunded storage at least 10 m from the bank top of watercourses. Clarification is needed on whether sheltered fuel tanks will also be covered to prevent rainwater accumulation and accidental damage. Any changes must be reflected in Chapter 15, Section 15.9.1 of PEIR, which outlines worst-case assumptions. Pollution prevention guidance from GOV.UK should be followed when preparing the oCEMP, oOEMP, and outline Decommissioning Environmental Management Plan (oDEMP). (Paraphrased)	[**EN0110012/APP/LVS/07.02**], and oDEMP **[EN0110012/APP/LVS/07.04]**. These documents align with policy requirements for protection of the water environment.	oOEMP **[EN0110012/APP/LVS/07.03]** and oDEMP **[EN0110012/APP/LVS/07.04]**, ES Chapter 2 **[EN0110012/APP/LVS/06.01.02]** and Section 15.9 of this chapter.
	Not all potential risks to groundwater and contaminated land have been identified, and detailed mitigation measures for stockpiling construction materials and	oCEMP **[EN0110012/APP/LVS/07.02]** outlines pollution prevention measures and confirm that 10 m buffer has been applied to design	See oCEMP **[EN0110012/APP/LVS/07.02]** and Section 15.9 of this chapter.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	excavated soil are missing. Inappropriate storage could lead to sediment washout, contaminating surface waters and deteriorating WFD status. The CEMP should clearly specify pollution prevention measures to mitigate this risk, ensuring spoil heaps are kept at least 10 m from the bank top of watercourses. Contaminants could include fuels, oils, chemicals, and concrete, and if there are concerns about spoil sediment contamination, testing should be incorporated into construction monitoring. (Paraphrased)	layouts. The oCEMP [**EN0110012/APP/LVS/07.02**] also states that there will be no stockpiling of construction materials and excavated spoil will be at least 10 m from the top of the bank of watercourses (50 m for CRT watercourses), except for watercourses at open cut crossing locations.	
	Some solar panels use PFAS coatings, which are 'forever chemicals' that can harm water quality and pose health risks if they enter drinking water. All panels should be PFAS-free. There are two Drinking Water Safeguard Zones within 1 km of the site, so if PFAS-coated panels are used, this risk must be addressed in the OEMP and DEMP. Damaged coatings could release persistent chemicals during rainfall, washing, maintenance, or removal. Panel	No PFAS are to be used in solar panel coatings and on BESS batteries, as as outlined within the oOEMP [**EN0110012/APP/LVS/07.03**]. The oCEMP [**EN0110012/APP/LVS/07.02**], oOEMP [**EN0110012/APP/LVS/07.03**], oDEMP [**EN0110012/APP/LVS/07.04**], Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] , and Outline Battery Safety Management Plan	See oOEMP **[EN0110012/APP/LVS/07.03]**.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	manufacturers should confirm materials used and whether regular washing will occur, as this could create a pathway to water receptors. The OEMP should include measures to prevent coating damage, such as avoiding thermal shock during cleaning. PFAS coatings should also be avoided on BESS batteries, as fire events could release chemicals into the environment via airborne emissions and firefighting runoff. CIRIA SuDS Manual (C753) should be referenced to ensure surface water runoff design and management is sufficient. The following documents should be reviewed from a water quality perspective before finalisation: oCEMP, oOEMP, oDEMP, Outline Drainage Strategy, and Outline Battery Fire Safety Management Plan. (Paraphrased)	[**EN0110012/APP/LVS/07.06**] all consider matters from a water quality perspective.	
	Flood risk impacts have not been sufficiently assessed. As such this undermines the approach to flood risk mitigation as further mitigation may be required to ensure flood risk is not increased on- or off-site.	See responses in the following rows.	See location of responses in the following rows.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	The proposal to use only 300 mm freeboard above the design event for all infrastructure does not account for credible maximum or breach scenarios, leaving critical infrastructure vulnerable to flooding and potentially unable to remain operational. A 600 mm freeboard should be implemented wherever possible, and finished floor levels should consider both credible maximum and residual risk to ensure resilience. (Paraphrased)	As agreed with the EA on 15 August 2025, minimum finished floor levels (FFLs) for flood-sensitive assets are to be set to the 1 in 100-year + 31/30% adopted climate change allowance + 300 mm freeboard OR set to the height of the credible maximum scenario, whichever is higher. This is location dependent. In the event voided structures are used, freeboard will be a minimum 600 mm.	See FRA **[EN0110012/APP/LVS/06.03.15.01]**
	The design criteria for new watercourse crossings have not been specified, creating a risk of increasing flood risk if crossings are poorly designed. A map showing all crossing locations and detailed design parameters should be provided, along with an assessment of potential flood impacts through hydraulic modelling and blockage sensitivity checks. Best practice includes setting soffit height at least 600 mm above the 1-in-100-year plus climate change flood level, abutments set back a minimum of 1 m from the bank, bridge deck width no greater than 4.2 m,	There are no new above-ground watercourse crossings for EA Main Rivers proposed in either the permanent or temporary scenario. Where new crossings are likely to be proposed over ordinary watercourses these are shown on the Crossings Schedule. **[EN0110012/APP/LVS/07.01]**	See FRA **[EN0110012/APP/LVS/06.03.15.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	compensating for any floodplain loss, using permeable parapets with 100 mm spacing, and limiting approach ramps to a 10% gradient. Existing crossings should be used where possible, and under GEO1, bridge abutments should ideally be set back at least 2 m from riverbanks to avoid WFD water quality deterioration. (Paraphrased)		
	No assessment has been made of the flood risk impacts from solar panel support frames, which could lead to underestimating flood risk and increasing offsite impacts. The final Flood Risk Assessment should quantify the effect of support frames on both onsite and offsite flood risk, including the volume of floodplain loss and its impact on flood extents and depths, as well as any influence on flood routes. Any loss of floodplain should be compensated on a level-for-level or volume-for-volume basis, or it must be demonstrated through quantitative methods that there is no impact on third-party flood risk. Detailed hydraulic modelling or approaches considering flow	An assessment of the impact of solar panels has been presented at ES, including a review of flood velocities to inform appropriate assessment methods. The assessment has concluded that flood velocities are low and therefore a volumetric method is appropriate, as evidenced in the final FRA **[EN0110012/APP/LVS/06.03.15.01]** for ES.	See FRA **[EN0110012/APP/LVS/06.03.15.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	constriction and increased Manning's roughness should be used where flood velocities are significant, while volumetric methods may be acceptable in low-velocity areas. (Paraphrased)		
	No assessment has been made of the development's impact on flood defences within the site boundary or how access for maintenance and emergency response will be maintained. This poses a risk of degrading assets and reducing their protection standard, as well as preventing access during floods, which could increase flood risk. The assessment should include all interactions above and below ground with these assets and confirm that access will be maintained or improved. Above-ground impacts from crossings and below-ground impacts from cable works near embankment foundations must be considered. (Paraphrased)	An assessment on such interactions has been provided in the FRA **[EN0110012/APP/LVS/06.03.15.01]** for ES. This includes commitments for embankment interactions and methodology for cable crossings, including surveys of existing flood defences post-DCO consent, to establish the asset condition before construction, and after construction. Bathymetric surveys were undertaken for the Ouse in summer 2025 and will be used to inform the future HDD design beneath the Ouse (Ref 30).	See FRA **[EN0110012/APP/LVS/06.03.15.01]**
	No consideration has been given to whether solar panel support frames can withstand forces during a flood event, creating a risk of structural	An assessment of the resilience of the solar panel mounting structures has been provided in the FRA **[EN0110012/APP/LVS/06.03.15.01**	See FRA **[EN0110012/APP/LVS/06.03.15.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	failure and increased debris, which could worsen flood risk elsewhere. The final Flood Risk Assessment should provide evidence that support frames are designed to withstand flood forces, using velocity, depth, and hazard data from hydraulic modelling. It would be prudent to assess these forces under the Credible Maximum climate change scenario to ensure resilience of the mounting structures. (Paraphrased)	**]** for ES, which considers the flood depths, velocities and hazard data in the credible maximum scenario.	
	There are potential evidence gaps in the Flood Map for Planning, which could lead to underestimating flood risk. Ordinary Watercourses and Internal Drainage Board (IDB) drains crossing the solar development areas are not associated with Flood Zone mapping, and their flood risk needs to be reviewed. Depending on infrastructure placement, detailed hydraulic modelling may be required to properly understand risk from these watercourses. Smaller watercourses may still pose flood risk even if not mapped, as seen in parts of sites 1, 3, and 4, where	Site-specific rainfall-runoff models have been developed for Sites 1 and 2 to assess the risk from smaller IDB drains in more detail, particularly in areas where flood risk could be under-estimated by current River models. The resulting outputs of these site-specific models are included in the final FRA **[EN0110012/APP/LVS/06.03.15.01]** for ES. As Sites 3 and 4 are within the extents of Flood Zone 2 and 3 associated with the River Aire, the outputs of the detailed hydraulic modelling for the River Aire in these	See FRA **[EN0110012/APP/LVS/06.03.15.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	Flood Zone extents relate to the River Aire rather than IDB drains. Outputs from River Aire modelling could provide a conservative representation of risk, but supporting evidence should be included in the final FRA. The new Risk of Flooding from Surface Water (RoFSW) dataset (January 2025) can help assess risk from smaller watercourses, but reliance on such data must be justified. In some cases, more detailed modelling will be necessary, particularly for sensitive infrastructure like the BESS and substation. (Paraphrased)	locations provides a more conservative representation of flood risk and levels to inform design. The most recent RoFSW dataset published by the EA has also been used in the final FRA for ES to assess the risk posed by smaller IDB drains.	
	It is unclear whether mitigation will be applied for construction activities within the floodplain, such as storing spoil from trenching for the cable corridor. This creates a risk of increasing flood risk during construction. A sequential approach should be taken, ensuring spoil is placed outside the functional floodplain and Flood Zone 3 wherever possible, and this requirement should be clearly	The FRA **[EN0110012/APP/LVS/06.03.15.01]** considers the sequential planning of construction activities and construction phase flood risk and includes measures such as the storage of spoil outside of Flood Zone 3 where practicable. This is secured via the oCEMP **[EN0110012/APP/LVS/07.02]**.	See FRA **[EN0110012/APP/LVS/06.03.15.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	stated in the final Flood Risk Assessment. (Paraphrased)		
	Further detail is required regarding the EA Flood Storage Area located within the draft Order Limits to ensure its level of protection is not compromised. Altering land or restricting access could reduce the effectiveness of the flood storage function. The final Flood Risk Assessment should commit to not altering land in this area, include buffer zones for existing defences, and provide evidence that the EA Flood Storage Area's protection will remain unchanged as a result of the development. The area is located southeast of Birkin along the River Aire (approximate grid reference SE5533426468). (Paraphrased)	This area is no longer included in the Order Limits due to the land no longer being required for the Proposed Development.	See FRA **[EN0110012/APP/LVS/06.03.15.01]**
	Commitment C15 at PEIR lacks detail on how pathways that could cause groundwater pollution will be minimised, creating a risk of piling impacting groundwater quality and deteriorating WFD status. The oCEMP should reference current best practice and include a commitment to produce a Foundation Works Risk	A Foundation Works Risk Assessment will be prepared to accompany the detailed CEMP(s) for any required foundations or piling activities, prior to commencement of construction works. and for any foundation solution likely to interact with, or else create a new pollution pathway to, a Secondary or Principal aquifer.	See Appendix 1.3: Commitments Register **[EN0110012/APP/LVS/06.03.01.03]** and Section 15.9 of this chapter.

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	Assessment for any piling activities, particularly at BESS and substation sites. This assessment should follow CL:AIRE guidance (updated March 2025) and be completed before deciding pile types, as piled foundations could penetrate superficial deposits and create contaminant migration pathways into sensitive aquifers. Ground investigations (Commitment D5) will be key to assessing these risks, especially in areas with high sensitivity aquifers, HDD crossings, and groundwater-dependent ecosystems or Source Protection Zones. (Paraphrased)	This is secured via the oCEMP **[EN0110012/APP/LVS/07.02]**.	
	An infiltration drainage solution is being considered for the BESS and substation, which poses a risk of contaminants entering groundwater from spills and leaks during normal operation, leading to deterioration in WFD water quality status. Measures to identify and manage spills and leaks must be included if infiltration drainage is adopted, and sentinel monitoring systems should be considered for early detection of fugitive emissions. Although	In normal conditions, runoff from the BESS Compound will comprise of clean runoff from roof areas of BESS Enclosures and surrounding hardstanding. Internal access tracks are anticipated to be low-frequency and therefore lower pollution levels are anticipated. No higher-risk areas are anticipated e.g. refuelling areas or oil storage. Surface water from the BESS Compound and access tracks will	See Appendix 1.3: Commitments Register **[EN0110012/APP/LVS/06.03.01.03]**, oBSMP **[EN0110012/APP/LVS/07.06]** and FRA **[EN0110012/APP/LVS/06.03.15.01]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	automated firewater containment systems are proposed, contaminated firewater and chemicals from BESS and substations remain a significant risk unless fully contained. Tankering offsite is preferable to treating and discharging contaminated firewater. High-risk elements such as the BESS compound and substations should be located where groundwater vulnerability is lowest, subject to ground investigation findings. Detailed design should account for scenarios such as fire suppression activation and subsequent contamination of gravel attenuation substrates, which could act as secondary contamination sources. Above-ground attenuation systems may simplify remediation. PEIR Commitment O10 should be updated to ensure containment of all firefighting runoff anticipated during a BESS fire event, and PEIR Commitment G3 should identify sub-plans under the oDEMP, similar to the oCEMP. (Paraphrased)	be managed via SuDS, providing appropriate water quality treatment prior to discharge. In event of a fire, a system of automatically self-actuating valves at the outfalls from the BESS Compounds will be closed, isolating the BESS Compounds drainage from the wider environment. This water will be tested, and released or, if necessary, removed by tanker and released offsite. In any areas with localised higher risk activities, additional treatment measures will be provided (e.g. oil-water separators). These are covered in the oBSMP [**EN0110012/APP/LVS/07.06**] which has also informed the final FRA [**EN0110012/APP/LVS/06.03.15.01]** and Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**. Commitment O10 at PEIR is now updated to ensure containment of fire-fighting water sprayed during a BESS fire event and is included in Appendix 1.3: Commitments Register **[EN0110012/APP/LVS/06.03.01.03]** and secured via the oBSMP **[EN0110012/APP/LVS/07.06].**	

Consultee	Comments	How has this comment been addressed	Location of response in this ES
		The oDEMP **[EN0110012/APP/LVS/07.04]** references the sub-plans that will be produced, similar to the oCEMP **[EN0110012/APP/LVS/07.02]**, following on from PEIR commitment G3	
	Proposed Cable Construction Compound 4 is located on a Principal aquifer (Sherwood Sandstone Group) or highly permeable Secondary A aquifer (Superficial Lacustrine Beach Deposits), creating a high risk of chemical spills and leaks entering groundwater and impacting water quality. Relocating the compound to an area with lower permeability superficial deposits should be considered to reduce this risk. Decommissioning plans state that all solar infrastructure will be removed to 1.2 m, but cable connections will remain in situ. It must be demonstrated that retained cables will not pose a risk to Controlled Waters through degradation or future agricultural damage. Underground cables should be PFAS-free where	Through design review, Cable Construction Compound 4 has been positioned directly on Sherwood Sandstone as this balanced the risk between groundwater quality and flooding at the site. This site is referenced specifically in the assessment to ensure appropriate mitigation measures are undertaken to not contaminate the aquifer. The Cable Route Corridor doesn't pass through SPZ1 or SPZ2 No fluid filled cables are used within the design, cables will be PFAS free where practicable, these measures are secured within the oCEMP [**EN0110012/APP/LVS/07.02**].	See Chapter 2 (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**], and assessment of Cable Construction Compound 4 in Section 15.9

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	possible, and fluid-filled cables should be avoided, as they present a significant contamination risk during operation and after decommissioning. The Environment Agency's groundwater protection position (C5) advises against pipelines or fluid-filled cables transporting pollutants through SPZ1 or SPZ2 or below the water table in Principal or Secondary aquifers. Fluid-filled cables could degrade over time, releasing pollutants, and one cable corridor passes through Yorkshire Water Brayton SPZ3, underlain by Sherwood Sandstone Principal aquifer or high-permeability deposits, creating a direct migration pathway for contamination. (Paraphrased)		
	Discharge to surface water and groundwater If the treatment and discharge of firewater is being consider, then you would need to apply for a permit. Given the timeframe to determine environmental permits, we encourage applicants to engage with us on permit requirements at	A discharge hierarchy is presented with the Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] for ES and the oBSMP [**EN0110012/APP/LVS/07.06**]. This sets out that at first instance discharge will be collected for non-potable use. Where there is the need to discharge into surface water and groundwater for which	See outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]** and oBSMP **[EN0110012/APP/LVS/07.06].**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	the earliest possible stage. A permit does not mean a deterioration will be accepted for a watercourse and therefore may not be granted. Only clean, uncontaminated water should be discharged to surface water or groundwater, and any permits need to be planned for well in advance of construction. Discharging runoff to watercourses has the potential to transport pollutants such as herbicides/pesticides/nitrates/phosphates and silt, and should be a last resort with mitigation in place to reduce the impact. Additional guidance in relation to discharging and permits is available at the following links: https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits https://www.gov.uk/guidance/get-advice-before-you-apply-for-an-environmental-permit	permits are be required, these will be applied for as soon as identified. .	
	Additional management practices for BESS firewater containment have not been fully described. The design should clarify how the bunded lagoon will remain empty and ready for firewater by allowing	The oBSMP **[EN0110012/APP/LVS/07.06]** and oOEMP **[EN0110012/APP/LVS/07.03]** incorporates these comments.	See oBSMP [**EN0110012/APP/LVS/07.06**], oOEMP **[EN0110012/APP/LVS/07.03]** and FRA

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	onward movement through a SuDS-based drainage system. Sections 8.4.1.8 and 8.1.4.11 of PEIR indicate that runoff may be controlled via a penstock chamber, which should be automatically triggered during a fire to prevent contaminated water entering downstream drainage. The system must capture all anticipated firefighting runoff combined with rainfall, and the oOEMP should include ongoing maintenance and testing of penstock valves to prevent failure during emergencies. The design should confirm that the bunded lagoon can contain worst-case volumes, even during heavy rainfall, and ensure cleaning after a firefighting event before reopening flow to the SuDS system. Guidance from GOV.UK and CIRIA should be followed, and regulatory developments monitored, as BESS may come under Environmental Permitting Regulations in the future. (Paraphrased)	The proposed drainage solution was indicative at PEIR as the firewater containment strategy was in development. The oBSMP **[EN0110012/APP/LVS/07.06]** is complete, which has informed the final FRA [**EN0110012/APP/LVS/06.03.15.01]** and Drainage Strategy [**EN0110012/APP/LVS/06.03.15.04**] **[**for ES. Any SuDS drainage solutions proposed to also be used for the containment of firewater runoff will be designed to accommodate rainfall for the 1 in 100-year plus climate change design event in addition to the anticipated volume of firewater runoff.	**[EN0110012/APP/LVS/06.03.15.01 b]**
Natural England	Natural England welcomes the commitment to use non-intrusive underground techniques such as	HDD will be utilised for crossing ditches linked to Burr Closes SSSI to avoid direct disturbance to	See Chapter 15: Water Resources and Flood Risk (ES Volume 1) **[EN0110012/APP/LVS/06.01.15]** of

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	HDD to cross ditches leading to Burr Closes, Selby SSSI, as this avoids direct disturbance to watercourses within the designated site. However, potential water quality and water supply impacts, including frac-out events, should be assessed in more detail, considering hydrological connectivity and impacts on designated features. While the production of an oCEMP alongside the ES is noted and supported, measures to prevent impacts on SSSIs should be included where impact pathways exist. Additional pathways have not been explicitly addressed, such as water abstraction for HDD, new drainage outfalls, panel cleaning methods during operation, and proposed SuDS. These should be explored further in relation to nationally designated sites where hydrological connections may occur. (Paraphrased)	watercourses within the designated site. Chapter 15: Water Resources and Flood Risk (ES Volume 1) **[EN0110012/APP/LVS/06.01.15]** of the ES and the oCEMP **[EN0110012/APP/LVS/07.02]** assess potential water quality and water supply impacts in more detail, including frac-out risk, considering hydrological connectivity and impacts on designated features. Measures to prevent impacts on SSSIs are included in the oCEMP [**EN0110012/APP/LVS/07.02**] where impact pathways may exist. Connections to nationally designated sites is assessed within this Chapter 15: Water Resources and Flood Risk (ES Volume 1) **[EN0110012/APP/LVS/06.01.15]** of the ES.	the ES, and the oCEMP **[EN0110012/APP/LVS/07.02]**
Wistow Parish Council	Approx 2 miles of the projects Cable Corridor is located within the Parish, and several waterways and dykes are bisected by the works.	Trenchless solutions are to be used for all IDB watercourses, Main Rivers and watercourses with WER waterbody classification with entry	Crossings are listed in the Crossing Schedule. **[EN0110012/APP/LVS/07.01]**. The assessment of likely impacts and

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	The Council therefore request that an extensive drainage, watercourse impact assessment and management plan is conducted prior to the commencement of the works, and that these assessments are made available to the Council. The Council also seeks assurances that all waterways disturbed by the project are returned to the pre-existing condition after completion of the works.	and exit pits 10 m from the bank top, none of these will be disturbed by the works. This is committed to within the oCEMP**.** Field drains which are not IDB assets will primarily use open cut crossings and may be culverted for access tracks, these watercourses will be returned to pre-existing condition with the exception of where culverts are permanently required for access during operation.	effects section of this ES chapter covers the assessment of watercourse crossings. Commitments are listed in Appendix 1.3: Commitments Register (ES Volume 3) **[EN0110012/APP/LVS/06.03.01.03].** Details about culverting are provided within Appendix 2.1: Cable Route Corridor Method (ES Volume 3) **[EN110012/APP/LVS/06.03.02.01]** and oCEMP [**EN0110012/APP/LVS/07.02**].
North Yorkshire Council	Initially, the LLFA encourage the applicant to review the NYC SuDS Guidance, as this outlines what is required for each type of planning application and what the LLFA expectations are for design requirements. The SuDS guidance can be found here: https://www.northyorks.gov.uk/environment-and-neighbourhoods/flooding/flood-andwater-management/sustainable-drainage-systems-guidance-2022-update	The NYC SuDS Guidance is referenced in the Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04].**	See Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	Furthermore, to adhere to the Drainage Hierarchy, the LLFA have a guidance document for infiltration testing, which can be found here: https://www.northyorks.gov.uk/environment-and-neighbourhoods/flooding/flood-andwater-management/supplementary-infiltration-guidance	The infiltration testing guidance is referenced in the Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**.	See Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**
	The application should address all of the following: Flood Risk, Runoff Destinations, Peak Flow Control, Volume Control, Designing for exceedance, Climate Change & Urban Creep and Maintenance Plan. Guidance on the requirements for each of the above can be found in the first link, the NYC SuDS Guidance.	Comment noted. The LLFA were invited to participate in consultation and have provided comments through the Statutory Consultation process. The responses have been reviewed and incorporated for ES. Urban Creep is not relevant to this assessment. Regular inspections and Maintenance of drainage systems, SuDS and culverts will take place throughout the operational phase, as secured within the oOEMP **[EN0110012/APP/LVS/07.03]**.	These are covered in the ES broadly, and within Chapter 15: Water Resources and Flood Risk (ES Volume 1) **[EN0110012/APP/LVS/06.01.15]**, specifically for water resources and flood risk.
	All drainage schemes must comply with the standard design parameters detailed below:	Comment noted.	See Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**

Consultee	Comments	How has this comment been addressed	Location of response in this ES
	<table><tr><th>Design Consideration</th><th>Design Parameter</th></tr><tr><td>Minimum Slope</td><td>1:500</td></tr><tr><td>Roughness Value (K) – manning "n" should only be used for open channels.</td><td>0.6mm</td></tr><tr><td>Minimum System Velocity</td><td>1.0 m/s</td></tr><tr><td>Climate change</td><td>Climate change allowances (data.gov.uk)</td></tr><tr><td>Additional Flows - Urban Creep (Where Applicable)</td><td>10%</td></tr><tr><td>Maximum Drained Area for Gullies</td><td>150m^2</td></tr><tr><td>Highway Drains Minimum Cover</td><td>1.2m</td></tr><tr><td>Minimum Pipe Diameter</td><td>150mm</td></tr><tr><td>Volumetric Runoff Coefficient Cv (Summer/Winter)</td><td>1. For both summer ar accordance with HF recommendations and Adoption)</td></tr><tr><td>Percentage Impermeable Area (PIMP)</td><td>100% for compliance with SfA</td></tr><tr><td>Margin for Flood Risk Warning</td><td>300mm</td></tr><tr><td>Area Reduction Factor</td><td>1</td></tr><tr><td>Time of Entry</td><td>3-8 minutes</td></tr><tr><td>Return Period</td><td>1, 30, 100 as a minimum</td></tr></table>	These design parameters have been noted for future design stages and are included in the Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04].**	See Outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**

Targeted consultation

15.4.4 A period of targeted consultation took place between 16th October 2025 and 20 November 2025, durionng which feedback was encouraged to comment on minor changes to the development boundary area, in relation to access points during construction and operation; visibility splays to ensure safe sightlines for vehicles entering and exiting the Proposed Development; passing places on narrow roads; access requirements for abnormal indivisible loads (less frequent but large delivery vehicles that have wider turner circles); cable route adjustments to avoid environmental and engineering constraints; and permissive paths to enable increased public access routes within the Solar Development Sites. Table 15-7 outlines some of the key statutory consultation responses relating to water resources and flood risk and how these have been addressed through the ES.

15.4.5 Full responses to the targeted consultation are outlined in the Consultation Report [**EN0110012/APP/LVS/05.01**].

Table 15-7 Targeted consultation comments

Consultee	Comment	Applicant Response
Canal & River Trust	No further comments	The Applicant notes this response
Yorkshire Consortium Drainage Boards	The comments made in July 2025 and directly to Arup in August 2025 remain the same.	The Applicant notes this response
Environment Agency	Temporary road-widening and new access routes located within the floodplain must be designed to avoid increasing flood risk, with any impacts mitigated through appropriate floodplain compensation and, where necessary, modelling to ensure safe and resilient access during design flood events.	The Applicant notes this comment, and it is addressed in the Flood Risk Assessment in [**EN0110012/APP/LVS/06.03.15.01a**]. The Outline Drainage Strategy [**EN0110012/APP/LVS/06.03.15.01b**] sets out how access tracks.

Stakeholder engagement

15.4.6 The following stakeholders have been engaged with regards to water resources and flood risk as part of the assessment process:

1) Environment Agency;
2) Selby Area Internal Drainage Board;
3) Ouse and Derwent Internal Drainage Board; and
4) North Yorkshire Council (Lead Local Flood Authority).

15.4.7 The outputs of the engagement undertaken are presented in Table 15-8.

Table 15-8 Water resources and flood risk - engagement undertaken

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
Environment Agency	August 2024	Introduction to the project and the EA	Set up cost recovery agreement. Set up next meetings.	Subsequent meetings were organised.
	January 2025	Flood Modelling process	Background of existing flood models and where the proposed Solar Development Sites are covered. Discussion of best approach for flood modelling. Modelling notes to feed into the FRA.	The final FRA for ES includes modelling technical notes and final model results/outputs.
	March 2025	Initial scoping opinion responses, River Ouse Crossing techniques. Cable corridor options area through Source Protection Zone 3 near Thorpe Willoughby (EA would prefer not to be located in SPZ), Water supply strategy.	No comments to initial responses to EA scoping opinion. Asset surveys for defences either side of Ouse should be requested from EA. The bathymetric survey will provide key input to the final design, which will be submitted to the EA for consideration. Regarding cable corridor options area through SPZ3 near Thorpe Willoughby, any HDD below road or rail in this area may mean cable is into the Principal Aquifer, shallow trench will reduce impact. Construction compounds should avoid SPZ. Beneficial to produce water supply strategy/plan sooner rather than later.	No Construction Compounds located within SPZs. The bathymetric survey has informed the future HDD design beneath the Ouse for the DCO Application and will be available to support the detailed design once ground investigation data is obtained. A Water Resource Assessment **[EN0110012/APP/LVS/07.16]** has been completed for ES submission.
	March 2025	Flood modelling	The EA requested the EA Asset Information and Maintenance (AIMS) Spatial Flood Defence dataset is used to inform a review of the cable corridor interfacing with existing defence assets.	The EA's AIMS Spatial Flood Defence dataset has been reviewed the EA consulted with on this matter further, to inform the assessment of interfaces in the FRA.

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
			The EA also raised that there are planned maintenance works to existing defences along a stretch of the River Ouse.	
	June 2025	Summary of FRA and PEIR for Water Resources and Flood Risk chapter – to provide a summary of the flood risk impacts of the project.	EA raised queries about the application of the Sequential and Exception Tests, site selection, flood modelling (including terrain and tidal boundaries), the approach to the washlands area, outline drainage strategy, and the process for Flood Risk Activity Permitting. The EA also requested updates on recent flood defence surveys and highlighted the need for formal responses to be based on submitted documents.	The project team summarised the preliminary Flood Risk Assessment (FRA) and PEIR chapter, explained the site selection and design process, confirmed ongoing detailed modelling and that sensitive elements are being microsited, outlined in the drainage strategy **[EN0110012/APP/LVS/06.03.15.04]**, and agreed to confirm the permitting/approval approach in a future meeting. The team will continue to provide updates and formal submissions for EA review.
	June 2025	Water quality, groundwater and contamination – to provide a summary of risks	EA raised queries about water supply strategy, abstraction licences, firewater source, panel washing, siting of BESS/substations, and requested further details for the CEMP and shapefiles for land parcels/cable corridors.	Project team confirmed ongoing surveys, use of existing abstraction licences where practicable, standard (chemical-free) panel washing, siting BESS/substations on impermeable strata where feasible, and will provide requested details and shapefiles to the EA.
	June 2025	Flood modelling, geomorphology, fish and biodiversity, and permits/consents – to	EA raised queries about firewater impacts on water quality, the use of culverting, commitment to Horizontal Directional Drilling (HDD) for watercourses, invasive non-native species	The project team confirmed firewater and culverting are addressed in assessments, HDD will be used for notable fish-supporting watercourses, invasive species and habitat surveys have been completed with mitigation

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
		provide a summary of risks relating to each.	surveys, Biodiversity Net Gain (BNG) targets, and the process for disapplying FRAPs.	included, a 10% BNG target is being pursued, and the process for disapplying FRAPs has been incorporated into the draft DCO.
	August 2025	Email sent to request data from EA surveys	A request was made to the EA for information on planned and in progress flood defences, recent survey information on flood defences, information on floodplains earmarked for future river restoration, and information on potential future river improvement/enhancements for WFD catchments in the area.	Two spreadsheets received.
	August 2025	Meeting held to discuss design flood level and freeboard	EA discussed the proposed reduction of freeboard from 600 mm to 300 mm based on site-specific modelling, requirements for resilience to breach scenarios, sensitivity testing for solar panel support frames, assessment of flood defences at cable crossings, and potential EMF impacts on fish.	The project team agreed to set finished floor levels to the higher of 1-in-100-year flood plus climate change plus 300 mm freeboard OR the credible maximum scenario (whichever is higher) as secured in the Works Plans **[EN0110012/APP/LVS/02.03]**, and confirmed the sensitivity and volumetric tests for panel frames (as set out in the FRA (Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]), and committed to post-consent surveys and methodology for cable crossings, as set out in the oCEMP. EMF impacts on fish are assessed in Chapter 6: Biodiversity (ES Volume 1) **[EN0110012/APP/LVS/06.01.06]**.

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
	September 2025	Meeting held to discuss the EA consultation responses	EA raised queries and provided feedback on ecological mitigation, aquatic and terrestrial species surveys, invasive species management, justification for culverting, water supply strategy (including panel washing), pollution prevention, PFAS-free commitments, flood risk management (including finished floor levels and flood storage), and construction compound locations. The EA also requested that risk assessments and mitigation measures be secured in the CEMP, commitments register, or DCO requirements.	The project team confirmed that ecological and aquatic surveys will be completed before works commence, mitigation and invasive species management will be included in the application and LEMP (see Chapter 6: Biodiversity (ES Volume 1) **[EN0110012/APP/LVS/06.01.06])**, trenchless techniques and buffers will be used for high/medium importance watercourses (as set out in the outline CEMP), PFAS-free panels and frac-out contingency plan are committed to flood risk and drainage measures are set out within the Outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]) (with FFLs as agreed), and construction compounds will avoid SPZ3, as set out in the Outline CEMP. All commitments are secured in the appropriate documents as requested.
Selby Area Internal Drainage Board	August 2024	Introduction email sent	A 7 m maintenance strip from the top of watercourse banks for all assets in the area, additionally all works within this area or to, in or on watercourse will require Consent from ourselves and to comply with Byelaws under the Land Drainage Act 1991.	Further engagement with IDB to be held. Approvals from the IDB will be sought pursuant to Protective Provisions for drainage authorities in the draft DCO rather than under the Land Drainage Act 1991.

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
			Provided a link to consent applications and Byelaws. Any new structures within the watercourse, discharges to or works on or to divert a watercourse would require a Section 23 application and this would incur a fee of £50 per application/structure. Any indirect flows introduced to a watercourse will require a Section 66 application and will not incur a fee. All additional flows to watercourses shall be at greenfield runoff rate or 1.4 l/s/ha.	
	May 2025	Engagement email sent including link to PEIR published documents.	No response received	N/A
	June 2025	Second engagement email sent including link to PEIR published documents.	No response received	N/A
	July 2025	A third engagement email sent which also highlighted the consultation closing time/date.	No response received	N/A
	December 2025	Meeting to update on project and discuss culverts within project design.	IDB raised no objections to the provision of the permanent and temporary culverts, subject to further detail being provided as part of the consenting process secured via the drainage	All culverts will be designed in accordance with CIRIA Report C786, with initial sizing based on upstream catchment assessments and anticipated flows.

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
			authority protective provisions included in Article 6 of the draft DCO. IDB requested that each crossing be supported by full design information, including temporary headwall details and upstream and downstream erosion protection, and emphasised the need to demonstrate that proposed pipe sizes are appropriate for expected flows.	
Ouse and Derwent Internal Drainage Board	August 2024	Introduction email sent	Requested a site plan showing the proposed development layout. Clarified the byelaws. For any ordinary watercourses (i.e. ones which the Board do not maintain), the Board would request a minimum of 3 metres from the bank top to be left completely clear of any new structures or fences or planting or hardstanding to facilitate maintenance access. <u>Drainage Strategies</u> The Board will not request a drainage strategy for the **solar panels** themselves if the below can be complied with: A 9 m buffer is provided from the top of the embankment of a **Board maintained** watercourse or of any **ordinary** watercourse. The area directly underneath the solar panels must have continuous grass/vegetation all year round.	Further engagement with IDB held (see row on August 2025 meeting), requests were noted and passed to the design team, with relevant commitments set out in the Design Parameters and Commitments Document **[EN0110012/APP/LVS/05.06]**.

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
			If Type 3 (with a 30% voids ratio) is used for **access tracks**, we view this as "permeable" and not requiring a drainage strategy. If Type 1 is used this will be viewed as impermeable and requiring a drainage strategy. <u>Cable Corridors</u> The Board's prior written consent must be obtained if the applicant is proposing to insert a cable under a watercourse within the Board's district. It is preferred for crossing watercourses to be laid above any existing culverts so that they do not affect water flows and do not therefore require the Board's consent in terms of the cables themselves. If this is not feasible, directional drilling must be used. The Board will not accept open cut crossings.	
	May 2025	Engagement email sent including link to PEIR published documents.	Arrange a follow up meeting end of May/early June.	New dates suggested, meeting to be arranged at end of July.
	July 2025	Email correspondence to arrange meeting to discuss the PEIR.	Meeting set and then rearranged.	Meeting was arranged for August (see line below).
	August 2025	Meeting to provide responses to and discuss the IDBs consultation comments	The IDB sought clarification on buffer zones, drainage strategy (including treatment of PV areas, BESS, substations, and access tracks), runoff and discharge rates, prohibition of open-	The project team confirmed a 10 m buffer for all watercourses, PV areas as permeable, BESS/substations as impermeable with SuDS, access track

Stakeholder	Date engaged	Matters raised	Consultee Comment	Response
			cut crossings for IDB assets, and requested clear mapping of all watercourses. The IDB also advised on engagement with Selby Area IDB.	permeability clarified, runoff rates restricted to 1.4 l/s/ha (minimum 1 l/s), IDB crossings to be trenchless, and mapping will be updated for clarity. Engagement with Selby Area IDB is ongoing.
	December 2025	Meeting to update on project and discuss culverts within project design.	IDB raised no objection in principle, subject to the provision of standard drawings for each culvert. These drawings are to include details of the proposed culvert length, diameter and headwall arrangements. The IDB also advised that culvert sizing should take account of existing upstream and downstream control structures. Following receipt and review of the standard drawings, the IDB will inspect each location in order to agree final culvert details including sizing.	All culverts will be designed in accordance with CIRIA Report C786, with initial sizing based on upstream catchment assessments and anticipated flows.
North Yorkshire Council (Lead Local Flood Authority)	June 2025	Email advising the publishing of the PEIR sent and a meeting suggested to discuss the PEIR	30/06 NYC LLFA responded and declined a meeting, opting to provide comments via formal consultation route via the planning team.	To continue reaching out to LLFA
	July 2025	Comments on PEIR received via NYC planning team for formal consultation.	After LLFA previously declined a meeting directly, comments received through the statutory consultation process.	Through statutory consultation process.
	November 2025	Meeting held to discuss temporary and permanent watercourse crossings.	LLFA accepting of culverts but not for them to approve as within IDB district areas.	IDB engagement as per consultation detailed above.

15.5 Methodology

Baseline sources of information

Desktop sources

15.5.1 The following desktop sources have been used to inform the existing baseline conditions of the Study Area:

1) British Geological Survey (BGS) geological mapping available via the online GeoIndex viewer (Ref 32)
2) BGS Lexicon of Named Rock Units (Ref 33)
3) BGS susceptibility to groundwater flooding data
4) Local Flood Risk Management Strategies (Ref 16, Ref 17)
5) Department for Environment, Food and Rural Affairs (Defra) Magic Map available online (Ref 34)
6) Defra Hydrology Data Explorer (Ref 35)
7) WER Status classification data for surface water and groundwater bodies (Ref 37)
8) Abstraction licences from groundwater and surface water within 5 km of the Order Limits (EA)
9) Discharge consents to ground or surface water within 5 km of the Order Limits (EA)
10) Hydraulic model outputs in this area, along with supporting data including model reports (EA)
11) Detailed flood data including data on past flood events, modelled flood levels and extents and flood defence breach hazard information where available (EA)
12) The EA's Flood Map for Planning (Ref 36)
13) The EA's Risk of Flooding From Surface Water dataset (Ref 36)
14) The EA's Risk of Flooding From Reservoirs dataset (Ref 37)
15) Hydrometric monitoring data including groundwater level, groundwater quality, surface water stage and flow, surface water quality and climate records (EA) (Ref 35, Ref 39)
16) Additional information held locally by the EA Area team, regarding the WER classification of water bodies, including, but not limited to:
    a) Extended Waterbody Summary Reports
    b) Programme of Measures
    c) Waterbody Level Measure Actions
    d) Heavily Modified Water Body Mitigation Measures

e) Any further information available regarding RBMP Cycle 2 and/or Cycle 3

17) List of private water supplies within 5 km of the Order Limits (York Council, North Yorkshire Council, East Riding of Yorkshire Council, Wakefield Council, and Leeds Council)

18) Internal Drainage Board (IDB) assets within 1 km of the Order Limits (Selby Area IDB and Ouse and Derwent IDB (part of the York Consortium of Drainage Boards))

19) Environment Agency LiDAR datasets for the area.

Survey

15.5.2 The following surveys have been undertaken and used to inform the existing baseline conditions assessed in this ES:

1) Site walkovers to identify nature and sensitivity of water receptors were carried out on the 22 January, 23 January and 29 January 2025 for the Study Area of Solar Development Sites 1-4 and 6-8.

2) WER features walkover one, this comprised primarily of WER waterbodies in and within 1 km of the Solar Development Sites and was carried out on 28 May 2025.

3) WER features walkover two and water receptors walkover two were carried on 21 and 22 August 2025. This covered all accessible features within 1 km of the corridor of the Cable Routes at the time which that had not already been visited. The sites visited across all surveys are shown on Figure 15.13: Surveyed Sites (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.13**].

15.5.3 It was not possible to arrange permission to survey all of the sites that had originally been identified, these were primarily private abstraction locations and are visible on Figure 15.13: Surveyed Sites (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.13**], and indicated in Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.02**]. These sites therefore have a conservative importance applied, based upon the criteria set out in Table 15-9, where there is a gap in data, the highest possible importance has been assigned to the receptor.

Sensitive receptors

15.5.4 The sensitive receptors identified for inclusion in the water resources and flood risk assessment are:

1) Surface water bodies including watercourses within the Study Area, shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**];

2) Bedrock aquifers within the Study Area, shown in Figure 15.2: Bedrock Geology (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.02**];

3) Superficial aquifers within the Study Area, shown in Figure 15.3: Superficial Geology (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.03**];

4) Groundwater designations, including Source Protection Zones, shown in Figure 15.4: Groundwater and Surface Water Designations (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.04**];

5) Environmentally designated sites within the Study Area, as well as WDTEs within the Study Area, Groundwater Dependent Terrestrial Ecosystems (GWDTEs), shown in Figure 15.7: Environmental Designations (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.07**];

6) Other water features identified from OS mapping, including springs, lakes and ponds;

7) Abstractions and discharges within the Study Area, shown in Figure 15.8: Abstractions and Discharges (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.08**];

8) WER/WFD surface water, transitional water and artificial water bodies within the Study Area, shown in Figure 15.5: WER – Surface Water Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.05**] and Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment [**EN0110012/APP/LVS/06.03.15.02**]; and

9) WER/WFD groundwater bodies within the Study Area, shown in Figure 15.6: Groundwater Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.06**] and Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment [**EN0110012/APP/LVS/06.03.15.02**].

15.5.5 Receptors assessed in Chapter 8: Cultural Heritage (ES Volume 1) [**EN0110012/APP/LVS/06.01.08**] were considered for any water dependence, and additional assessment in that chapter of the ES. Whilst a number of heritage assets across the Order Limits are associated with historical water management and use, they are no longer active and ongoing water levels will not have an impact on their condition or significance.

Assessment methodology

15.5.6 The Study Area is defined by the Order Limits plus a 1 km buffer, as shown on Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**], and is based on the 'source-pathway-receptor' pollutant linkage principle. The 1 km Study Area was selected based on professional judgement of the potential impacts and pathways related to the Proposed Development. The Study Area has been reviewed as the design developed and has taken into account any activities which have the potential to impact water resources at greater distance (such as dewatering or discharges).

15.5.7 A comprehensive desk-based study has been completed using publicly available data and data received from stakeholders through consultation. The desk study has built on the analysis undertaken at EIA scoping and PEIR stages and has

identified and confirmed potential water receptors and sensitive areas within the Study Area, which includes groundwater and surface water dependent features, and private water supplies.

15.5.8 Site visits have been carried out in order to ground-truth and expand on the data received during the desk study and to gain a complete understanding of the existing topography, hydrological and hydrogeological conditions of the Study Area, and, where possible, address data deficiencies. The site visits included a photographic survey of each of the key hydrological features / receptors identified during the desk study which were accessible. These locations are shown in Figure 15.13: Surveyed Sites (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.13**].

15.5.9 Following the site visits, the baseline condition and conceptual understanding of the geology, hydrogeology and hydrology within the Order Limits has been refined and has informed the risk assessment.

15.5.10 The risk assessment methodology has involved:

1) Identification of all key receptors and their sensitivity.
2) Identification of the potential impacts of the Proposed Development (during both construction, operational and decommissioning phases).
3) Assessment of the significance of the identified impacts (based on receptor sensitivity and magnitude of effect).
4) Identification of proposed mitigation (design and construction).
5) Identification of residual impacts.
6) Identification of cumulative impacts.

15.5.11 A WER Compliance Assessment (Appendix 15.2 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.02**]) has been undertaken to assess the potential impacts of the Proposed Development on the immediate water bodies present within the Order Limits and any linked water bodies. This comprises a screening assessment (baseline) and scoping assessment.

15.5.12 Flood risk has been assessed using existing data and information wherever possible, requested from the EA and IDBs. Initially, a scoping (Level 1) FRA was carried out to qualitatively identify flood risks from all sources, both to the Proposed Development, and from the Proposed Development to other receptors. A more detailed Level 2 preliminary FRA was prepared to sit alongside the PEIR. A final Level 3 FRA including quantitative site-specific hydraulic modelling to understand the precise impacts on receptors in order to determine the mitigation design has been prepared for ES (Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]). An Outline Drainage Strategy has also been developed (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]).

15.5.13 It is considered that a separate Hydrogeological Impact Assessment (HIA) document will not be required beyond the assessment described within this report. This is due to the nature of the development, which is primarily above

ground, with any temporary below ground construction works mitigatable through best practice measures and management plans which is outlined in the oCEMP [**EN0110012/APP/LVS/07.02**]. Below ground construction for the foundations of the BESS and substations is not anticipated to require dewatering. This is on the assumption that the groundwater level is sufficiently below the base of excavation, which is based upon a sparse network of groundwater level monitoring boreholes. During detailed design, targeted ground investigations will be carried out at the BESS and substation locations, which will provide information on groundwater levels. The requirement for temporary construction dewatering and therefore HIA will subsequently be revisited.

15.5.14 At this stage the water supply for the development is not confirmed, however a new licensed abstraction is not considered to be needed as there are a number of reasonable alternatives available to provide water during construction. This is considered in further detail in the Water Resource Assessment **[EN0110012/APP/LVS/07.16]**. Water is expected to be either transported to the Site by road tankers from mains water, subject to agreement from Yorkshire Water, or from another water tanker supplier. Alternatives being considered are repurposing existing nearby licenced water abstractions or private water supplies, where viable; or surface water sourced and stored on site. Again it is assumed that water would be transported from the source to where it is needed using road tankers.

15.5.15 The hydrogeological impacts related to drainage, flooding and WER are covered by the relevant appendices.

Assigning receptor importance

15.5.16 Whilst other disciplines may consider ‘receptor sensitivity’, receptor importance is considered here. This is because when considering the water environment, the availability of dilution means that there can be difference in the sensitivity and importance of a waterbody. As an example, a small drainage ditch of low conservation importance and biodiversity with limited other socioeconomic attributes may be very sensitive to impacts, whereas an important regional scale watercourse, may be 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.

15.5.17 The importance of the baseline environment has been initially assessed using the criteria defined in Table 15-9. The criteria for determination of the importance of receptors has been established based upon available guidance, legislation, statutory designation and/ or professional judgement.

Table 15-9 Assessment of importance

Environmental sensitivity importance of a receptor	Receptors
Very High (e.g. International)	**Surface water:** Watercourse having a WER classification and Q95 ≥1.0 m^3/s. Site protected/designated under European Commission (EC), SAC, SPA, Ramsar site, salmonid water)/Species protected by EC legislation Ecology and Nature Conservation. Public water supply licensed abstraction. **Groundwater:** Principal aquifer providing a regionally important resource and/or supporting a site protected under EC legislation. Ecology and Nature Conservation. Groundwater locally supports designated GWDTE. Source Protection Zone I (inner zone) associated with a Public Water Supply. **Flood risk:** Essential Civil infrastructure or highly vulnerable development.
High (e.g. National)	**Surface water:** Watercourse having a WER classification and Q95 <1.0 m^3/s. Species protected under UK legislation Site of Special Scientific Interest (SSSI). Ecology and Nature Conservation. Licensed surface water abstraction. Licensed surface water abstraction. **Groundwater:** Principal aquifer providing locally important re-source or supporting a river ecosystem. Groundwater supports a GWDTE. Licensed and unlicensed groundwater abstractions. Source Protection Zone I associated with a private water abstraction, SPZ 2 (outer zone) associated with a Public Water Supply. **Flood risk:** Highly vulnerable development.
Medium (e.g. Regional/ County)	**Surface water:** Watercourses not having a WER classification and Q95 >0.001 m^3/s, watercourses with flow observed at survey. Private surface water abstraction. Ponds or lakes with fishing or recreational usage activity. **Groundwater:** Aquifer providing water for agricultural or industrial use with limited connection to surface water. Secondary Aquifers, SPZ 3 (total catchment). **Flood risk:** Less vulnerable development.
Low (e.g. Local)	**Surface water:** Watercourses not having a WER classification and Q95 ≤0.001 m^3/s or confirmed to have no flow at site survey. Ponds or lakes with no recreational usage. **Groundwater:** Unproductive strata. **Flood risk:** Water compatible development.

Assigning magnitude of impact

15.5.18 The magnitude of impact will be determined based on the criteria outlined in Table 15-10, taking into account the likelihood of the impact occurring. The likelihood of an impact occurring is based on a scale of certain, likely or unlikely. Likelihood is considered in the case of water environment impacts only, as likelihood is inherently included within the flood risk assessment. This is based on the DMRB LA113 guidance (Ref 27).

Table 15-10 Magnitude of impacts

Magnitude of impact	Environmental impact	Examples
Major	**Negative:** Loss of an attribute and / or quality and integrity of an attribute **Positive:** Creation of new attribute or major improvement in quality of an attribute	**Negative:** Increase in peak flood level* (> 100 mm); deterioration in surface water ecological or chemical WER element status or groundwater qualitative or quantitative WER element status. **Positive:** Creation of additional flood storage and decrease in peak flood level* (> 100 mm); increase in productivity or size of fishery; improvement in surface water ecological or chemical WER element status; improvement in groundwater qualitative or quantitative WER element status.
Moderate	**Negative:** Loss of part of an attribute or decrease in integrity of an attribute **Positive:** Moderate improvement in quality of an attribute	**Negative:** Increase in peak flood level* (> 50 mm); measurable decrease in surface water ecological or chemical quality or flow with potential for deterioration in WER element status. Reversible change in the yield or quality of an aquifer, such that existing users are affected, with potential for deterioration in WER element status. **Positive:** Creation of flood storage and decrease in peak flood level* (> 50 mm); measurable increase in surface water ecological or chemical quality or flow with potential for WER element status to be improved. Measurable increase in the yield or quality of an aquifer, benefiting existing users, with potential for WER element status to be improved.
Minor	**Negative:** Measurable change to the integrity of an attribute **Positive:** Measurable increase, or reduced risk of negative effect to an attribute	**Negative:** Increase in peak flood level* (> 10 mm); measurable decrease in surface water ecological or chemical quality or flow; decrease in yield or quality of aquifer, not affecting existing users or changing any WER element status. **Positive:** Creation of flood storage and decrease in peak flood level* (> 10 mm); measurable increase in surface water ecological or chemical quality; increase in yield or quality of aquifer not affecting existing users or changing any WER element status.
Negligible	Impacts which are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.	Negligible change to peak flood level* (< +/- 10 mm); discharges to watercourse or changes to an aquifer which lead to no change in the attribute's integrity.
Neutral	Neutral effects are predicted where the proposal is unlikely to alter the present or future baseline situation.	No change to peak flood level*, discharges to watercourse or changes to an aquifer which have no appreciable effect.

Magnitude of impact	Environmental impact	Examples
*Peak flood level for floods up to and including a 0.5% annual probability event, including climate change, as appropriate. Where access or egress routes are affected, the magnitude of the impact will be defined by the change in the Flood Hazard Rating as defined in Defra/EA report FD2320		

Significance criteria

15.5.19 By combining the magnitude of impact (or change) and the sensitivity (importance) of each receptor, an assessment will be made of the significance of effect, considering the possibility and nature of mitigation. The resultant effects may be either negative (adverse), positive (beneficial) or neutral, depending on the nature of the impact. The significance of effect upon the receptor is assessed using the significance matrix in Table 15-11.

Table 15-11 Significance of effect

Importance of resource	Magnitude of impact: Major	Moderate	Minor	Negligible	Neutral
Very High	Major	Major	Major	Moderate/Minor	Neutral
High	Major	Major	Moderate	Minor	Neutral
Medium	Major	Moderate	Minor	Negligible	Neutral
Low	Moderate	Minor	Negligible	Negligible	Neutral

15.5.20 Moderate or Major effects are generally considered significant in EIA terms, and Negligible or Minor not significant. Significance conclusions for each residual effect will seek to incorporate, as far as possible, confirmed design and mitigation measures.

Differentiating between receptors in the assessment based upon proximity to higher risk construction features

15.5.21 At ES stage, the design location of the BESS, 275 kV substations, the Solar Development Site Construction Compounds and the Cable Construction Compounds are known. Most of the description of impacts identified within the assessment are related to construction and operational phase impacts related to these higher risk construction features, which pose a higher risk of impact to the water environment. As a result, receptors can be split into two categories:

7) Receptors within 1 km of a higher risk construction feature (BESS, 275 kV substations, the Solar Development Site Construction Compounds and the Cable Construction Compounds); and

8) Receptors not within 1 km of a higher risk construction feature, but within 1 km of the Order Limits.

15.5.22 Receptors in the first category within 1 km of the higher risk construction features are identified as being in “close proximity of a higher risk construction feature”

and are assessed to have a greater magnitude of impact for risk compared to receptors in the second category, not in close proximity to a higher risk construction feature but still within 1 km of the Order Limits.

15.5.23 The areas identified as Avoidance Areas where trenchless crossings are committed to and the locations of open cut crossing locations are detailed in the Crossing Schedule **[EN0110012/APP/LVS/07.01]**, and shown on Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**]**.** For simplicity, all surface water and groundwater receptors have been identified as having the greater magnitude of risk category in relation to trenchless solutions. Trenched crossing with temporary culverts are also considered as higher risk construction features for WER, flood risk, and for all low importance surface water receptors.

15.5.24 The 33 kV Switchrooms and mounting structures are not considered as high-risk construction features. The Switchrooms comprise of a 0.6 m thick layer of aggregate if foundations are below ground level, or set upon concrete if at ground level, neither which will not impede groundwater flow. Mounting structures will be set on piles which could reach up to 4 m deep, or on concrete plinths at ground level, neither will impede groundwater flow.

15.5.25 Receptors within 1 km of the higher risk construction features are listed in Table 15-19, and the final column of Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**] indicates whether or not a receptor is in close proximity to a higher risk construction feature.

15.6 Assumptions and limitations

15.6.1 This final assessment has built upon the work completed during the PEIR stage. The findings presented reflect a comprehensive and refined evaluation that incorporates feedback from statutory consultation and considers all additional data obtained since the PEIR.

15.6.2 Where design details are still under development or flexibility is sought, assumptions have been made based on professional judgment.

15.6.3 This assessment is an iterative process and has been expanded upon and made more specific as data is collected, analysed and reported on, and design details are further developed. This process will be carried out in conjunction with relevant consultees and third parties as necessary to achieve the most robust outcome.

15.6.4 The methodology for the water resources and flood risk assessment has considered the following assumptions:

1) As set out in the Water Resource Assessment **[EN0110012/APP/LVS/07.16]**, water will be transported to the Proposed Development by road tankers from mains where available, subject to agreement from Yorkshire Water, or from another water tanker supplier; from an existing nearby licenced or private water abstraction source, possibly an existing agricultural water source, where viable; or surface

water sourced and stored on site. The estimated average daily water demand for construction and operation is 64 m^3/d and 2.7 m^3/d, respectively.

2) Any third-party information, including the readily available data sources and input from external consultations is to be assumed to be accurate at the time of writing.

15.6.5 Worst case assumptions for the assessment are listed in Section 15.9.

15.7 Baseline conditions

Existing baseline conditions

15.7.1 The Order Limits cover an area of 1,270 hectares (ha). The Solar Development Sites are split out across a total of seven separate land parcels (Sites 1-4 and 6-8). The Cable Route Corridor is split out across a total of nine separate cables, although this includes two options for the Cable connecting Solar Development Site 1 to Solar Development Site 4, and also two options for the Cable connecting Solar Development Site 3 to Solar Development Site 4. There are also Highways Improvement Areas and the Solar Development Site 8 Access which are considered with the Cable Route Corridor in this assessment.

Site topography, land use and climate

15.7.2 Land within the Order Limits predominantly consists of arable farmland. Within the Study Area, land use is also predominantly arable farmland with some dwellings and small villages. Two major highways also pass through the Study Area, the A63 runs along the southern boundary of Solar Development Site 2 and the A19 runs into the northwestern edge of the Study Area surrounding Solar Development Site 1. The Cable Route Corridor also crosses these two major roads.

15.7.3 LiDAR and OS mapping data, demonstrates that the topography of the Order Limits is relatively flat, varying by approximately 5 m across Solar Development Sites 2-4 and 6-8 (between 5 m AOD to 10 m AOD). Solar Development Site 1 is more undulating, with topographic highs of 16 m AOD in the north and lows of around 5 m AOD in the south. The Cable Route Corridor from Solar Development Site 4 to Monk Fryston Substation (CRC 4-POC) crosses Betteras Hill at an elevation of 45 m AOD, west of Monk Fryston. Otherwise, the topography across the wider Study Area is relatively flat, between 18 m AOD and 3 m AOD.

15.7.4 Data from Bramham rain gauge (located approximately 12 km north of Solar Development Site 2 and 16 km west of Solar Development Site 1), for the period 1991 to 2023 indicates that the Solar Development Site is likely to receive an average of 690 mm of rainfall per year.

Surface water

15.7.5 Watercourses within the Study Area are shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**]; watercourses that interface with the Study Area are listed in Table 15-12.

15.7.6 There are several designated Main Rivers within the Study Area. The River Aire flows to the east, 460 m at closest to the south of Solar Development Site 4. Fox Dike and Upper Fox Drain meet at a confluence forming Selby Dam, each flows south-east north of Solar Development Site 8, with Selby Dam flowing through the northern access route for Solar Development Site 8. Bishop Dike is also located within the Study Area approximately 650 m north of the northern access route for Solar Development Site 8. Mill Dike bends from flowing eastward to northward 280 m west of Solar Development Site 7.

15.7.7 There are four designated Main Rivers within the Study Area close to the Cable Route Corridor, the River Ouse which crosses the Cable Route Corridor 1.5 km south of Riccall, Cockret Dike and Holmes Dike which are on the northern side of Selby and do not cross the Cable Route Corridor, and Selby Dam which crosses the Cable Route Corridor 400 m north of Thorpe Willoughby.

15.7.8 Many ordinary watercourses (OWCs) and land drains are present within the Study Area and within the Order Limits, including several Internal Drainage Board watercourses.

Table 15-12 Watercourses which interface with the study area

Solar Development Site/Cable Route Corridor	Watercourse type	Watercourse description
Solar Development Site 1 (SDS 1)	Ouse and Derwent IDB watercourse, WER Water Body, land drains	Pallion Dyke flows along the southern and eastern boundaries of Solar Development Site 1. Two of its tributaries cross the site, Whinchat Dyke crosses the site flowing in a south-east direction from the western edge, Chatterton Dyke crosses the site flowing south from the middle of the site to the southern edge. Pallion Dyke is also defined as being a part of the Riccall Dam catchment WER water body at the southern edge of the site. Pallion Dyke has other named tributaries within the 1 km Study Area (Leonard Scales Drain, Keldcarrs Drain, Common Drain 3, Dunstall Dyke) as well as a number of unnamed land drains. Stillingfleet Beck and Halfpenny Dike are located in the north of the Study Area, they do not cross the Order Limits, they are part of Stillingfleet Beck Source to Ouse WER water body.
CRC 1-4	WER Water Body, Ordinary Watercourse, land drains	Riccall Dam is crossed by the Cable Route Corridor to the south of SDS 1. There are two named tributaries that are also crossed by CRC 1-4: Hopney Stable Dyke and Swinbank Dyke. There is one additional ordinary watercourse within the Study Area, this does not cross the Order Limits (Holmes

Solar Development Site/Cable Route Corridor	Watercourse type	Watercourse description
		Dike). Eight unnamed land drains which are linked to Riccall Dam are also located within the Study Area; five of these are crossed by CRC 1-4.
	Main River, WER Water Body, Ordinary Watercourse, land drains	The River Ouse flows southeast and crosses CRC 1-4 south of Riccall. West Field Dyke and Old Ings Dyke are both crossed by the CRC 1-4 and are tributaries of Angram Clough which is connected to the River Ouse. There are two unnamed land drains that are also crossed by CRC 1-4. Furthermore, there are several watercourses and land drains within the 1 km Study Area around the River Ouse but are not crossed by CRC 1-4.
	Selby Area IDB, Ordinary Watercourse, land drains	Black Fen Drain, a tributary of Holmes Dike, which flows to the south of Wistow is crossed by the Cable Route Corridor. Holmes Dike and Cockret Dike which are WER water bodies are located to the south of CRC 1-4 but are not directly crossed. A number of unnamed land drains and smaller tributaries are located within the Holmes Dike catchment within the 1 km Study Area.
CRC 1-4 and Solar Development Site 8 (SDS 8)	Main river, WER Water Body, Ordinary Watercourse, Selby IDB Area, land drains	Selby Dam flows eastward into the River Ouse, crossing CRC 1-4 just north of Thorpe Willoughby and within the Order Limits for SDS 8. Outwoods Drain, Town Dike and Morton Drain, tributaries of Selby Dam are also crossed by the Cable Route Corridor. Habholme Dike marks the western extent of SDS 8 and Main Drain is located to the east of SDS within the Order Limits, both are tributary of Selby Dam. Dutchman's Dike and a number of land drains are also located within the 1 km Study Area within the Selby Dam catchment but are not crossed by CRC 1-4.
Solar Development Site 8 (SDS 8)	Main river, WER Water Body, Ordinary Watercourse, Selby IDB Area, land drains	Habholme Dike forms the western boundary of SDS 8 and Main Drain 1 is located 140 m to the east of SDS 8 and is crossed by the eastern access route for SDS 8. Both watercourses are tributaries of Selby Dam located to the north-west of Hambleton. Some unnamed land drains are located within the Order Limits for SDS 8. Briggs River, Long Dike, Main Drain 2 and Hammersike Dike are all located to the northeast of SDS 8 within the 1 km Study Area, and within the Selby Dam catchment. Fox Dike and Upper Fox Drain feed Selby Dam, Selby Dam flows north-east of the Order Limits but is crossed by the northern access route for SDS 8. These three are main rivers, within the Study Area and are all separate WER water bodies. Bishop Dike is a WER Water Body and is runs alongside the B1222.

Solar Development Site/Cable Route Corridor	Watercourse type	Watercourse description
CRC 2-8	Selby IDB Area, land drains	The Causeway Dike is shown to be present along the southern boundary of CRC 2-8, likely serving as a drainage ditch for the A63. There is also one unnamed drain which crosses CRC 2-8. The watercourses are located within the Selby Dam catchment.
Solar Development Site 2 (SDS 2)	Selby IDB Area, Ordinary Watercourse, land drains	Fleet Dike crosses through the middle of SDS 2, appearing to sever this site in two. This watercourse meets Habholme Dike, which flows along the eastern boundary of SDS 2 northward to SDS 8. Three unnamed land drains are located along the southern and northern extents of SDS 2.
CRC 2-6	Selby IDB Area, Ordinary Watercourse	Two ordinary watercourses, Common Drain 2 and Fleet Dike cross CRC 2-6. Both appear to be tributaries of Habholme Dike within the Selby Dam catchment.
Solar Development Sites 6 and 7 (SDS 6 and 7)	Main River, WER Waterbody	Mill Dike is designated as a Main River, part of Mill Dike from Source to Bishop Dike WER water body and is within the Study Area, north-west of SDS 7.
Solar Development Sites 6 and 7 (SDS 6 and 7), CRC 6-7	Selby Area IDB watercourse, WER Water Body	Lumby Common Drain is situated along the southern edge of the western section of SDS 6, and the southern edge of the main part of SDS 6 until it flows north, cutting SDS 6 in two close to the corridor of CRC 2-6. It is called Low Common Drain north of Common Road, where it cuts across Solar Development Site 6 and then flows east along the northern edge of the eastern part of SDS 6. Two unnamed IDB watercourses are located within SDS 6 south of Turpin Lane which split the site. One of which runs along the northern boundary of SDS 6 until Lumby Common Drain. Unnamed IDB watercourses and tributaries are located along the southern boundary of SDS 7 and CRC 6-7 along Common Lane, and on the western boundary of SDS 6, also along Common Lane. An unnamed IDB watercourse flows into Upper Fox Drain north of the sites which is part of Upper Fox Drain Catchment downstream of Sherburn STW WER water body.
CRC 2-4	Selby Area IDB watercourse	Hillam Common Drain and Breckswood Drain both cross CRC 2-4 flowing west to east. Both are located within the Fleet from Source to River Aire WER catchment. Note that the Fleet from Source to River Aire is locally called Maspin Moor Drain when it passes through Solar Development Sites 3 and 4. One further unnamed land drain crossed CC7 along Hillam

Solar Development Site/Cable Route Corridor	Watercourse type	Watercourse description
		Common Lane. There are a number of unnamed watercourses within the 1 km Study Area.
Solar Development Site 4 (SDS 4)	Main River, WER Waterbody	The River Aire is located 450 m south of SDS 4 within the Aire from Fryston Beck to River Ouse WER water body. The River Aire acts as a southern boundary for surface water features considered within the Study Area.
Solar Development Site 4 (SDS 4)	Selby Area IDB watercourse, WER Water Body, land drains	Several Selby Area IDB watercourses are present in and around Solar Development Site 4: **North** The Fleet (locally called Maspin Moor Drain) follows the northern boundary of SDS 4 and crosses into Solar Development Site 4 at two locations where the boundary extends beyond Maspin Moor Road, it is part of The Fleet from Source to River Aire Water Body. **West** Maspin Moor Drain appears to be culverted under Roe Lane before continuing westwards towards Solar Development Site 3. At the same point Roe Lane Drain is shown inside the eastern boundary of the west-most land parcel of SDS 4, with other unnamed IDB watercourses connected to Roe Lane Drain to the west, including along the southern edge of this land parcel. **East** At the north-east corner of the site, Maspin Moor Drain continues southwards and follows the eastern boundary, still part of The Fleet from Source to River Aire Water Body. Maspin Moor Drain continues along the eastern boundary of the site until it reaches Haddlesey Road. Near the north east corner of SDS 4 are a few unnamed IDB watercourses, one follows the western edge of the woodland north of the site from Hillam Road, a second follows parallel to Hillam Road, a third goes from the north-east corner of the site and the south-east corner of the wood eastward, a fourth with tributaries is east of the site and crosses Royd's Road and heads east to Pale Lane, a fifth is east of the site heading north from Birkin Road. **South** South of Haddlesey Road, Maspin Moor Drain continues along the southern extent of SDS 4 towards the River Aire. An unnamed watercourse is present south of Haddlesey Road, as is Old Eye, which feeds into the Aire and is part of the Aire from Fryston Beck to River Ouse WER water body. Old Eye has many unnamed tributaries, none crossing the Order Limits.

Solar Development Site/Cable Route Corridor	Watercourse type	Watercourse description
		Elsewhere within the SDS 4 boundary, Hagg Lane Drain is present in much of the centre of the main site and meets Maspin Moor Drain in the east.
Solar Development Site 3 (SDS 3)	WER Water Body, Selby Area IDB watercourse	The Fleet (known locally as Maspin Moor Drain) appears to be culverted under Roe Lane before continuing westwards, where it enters the SDS 3 boundary and crosses the site parallel to Woodlands Lane. An unnamed IDB watercourse (along Hillam Common Lane and Pighill Nook Road) is situated at the northern boundary of the site.
CRC 3-4 and CRC 3-4a	N/A	No watercourses cross the corridor of CRC 3-4 or 3-4a, SDS 3 and SDS 4 for nearby watercourses.
CRC 4-POC	Selby Area IDB watercourse	Unnamed IDB watercourses connected to Roe Lane Drain to the west cross is close but does not enter the corridor of CRC 4-POC. Unnamed IDB watercourses in between Hillam and Monk Fryston are within the Study Area, but do not cross the corridor of CRC 4-POC. These watercourses are located within the Fleet from Source to River Aire WER water body. Fleet Drain and their unnamed tributaries to the south of CRC 4-POC also do not cross the corridor of the Cable Route and are located in the Aire from Fryston Beck to River Ouse WER water body catchment.
CRC 1-4a	Selby Area IDB watercourse	An unnamed IDB watercourse crosses the alternative section of CRC 1-4, close to CRC 2-4.

15.7.9 There are multiple ponds within the Study Area and also within the Order Limits. Most of these have no usage, some are decorative, others are used recreationally for fishing. Chapter 6: Biodiversity (ES Volume 1) **[EN0110012/APP/LVS/06.01.06]** which uses a Study Area extending 250m from the Order Limits has made additional eDNA surveys to ponds in their Study Area with supplementary pond IDs. All ponds within the Study Area are listed in Table 15-13 and shown in Figure 15.13: Surveyed Sites (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.13**]. To align with Chapter 6: Biodiversity (ES Volume 1) **[EN0110012/APP/LVS/06.01.06]** and Chapter 13: Socioeconomics (ES Volume 1) **[EN0110012/APP/LVS/06.01.13]**, a medium importance has been assigned to ponds used for fishing in addition to Scarrow Green Pond and Mulberry Farm ponds which have County level importance. All other ponds have a low importance assigned.

15.7.10 Birkin Fisheries has two ponds used for recreational fishing, on the southern side of Haddlesey Road south and west of Solar Development Site 4. Gascoigne Wood Fisheries is used for recreational fishing and is located in between Solar Development Site 6 and Solar Development Site 7. These ponds associated with

fishing activities have been given a medium importance. Not all ponds could be surveyed due to inability to arrange access, as a result, they have been treated as if they could be used for recreational or fishing use and also given a medium importance. Ponds which have been surveyed and are clearly not used for recreational purposes are given a low importance.

Table 15-13 Ponds within the study area

Name	Biodiversity Pond ID	eDNA Survey results	Closest Solar Development Site (SDS) / Cable Route Corridor	Within Order Limits
Winchat Hall Farm pond	P1.11	eDNA	SDS 1	No
Winchat Hall Farm pond (smaller)	P1.10	Dry	SDS 1	No
Tileshed Farm pond	P1.1	Dry	SDS 1	No
Mill Hill Road Pond 1	P1.2	Dry	SDS 1	Yes
Mill Hill Road Pond 2	P1.13	Dry	SDS 1	No
Mill Hill Road Pond 3	P1.15	Dry	SDS 1	No
Mill Hill Road Pond 4	P1.16	eDNA	SDS 1	No
Mill Hill Road Pond 5	P1.17	Dry	SDS 1	No
Mill Hill Road Pond 6	P1.18	Dry	SDS 1	No
Mill Hill Road Pond 7	P1.19	Dry	SDS 1	No
Mill Hill Road Pond 8	P1.20	Dry	SDS 1	No
Mill Hill Road Pond 9	P1.21	eDNA	SDS 1	No
West of Partridge Remise pond	P1.3	No access	SDS 1	Yes
Duck Decoy	P1.14	No access	SDS 1	No
Gilbertson House pond	TBC – 2026 survey	No access	SDS 1	No
Manor Farm pond 1 (west)	P1.8	eDNA	SDS 1	No
Manor Farm pond 2 (east)	P1.9	eDNA	SDS 1	No
Manor Farm pond 3 (north)	P1.7	eDNA	SDS 1	No
North of Pallion Wood pond	P1.5	eDNA	SDS 1	Yes
Wheldrake Grange pond	Outside of Biodiversity Study Area	No access	SDS 1	No

Name	Biodiversity Pond ID	eDNA Survey results	Closest Solar Development Site (SDS) / Cable Route Corridor	Within Order Limits
South of Chequer Hall pond	P1.22	Dry	SDS 1	No
South of Pallion Wood pond	P1.12	No access	SDS 1	Yes
South of Wheldrake Lane pond	P1.6	Dry	SDS 1	No
Pond near Pallion Dyke	P1.4	Dry	SDS 1	No
North of Southmoor Road pond	TBC – 2026 survey	No access	SDS 1	No
North of Fleet Dike pond	TBC – 2026 survey	No access	SDS 2	No
East of Habholme Dike pond	TBC – 2026 survey	No access	SDS 2	No
Fryston Common Lane Farm pond	TBC – 2026 survey	No access	SDS 2	No
Birkin Fisheries lake (large)	TBC if in 2026 survey	No access	SDS 4	No
Birkin Fisheries lake (small)	TBC if in 2026 survey	No access	SDS 4	No
Gateforth Wood pond	TBC if in 2026 survey	No access	SDS 4	No
South of Haddlesey Road Pond	TBC if in 2026 survey	No access	SDS 4	No
West of Birkin Holme pond (north-west)	Outside of Biodiversity Study Area	Not tested	SDS 4	No
West of Birkin Holme pond (south-east)	Outside of Biodiversity Study Area	Not tested	SDS 4	No
South of Birkin Road pond	P4.1	Dry	SDS 4	No
South of Birkin Road pond 2	P4.2	Dry	SDS 4	No
Hillam Common Lane ponds	TBC if in 2026 survey	No access	SDS 4	No
East of Gateforth Wood pond	TBC if in 2026 survey	No access	SDS 4	No
East of Fleet pond	P4.3	No access	SDS 4	No
Mearley Drain pond	TBC if in 2026 survey	No access	SDS 4	No
North of Gascoigne Wood Mine pond (north-western)	TBC if in 2026 survey	No access	SDS 6	No

Name	Biodiversity Pond ID	eDNA Survey results	Closest Solar Development Site (SDS) / Cable Route Corridor	Within Order Limits
Fryston Grange ponds	TBC if in 2026 survey	No access	SDS 6	No
Deer Park pond	TBC if in 2026 survey	No access	SDS 6	No
South of Common Lane pond	TBC if in 2026 survey	No access	SDS 6	No
North of common lane south of trainline pond	TBC if in 2026 survey	No access	SDS 6	No
North of common lane north of trainline pond (south-western)	TBC if in 2026 survey	No access	SDS 6	No
Gascoigne Wood Fishery pond (eastern)	TBC if in 2026 survey	No access	SDS 6	No
East of Gascoigne Wood Fishery ponds	TBC if in 2026 survey	No access	SDS 6	No
Gascoigne Wood pond	TBC if in 2026 survey	No access	SDS 6	No
Ingthorpe Lane pond	TBC if in 2026 survey	No access	SDS 6	No
Turpin Lane pond	P6.1	eDNA	SDS 6	No
Westholme Farm ponds	TBC if in 2026 survey	No access	SDS 7	No
Gascoigne Wood Fishery pond (north-western)	TBC if in 2026 survey	No access	SDS 7	No
Common Plantation pond (northern)	TBC if in 2026 survey	No access	SDS 8	No
Common Plantation pond (southern)	TBC if in 2026 survey	No access	SDS 8	No
North of Gascoigne Wood Mine pond (south-eastern)	TBC if in 2026 survey	No access	SDS 8	No
Malton Leys pond	TBC if in 2026 survey	No access	SDS 8	No
Angram Lane pond (western)	TBC if in 2026 survey	No access	CRC 1-4	No
Angram Lane pond (eastern)	TBC if in 2026 survey	No access	CRC 1-4	No
North of Selby Dam close to Thorpe Willougby pond	TBC if in 2026 survey	No access	CRC 1-4	No
South of Selby Dam close to Thorpe	TBC if in 2026 survey	No access	CRC 1-4	No

Name	Biodiversity Pond ID	eDNA Survey results	Closest Solar Development Site (SDS) / Cable Route Corridor	Within Order Limits
Willougby pond (northern)				
South of Selby Dam close to Thorpe Willougby pond (southern)	TBC if in 2026 survey	No access	CRC 1-4	No
Pond west of Thorpe Willoughby	TBC if in 2026 survey	No access	CRC 1-4	No
Gateforth Park Pond (north-eastern)	TBC if in 2026 survey	No access	CRC 1-4	No
Gateforth Park Pond (south-western)	TBC if in 2026 survey	No access	CRC 1-4	No
Pond north of Hambleton	TBC if in 2026 survey	No access	CRC 1-4	No
Scarrow Green Pond, Little Skipwith	TBC if in 2026 survey	No access	CRC 1-4	No
Mulberry Farm ponds	TBC if in 2026 survey	No access	CRC 1-4	No
Burton Salmon Lake	TBC if in 2026 survey	No access	CRC 4-POC	No
Pond South of Lunnfield Lane	TBC if in 2026 survey	No access	CRC 4-POC	No

15.7.11 Many of the surface watercourses have licensed abstraction points, these have been indicated in Table 15-18 and shown on Figure 15.8: Abstractions and Discharges (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.08**]. Surface watercourse receptors which have licensed abstraction points are given the importance of the surface watercourse abstraction if this is greater.

15.7.12 There are no river flow or level gauging stations within the Order Limits or Study Area, two local river level gauging stations outside of the Study Area are noted below:

1) River Aire at Birkin Holme Washlands, located approximately 1.8km to the east of the Order Limits of Solar Development Site 4.
2) River Ouse at Selby Wistow Sluices Ouse Side, located 1.8 km to the east of the CRC 1-4 Order Limits at Barlby.

Groundwater

15.7.13 The bedrock geology in the area comprises four Groups, across four Periods spanning the Palaeozoic and early Mesozoic Eras, shown in Table 15-14.

Table 15-14 Generalised geology of the region, with typical thicknesses and descriptions of each major Group

Period	Group	Formation description	Typical thickness (m)
Triassic	Mercia Mudstone	Mudstone with siltstone and sandstone skerries, as well as evaporite layers.	180-240
Permo-Triassic	Sherwood Sandstone	Generally, the Sherwood Sandstone Group (SSG) is a fine to medium-grained, cross-bedded red sandstone, with a repeating fining upwards deposition cycle that extends from breccias at the base to red siltstones and mudstones at the top.	350-450
Permian	Zechstein	A group of generally limestones, mudstones and evaporites.	65-175
Carboniferous	Pennine Coal Measures	Comprises mudstones and siltstones with regular coal seams and occasional, localised sandstone units.	800+

15.7.14 Solar Development Site 1 and the surrounding 1 km sit entirely on the Sherwood Sandstone Group (SSG). Regionally, the SSG (350 to 450 m thick) dips shallowly eastwards (1-4°) and thickens and fines north-eastward. More locally, the SSG is approximately 180 m thick near Selby (Ref 40).

15.7.15 The Zechstein Group (ZG), which underlies the SSG, outcrops in the west of the Study Area and is comprised of four formations and a possible fifth (youngest to oldest) as per 3-D conceptualisation of the Selby Area (Ref 41) (all date to the Permo-Triassic periods):

1) *Roxby Formation* – a calcareous mudstone with gypsum and anhydrite (20-40 m thick)
2) *Brotherton Formation* – a dolomitic limestone but variable (20-30 m thick)
3) *Edlington Formation* – similar to Roxby (5-30 m thick)
4) *Cadeby Formation* – dolomite/dolomitic limestone (20-100 m thick)
5) There may also be a thin layer of basal sands (0-5 m thick).

15.7.16 Thus, the ZG is likely between 65 and 175 m thick, regionally.

15.7.17 Solar Development Sites 2, 4 and 8 are located to the east, where the ZG underlies the SSG at a shallow depth. Solar Development Site 4 and 8 are primarily on the SSG, with the Roxby Formation (calcareous mudstone), part of the ZG, outcropping in the north of Solar Development Site 4 and west of Solar Development Site 8. The western half of Solar Development Site 2, the entirety of Solar Development Site 3 and east of Solar Development Site 6 also sit on the Roxby Formation. The western half of Solar Development Site 6 and the entirety of Solar Development Site 7 sit on the Brotherton Formation (dolomitic limestone), part of the ZG. The Edlington Formation does not underly any of the

Solar Development Sites but is located within 1 km to the south of Solar Development Site 6, resulting in it being within the Study Area.

15.7.18 The Cable Route Corridor crosses the same set of bedrock units that underly the Solar Development Sites.

15.7.19 Cable Construction Compounds 1 – 4 are all situated on SSG, all along CRC 1-4. Cable Construction Compounds 5 is situated on the Roxby Formation, directly south of Solar Development Site 2 and north of the corridor of CRC 4-POC.

15.7.20 Solar Development Site Construction Compounds are predominantly situated on Sherwood Sandstone Group, with both in Solar Development Site 1, all three in Solar Development Site 4, and the one in Solar Development Site 8. All others are situated on Roxby Formation, these being both in Solar Development Site 2, and the one in Solar Development Site 6. The Solar Development Site 6 Construction Compound is also located overlying Brotherton Formation.

15.7.21 The 275 kV substations in Solar Development Sites 1 and 4 are located on Sherwood Sandstone. The 275 kV and the BESS in Solar Development Site 2 is located upon Roxby Formation.

15.7.22 Bedrock linear features are shown in Figure 15.2: Bedrock Geology (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.02**]. 1:50,000 scale BGS mapping shows faulting occurring across the Study Area, generally faults run southwest-northeast and for Solar Development Sites 2, 4 and 8, the faults are associated with the SSG and ZG boundary. Specific faulting within the Order Limits are as follows:

1) There is an inferred southwest-northeast fault in the northwest corner of Solar Development Site 2.
2) Faulting is shown to occur across much of Solar Development Site 4, generally in a southwest-northeast direction, with one large northwest-southeast fault occurring through the Site.
3) There are two inferred faults trending southwest-northeast within Solar Development Site 8, with a perpendicular fault originating on the northern of the two in the northern corner of the site heading northwest.
4) Faulting occurs across Solar Development Site 1, in both a southwest-northeast and northwest-southeast direction.
5) No other Solar Development Sites are located on known or inferred faults.
6) The Cable Route Corridor cross many of the described faults in each geological formation.
7) The north-west corner of Cable Construction Compound 3 close to Riccall is located on an inferred fault in the bedrock.

15.7.23 Superficial geology mapping for the Study Area is presented in Figure 15.3: Superficial Geology (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.03**]. The mapping shows that superficial deposits cover the vast majority of the Study Area, with areas of no recorded superficial deposits generally corresponding with local topographic highs (Ref 32). One notable gap in the superficial deposits is at

Brayton Barff, approximately 0.8 km to the east of Solar Development Site 2, 1.0 km to the southeast of Solar Development Site 8, and 1.2 km to the northeast of Solar Development Site 4, an area which CRC 1-4 crosses. Superficial deposits are also absent in the area of Thorpe Willoughby which CRC 1-4 crosses and to the southwest of Monk Fryston, which CRC 4-POC crosses. The superficial deposits across the Selby area can be very thick. For example, natural superficial deposits can reach nearly 40 m in thickness and made ground can be up to 60 m thick (Ref 41). Areas of thin, permeable or absent superficial deposits exist across much of the Order Limits, in both the Solar Development Sites and Cable Route Corridors.

15.7.24 In the lower topographies (c.0-10 m AOD), there is extensive coverage of superficial clays (lacustrine deposits) and alluvium. More isolated are the pockets of glacial sands and gravels, and till. There also exist small, isolated patches of peat which are mapped within 1 km of the Cable Route Corridor but not within 1 km of the Solar Development Sites. The BGS have mapped this area at 1:625,000 scale and 1:50,000 scale (Ref 32). Table 15-15 outlines the stratigraphy of superficial deposits within the Study Area.

15.7.25 Cable Construction Compounds 1 and 5 are underlain by Breighton Sand and Hemingbrough Glaciolacustrine Formation. Cable Construction Compound 2 is underlain by Breighton Sand and Hemingbrough Glaciolacustrine Formation Clay. Cable Construction Compound 3 is underlain by Skipwith Sand. Cable Construction Compound 4 is not underlain with any superficial cover so is directly on the Sherwood Sandstone.

15.7.26 The Solar Development Site 1 Construction Compounds A and B, along with the 275 kV substation in Solar Development Site 1 are underlain by Thorganby Clay Member, the Solar Development Site Construction Compound on the western edge of Solar Development Site 1 is also underlain by Skipwith Sand Member in part of the southern half.

15.7.27 The Solar Development Site Construction Compounds in Solar Development Sites 2 and 6, along with the BESS and 275 kV substation and Cable Construction Compound in Solar Development Site 2 are underlain entirely by Hemingbrough Glaciolacustrine Formation.

15.7.28 The Solar Development Site Construction Compounds and 275 kV substation in Solar Development Sites 4 and 8 are underlain by entirely by Breighton Sand.

15.7.29 Solar Development Site 8 Construction Compound is underlain predominantly by Breighton Sand, with a small area of Hemingbrough Glaciolacustrine Formation on its north-western corner.

Table 15-15 Superficial deposits within the study area

Superficial Deposit type at 1:625 k scale (and age range)	Superficial Deposit type at 1:50 k scale (and age range)	Lithological description (Ref 33)
	Alluvium	Made up of unconsolidated clays, silts and sands

Superficial Deposit type at 1:625 k scale (and age range)	Superficial Deposit type at 1:50 k scale (and age range)	Lithological description (Ref 33)
Alluvium and head	Holocene Epoch (max. 0.0118 Ma)	
	River Terrace Deposits Quaternary (max. 2.58 Ma)	Sand and gravel, locally with lenses of silt, clay or peat.
	Elvington Glaciolacustrine Formation Late Pleistocene (0.116-0.0118 Ma)	Firm to stiff, rarely soft, mottled reddish brown and grey thinly laminated clay. Sporadically interlaminated with silt and fine reddish brown sand. Commonly fissured. Gypsum, in the form of opaque, tabular selenite is found locally within the laminated clay below a depth of 2.5 m. Crystal size is typically 15 to 35 mm along the longest axis.
Glacial sands and gravels (Holocene Epoch (max. 0.0118 ma))	Lacustrine beach deposits Holocene Epoch (max. 0.0118 Ma)	Generally lithologically varied; sands to clays, bedded or chaotic, possibly showing larger structures like dunes or sheets
	Glaciofluvial deposits Late Pleistocene (0.116-0.0118 Ma)	Comprised of sands and gravels
	Esrick Moraine Member Late Pleistocene (0.116-0.0118 Ma)	Mainly greyish brown to yellowish brown, poorly sorted, gravelly sandy clay to slightly gravelly clay matrix with a little, ranging to much, gravel and cobbles (Morainic Till).
Lacustrine deposits (Quaternary Period (up to 1.588 ma))	Breighton Sand Formation Late Pleistocene (0.116-0.0118 Ma)	Varies in both lithology and thickness; primarily composed of sand with minor components of gravel, clay and peat, and is generally around 1-2 m thick. Formerly classified as the sand of the 25 Foot Superficial Deposits.
	Hemingborough Glaciolacustrine Formation (Late Pleistocene (0.116-0.0118 Ma)	Laminated grey-ish brown clays, silts and (occasional) sands which are up to 30 m thick (25 m). These deposits were split into 3 distinct units by the BGS; upper and lower units of laminated clay and silt with minor sand, and a middle unit of running sand often containing coal. Formerly, these deposits, together with the Breighton Sand, were referred to as "*The 25 Foot Superficial Deposits*", a now-obsolete term.
	Skipwith Sand Member Late Pleistocene (0.116-0.0118 Ma)	Dominantly yellow to pale brown slightly clayey sand. Typically composed of moderately well sorted medium quartz grains with minor bands of finer, coarser or poorly sorted material, including finely comminuted flint and lithic clasts. Thin laminae of clayey sandy peat and

Superficial Deposit type at 1:625 k scale (and age range)	Superficial Deposit type at 1:50 k scale (and age range)	Lithological description (Ref 33)
		poorly developed fine to medium slightly gravelly clayey sand are noted towards base of the member.
	Vale Of York Formation Late Pleistocene (0.116-0.0118 Ma)	Dominantly glacial till (sandy clay, clayey sand and clay with gravel and boulders) with interbedded sand, gravel and laminated clay, plus more substantial areas of those individual lithologies incorporated in the till sheet and moraines.
	Sutton Sand Formation Holocene Epoch (max. 0.0118 Ma)	Unconformable on older superficial deposits, mainly Devensian glacial lake deposits (e.g. Alne Formation at type locality) and glacial till or underlying bedrock.
	Naburn Sand Member Late Pleistocene (0.116-0.0118 Ma)	Mottled brownish yellow, yellowish brown, brown and grey silty, sporadically clayey fine to coarse sand. Characteristically poorly sorted and locally laminated. Grains dominated by quartz with sporadic plagioclase feldspar. Commonly shows a fining upwards sequence from lower boundary with underlying laminated clay.
	Thorganby Clay Member Late Pleistocene (0.116-0.0118 Ma)	Greyish brown soft, locally fissured, laminated silt and clay. The top metre of this member commonly contains a higher percentage of silt and sand, is reddish yellow to grey colour-mottled and the laminated structure has been destroyed by periglacial and soil processes. This unit can contain gravel dropstones and glaciotectonic structures, particularly near the Escrick Moraine.
	Park Farm Clay Member Late Pleistocene (0.116-0.0118 Ma)	Greyish brown to dark grey, slightly fissured, laminated, soft (0.2-2 cm varves) silt and clay with rare fine sand layers. Horizons of fine-grained sand to 1 m thick occur within the unit.
	Lawns House Farm Sand Member Late Pleistocene (0.116-0.0118 Ma)	Characteristically reddish yellow very silty fine to medium sand with beds of silt or sand. Very sparse fine gravel and limited bands of fine dark detrital material are noted. Lawns House Farm Sand Member is commonly water saturated, supporting a weak hydrostatic head, and prone to "running".
Diamicton	Harrogate Till Formation Mid Pleistocene (0.48 – 0.423 Ma)	Slightly sandy clay with large local sandstone blocks.
Peat	Peat Quaternary (max. 2.58 Ma)	Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.

15.7.30 Hydrometric monitoring data available on Hydrology Data Explorer was consulted (Ref 35), this showed that within the Study Area, there are five EA groundwater level monitoring stations (of which two are logged data) and no groundwater quality monitoring station. In addition, the EA have identified one additional groundwater level monitoring station. All six groundwater monitoring stations within the Study Area shown in Figure 15.4: Groundwater and Surface Water Designations (ES Volume 2) [**EN0110012/APP/LVS/06.03.15.04**]. These are:

f) Birkin Sandstone (same location as Birkin Drift and Birkin Limesone)
g) Hambleton
h) Hillam Drift
i) Peel Hall Farm Drift
j) Riccall Approach
k) Wistow Mine

15.7.31 Data from the groundwater monitoring stations within the Study Area show groundwater levels in the Study Area are generally between 7 and -4 m AOD (approximately 5 to 15 mbgl) and tend to fluctuate seasonally.

15.7.32 The EA aquifer designations (Ref 34, Ref 42) within the Study Area are listed within Table 15-16.

Table 15-16 Aquifer designations

Geology	Formation/ Member	Aquifer classification (Ref 34)
Bedrock	Sherwood Sandstone Group	Principal (and supporting regionally important resource)
	Roxby Formation	Secondary B
	Edlington Formation	Secondary B
	Brotherton Formation	Principal
Superficial	Alluvium	Secondary A
	River Terrace Deposits	Secondary (undifferentiated)
	Elvington Glaciolacustrine Formation	Unproductive
	Lacustrine beach deposits	Secondary A
	Glaciofluvial deposits	Secondary A
	Esrick Moraine Member	Secondary (undifferentiated)
	Breighton Sand Formation	Secondary A
	Hemingborough Glaciolacustrine Formation	Unproductive
	Skipwith Sand Member	Secondary (undifferentiated)
	Vale Of York Formation	Secondary (undifferentiated)
	Sutton Sand Formation	Secondary (undifferentiated)
	Naburn Sand Member	Secondary (undifferentiated)
	Thorganby Clay Member	Unproductive
	Park Farm Clay Member	Secondary (undifferentiated)
	Lawns House Farm Sand Member	Secondary (undifferentiated)

Geology	Formation/ Member	Aquifer classification (Ref 34)
	Harrogate Till Formation	Secondary (undifferentiated)
	Peat	Unproductive

Aquifer classification definitions:

Principal aquifers: provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands.

Secondary A aquifers: comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.

Secondary B aquifers: mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers.

Secondary (undifferentiated): aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor importance.

Unproductive strata: largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

15.7.33 Ordnance Survey (OS) mapping and EA hydrology data explorer shows eight wells or groundwater monitoring boreholes in the Study Area, none are within the Order Limits. OS mapping also shows one spring in the Study Area which is within 100 m of the corridor of CRC 1-4, 1 km northeast of Cable Construction Compound 1 and which feeds Outwoods Drain, a Selby Area IDB Watercourse.

Water Environment Regulations (WER)

15.7.34 Appendix 15.2: Water Environment Regulations (Water Framework Directive) Compliance Assessment [**EN0110012/APP/LVS/06.03.15.02**] summarises the WER baseline and compliance assessment (scoping).

15.7.35 The EU WFD was introduced in 2000 and was transposed into UK law by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The EA is the competent authority responsible for delivering the Directive in England. The WER aims to protect and enhance the quality of the water environment. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems. Under the WER, 'water bodies' are the basic management units and are defined as all or part of a river system or aquifer. These water bodies form part of a larger River Basin District (RBD), for which River Basin Management Plans (RBMPs) are developed and environmental objectives are set. These RBMPs are produced every six years, in accordance with the river basin management planning cycle. The WER requires the status classification of the condition of all surface water and groundwater bodies and the setting of objectives for maintaining or improving conditions so that water bodies reach and/or maintain 'good' status or higher (unless exceptions are identified).

15.7.36 The Order Limits and Study Area fall within the Humber RBD as defined under the WER. The status classifications, objectives and programme of measures

derived by the EA for water bodies located within the Study Area are outlined within the Cycle 3 Humber RBMP.

15.7.37 Eleven WER surface water body catchments and four groundwater body catchments fall within the Order Limits. Of which, six of the surface water bodies contain watercourses within the Order Limits. These are summarised in Table 15-17 and shown in Figure 15.5: WER – Surface Water Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.03.15.05**].

Table 15-17 WER water bodies within the Order Limits

Water body name	WB ID	Water body type	Waterbody has watercourse In/Out of Order Limits
Ouse from R Wharfe to Upper Humber	GB104027064270	River	In
Selby Dam from Conf. Fox Dike and Carr Dike to Ouse	GB104027063620	River	In
Riccall Dam Catchment (trib of Ouse)	GB104027063690	River	In
The Fleet from Source to River Aire	GB104027062740	River	In
Holmes Dike Catchment (trib of Ouse)	GB104027063650	River	In
Aire from Fryston Beck to River Ouse	GB104027063037	River	In
Stillingfleet Beck Source to Ouse	GB104027063710	River	Out
Mill Dike from Source to Bishop Dike	GB104027063640	River	Out
Fox Dike/Carr Dike from Source to Selby Dam	GB104027063680	River	Out
Upper Fox Drain Catchment ds of Sherburn STW	GB104027063610	River	Out
Bishop Dike (Trib of Ouse)	GB104027063660	River	Out
Selby Canal	GB70410120	Canal	Out
Wharfe & Lower Ouse Sherwood Sandstone	GB40401G702400	Groundwater	In
Aire & Don Sherwood Sandstone	GB40401G701000	Groundwater	In
Wharfe Magnesian Limestone	GB40401G701100	Groundwater	In
Aire & Don Magnesian Limestone	GB40401G700900	Groundwater	In

Environmental designations

15.7.38 Within 1 km of the Solar Development Sites, there are four Sites of Importance for Nature Conservation (SINC) with water dependence with medium importance assigned, due to their regional level of importance (in line with Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**]). There are no other environmentally designated sites, including Sites of Specific Scientific Interests (SSSI), Special Areas of Conservation (SAC), Local Nature Reserves (LNR), National Nature Reserves (NNR), Ramsar Sites and Special Protection Areas (SPA) with high or very high importance. It is recognised that there is hydraulic connectivity between watercourses within the Order Limits and designated sites outside of the Study Area, but this connectivity is expected to be sufficiently small given the distance (2.8 km to Lower Derwent Valley and Derwent Ings SSSI, NNR, SAC, SPA, 1.9 km to Sherburn Willows SSSI, 1.9 km to Fairburn and Newton Ings SSSI, and 2.3 km to Madbanks & Lesdsham Banks SSSI). Due to this distance, it is expected that there will be sufficient dilution so that there will be no impacts, and no need for assessment of sites outside the 1 km Study Area.

15.7.39 Within 1 km of the Cable Route Corridor, there are two environmentally designated sites with high or very high importance. The CRC 1-4 passes within 75 m of Burr Closes SSSI (also GWDTE) located to the south and also passes within 750 m of Skipwith Common SSSI (also SAC, NNR and GWDTE) located to the northwest. Skipwith Common is located at a higher elevation than CRC 1-4, with water flowing from Skipwith Common towards the CRC 1-4. There are also nine SINCs with medium importance within 1 km of the Cable Route Corridor.

15.7.40 There is one environmentally designated site within the Order Limits Ouse Bank Westfield, Riccall Ings (SINC) which CRC 1-4 crosses. All sites within the Study Area are listed in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**], and displayed on Figure 15.7: Environmental Designations (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.07**].

Water resources

15.7.41 Drinking Water Safeguard Zones (DWSgZs) are established around public water supplies where additional pollution control measures are needed, these are designated by the EA. There are two small areas of DWSgZs within the Study Area, both the same SgZ associated with the River Derwent, one area in the south-east of Solar Development Site 1 and the other area in the Study Area of CRC 1-4 near King Rudding Plantation.

15.7.42 SPZs are defined by the EA around large and public potable groundwater abstraction sites. The purpose of SPZs is to provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction. The following subdivisions are defined within SPZs:

1) Zone 1: This zone is defined by a travel time of 50-days or less from any point within the zone at, or below, the water table. Additionally, the zone has as a minimum a 50 m radius.
2) Zone 2: This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500 m, depending on the size of the abstraction.
3) Zone 3: This zone is defined as the total area needed to support the abstraction or discharge from the protected groundwater source.

15.7.43 An area of SPZ3 crosses CRC 1-4 near Thorpe Willoughby, the eastern access route for Solar Development Site 8 also crosses this SPZ3. There is additionally one small area of SPZ1 within the western side of Solar Development Site 6 associated with a private water abstraction, elsewhere there is no coverage of SPZ and Order Limits. Within the Study Area, there are areas of SPZ1 with licensed private abstractions. Additionally, there are areas of SPZ3 associated with Yorkshire Water PWS within the Study Area and around some of the licensed groundwater abstractions. These are shown in Figure 15.4: Groundwater and Surface Water Designations (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.04**].

15.7.44 Nitrate Vulnerable Zones (NVZs) are areas designated by Defra as being at risk from agricultural nitrate pollution, as shown in Figure 15.4: Groundwater and Surface Water Designations (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.04**].

15.7.45 The entire Order Limits is within a surface water NVZ except for a very small area in the east of Solar Development Site 1, and a stretch of the Cable Route Corridor approximately 3 km north and 1.5 km south of the B1223.

15.7.46 Most of the Study Area is not in a groundwater NVZ. The western half of CRC 4-POC, part of CRC 1-4 south of Hambleton, the western half of Solar Development Site 6, all of Solar Development Site 7 and a small section of CRC 2-6 are all in a groundwater NVZ. Groundwater NVZs are also present within the Study Area west of Solar Development Site 3, east of Solar Development Site 2 and north-east of Solar Development Site 4.

15.7.47 Data on licensed water abstractions from surface water and groundwater within 1 km of the Order Limits has been obtained from the EA. These abstraction points are presented in Figure 15.8: Abstractions and Discharges (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.08**] and shown in Table 15-18.

15.7.48 There are a total of seven licensed surface water abstractions within the Order Limits:

1) One on the south-eastern corner of Solar Development Site 1.
2) Two on the boundary of Solar Development Site 2.
3) Two on the northern edge of Solar Development Site 4.
4) Two within Solar Development Site 6.

15.7.49 There are no licensed groundwater abstractions or unlicensed abstractions within the Order Limits.

15.7.50 There are six groundwater abstractions within 50 m of Order Limits, 50 m is used to include sites just outside the boundary of the Order Limits but could be equally affected as abstractions within:

1) A licensed supply south of Solar Development Site 1.
2) A licensed supply next to the eastern edge of Solar Development Site 2.
3) A licensed supply in the middle of Solar Development Site 4 at the end of Tinkler's Lane.
4) An unlicensed supply at Common Lane (opposite Millford Lodge Farm) adjacent to Solar Development Site 6.
5) A licensed Supply next to the western edge of Solar Development Site 6.
6) A licensed supply adjacent to Order Extension near Skipwith.

15.7.51 Within the 1 km Study Area, there are 28 licensed groundwater abstractions, 30 licensed surface water abstractions, and 4 unlicensed abstractions for which the source – groundwater or surface water – is unknown. These are shown in Figure 15.8: Abstractions and Designations (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.08**].

15.7.52 Only those of the licensed abstractions which we have had permission to access have been surveyed, and none of the unlicensed private water abstractions within the Study Area have been surveyed as access was not available. The abstractions which have been surveyed or not surveyed are shown in Figure 15.13: Surveyed Sites (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.13**] as discussed in Section 15.1.

Table 15-18 Licensed and unlicensed abstractions within the study area

Category	License number / name	Max. permitted annual abstraction (m^3)	Max. permitted daily abstraction (m^3)	Feature within Order Limits	Closest Solar Development Site (SDS) / Cable Route Corridor (CRC)
Surface water abstraction (licensed)	2/27/18/117/R01 – River Aire	10000	1800	No	SDS 4
Surface water abstraction (licensed)	2/27/18/129/R01 - River Aire (east)	41400	1100	No	SDS 4
Surface water abstraction (licensed)	2/27/18/129/R01 - River Aire (west)	41400	1100	No	SDS 4
Surface water abstraction (licensed)	2/27/18/136/R01 - Topstone Drain (eastern)	41000	1028	No	CRC 4-POC

Category	License number / name	Max. permitted annual abstraction (m^3)	Max. permitted daily abstraction (m^3)	Feature within Order Limits	Closest Solar Development Site (SDS) / Cable Route Corridor (CRC)
Surface water abstraction (licensed)	2/27/18/136/R01 - Topstone Drain (western)	41000	1028	No	CRC 4-POC
Surface water abstraction (licensed)	2/27/18/137/R01 - River Aire (mid)	82000	1464	No	SDS 4
Surface water abstraction (licensed)	2/27/18/137/R01 - River Aire (west)	82000	1464	No	SDS 4
Surface water abstraction (licensed)	2/27/18/137/R01 - River Aire and Old Eye Drain (east)	82000	1464	No	SDS 4
Surface water abstraction (licensed)	2/27/18/138/R01 - Old Eye Drain	36980	727	No	SDS 4
Surface water abstraction (licensed)	2/27/18/138/R01 - Old Eye Drain (east)	36980	727	No	SDS 4
Surface water abstraction (licensed)	2/27/18/140/R01 - Fleet Drain	20625	760	No	SDS 4
Surface water abstraction (licensed)	2/27/18/140/R01 -Fleet Drain	20625	760	No	SDS 4
Surface water abstraction (licensed)	2/27/24/017 - Lumby Common Drain and Milford Common Drain (north-east)	5818	291	Yes	SDS 6
Surface water abstraction (licensed)	2/27/24/017 - Lumby Common Drain and Milford Common Drain (south-west)	5818	291	Yes	SDS 6
Surface water abstraction (licensed)	2/27/24/200 - Bishop Dyke - Cawood (middle)	30800	620	No	Bishopdyke Road and Long Lane, Wistow Highway Improvement Area
Surface water abstraction (licensed)	2/27/24/200 - Bishop Dyke - Cawood (north-east)	30800	620	No	Bishopdyke Road and Long Lane, Wistow

Category	License number / name	Max. permitted annual abstraction (m^3)	Max. permitted daily abstraction (m^3)	Feature within Order Limits	Closest Solar Development Site (SDS) / Cable Route Corridor (CRC)
					Highway Improvement Area
Surface water abstraction (licensed)	2/27/24/200 - Bishop Dyke - Cawood (north-easternmost)	30800	620	No	Bishopdyke Road and Long Lane, Wistow Highway Improvement Area
Surface water abstraction (licensed)	2/27/24/200 - Bishop Dyke - Cawood (south-west)	30800	620	No	Bishopdyke Road and Long Lane, Wistow Highway Improvement Area
Surface water abstraction (licensed)	2/27/24/200 - Bishop Dyke - Cawood (south-westernmost)	30800	620	No	Solar Development Site 8 Access
Surface water abstraction (licensed)	2/27/24/469/R01 - Fleet Dyke (east)	4546	635	Yes	SDS 2
Surface water abstraction (licensed)	2/27/24/469/R01 - Fleet Dyke (west)	4546	635	Yes	SDS 2
Surface water abstraction (licensed)	2/27/24/472/R01 - Selby Dam	26000	900	No	SDS 8
Surface water abstraction (licensed)	NE/027/0018/008 - Maspin Moor Drain (west)	15000	800	Yes	SDS 4
Surface water abstraction (licensed)	NE/027/0018/008 - Maspin Moor Drain (east)	15000	800	Yes	SDS 4
Surface water abstraction (licensed)	NE/027/0024/049 - Pallion Dike	54900	1260	No	SDS 1
Surface water abstraction (licensed)	NE/027/0024/049 - Pallion Dike	54900	1260	Yes	CRC 1-4

Category	License number / name	Max. permitted annual abstraction (m^3)	Max. permitted daily abstraction (m^3)	Feature within Order Limits	Closest Solar Development Site (SDS) / Cable Route Corridor (CRC)
Surface water abstraction (licensed)	NE/027/0024/081 - Reach at Mill Dyke	38421	216	No	SDS 7
Surface water abstraction (licensed)	NE/027/0024/095 - River Ouse/The Pond - Selby	38421	216	No	CRC 1-4
Surface water abstraction (licensed)	NE/027/0024/095 - The Ings	38421	216	No	CRC 1-4
Surface water abstraction (licensed)	NE/027/0024/095/R01 - Holmes Drain - Selby	38421	216	No	CRC 1-4
Unlicensed abstraction	Private abstraction - Common Lane	Unknown	Unknown	No	SDS 7
Unlicensed abstraction	Private abstraction - Common Lane (opposite Millford Lodge Farm)	Unknown	Unknown	No	SDS 6
Unlicensed abstraction	Private abstraction - Hillam Road	Unknown	Unknown	No	SDS 4
Unlicensed abstraction	Private abstraction - Ingthorne Lane	Unknown	Unknown	No	SDS 6
Groundwater abstraction (licensed)	2/27/18/151/R01	54623	1295	No	SDS 4
Groundwater abstraction (licensed)	2/27/18/152/R01	80000	920	No	SDS 4
Groundwater abstraction (licensed)	2/27/18/153/R01	100000	2000	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/118 (mid)	136380	373.64	No	SDS 6
Groundwater abstraction (licensed)	2/27/24/118 (north)	136380	373.64	No	SDS 7
Groundwater abstraction (licensed)	2/27/24/118 (south)	450520	431150	No	SDS 6

Category	License number / name	Max. permitted annual abstraction (m^3)	Max. permitted daily abstraction (m^3)	Feature within Order Limits	Closest Solar Development Site (SDS) / Cable Route Corridor (CRC)
Groundwater abstraction (licensed)	2/27/24/119	4546	181.843	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/148	8297	22.73	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/217	130000	2700	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/320	9953	27.27	No	SDS 2
Groundwater abstraction (licensed)	2/27/24/383	8500	30	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/417/R01	141764	1541	No	SDS 1
Groundwater abstraction (licensed)	2/27/24/439/R01	12740	727	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/446/R01	35000	500	No	SDS 2
Groundwater abstraction (licensed)	2/27/24/458/R01 (west of trainline)	9000	100	No	SDS 7
Groundwater abstraction (licensed)	2/27/24/459/R01	9000	35	No	SDS 2
Groundwater abstraction (licensed)	2/27/24/461/R01	84000	1580	No	SDS 1
Groundwater abstraction (licensed)	2/27/24/461/R01 (easternmost)	84000	1580	No	SDS 1
Groundwater abstraction (licensed)	2/27/24/480/R01	50000	900	No	Long Lane and Broad Lane, Wistow Highway

Category	License number / name	Max. permitted annual abstraction (m^3)	Max. permitted daily abstraction (m^3)	Feature within Order Limits	Closest Solar Development Site (SDS) / Cable Route Corridor (CRC)
					Improvement Area
Groundwater abstraction (licensed)	2/27/24/486/R01	80000	800	No	CRC 1-4
Groundwater abstraction (licensed)	2/27/24/489/R01	14047	500	No	Bishopdyke Road and Long Lane, Wistow Highway Improvement Area
Groundwater abstraction (licensed)	2/27/28/086A	136380	1640	No	SDS 1
Groundwater abstraction (licensed)	NE/027/0017/041	48000	200	No	CRC 4-POC
Groundwater abstraction (licensed)	NE/027/0024/043	55000	1600	No	CRC 1-4
Groundwater abstraction (licensed)	NE/027/0024/056 (north)	322000	5616	No	SDS 1
Groundwater abstraction (licensed)	NE/027/0024/056 (south-east)	322000	5616	No	SDS 1
Groundwater abstraction (licensed)	NE/027/0024/056 (south-west)	322000	5616	No	SDS 1
Groundwater abstraction (licensed)	NE/027/0024/087	15773	770	No	CRC 1-4

15.7.53 The Study Area falls within both the Aire and Calder abstraction licensing strategy area and Wharfe and Ouse abstraction licensing strategy area.

15.7.54 Within the Aire and Calder abstraction licensing strategy area (Ref 43), there is water available from surface water within the Study Area at AP6 (Consumptive abstraction is available at least 95% of the time) from all major rivers, including the Lower Aire except for under Q95, where restricted water is available. The groundwater resource in the area is classified as no water available.

15.7.55 Within the Wharfe and Lower Ouse abstraction licensing strategy area (Ref 44), there is limited surface water available. Sections of Cable Route Corridor fall within both water available and no water available areas. Groundwater availability within the area is restricted across the Order Limits. There is additionally a small section of the Order Limits of the Cable Route Corridor located in an area with no groundwater available.

Flood risk

15.7.56 Appendix 15.1: Flooding Risk Assessment (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01** outlines the final Level 3 FRA for the Proposed Development, together with the available baseline data.

15.7.57 Flood risk from all sources (fluvial, surface water, groundwater, reservoirs and surrounding properties/infrastructure) in the Study Area have been considered. This includes sources where there may be potential to impact flood risk to the Proposed Development (as a receptor itself), as well as the potential for the Proposed Development to impact flood risk to surrounding receptors such as property, infrastructure and land.

15.7.58 The risk of flooding from surface water is shown in Figure 15.9: Risk of Flooding from Surface Water (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.09**]. Aside from the surface water flooding associated with the positions of smaller watercourses not included in the fluvial flood maps, surface water flooding is also associated with overland flow pathways and ponding in depressions within the Study Area.

15.7.59 The risk of flooding from rivers and seas is shown in Figure 15.10: Risk of Flooding from Rivers and Seas (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.10**], which illustrates the Flood Zone mapping from the EA. Flood Zone 1 represents land with the lowest risk of flooding (0.1% annual probability). Flood Zone 2 presents a medium risk of flooding (0.5% annual probability). Flood Zone 3 presents the highest risk of flooding and is further defined into two flood risk categories – Flood Zone 3a (land that has a 1% or greater annual probability of river flooding or a 0.5% or greater annual probability of sea flooding) and Flood Zone 3b which is also defined as ‘functional floodplain’. Flood Zone 3b is typically compromised of land that is designed to flood (e.g. water storage areas including managed washlands) and land that has a 3.3% or greater annual probability of flooding.

15.7.60 Within the Study Area, sources of fluvial flood risk within the Order Limits are primarily from the River Aire located to the south of Solar Development Site 4 and the River Ouse located between Solar Development Site 1 and Site 4, crossing CRC 1-4, along with their associated tributary watercourses, including IDB drains. These systems influence flood risk across the Solar Development Sites. While most of the tributary watercourses are not explicitly represented in the fluvial flood mapping, their influence is represented in the surface water flood risk mapping. Information on the available hydraulic models for these river systems and their

outputs was requested from the EA and used to inform the FRA (Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]).

15.7.61 The risk of flooding from reservoirs is illustrated in Figure 15.11: Risk of Flooding from Reservoirs (ES Volume 2) [**EN0110012/APP/LVS/06.03.15.11**]. Although such events are extremely rare and highly managed, areas are classified as at risk where lives could be endangered in the event of a dam or reservoir breach. EA data on flood extents for all large, raised reservoirs, indicate that the entirety of Solar Development Sites 3 and 4 and areas of Solar Development Sites 1, 2 and 8 are at risk of flooding in the event that a reservoir failure occurred and released the water held on a "wet day" when local rivers had already overflowed their banks.

15.7.62 The BGS susceptibility to groundwater flooding data is shown in Figure 15.12: Susceptibility to Groundwater Flooding (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.12**]. This indicates that the flood risk varies across the Order Limits:

1) Susceptibility to groundwater flooding varies across Solar Development Site 1 from no potential for groundwater flooding to occur in the centre of the site, underlain by the Thorganby Clay Member, to 'Potential for groundwater flooding to occur at surface' in the southern area of the Site 1 boundary, which is underlain by the Skipwith Sand Member.
2) Susceptibility to groundwater flooding across Solar Development Sites 2-4 and 6-8 varies from no potential for groundwater flooding where the sites are underlain by the Hemingbrough Glaciolacustrine Formation, to 'Potential for groundwater flooding to occur at surface' where the sites are underlain by more permeable deposits such as Alluvium or the Breighton Sand Formation.

15.7.63 Receptors within the Study Area in hydrological connectivity with the Proposed Development and at risk of flooding have been identified generally, and they have been assessed to indicate whether the proposals may increase flood risk to them, and to inform appropriate mitigation.

15.7.64 The FRA (Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]) outlines the current anticipated flood levels and extents for various flood events, including the design event and more extreme scenarios, with considerations for future climate change. Site-specific hydraulic modelling has been completed for the Proposed Development, the outputs of which have been used to inform the FRA and the Proposed Development layouts.

Summary of interaction of the design with the existing baseline conditions

15.7.65 This section provides a summary of the receptors identified within the baseline which are within 1 km of the BESS, the 275 kV Substations, Cable Construction Compounds, and Solar Development Site Construction Compounds.

15.7.66 Table 15-19 includes all receptors located within 1 km of each higher risk construction feature. However, some surface water features have been excluded where, based on professional judgement, there is high confidence that no hydraulic connection exists with the higher risk construction feature.

15.7.67 See Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**] for a complete list of receptor importance, and a look up by receptor for those in close proximity to a higher risk construction feature.

Table 15-19 Summary of receptors within 1 km of higher risk construction features

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
Cable Construction Compound 1 (CCC1)	975 m north of Thorpe Willoughby, along CRC 1-4	4.4	250 m west of Dutchman's Dyke, 600 m north of Selby Dam, 900 m southwest of Outwoods Drain IDB watercourse. 830 m northwest of pond. North of Selby Dam close to Thorpe Willougby pond.	Western half underlain predominantly by Breighton Sand Formation (Secondary A) which tops Hemingbrough Glaciolacustrine Formation (Unproductive), the eastern half is topped with Hemingbrough Glaciolacustrine Formation. Both areas of superficial deposits top Sherwood Sandstone Formation (Principal). BGS borehole log indicates 25 m of Hemingbrough Glaciolacustrine formation over bedrock.	930 m southeast of the corner of Bishop Wood SINC.	770 m south of groundwater abstraction 2/27/24/439/R01, 160 m north of SPZ3, the compound is fully outside of SPZ3. Located within surface water NVZ.
Cable Construction Compound 2 (CCC2)	700 m north of Selby to the south of the River Ouse, along CRC 1-4	2.1	To the south and adjacent to Black Fen Drain, 410 m north of Cockret Dyke, 180 m north of an unnamed IDB watercourse which connects Black Fen Drain and Cockret Dyke. 720 m northwest of Little Moor Lane Drain. Tributaries of Black Fen Drain also feed into it north of the construction compound.	Southern half underlain by Breighton Sand Formation (Secondary A) which tops Hemingbrough Glaciolacustrine Formation (Unproductive). The northern half is underlain by Hemingbrough Glaciolacustrine Formation. Both areas of superficial deposits top Sherwood Sandstone Formation (Principal).	180 m north of Burr Closes SSSI.	Not within a Nitrate NVZ or within 1 km of a water abstraction.

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
Cable Construction Compound 3 (CCC3)	165 m east of Riccall, along CRC 1-4	1.86	380 m north of Marsh Dike, 950 m southwest of Riccall Dam, 440 m south of closest tributary of Riccall Dam – West End Dyke.	Underlain entirely by Skipwith Sand Member (Secondary (undifferentiated)) which tops Sherwood Sandstone Formation (Principal). BGS borehole log indicates 21.4 m of superficial deposit thickness.	None	810 m west of groundwater abstraction 2/27/24/148. Located within surface water NVZ.
Cable Construction Compound 4 (CCC4)	445 m south of Hambleton, along CRC 1-4	3.0	30 m east of unnamed IDB watercourse South of Hambleton, 320 m east of Main Drain. 350 m north of unnamed IDB watercourse, and 820 m southwest of Morton Drain IDB watercourse.	No superficial deposit, compound directly sited on Sherwood Sandstone Formation (Principal) and partially located on an inferred fault. This location has been chosen to balance the risk to flooding with the risk of contamination of the bedrock aquifer. Mitigation measures are discussed in the assessment section of this chapter.	None	600 m south of groundwater abstraction 2/27/24/486/R01, and 770 m northeast of unlicensed Private abstraction - Hillam Road. 770 m west of SPZ3, but compound fully outside of SPZ3. Located within surface water NVZ and groundwater NVZ.
Cable Construction Compound 5 (CCC5)	525 m south of Hillam, along CRC 4-POC	1.86	170 m south of Maspin Moor Drain, and 80 m south of an unnamed IDB tributary of Maspin Moor Drain. 570 m north of Burton Common	Underlain predominantly by Breighton Sand Formation (Secondary A) which tops Hemingbrough Glaciolacustrine Formation (Unproductive) and a small area of Hemingbrough	960 m south of Pond at Betteras Hill Road SINC	Located within surface water NVZ.

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
			Drain, and 700 m northwest of its unnamed IDB tributary.	Glaciolacustrine Formation at surface in the north which top Roxby Formation (Secondary B). BGS borehole log indicates 25 m of Hemingbrough Glaciolacustrine Formation over bedrock.		
Cable Construction Compound 6 (CCC6)	Solar Development Site 2	1.8	Adjacent to Fleet Dike on northern edge, and 160 m north of Causeway Dike on southern edge. 370 m north of Breckswood Drain, 820 m south- west of Habholme Dyke, and 520 m southwest of Common Drain.	Underlain entirely by Hemingbrough Glaciolacustrine Formation (Unproductive) which tops Roxby Formation (Secondary B).	None	790 m southwest of groundwater abstraction 2/27/24/446/R01, 350 m south-east of groundwater abstraction 2/27/24/320, 200 m east of the western surface water abstraction and 900 m west of the eastern abstraction 2/27/24/469/R01. Located within surface water NVZ.
Solar Development Site 1 Construction	Solar Development Site 1	2.2	700 m northwest of Chatterton Dyke, 720 m north of Whinchat Dyke, 140 m southeast of West of Partridge Remise pond, north, 380 m	Underlain entirely by Thorganby Clay Member (Unproductive) which tops Sherwood Sandstone (Principal).	None	Located within surface water NVZ.

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
Compound A (SCC1A)			northwest of Manor Farm ponds and 740 m northwest of North of Pallion Wood Pond.			
Solar Development Site 1 Construction Compound B (SCC1B)	Solar Development Site 1	1.8	90 m north of Whinchat Dyke, 220 m southeast of Duck Decoy pond, 700 m northwest of Whinchat Hall Farm Pond, 970 m southwest of Partridge Remise Pond.	Most of the area is underlain by Thorganby Clay Member (Unproductive), the southern section is underlain by Skipwith Sand Member (Secondary Undifferentiated) both top Sherwood Sandstone (Principal).	None	870 m northwest of the licensed groundwater abstraction NE/027/0024/056 (southwest). Located within surface water NVZ.
Solar Development Site 2 Construction Compound (SCC2)	Solar Development Site 2	1.9	Adjacent to Fleet Dike on the northern edge, and 120 m north of Causeway Dike. 320 m north of Breckswood Drain, 370 m southwest of Habholme Dyke, and 700 m south of Common Drain.	Underlain entirely by Hemingbrough Glaciolacustrine Formation (Unproductive) which tops Roxby Formation (Secondary B).	None	280 m southwest of groundwater abstraction 2/27/24/446/R01, 740 m southwest of groundwater abstraction 2/27/24/459/R01, 880 m east of groundwater abstraction 2/27/24/320, 750 m east of the western surface water abstraction and 370 m west of the eastern

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
						abstraction 2/27/24/469/R01. Located within surface water NVZ.
Solar Development Site 4 Construction Compound A (SCC4A)	Solar Development Site 4	3.7	Adjacent to Roe Lane Drain, sitting inside the south-eastern corner the drain creates. 540 m southwest of Maspin Moor Drain, 780 m south of unnamed IDB watercourse (along Hillam Common Lane and Pighill Nook Road), and 750 m northwest of Hagg Lane Drain.	Underlain by Breighton Sand Formation (Secondary A) which tops Sherwood Sandstone Formation (Principal).	None	Located within surface water NVZ.
Solar Development Site 4 Construction Compound B (SCC4B)	Solar Development Site 4	1.9	230 m east of Roe Lane Drain, 380 m south of Maspin Moor Drain, and 410 m northwest of Hagg Lane Drain. 970 m north of the smaller of the Birkin Fisheries ponds.	Underlain by Breighton Sand Formation (Secondary A) which tops Sherwood Sandstone Formation (Principal). The compound sits on an inferred fault.	None	870 m northwest of groundwater abstraction 2/27/18/151/R01, 850 m and 970 m southwest of the two surface water abstraction locations NE/027/0018/008. Located within surface water NVZ.

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
Solar Development Site 4 Construction Compound C (SCC4C)	Solar Development Site 4	1.9	250 m north of Old Eye Drain, 260 m northeast of unnamed IDB tributary of Old Eye Drain south of Haddlesey Road. 450 m east of Mearley Drain. 500 m north of River Aire. 330 m west of Birkin Fisheries ponds.	Underlain by Breighton Sand Formation (Secondary A) which tops Sherwood Sandstone Formation (Principal).	130 m northeast of Borrow Pit East of Birkin SINC.	310 m south of groundwater abstraction 2/27/18/151/R01, 330 m north and 560 m northeast of the surface water abstraction locations 2/27/18/138/R01, 520 m north of surface water abstraction 2/27/18/129/R01 and 2/27/18/137/R01 (west). Located within surface water NVZ.
Solar Development Site 6 Construction Compound (SCC6)	Solar Development Site 6.	1.9	Adjacent (south) of unnamed IDB watercourse running along Common Lane, a tributary of Lumby Common Drain. 220 m west of Lumby Common Drain at closest. 280 m south of Gascoigne Wood Fishery Pond (eastern).	Underlain entirely by Hemingbrough Glaciolacustrine Formation (Unproductive) which tops Roxby Formation in the east (Secondary B) and Brotherton Formation (Principal) in the west.	None	Adjacent on northern corner to surface water abstraction 2/27/24/017 (northeast), 570 m northeast of surface water abstraction 2/27/24/017

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
						(south-west), 500 m west of unlicensed abstraction at Common Lane (opposite Millford Lodge Farm), 610 – 680 m east of the three groundwater abstractions 2/27/24/118, 850 m east of unlicensed abstraction on Common Lane, 950 m east of groundwater abstraction 2/27/24/458/R01. Located within surface water NVZ and groundwater NVZ.
Solar Development Site 8 Construction	Solar Development Site 8	1.8	140 m west of Main Drain, 630 m southwest of Selby Dam, approximately 650-750 m east, south-east and south of	Underlain by Breighton Sand Formation (Secondary A) other than a very small area in the north which is underlain by Hemingbrough Glaciolacustrine	870 m southwest of Bishop Wood SINC.	650 m southwest of surface water abstraction 2/27/24/472/R01. Located within

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
Compound (SCC8)			Habholme Dike. 350 m north of Common Plantation ponds.	Formation, both top Sherwood Sandstone Formation (Principal).		surface water NVZ.
275 kV Substation compound – Solar Development Site 1 (SC1)	Solar Development Site 1	1	550 m north of Whinchat Dyke, 850 m northwest of Chatterton Dyke, 350 m southwest of Partridge Remise pond, 600 m north-east of Duck Decoy pond, 660 m west of Manor Farm ponds and 940 m northwest of North of Pallion Wood Pond.	Underlain entirely by Thorganby Clay Member (Unproductive) which tops Sherwood Sandstone (Principal).	None	Located within surface water NVZ.
275 kV Substation compound – Solar Development Site 2 (SC2)	Solar Development Site 2	3.5	Adjacent to Causeway Dike on southern edge, and 160 m south of Fleet Dike. 200 m north of Breckswood Drain, 930 m southwest of Habholme Dyke, and 620 m southwest of Common Drain.	Underlain entirely by Hemingbrough Glaciolacustrine Formation (Unproductive) which tops Roxby Formation (Secondary B).	None	850 m southwest of groundwater abstraction 2/27/24/446/R01, 400 m southeast of groundwater abstraction 2/27/24/320, 180 m east of the western surface water abstraction and 950 m southwest of the eastern abstraction 2/27/24/469/R01. Located within surface water NVZ.

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
275 kV Substation compound – Solar Development Site 4 (SC4)	Solar Development Site 4	3.5	50 m west and 40 m north of Roe Lane Drain, 470 m south-west of Maspin Moor Drain, 650 m south of unnamed IDB watercourse (along Hillam Common Lane and Pighill Nook Road), and 870 m northwest of Hagg Lane Drain.	Underlain by Breighton Sand Formation (Secondary A) which tops Sherwood Sandstone Formation (Principal).	None	Located within surface water NVZ.
BESS	Solar Development Site 2	10.5	Adjacent to Fleet Dike on northern edge, and Causeway Dike on southern edge. 220 m north of Breckswood Drain, 540 m south-west of Habholme Dyke, and 650 m southwest of Common Drain.	Underlain entirely by Hemingbrough Glaciolacustrine Formation (Unproductive) which tops Roxby Formation (Secondary B).	None	480 m southwest of groundwater abstraction 2/27/24/446/R01, 930 m southwest of groundwater abstraction 2/27/24/459/R01, 560 m east of groundwater abstraction 2/27/24/320, 410 m east of the western surface water abstraction and 580 m west of the eastern abstraction 2/27/24/469/R01. Located within

Design Feature	Location	Area (ha)	Surface Water receptors	Groundwater receptors	Environmental designations	Water Resources receptors
						surface water NVZ.

Baseline summary

15.7.68 Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**] provides a summary of the sensitivity of baseline features within 1 km of the Order Limits. All receptors are scoped in at construction phase, receptors which are only within the Study Area of the Cable Route Corridor are scoped out at operation and decommissioning phase, as it is not anticipated that the cables will require regular inspections, and they will be left in-situ in the decommissioning phase

Future baseline

15.7.69 The future baseline for water resources and flood risk is expected to change in the absence of the Proposed Development.

15.7.70 The UK Climate Projections 2018 (UKCP18) (Ref 45) predicts the following changes over the next several decades (up to 2099):

1) Temperatures will continue to increase, with larger temperature increases estimated in summers
2) The average summer rainfall rate is estimated to decrease, whereas the average winter rainfall is estimated to increase
3) An overall increase in extreme weather events.

15.7.71 This future climate baseline is based on climate is based on RCP8.5 which represents a high emissions and high impact future scenario. Future baseline 2050 to 2080 projected change at 50th percentile covering the Proposed Development suggests that:

1) Increase of mean temperature of 4.4 ^{o}C during summer and 2.7 ^{o}C compared to a 1980 – 2010 baseline for the region.
2) Estimated decrease in precipitation by 0.4 mm/d during summer and increase by 0.2 mm/d in winter compared to a 1980 – 2010 baseline for the region.

15.7.72 The UK Groundwater Forum concluded the following, as the potential impacts of climate change on groundwater (Ref 46):

1) A long-term decline in groundwater storage
2) Increased frequency and severity of groundwater droughts
3) Increased frequency and severity of groundwater-related floods.

15.7.73 This will lead to greater variability in groundwater levels, with prolonged periods of high and low groundwater levels relating to the variability of rainfall and recharge.

15.7.74 The UK Centre for Ecology and Hydrology (UKCEH) have run predictive models to simulate these impacts of climate change, across England, Scotland and Wales, using predictions from UKCP09 (Ref 47).This report has 25 individual

surface water stations across the north-east of England, no stations are within the Study Area. The closest stations are:

1) Skelton on the River Ouse, approximately 25 km north of Selby
2) Kildwick Bridge on the River Aire, approximately 60 km west of Selby.

15.7.75 The nearest of these monitoring points is at Skelton. At this location, mean flow is predicted to increase by up to 40% in the winter, and decrease – much more variably – by 20% in the summer (summer projections vary between -50% and +40% change) to 2080 (Ref 47).

15.7.76 This report also predicts the impact on groundwater stations, for which there are 2 stations in the northeast of England:

1) Swan House, near Northallerton, approximately 75 km north of Selby, on magnesium limestone
2) Dalton Holme, north of Hull and approximately 35 km east-northeast of Selby, on chalk.

15.7.77 Although neither are on the Sherwood Sandstone, and therefore provide limited usefulness to inform projections for change in the sandstone, Dalton Holme is the most appropriate, as the closest of the two. At this location, groundwater level is predicted to change between -1.5 and +0.5 m in elevation to 2080, with little discernible seasonal variation (Ref 40).

15.7.78 For flood risk, future climate change will increase the likelihood of extreme storm events. Planning Policy Guidance for flood risk and climate change outlines the required climate allowances to be applied to either peak river flows or to peak rainfall intensity (depending on the nature of the analysis) (Ref 22). The allowances that will need to be applied are determined by the location, the flood zone the development is in, and the vulnerability classification of the Proposed Development. The application of allowances to the Proposed Development is set out in the FRA in Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**].

15.7.79 It is possible that other committed developments may arise in the future which could change the baseline conditions which would be considered in the assessment as may be relevant where assessment is scoped in.

15.8 Embedded and good practice mitigation and enhancement measures

Embedded mitigation

15.8.1 Embedded measures are modifications to the design of a scheme, made during the pre-application phase, that are an inherent part of the design and do not require additional action to be taken. Good practice measures are standard approaches and actions undertaken to avoid or reduce environmental impacts in line with best practice guidance and legislative requirements.

15.8.2 The Proposed Development has evolved through an iterative design process. Measures for the Proposed Development relevant to water resources and flood risk already committed to include:

Construction

1) As set out in Design Parameters and Commitments Document **[EN0110012/APP/LVS/05.06]**, a minimum offset of 10 m from bank top for all watercourses (50 m for Canal and River Trust watercourses, e.g. River Ouse) and their associated riparian zones from all infrastructure (including fencing) and construction works (e.g. oil/ fuel storage, stockpiles etc), except where watercourse crossings are required (access tracks / cable routing / fencing will be located to pass across existing watercourse crossings where feasible). Works will be carried out at existing crossings and at several new crossings. When referencing the 10 m offset from the bank top of all watercourses, this does not include the works carried out at these crossings. No physical interaction with main rivers and The Fleet from Source to River Aire WER Water Body which passes through Solar Development Sites 3 and 4 where it is called Maspin Moor Drain will occur.
2) Substations, BESS and integrated conversion units (ICUs) are regarded as 'flood-sensitive' assets and cannot tolerate flooding. Substations and BESS are therefore sequentially located in areas of lowest flood risk, as demonstrated through the embedded mitigation measures for the Proposed Development and already committed to and secured within the Design Parameters and Commitments Document **[EN0110012/APP/LVS/05.06]** and as shown on the Works Plans **[EN0110012/APP/LVS/02.03]**. The Works Plans commit to locating the substations and BESS Compound within Flood Zone 1 and Flood Zone 2 only. These locations are also outside the flood envelope associated with the 1 in 100-year plus climate change design flood event.
3) ICUs are also flood-sensitive assets, however, they are small-scale components that are typically co-located with the solar panels they serve and so have limited locational flexibility. As a result, ICUs are located within the same Flood Zone as the associated solar PV, including Flood Zone 2 and 3. In the Proposed Design, the ICUs are largely located outside of the flood envelope associated with the 1 in 100-year plus climate change design flood event, with exceptions on Solar Development Site 1.
4) Flood-sensitive assets will also be designed to be flood resistant and resilient, for example, by ensuring that vulnerable components are raised above the predicted maximum flood depth plus freeboard for the appropriate design flood. The minimum Finished Floor Level (FFL) would be set to the design event flood level plus 0.3 m freeboard or the credible maximum scenario flood level, whichever is greater. In the event voided structures are used, freeboard will be a minimum of 600 mm. The specific FFLs for individual assets will be set at detailed design stage in accordance with these parameters. .

5) Solar panels are themselves inherently flood resilient and the panel's associated electrical infrastructure is naturally elevated to provide freeboard. Solar PV panels will either be of a tracking (Option A) or fixed (Option B) design with a minimum clearance between the ground and the bottom of a solar PV panel of 0.4 m, allowing floodwater to pass beneath the panel. If tracking type panels are used, the maximum height when horizontal or in a 'stow' position is 2.5 m above ground level.

6) Site specific modelling has been used to inform the limits of deviation for above-ground infrastructure on the Solar Development Sites shown on the Works Plans **[EN0110012/APP/LVS/02.03]**. Flood-sensitive infrastructure has been located outside of the anticipated flood envelope for the design event (further detail is provided in the FRA in Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]).

7) Where development must take place in Flood Zones 2 or 3, the Sequential and Exception tests have been carried out as part of the FRA and the requirement to provide compensatory storage has been assessed. The FRA concludes that compensatory flood storage is not required in the Proposed Development layout; flood-sensitive infrastructure is located outside the flood envelope associated with the design flood event and an assessment of solar panel interactions is also provided. Further detail on both is provided within the FRA.

8) A suitable Flood Warning and Evacuation Plan (FWEP) will be in place during construction, operation and decommissioning of the site, and suggested requirements for the FWEP are outlined in the FRA and secured via the outline CEMP [**EN0110012/APP/LVS/07.02**], OEMP [**EN0110012/APP/LVS/07.03**] and DEMP [**EN0110012/APP/LVS/07.04**].

9) A suitable drainage strategy incorporating sustainable drainage systems (SuDS) will be provided at source and are considered in the outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**, ensuring that surface water run-off emanating from the substation and associated infrastructure or otherwise is managed consistently with existing site conditions. Drainage systems will remain in place during the Proposed Development operation and maintenance around all long-term infrastructure such as the substation and permanent access tracks. The drainage design will mimic existing conditions or include appropriate storage, to enable greenfield runoff rates to be maintained.

10) Contamination and water suppression as a result of potential release of firewater and other chemicals from BESS and the substation shall be avoided with embedded mitigation implemented, outlined in the Outline Battery Safety Management Plan (oBSMP) [**EN0110012/APP/LVS/07.06**] and within the outline Drainage Strategy **[EN0110012/APP/LVS/06.03.15.04]**. BESS Enclosures may be fitted with an automated fire-suppression system or alternative fire management systems provided in accordance with best practice and guidance. Runoff

emanating from the BESS areas should be effectively managed to prevent the untreated discharge of contaminated firewater to surface or groundwaters (see Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]). An appropriate firewater treatment and/or containment plan is proposed in the Outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]) which allows for runoff to be contained within an impermeable, bunded lagoon and controlled via a penstock chamber.

11) Solar PV access tracks will be of permeable construction to allow water to filtrate through and maintain greenfield runoff rates. Wherever practicable, the design will maintain existing catchments and surface water will be managed such that existing greenfield runoff rates are maintained, this is secured within the Design Parameters and Commitments Document **[EN0110012/APP/LVS/05.06]**.

12) Where surface water attenuation may be needed, Lead Local Flood Authority guidance will be followed to ensure the overall volume of surface water leaving the site is managed, this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

13) A 50 m stand off from all groundwater and surface water abstractions, both licensed and private water supplies. There are no identified springs that have required stand offs applying, this is secured within the Design Parameters and Commitments Document **[EN0110012/APP/LVS/05.06]**.

14) Use of underground cabling methodology that minimises disruption to the ground (e.g. where possible cable plough which cuts, installs and backfills in one operation), this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

15) Use of piling methodology that minimises likelihood of creating pollution pathway to groundwater, this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

16) Trenchless solutions, for example HDD is proposed for the crossing of the River Ouse, main rivers, IDB watercourses, and WER water body line watercourses. There is one IDB watercourse for which the cable will pass through an existing culvert, and trenchless solutions will not be required. Trenchless solutions will also be utilised when/if crossing ditches that lead to the following designated sites: Common Wood SINC, Nightingale Wood SINC, Burr Closes SSSI, and Barber Rain SINC. Trenchless solutions will also be employed to pass beneath Ouse Bank-Westfield-Ricall Ings SINC that flanks the river Ouse, which will avoid direct impacts to the designated site. Trenchless solutions would also be used for railway crossings. Road crossings will be a combination of trenchless and open cut crossings. Additional space will be required for launch and reception pits for HDD locations. This is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

17) Where major watercourse crossings are required for the Cable Route Corridor, consideration will be given to the presence of / any interface with

existing flood defence assets, pursuant to the Environment Agency's approval mechanisms in its Protective Provisions in the draft DCO. An assessment of existing flood defence assets along the Cable Route Corridor is provided in the FRA.

18) Culverts will be sized appropriately to the flow in the watercourse this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

19) Temporary culverts are not proposed for the River Ouse, main rivers, IDB watercourses, and WER water body line watercourses and this is secured through the oCEMP [**EN0110012/APP/LVS/07.02**].

20) Minimising area of hardstanding required for laydown and Construction Compounds this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

21) Scheduling of temporary/ construction works excavations and storage to not increase flood risk or be placed within the floodplain as far as practicable, this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

22) Where Construction Compounds are needed to be placed within the floodplain, for example for trenchless solutions such as HDD, then flood warnings and additional processes will be established. Temporary land take areas (construction compound with car parking, temporary storage area, temporary laydown areas, welfare facilities etc.) will be fully reinstated following the construction period to reduce areas of semi-impermeable surfaces this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

23) Where land drainage from agriculture is encountered during construction, actions will be taken to divert the flow to an appropriate location, such as the construction drainage network. Prior to completion of the Proposed Development, these field drains will be reinstated to the original locations, where practicable, or to a suitable alternative discharge point determined before the end of construction this is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

24) No new abstraction licenses will be applied for the Proposed Development, however a license variation to repurpose an existing license may be an option for water supply. All options for water supply are: mains water connections, water to be transported to site, water to be taken from an existing repurposed abstraction or a new small abstraction of less than 20 m^3/day which does not require a license.

25) Receptors susceptible to local pollution incidents (such as groundwater dependent terrestrial ecosystems, licensed abstractions and private water supplies) will be avoided as the design develops. Additional measures to contain pollutants are discussed further in this chapter and secured within the oCEMP [**EN0110012/APP/LVS/07.02**]. However, a large portion of the Proposed Development overlies the Principal Sherwood Sandstone Aquifer, and various SPZs associated with local public water supplies. As such,

pollution prevention and control measures are critical to preventing impacts to groundwater receptors and are incorporated within the oCEMP [**EN0110012/APP/LVS/07.02**].

26) Ground investigation will be undertaken to inform the detailed design of the BESS, substations and Construction Compounds. This is to ensure that appropriate drainage design and aquifer protection measures are incorporated into the construction and operational designs, tailored to the specific geological/ groundwater conditions at each location, to protect the water environment.

27) A Hydrogeological Impact Assessment will be prepared (as required) to accompany the detailed CEMP(s) prior to construction of watercourse crossings. A frac-out contingency plan for HDD will be produced by the Contractor(s) prior to commencement of construction activities.

28) If groundwater control measures are required, construction dewatering would be designed and undertaken in line with the appropriate regulatory licenses and permits and would be non-consumptive.

29) Environmental permits/consents will be obtained for any discharges, as required.

30) Temporary storage tanks of abstracted water from repurposed abstractions or mains/ tankered water supply will be required periodically along the working corridor to store for use in construction activities.

31) Existing watercourse crossings are being used wherever practicable.

Operation

15.8.3 In addition to the construction embedded mitigation:

32) The BESS drainage design will allow for fire-water containment. Any fire-fighting water sprayed would be directed to fire water storage areas for suitable disposal. This is secured via the Outline Battery Safety Management Plan (oBSMP) [**EN0110012/APP/LVS/07.06**].

Decommissioning

15.8.4 The oDEMP will require the detailed DEMP to include measures similar to the detailed CEMP. Embedded mitigation measures are as identified for construction and operation.

Good practice measures

15.8.5 Section 15.3 lists the relevant legislation, planning policy, and standards and guidance which underpin the assessment. The information provided in these documents cover good practice measures which are to be followed, taking note specifically of the EA guidance documents on environmental protection, and pollution prevention guidance.

Management plans

15.8.6 In addition, a suite of management plans will additionally be in place for the Proposed Development, relevant to water resources and flood risk including:

1) Outline Construction Environmental Management Plan (oCEMP) [**EN0110012/APP/LVS/07.02**];
2) Outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**];
3) Outline Battery Safety Management Plan (oBSMP) [**EN0110012/APP/LVS/07.06**];
4) Outline Landscape and Ecology Management Plan (oLEMP) [**EN0110012/APP/LVS/07.05**];
5) Outline Operational Environmental Management Plan (oOEMP) [**EN0110012/APP/LVS/07.03**];
6) Outline Decommissioning Environmental Management Plan (oDEMP) [**EN0110012/APP/LVS/07.04**]; and
7) Outline Pollution and Spillage Response Plan (oPSRP) [**EN0110012/APP/LVS/07.08**].

15.8.7 These management plans incorporate embedded and good practice measures, as well as any further mitigation identified in the assessment (as discussed later in this chapter). Measures incorporated into the management plans for the Proposed Development relevant to Water Resources and Flood Risk include:

1) Construction (oCEMP) [**EN0110012/APP/LVS/07.02**]
    a) Licensing and permitting requirements
    b) Surface water and groundwater management measures
    c) Water Management Plan
    d) Rainfall runoff management
    e) Appropriate drainage design and aquifer protection measures
    f) Sediment control
    g) Pollution prevention and control
    h) Effluent management
    i) Protection of existing water supplies
    j) Construction flood risk management
    k) Surface water and groundwater monitoring plans for abstractions, GWDTEs and other receptors immediately adjacent to Construction Compounds, trenchless solutions such as HDD or sites where excavations and/or construction dewatering occurring, to include requirement to cease works if impacts are detected
    l) Requirement for a frac-out contingency plan for HDD to be produced
    m) Hydrogeological Impact Assessment, as required, at watercourse crossings, and for other trenchless crossings where works may interact with groundwater in Principal or Secondary aquifers

n) Foundation Works Risk Assessment for any required foundations or piling activities
o) Flood Warning and Evacuation Plan (FWEP)

2) Construction and Operation – Outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04]**)

a) Measures to be implemented during the temporary works to minimise alteration of the natural water environment, including through the introduction of measures to control construction runoff
b) The Final Drainage Strategy will incorporate any compensation required for physical loss of any land drains, to be confirmed at detailed design stage.

3) Operation (oOEMP [**EN0110012/APP/LVS/07.03**] and oBSMP [**EN0110012/APP/LVS/07.06**])

c) Outline Drainage strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04]**)
d) Flood Warning and Evacuation Plan (FWEP)
e) Monitoring of compliance, drainage network systems, water receptors close to key infrastructure, vegetation beneath solar PV panels, penstocks and other isolation features associated with fire water containment.
f) Mitigations for replacement activities, i.e. where equipment must be replaced is included and will reflect the mitigation required in the Construction Phase as appropriate.

4) Decommissioning (oDEMP) [**EN0110012/APP/LVS/07.04**], which largely replicates the oCEMP [**EN0110012/APP/LVS/07.02**] apart from the frac-out contingency plan.

g) Water management Plan
h) Safe storage of materials
i) Acquisition of a Water Discharge Activity Permit if required for any treatment of runoff onsite
j) Groundwater protection measures to be followed

15.8.8 These management plans incorporate embedded and good practice measures, as well as any further mitigation that arises out of the EIA process. Outline versions of these management plans are submitted alongside the ES as part of this DCO Application to secure the commitments within each assessment. A Requirement is included in the draft DCO [**EN0110012/APP/LVS/03.01**] to ensure detailed management plans will be prepared to full versions by the appointed Contractor(s), substantially in accordance with the outline management plans, and will be submitted for approval by North Yorkshire Council in advance of starting the relevant phase of works.

15.9 Assessment of likely impacts and effects

Worst case assumptions

15.9.1 Specific development activities with the potential to harm the water environment have been identified for this assessment and the following worst-case assumptions have been taken into account:

1) Panel mounting poles reach a depth of 1.5 – 4.0 m into the ground.
2) Conversion units will be set on a concrete foundation slab, strips or footings up to 16 m by 6 m and a levelling layer of aggregate with a maximum depth of 0.8 m, or a concrete plinth set onto the topsoil where non-ground penetrative works are required. The minimum Finished Floor Level (FFL) would be set to the design event flood level plus 0.3 m freeboard or the credible maximum scenario flood level, whichever is greater.
3) On-site cables and interconnecting cables are trenched up to approximately 7 m wide. The maximum trench depth will be 2 m, when multiple cables are running in parallel within the same trench. Interconnecting cables start within the Solar Development Sites and then continue to connect the Solar Development Sites along the Cable Route Corridor. Grid Connection Cables are trenched typically up to 2 m wide. The maximum trench depth will be 2 m. Grid Connection Cables only run between Solar Development Site 4 and Monk Fryston Substation, and between Solar Development Sites 2 and 4. In some places trenchless techniques would be used. In these locations cable may be placed at greater depths. Where practicable cabling within the Solar Development Sites will be routed to follow access tracks and where these access tracks cross drains/watercourses vias existing culverts cables would be routed over these culverts/new culverts constructed to the dimensions of the existing culverts. In cases where this is not practicable the impact of open cut trenching will be short term and negligible.
4) A Crossings Schedule is included within the Application [**EN0110012/APP/LVS/07.01**], and the crossing types are indicated on Figure 15.1: Surface Water Features [**EN0110012/APP/LVS/06.02.15.01**]. HDD is assumed as the worst-case trenchless technique, these will require a 25 m x 25 m launch / receptor pit working area and comprise three separate drill runs per location.
    - Avoidance areas have been identified for 27 crossings across Very High to Low importance watercourses where non-intrusive solutions will be used. These include railways, selected road crossings, the crossing of the River Ouse, main rivers, Internal Drainage Board (IDB) watercourses, and Water Environment Regulations (WER) water body line watercourses.
    - There are 14 crossings across Low importance field drains which will use open cut crossings.

- There is one IDB watercourse, Ings Drain, where the crossing utilises an existing culvert to route the cable.

5) Underground cables to be installed using a cable plough or trenching, wherever practicable, where trenchless techniques are not required.

6) There will be a haul road alongside the cabling route for installation that would be up to a maximum of 7 m wide. Where passing places are incorporated into the haul road these will be up to 12 m wide.

7) The haul road will be designed to avoid drainage ditches and watercourses where practicable based on the surface water flood map for the region. Where watercourses cannot be avoided, a range of solutions will be considered including temporary culverts. It is anticipated that the construction of the Cable Route Corridor will be undertaken over a 24-month period. Over the anticipated 24-month period, cable installation will follow behind trench excavation / HDD with the cables being installed into the ducts. There will be overlap of up to six weeks between sections as individual joint bays become available and completed bays are backfilled and reinstated. Any culverts installed alongside trenched watercourse crossings for the haul road will be assumed to be in place in some locations for up to two years. This exceeds the threshold to be considered "temporary" in terms of WER.

8) There will be Solar Development Site Construction Compounds within Solar Development Sites, and Cable Construction Compounds along the Cable Route Corridor, the locations of which are described in Chapter 2 (ES Volume 1) **[EN0110012/APP/LVS/06.01.02]** and shown on Figure 2.1: Illustrative Site Layout Plan (ES Volume 2) **[EN0110012/APP/LVS/06.02.02.01]**. The design features which these Construction Compounds comprise of that are most relevant to this chapter are a parking area for construction and workers vehicles, temporary hardstanding for storage which will include but not limited to materials, fuel and equipment, temporary laydown areas and wheel washing facilities.

9) Temporary laydown areas will be progressively established across the Solar Development Sites and the Cable Route Corridor, and could be placed anywhere within the Order Limits. These areas include but are not limited to storage for materials, fuel, equipment needed for such works as well as welfare facilities, office space required to avoid unnecessary internal movement of personnel over long distances. The temporary laydown areas will typically be set up ahead of the installation of the Solar Development Sites, electrical components and cabling and will be decommissioned as the relevant works in their locality progress and become completed.

10) 33 kV switch rooms will have building dimensions of up to 15 m by 5 m, with a concrete foundation slab, strips or footings up to 16 m by 6 m and a levelling layer of aggregate with a maximum depth of 0.8 m, or a concrete plinth set onto the topsoil where non-ground penetrative works are required. Piling may be required due to ground conditions. The minimum Finished

Floor Level (FFL) would be set to the design event flood level plus 0.3 m freeboard or the credible maximum scenario flood level, whichever is greater. The Integrated Conversion Units are considered to have the same construction parameters as the 33 kV switch rooms.

11) 275 kV substations will have building dimensions of up to 15 m by 48 m, with a reasonable worst-case assessment of a 'raft' foundation of up to 2.5 m depth and up to 15 m depth for piled foundations. They would also have a 33 kV Switch room with building dimensions of up to 7 m by 19 m. The whole substation compound area will be larger – 1 ha for Solar Development Site 1, 3.5 ha for Solar Development Site 2 and 3.5 ha for Solar Development Site 4.
12) The minimum FFL of standalone conversion units, transformers and switchgear associated with 275 kV On-Site substations would be set to the design event flood level plus 0.3 m freeboard or the credible maximum scenario flood level, whichever is greater.
13) BESS battery enclosures will be 16 m by 3 m and mounted upon concrete base or monolith plinth up to 2 m deep and up to 15 m depth for piled foundations, although other types of foundations such as compacted gravel, metal pile, or ground screw may be used depending on ground conditions.
14) 275 kV substations and the BESS Area will have parking areas.
15) New fencing and CCTV poles will penetrate the ground.
16) New internal access tracks for BESS and Substation access will be a maximum of 6 m wide and 8 m at passing places and may be constructed of asphalt over a levelling layer of substrate. It is assumed that the internal access tracks for BESS and substation access will be impermeable. The remaining Internal access tracks will be 3.5 m wide and 6 m at passing places, constructed of hardcore or gravel over a levelling layer of substrate. It is assumed that these access tracks will therefore be permeable to allow water to filtrate through and maintain greenfield runoff rates.
17) BESS drainage design will allow for fire-water containment using a bunded impermeable surface or other form of containment system.
18) Site entrances and construction vehicle delivery holding areas will be constructed anywhere in the Order Limits. The access points from the public highway may comprise reinforced concrete.
19) Main and secondary temporary construction laydown areas will be established, which includes site offices/welfare area and parking area.
20) Waste from all stages of development would be disposed of responsibly and undertaken in alignment with the principles of recycling available at that time. Construction, operation and decommissioning of the Proposed Development is, therefore, expected to generate minimal waste.
21) Water is likely to be transported to the Proposed Development by road (from mains water, a tanker supplier or a repurposed existing abstraction).

However, there is the possibility of a small amount of additional water taken from the environment at the site compared to baseline, in the form of unlicensed abstraction at a rate of less than 20 m^3/d. The estimated average daily water demand for construction and operation is 48 m^3/d and 2.9 m^3/d, respectively.

22) During construction self-contained portable welfare units which store foul/wastewater for collection/emptying by specialist licenced contractors would be used.

23) Fuel for machinery and generators would be delivered by a fuel bowser as required and stored in integrally bunded above ground fuel storage tanks (cubes) which comply with the Oil Storage Regulations. The fuel storage tanks would be sheltered and covered to stop rainwater accumulation, secured from unauthorised access, and equipped with integral bunding capable of holding 110% of the volume of the tank (i.e. it would have 10% more capacity than needed). Spill kits would be carried by all plant and would be available at the fuelling point and other strategic locations on the Site to allow for prompt clean up. All construction workers would be trained in pollution prevention and spill kit use. Oil storage areas should avoid areas susceptible to flooding.

24) It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure to 1.2 mbgl; to be recycled or disposed of in accordance with good practice and processes at that time. Any piles would be removed. Whilst the most environmentally acceptable method is to leave the cables in-situ, the cables may be removed by opening up the ground at regular intervals and pulling the cable through to the extraction point. If cables were to be removed from under Avoidance Areas, the cable removal would take place from outside of the Avoidance Area. It is expected that relatively minor decommissioning activities would require the removal of the likely small in scale above ground infrastructure in the form of manholes to allow access to the joint bay and link boxes.

25) Lower importance watercourses could be culverted for a period of 2 years for haul roads, which is considered not “temporary” in WER terms.

26) As part of the Solar Development Site 8 Access, the existing culvert structure at Selby Dam will be replaced with a new crossing structure. The new crossing structure is not anticipated to be any wider than the existing crossing structure and therefore the length of channel impacted by this modification is expected to remain the same as in the baseline condition. During construction of this new crossing structure, a temporary crossing may be required over Selby Dam. The temporary crossing structure would only be present for the duration of the crossing construction and will not exceed 6 months.

27) There is a possible permanent access road culvert across Habholme Dike, a high importance receptor as part of Solar Development Site 8 Access.

There is also the possibility for further permanent access road culverts, one at each of Solar Development Sites 2 and 4, across low importance drains. An access road culvert may also be required across a low important drain in Solar Development Site 1. Should they be required, it is likely that the culvert across the drain at Solar Development Site 1 will be temporary, and those at Solar Development Sites 2 and 4 will be permanent.

Construction effects

Surface water quality

Risk to surface water quality

15.9.2 The primary risks to surface water quality are considered to be:

1) Release of sediments as a result of ground disturbance during construction activities which could lead to reductions in water quality and aquatic habitat quality of surface water bodies present within the Order Limits, or downstream waterbodies.
2) The release of sediments over the short term as a result of the physical emplacement and removal of culverts for watercourses which require them as part of construction, and for the emplacement of trenched cables through watercourses without trenchless crossings.
3) Accidental release of contaminants from construction activity, such as from fuel oils and lubricants from construction plant, vehicles and traffic movements, accidental spillage during refuelling and/or leakage from storage, spillage of cement, concrete material, hexavalent chromium from concrete/cement and alkaline wash waters, released from wheel washing and waste storage.
4) Breakout from trenchless solutions such as HDD activities.

15.9.3 The construction methodology worst-case assumptions are set out above in Section 15.9.1.

15.9.4 The oCEMP [**EN0110012/APP/LVS/07.02**] states that there will be no stockpiling of construction materials and excavated spoil will be at least 10 m from the top of the bank of watercourses (50 m for CRT watercourses) except for watercourses at open cut crossing locations. This should minimise the risk from a new source of sediment contaminating or polluting surface waters due to risk of washout. These contaminants and pollutants may include fuels, oils, chemicals and concrete.

15.9.5 Discharge of water from construction works may also distribute contaminants and pollutants to surface water receptors or their catchments or create an accumulation of these substances where soakaway basins are used. Pollution prevention principles should be followed as detailed in the outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]).

15.9.6 Sediment will likely be released into watercourses in the process of emplacement of the cable in trenched crossings, and the emplacement and removal of culverts. The impact will be of a very short duration compared to the more general risk of discharge of water from construction works which will exist over the entire construction period, and prevention measures such as silt traps can be employed to minimise risk.

15.9.7 The removal of the existing crossing structure and construction of a new crossing structure at Selby Dam, and possible new culvert over Habholme Dike, as part of Solar Development Site 8 Access could result in the release of sediment from bank materials, however sediment control measures secured within the oCEMP [**EN0110012/APP/LVS/07.02**] ensures that this risk is mitigated.

15.9.8 Accidental release of contaminants during construction, poses a risk of environmental harm and regulatory non-compliance. The oPSRP [**EN0110012/APP/LVS/07.08**] sets out preventative measures for storage and handling, defining responsibilities for implementation, and detailing response actions to contain and clean up spills promptly. These provisions help reduce the potential impact of such incidents and support adherence to environmental standards.

15.9.9 Drilling muds from trenchless solutions such as HDD works, where trenchless solutions such as HDD is required, will be appropriately treated before disposal or any release of water into the environment, they will not be directly discharged into the environment, which is secured in the oCEMP [**EN0110012/APP/LVS/07.02**]. Additionally, a frac-out contingency plan will be produced pre-construction but post grant of the DCO.

Receptors

15.9.10 The surface water receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Impact

15.9.11 With embedded mitigation, best practice construction methods and good practice pollution prevention measures implemented, it is considered that the sources and pathways can be minimised, resulting in a negligible magnitude of impact for all receptors for the risks associated with breakout from trenchless solutions such as HDD activities. The likely sediment impact to low importance watercourses from emplacement of cables, and the emplacement and removal of culverts is minor, and no larger due to the short-term duration of the impact. Equally, with embedded mitigation, for Selby Dam the removal and replacement of the existing permanent culvert is considered to have negligible magnitude of impact. This also applies to the possible new culvert across Habholme Dike. Additionally, there is a negligible magnitude of impact for receptors within 1 km of higher risk construction features for the remaining risks, and neutral for receptors not within 1 km of higher risk construction features.

Significance of effect

15.9.12 Given the negligible or neutral magnitude of impact, for receptors with very high importance assigned to them, the overall effect of temporary changes in surface water quality during construction is considered to be **minor adverse** which is considered to be **not significant** in EIA terms for negligible magnitude of impact, and **neutral** and **not significant** in EIA terms for neutral magnitude of impact. These receptors, the River Aire, the River Ouse, and Selby Dam have very high importance due to surface water abstractions within the 1 km Study Area.

15.9.13 Given the negligible or neutral magnitude of impact for receptors of high importance, the overall effect of temporary changes in surface water quality during construction is considered to be **minor adverse** and **not significant** in EIA terms for negligible magnitude of impact, and **neutral** and **not significant** in EIA terms for neutral magnitude of impact.

15.9.14 Given the negligible or neutral magnitude of impact for receptors of medium importance, the overall effect of temporary changes in surface water quality during construction is considered to be **negligible** and **not significant** in EIA terms for negligible magnitude of impact, and **neutral** and **not significant** in EIA terms for neutral magnitude of impact.

15.9.15 Given the minor, negligible or neutral magnitude of impact, for receptors considered to be of low importance, the overall effect of temporary changes in surface water quality during construction is considered to be **negligible** which are both considered to be **not significant** in EIA terms for minor and negligible magnitudes of impact, and **neutral** and **not significant** in EIA terms for neutral magnitude of impact.

15.9.16 A detailed assessment table to sit alongside this assessment of surface water quality at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Surface water quantity and geomorphology

Risk to surface water quantity and geomorphology

15.9.17 The primary risks to surface water quantity are considered to be:

1) Physical loss of land drains present within the Order Limits and associated impacts to hydromorphological condition and aquatic habitat, as a result of construction activities.
2) Physical impacts to watercourses as a result of cable installation, or access track/ haul road construction.
3) Changes to surface water runoff patterns and land drainage as a result of construction activities, resulting in altered surface water flows and water levels within the Order Limits and downstream, including flood risk.

4) Excavation of topsoil and possible creation of scrapes/backwaters could locally modify drainage patterns, leading to ponding or reduced conveyance capacity in natural channels.

5) Reduction or loss of water supply to abstractions, springs and watercourses as well as potential degradation of habitat, as a result of construction activities diverting water between surface water catchments.

6) Impacts to hydromorphological conditions, aquatic habitat and flood risk from culverting lower importance watercourses for access tracks/ haul road.

15.9.18 As stated in the worst case assumptions, some crossings are to be trenchless, using HDD or other non intrusive solutions and where available existing watercourse crossings will be used. There will however also be open cut watercourse crossings, with worst case indicative locations detailed in the Crossings Schedule located within the application [**EN0110012/APP/LVS/07.01]**, and presented in Figure 15.1: Surface Water Features **[EN0110012/APP/LVS/06.02.15.01]**. The maximum duration of culverting is assumed to be two years, this is a longer duration than the WER defined threshold for temporary culverts. This has therefore been incorporated into the assessment as a worst-case scenario for low importance watercourses. However, in many cases the duration of culverting is expected to be less than six months, and comfortably within the WER defined threshold for a temporary culvert.

15.9.19 Details on whether there will be any physical loss of low importance watercourses is not available at this stage and will be known at the final detailed design. An assumption of loss has therefore been incorporated into the assessment as a worst-case scenario.

15.9.20 Development of the substations, BESS and to a much lesser degree 33 kV Switch rooms could create a barrier for the surface water flow. This may also have consequential effects on aquatic ecology. Construction compounds are not considered to cause the same risk as the other listed construction features as they do not require excavation and concrete as part of their construction.

15.9.21 Water will likely be transported to site for construction works. Any abstractions from existing licensed surface water abstractions would be repurposed, and would require a temporary variation to the license granted by the EA. This would only be granted where there was no concern of environmental damage and would likely be restricted to recent actual abstraction, thus representing no change in baseline surface water quantity impacts. Any abstractions from watercourses would be subject to the securing of appropriate licence variations prior to abstraction, taking note of water availability as defined by the EA in their abstraction licensing strategies.

15.9.22 However, there may be new small scale abstractions (less than 20 m^3/d) from onsite watercourses which do not require licensing. Where these are considered, they will not impact on nearby receptors, taking into account available flow, any dependent ecosystems and any existing abstractions. Any small scale

abstractions would have the effect of a small net change in abstraction and thus to the existing baseline quantity of surface water.

15.9.23 Construction works may require access tracks being built passing across low importance watercourses. The worst-case assumption is that culverts will be installed alongside trenched watercourse crossing for the haul road and will be in place for up to two years. The watercourses affected will be of medium or low importance. Whilst the Proposed Development will seek for existing crossings to be utilised wherever practicable, minimising the number of culverted watercourses. A worst-case assumption has therefore been made that there is a risk of this for all low importance watercourses within the Order Limits.

Receptors

15.9.24 The surface water receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Impact

15.9.25 With embedded mitigation, appropriate construction drainage design and good practice water management measures implemented included within the oCEMP [**EN0110012/APP/LVS/07.02**], it is considered that the impacts to surface water quantity can be minimised by maintaining natural catchments in line with their baseline condition. This results in a negligible magnitude of impact for all receptors within 1 km of a higher risk construction feature, and neutral magnitude of impact for all other receptors. However, the magnitude of impact relating to abstraction of water for construction works is negligible for all receptors, as the water supply for construction is not confirmed.

15.9.26 Physical impacts to watercourses will be limited to low importance watercourses (such as agricultural land drains). Construction works will be limited in duration, with best practice construction methods and pollution prevention measures implemented through the oCEMP [**EN0110012/APP/LVS/07.02**], such as avoiding excavations during wet weather and bunding / segregation of spoil drainage, to minimise the risk of sediment mobilisation or release of contaminants. Based on the above, the physical works are considered to result in a minor magnitude of impact.

Significance of effect

15.9.27 Watercourses and surface water catchments within the Study Area have mixed importance, ranging from ‘low’ importance agricultural drains to the Main River WER watercourses, with ‘very high’ importance. Main River WER watercourses have very high importance due to surface water abstractions within the 1 km Study Area. Due to the distance between the Solar Development Sites and the Main Rivers, they are unlikely to have a large impact on surface water quantity. The Cable Route Corridor will be crossing Main Rivers where HDD drilling (or other trenchless methods) will occur. Considering embedded mitigation

measures, for the watercourses within the Order Limits unless otherwise stated, we consider that the magnitude of impact from changes to surface water quantity is **negligible** when within 1 km of higher risk construction features, and **neutral** for all other receptors unless associated with a risk due to trenchless methods where the magnitude of impact remains at **negligible**.

15.9.28 Given the negligible or neutral magnitude of impact regarding diversion of flow, for receptors of very high and high importance, the overall effect of temporary changes in surface water quantity during construction is considered to be **minor adverse** and **not significant** or **neutral** and **not significant** for both very high and high importance receptors.

15.9.29 Given the negligible or neutral magnitude of impact regarding diversion of flow, for receptors of medium and low importance, the overall effect of temporary changes in surface water quantity during construction is considered to be **negligible** and **not significant**, or **neutral** and **not significant** for both medium and low importance receptors.

15.9.30 For those receptors considered to be of low importance watercourses and ponds there is the additional potential risk of physical impacts, including loss of land drains and culverting, which is considered to have a minor magnitude of impact once embedded mitigation is considered. The overall effect is considered to be **negligible** for low importance receptors which is considered to be **not significant** in EIA terms.

15.9.31 As the option of abstracting water from surface water receptors in abstractions of less than 20 m^3/d is not ruled out. The magnitude of impact for all receptors is negligible. This results in a significance of effect of **minor adverse** and **not significant** for very high and high importance receptors, and **negligible** and **not significant** for all medium and low importance receptors.

15.9.32 A detailed assessment table to sit alongside this assessment of surface water quantity and geomorphology at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Groundwater quality

Risks to groundwater quality

15.9.33 The primary risks to groundwater quality are:

1) Reductions in water quality and increased turbidity of groundwater, resulting from the groundwork and associated sediment releases during construction activities.

2) Impacts on local hydrogeology and groundwater resources including any private water supplies, licensed abstractions and springs as a result of planned construction activities, including trenchless crossings, excavations, ground investigations and piling works.

3) Reductions in groundwater quality, as a result of accidental release of contaminants. This could be fuel oils and lubricants from construction plant, vehicles and traffic movements, accidental spillage during refuelling and/or leakage from storage, spillage of cement, concrete material and alkaline wash waters, releases from wheel washing, waste storage or breakout from trenchless solutions such as HDD.

4) The cable will be laid across an SPZ 3, which means a risk of contamination of the local aquifer and Public Water Supply associated with it.

5) Cable Construction Compound 4 is located directly on Sherwood Sandstone bedrock with no superficial deposit coverage.

15.9.34 Subterranean construction activities such as piling/drilling may create pathways to more sensitive aquifers through relatively low permeability formations. To mitigate this, a Foundation Works Risk Assessment will be completed as part of the detailed CEMP as outlined within the oCEMP [**EN0110012/APP/LVS/07.02**]. Piles are not expected to enter the bedrock based upon the current geological understanding of the BESS and substation locations, however this will need to be confirmed by a ground investigation.

15.9.35 New flow pathways for pollution may also be created by the cable trenches or removal of topsoil and exposure of underlying soils which can increase rainwater infiltration. This may in turn result in increased leaching of pollutants into the underlying aquifer. The activities themselves can also act as a source of pollution, depending on the materials used (cements, bentonite etc), construction methodologies and control measures in place.

15.9.36 Accidental discharge of contaminants from construction works may also introduce or mobilise contaminants into the aquifer, and further afield to dependent receptors such as licensed abstractions. Accumulation of substances could also occur where soakaway basins are used without appropriate treatment trains (such as siltbusters), prior to discharge.

15.9.37 The location of the Cable Construction Compounds were chosen to balance various environmental risks, including flood risk, and risk to water and groundwater quality. As a result, Cable Construction Compound 4 is located in a favourable location for flood risk and other environmental factors, but higher risk for groundwater quality to the Sherwood Sandstone bedrock aquifer. As part of the oCEMP [**EN0110012/APP/LVS/07.02**], there are pollution prevention and control measures specified, and the oPSRP [**EN0110012/APP/LVS/07.08**] also states measures required to not cause pollution in the aquifer. Following these management plans is considered to be sufficient in order to mitigate the risk, resulting in a not significant effect. Ground investigation will be carried out and used to inform the detailed design of the construction compounds. This is to ensure that appropriate drainage design and aquifer protection measures are incorporated into the construction design, tailored to the specific geological / groundwater conditions at each compound location, to protect the water environment. A non-permeable ‘Durabase Mat System’ or a similar non-ground

penetrating mat system is one example mitigation measure that can be used within the compound areas to protect groundwaters during construction, where there is a greater risk of contamination. Temporary drainage measures must also be provided, as described in the FRA, to ensure that surface water runoff and quality is adequately managed.

Receptors

15.9.38 The groundwater receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Impact

15.9.39 The scale of construction indicates that any changes to the Principal and Secondary Aquifers within the Study Area will be localised as discussed above. However, a major incident could have a more widespread effect. With appropriate embedded mitigation measures in place, targeted ground investigation, appropriate construction design and good practice water management measures implemented (as outlined in the oCEMP [**EN0110012/APP/LVS/07.02**], such as environmental monitoring and associated action plans), it is considered that the risks to groundwater quality can be minimised. This results in a negligible magnitude of impact for receptors with 1 km of higher risk construction features and for all receptors in relation to risks associated with trenchless solutions, cable trenching and where solar panel supports will be installed, and neutral elsewhere.

Significance of effect

15.9.40 For all bedrock aquifers, groundwater abstractions and SPZs of very high importance and high importance, the magnitude of impact reduces to **negligible** or **neutral**, resulting in a **minor adverse**, **not significant** effect, or a **neutral, not significant** effect.

15.9.41 For all other receptors: superficial aquifers, springs, and wells, the magnitude of impact is **negligible** or **neutral**, which results in a significance of effect of **negligible** or **neutral**, which is considered **not significant** in EIA terms.

15.9.42 A detailed assessment table to sit alongside this assessment of groundwater quality at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Groundwater quantity

Risk to groundwater quantity

15.9.43 The risks to groundwater receptors considered are:

1) Subsoil compaction and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater.

2) Impacts on local hydrogeology and groundwater resources, including any private water supplies and abstractions – changes to groundwater levels and flows arising from construction activities.

3) Potential impacts on water balance – including spring flow, base flow and PWS supply within the Study Area as a result of construction activities.

15.9.44 Construction works may locally reduce the rate of recharge to aquifers where the runoff is managed and then discharged, which has the potential to reduce groundwater levels and locally alter flow pathways. This in turn could reduce baseflow to dependent receptors including springs and watercourses.

15.9.45 Where works would require groundwater control measures for example, local groundwater level reduction or removal of the water from the excavation (dewatering), this could locally reduce groundwater levels and divert flow, potentially impacting dependent receptors. This risk would depend on the time of year as flows and levels would vary in an aquifer of this nature. This water may also be connected to spring systems which feed into local watercourse baseflows and agricultural irrigation. The impact of temporary non-consumptive dewatering on groundwater resources would be local to the excavations and last for the duration of the works only. It is unlikely that there is an extensive spring system in the Order Limits other than the spring identified in the baseline assessment. The deepest features potentially requiring dewatering are the foundations for the BESS and substations at 2.5 m bgl.

15.9.46 The region is water stressed in some areas (see baseline) and demand for water could negatively impact water resources regionally.

Receptors

15.9.47 The groundwater receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Impact

15.9.48 With embedded mitigation (shallow infrastructure), the commitment to applying a 50 m stand off from all groundwater abstractions, ensuring any groundwater control measures are non-consumptive, appropriate construction drainage design and good practice water management measures implemented (as outlined in the oCEMP [**EN0110012/APP/LVS/07.02**]), it is considered that the impacts to groundwater quantity can be minimised. This would mean natural groundwater behaviour is maintained in line with their baseline condition, resulting in a negligible magnitude of impact for receptors within 1 km of higher risk construction features, and neutral for all other receptors.

Significance of effect

15.9.49 Taking the shallow nature of the excavations, piling and the distance from the works, and the negligible or neutral magnitude of impact, the overall effect of

temporary changes in groundwater quantity during construction is considered to be **minor adverse** and **not significant** in EIA terms, or **neutral** and **not significant** for the high and very high importance Principal bedrock Aquifers and high importance licensed and unlicensed abstractions. All other receptors, which have medium or low importance, have a significance of effect of **negligible** or **neutral**, which is **not significant** in EIA terms.

15.9.50 A detailed assessment table to sit alongside this assessment of groundwater quantity at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Environmental designations and WDTEs

15.9.51 There is a potential risk of increased pollution to designated sites during the construction phase. As with the watercourses within the Order Limits, there is a risk of pollution from construction vehicles, leaks caused by solar PV modules damaged during installation and from excavation. However, embedded mitigation through the oCEMP [**EN0110012/APP/LVS/07.02**], oPSRP [**EN0110012/APP/LVS/07.08**], and outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]) includes pollution prevention practices, and suitable treatment prior to discharge of any construction generated water. This would reduce the magnitude of the impact to designated sites.

15.9.52 Due to the conservative nature of the assessment, all potential WDTEs designated as SSSI are considered to be of high importance and those also with a SAC designation are considered to be of very high importance. In addition, potential WDTEs designated as SINCs have been assigned medium importance, in line with Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**].

15.9.53 The closest environmentally designated site is Burr Closes SSSI, which is a WDTE and is located 70 m south of the Order Limits of CRC 1-4. No other SSSIs should be affected from the cable in the construction phase. Skipwith Common SSSI is upgradient of the Proposed Development, therefore the magnitude of impact is anticipated to be neutral, with a **neutral** significance of effect, which is **not significant** in EIA terms. The magnitude of impact on Burr Closes is expected to be negligible, resulting in **minor adverse**, and **not significant** in EIA terms. The magnitude of impact on SINCs within 1 km of a higher risk construction feature are considered **negligible** resulting in **negligible** significance of effect which is **not significant** in EIA terms. All other SINCs are considered to have **neutral** magnitude of impact, resulting in **neutral** significance of effect which is **not significant** in EIA terms.

15.9.54 A detailed assessment table to sit alongside this assessment of Environmental designations and WDTEs at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Fluvial flood risk

15.9.55 The construction phase has the potential to impact fluvial flood risk due to the presence of construction works within a floodplain. Such activities may temporarily affect the floodplain by modifying flood flows and reducing the ability of the ground to absorb water if Construction Compounds are impermeable, leading to an increase in flood risk at the Solar Development Sites or on third-party land. A temporary increase in impermeable area during construction, due to the addition of Construction Compounds and associated non-permeable access tracks, and material storage and machinery, can lead to a temporary reduction in floodplain storage volume. As a result of this, an increased risk of fluvial flooding could be present within the Order Limits and downstream.

15.9.56 Any temporary earthworks that raise ground levels has the potential to displace floodwaters, which may lead to an increase in flood risk within the Order Limits and downstream. Substations, however, will be designed so that any earthworks, foundations and SuDS features will not result in land take from the floodplain, and therefore there should be no change in the flood storage provided by the baseline environment.

15.9.57 Construction activities which result in modifications to ground levels, temporary increases in impermeable area, and vegetation clearance works may lead to an increased risk of surface water flooding as a result of blockages caused by construction material which has been swept away.

15.9.58 Construction activities involving new watercourse crossings and/or culverting of existing watercourses have the potential to alter natural flow paths and temporarily obstruct or restrict conveyance capacity. These interventions may lead to localised increases in flood risk both upstream and downstream of the crossing points, particularly during high flow events. As such, crossings will be designed and implemented so that they do not increase flood risk within the Order Limits or on adjacent third-party land.

15.9.59 Taking into consideration the embedded mitigation measures the impact magnitude of increased flood risk has been assessed as negligible. Flood risk of nearby receptors (including residential dwellings and farmland) has been assessed to be of high to low importance. Therefore, the significance of effect of increased flood risk is **minor adverse to negligible**, which is **not significant** in EIA terms.

15.9.60 Further information on flood risk and drainage solutions for the Proposed Development is presented in Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**].

15.9.61 A detailed assessment table to sit alongside this assessment of fluvial flood risk at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Pluvial flood risk

15.9.62 Construction activities that temporarily increase the impermeable area within the Proposed Development, such as Cable Construction Compounds and access tracks, have the potential to increase pluvial flood risk. Additionally, any modifications to ground levels and vegetation clearance works may increase the risk of surface water flooding.

15.9.63 Effective land drainage is crucial in mitigating the risk of localised flooding, nourishing fields, and sustaining nearby surface water resources. Any affected land drainage elements will be duly maintained, restored, or compensated as necessary, as set out within the oCEMP [**EN0110012/APP/LVS/07.02**].

15.9.64 With the embedded mitigation measures, together with good surface water management practices and the surface water management measures as outlined in the oCEMP [**EN0110012/APP/LVS/07.02**] and the measures outlined in the outline Drainage Strategy (Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]), it is considered there will be a negligible magnitude of impact from pluvial flooding on the Proposed Development or to nearby receptors as a result of Proposed Development.

15.9.65 Pluvial flood risk of nearby receptors (including residential dwellings and farmland) has been assessed to be of **high** to **low** sensitivity. Therefore, the significance of effect of increased flood risk is **minor adverse** to **negligible**, which is **not significant** in EIA terms.

15.9.66 A detailed assessment table to sit alongside this assessment of pluvial flood risk at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Groundwater flood risk

15.9.67 The Proposed Development will include excavation for foundations of structures and installation of cables which have the potential to alter the flow of water from springs and within pockets of groundwater. As a result, this may lead to localised changes in the patterns of groundwater flooding.

15.9.68 With embedded mitigation implemented such as avoiding high groundwater level areas and ensuring sufficient freeboard for panels and electrical equipment in the design, together with good practice water management measures, as outlined in the oCEMP [**EN0110012/APP/LVS/07.02**], it is considered there will be a negligible magnitude of impact from groundwater flooding on the Proposed Development and nearby receptors as a result of the Proposed Development.

15.9.69 Given the **high** to **low** importance of flood risk receptors and the **negligible** magnitude of the impact, the overall effect of temporary changes in groundwater flood risk is considered to be **minor adverse** to **negligible**, and therefore **not significant** in EIA terms.

15.9.70 A detailed assessment table to sit alongside this assessment of groundwater flood risk at the construction phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Operational effects

15.9.71 During the operational phase, the following potential risks to the water environment have been identified:

Surface water quality

Risk to surface water quality

15.9.72 Surface water quality is impacted by fuel or oil contamination significantly less during operation compared to the construction phase as there will be significantly decreased levels of activity within the Order Limits and most potential pollutants will have been removed.

15.9.73 The primary risks to surface water quality are considered to be:

1) Deterioration of water quality of surface water features present within the Order Limits as a result of accidental release of contaminants during proposed operation, including firewater and other chemicals associated with the BESS and substations; and traffic accidents/spillages of lubricants, oils, diesel generators on new access roads and transmission corridors as a result of operational and vehicle maintenance. This includes deterioration of water quality as a result of potentially contaminated water runoff in the unlikely event of a fire.

15.9.74 Permanent physical impacts to watercourses are anticipated to be limited to a few low importance drains, if any at all. This is subject to final detailed design development and so has been included as a risk within the ES assessment.

15.9.75 Accidental discharge of contaminated water from operational works may distribute contaminants and pollutants to surface water receptors or their catchments, or create an accumulation of these substances where soakaway basins are used.

Receptors

15.9.76 The surface water receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

15.9.77 Watercourses and surface water catchments within the Order Limits, have medium to low importance for agricultural drains.

15.9.78 Cable routes plus the 1 km Study Area are excluded from the operational impacts assessment as posing no risk due to no expected maintenance or disturbance of the cables during the operational phase. The excluded receptors are shown in

Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**]. Cable Route Corridor haul roads will no longer be in existence or utilised during the operational phase and Cable Construction Compounds and any temporary culverts for haul roads will have been removed prior to operation.

Impact

15.9.79 New access tracks will be limited in number and size and restricted to the Order Limits for the Solar Development Sites. Cable Route Corridor haul roads will no longer be in existence or utilised during the operational phase and Cable Construction Compounds and any temporary culverts for haul roads will have been removed prior to operation.

15.9.80 With embedded mitigation and good practice pollution prevention measures implemented, it is considered that the sources and pathways can be minimised, resulting in a negligible to neutral magnitude of impact.

15.9.81 Many of the very high and high importance receptors have a magnitude of impact set at neutral due to distance to the Solar Development Sites and the embedded mitigation. An exception to this is the Fleet from Source to River Aire WER Water Body and associated receptors which have a high importance. This water body passes through Solar Development Sites 3 and 4 which maintains a magnitude of impact of negligible. All other very high and high importance receptors have a neutral magnitude of impact.

Significance of effect

15.9.82 The Fleet from Source to River Aire WER Water Body and associated receptors have a **high** importance and **negligible** magnitude of impact. The overall effect of operational changes in surface water quality is considered to be **minor adverse**, considered to be **not significant** in EIA terms.

15.9.83 Given the **neutral** magnitude of impact for all other receptors of **very high** and **high** importance, the overall effect of operational changes in surface water quality is considered to be **neutral**, which is considered to be **not significant** in EIA terms.

15.9.84 Given the **negligible** magnitude of impact for receptors of **medium** and **low** importance, the overall effect of operational changes in surface water quality is considered to be **negligible,** which is considered to be **not significant** in EIA terms.

15.9.85 A detailed assessment table to sit alongside this assessment of surface water quality at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Surface water quantity and geomorphology

Risk to surface water quantity and geomorphology

15.9.86 The primary risks to surface water quantity are considered to be:

1) Changes to surface water runoff patterns and land drainage, resulting in altered surface water body flows and water levels within the Order Limits and downstream.
2) Physical impacts to watercourses as a result of permanent access tracks.
3) Physical degradation or loss of surface water features present within the Order Limits and associated impacts to hydromorphological condition and aquatic habitat quality due to changes to the drainage network.

15.9.87 Details on whether there will be any physical loss of lower importance watercourses will be available at the final detailed design. An assumption of loss has therefore been incorporated into the ES assessment as a worst-case scenario.

15.9.88 Direct physical works to the identified rivers and their mapped tributaries are anticipated within the aquatic zones only for watercourses of a medium or lower receptor importance. Any direct physical works on watercourses (such as culvert construction for access tracks) could alter the geomorphology or impound flows.

15.9.89 Changes to surface water runoff patterns and land drainage, resulting in altered surface water body flows and water levels.

15.9.90 Watercourses and surface water catchments within the Order Limits are generally of medium to low importance as they are agricultural drains.

15.9.91 An operational water supply may require abstractions, abstraction from watercourses is one of the options considered in the Water Resource Assessment [**EN0110012/APP/LVS/07.16]**, this would be either through applying for re-purposing of an existing abstraction, or a small abstraction of up to 20 m^3/d. These would be used to provide a source of water for permanent infrastructure, e.g. the BESS. Any abstractions from existing licensed surface water abstractions would be repurposed, and would require a temporary variation to the license granted by the EA. This would only be granted where there was no concern of environmental damage and would likely be restricted to recent actual abstraction.

Receptors

15.9.92 The surface water receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

15.9.93 Watercourses and surface water catchments within the Order Limits, have medium to low importance for agricultural drains.

15.9.94 Cable routes plus 1km Study Area are excluded from the operational impacts assessment as posing no risk to the excluded receptors shown in Table 1 in

Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**]. Cable Route Corridor haul roads will no longer be in existence or utilised during the operational phase and Cable Construction Compounds and any temporary culverts for haul roads will have been removed prior to operation.

Impact

15.9.95 With embedded mitigation, appropriate drainage design and good practice surface water management measures implemented (as outlined in the oOEMP [**EN0110012/APP/LVS/07.03**] and in the outline Appendix 15.4: Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]), it is considered that the impacts to surface water quantity can be minimised by maintaining natural catchments in line with their baseline condition, resulting in a negligible magnitude of impact.

15.9.96 Direct physical impacts will be spatially constrained and designed to enable flow conveyance and not increase flood risk, resulting in a minor magnitude of impact.

15.9.97 Many of the very high and high importance receptors have a magnitude of impact set at neutral due to distance to the Solar Development Sites and the embedded mitigation. An exception to this is the Fleet from Source to River Aire WER Water Body and associated receptors have a high importance, this water body passes through Solar Development Sites 3 and 4 which maintains a magnitude of impact of negligible. All other very high and high importance receptors have a neutral magnitude of impact.

Significance of effect

15.9.98 The Fleet from Source to River Aire WER Water Body and associated receptors have a **high** importance and **negligible** magnitude of impact. The overall effect of operational changes in surface water quantity and geomorphology is considered to be **minor adverse**, which is considered to be **not significant** in EIA terms.

15.9.99 Given the **neutral** magnitude of impact for all other receptors of **very high** and **high** importance, the overall effect of operational changes in surface water quantity and geomorphology is considered to be **neutral**, which is considered to be **not significant** in EIA terms.

15.9.100 Given the **negligible** magnitude of impact for receptors of **medium**, the overall effect of operational changes in surface water quantity and geomorphology is considered to be **negligible** which is considered to be **not significant** in EIA terms.

15.9.101 Given the **minor** or **negligible** magnitude of impact for receptors of **low** importance, the overall effect of operational changes in surface water quantity and geomorphology is considered to be **negligible** which is considered to be **not significant** in EIA terms.

15.9.102 A detailed assessment table to sit alongside this assessment of surface water quantity and geomorphology at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Groundwater quality

Risks to groundwater quality

15.9.103 The risk to groundwater quality is considerably lower during operation and maintenance than during construction as there are significantly decreased levels of activity within the Order Limits and most potential pollutants have been removed.

15.9.104 The primary risk to groundwater quality is considered to be:

1) Deterioration of water quality of groundwater bodies present within the Order Limits as a result of accidental release of contaminants during proposed operation, including firewater and other chemicals associated with the BESS and substations; and traffic accidents/spillages of lubricants, oils, diesel generators on new access roads and transmission corridors as a result of operational and vehicle maintenance. This includes deterioration of water quality as a result of potentially contaminated water runoff in the unlikely event of a fire.

15.9.105 Accidental discharge of contaminants from operational works may introduce or mobilise contaminants into the aquifer, and further afield to dependent receptors such as licensed abstractions. Accumulation of substances could also occur where soakaway basins are used without appropriate treatment trains, prior to discharge.

Receptors

15.9.106 The groundwater receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

15.9.107 Cable routes plus 1km Study Area are excluded from the operational impacts assessment as posing no risk, the excluded receptors are shown in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**]. This excludes the spring identified in the construction phase from assessment at operational phase. Cable Route Corridor haul roads will no longer be in existence or utilised during the operational phase and Cable Construction Compounds will have been removed prior to operation.

Impact

15.9.108 With embedded mitigation appropriate drainage design and good practice water management measures implemented (as outlined in the oOEMP [**EN0110012/APP/LVS/07.03**]), it is considered that the risks to groundwater

quality can be minimised. This results in a negligible magnitude of impact for all receptors within 1 km of a substation or BESS (see Table 15-19), for risks relating to these higher risk construction features; negligible for general risks such as fuel spillage from maintenance vehicles; and neutral for all other receptors.

Significance of effect

15.9.109 For bedrock aquifers, groundwater abstractions and SPZs with a very high or high importance, the magnitude of impact is **negligible** or **neutral**, resulting in a **minor adverse**, **not significant** effect, or **neutral, not significant effect**.

15.9.110 For all other receptors: superficial aquifers, and wells, the magnitude of impact is **negligible** or **neutral**, which results in a significance of effect of **negligible** or **neutral**, which is considered **not significant** in EIA terms.

15.9.111 A detailed assessment table to sit alongside this assessment of groundwater quality at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Groundwater quantity

Risks to groundwater quantity

15.9.112 The primary risks to groundwater quantity are considered to be:

1) Placement of impermeable structures and surfaces and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater.
2) Changes to water balance as a result of changes in ground surface cover and new drainage systems.

15.9.113 A change in the rate of recharge of aquifers due to changes in ground surface cover and introduction of new drainage systems may also result in a reduction or loss of water supply to abstractions, springs, watercourses, and the potential loss of aquatic habitat (which may be permanent), and potential GWDTEs, which may be adversely impacted by changes in groundwater levels or quality.

Receptors

15.9.114 The groundwater receptors considered are summarised in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

15.9.115 Cable routes plus 1km Study Area are excluded from the operational impacts assessment as posing no risk, the excluded receptors are shown in Table 1 in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**]. Cable Route Corridor haul roads will no longer be in existence or utilised during the operational phase and Cable Construction Compounds will have been removed prior to operation. Cable

installation methodology is to minimise disruption to the ground (e.g. such as a cable plough which cuts, installs and backfills in one operation), such that natural recharge and flow rates are maintained.

Impact

15.9.116 Areas of hardstanding and mounting structure piling are all likely to be shallow installations within the medium to low permeability superficial deposits overlying the bedrock. These will therefore have minimal impact on groundwater recharge.

15.9.117 Excavation of foundations are not expected to reach into the top of bedrock as the worst-case assumption is for 2.5 m deep foundations for the BESS and substations and the locations of these features have been chosen to ensure this will not impact. There is not expected to be a change to groundwater flow paths within bedrock in the operation phase. Changes to groundwater quantity during operation are therefore considered to be negligible in all features.

15.9.118 With embedded mitigation, appropriate drainage design and good practice water management measures implemented (as outlined in the oOEMP [**EN0110012/APP/LVS/07.03**] and as outlined in Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]), it is considered that the impacts to groundwater quantity can be minimised by maintaining natural groundwater behaviour in line with their baseline condition, resulting in a negligible magnitude of impact for features within 1 km of a higher risk construction feature, and neutral for all others.

Significance of effect

15.9.119 For high and very high importance receptors, where the magnitude of impact is **negligible**, the significance of effect is **minor adverse** and **not significant** in EIA terms. Where the magnitude of impact is **neutral**, the significance of effect is **neutral** and **not significant** in EIA terms

15.9.120 For all other receptors of medium and low importance, the magnitude of impact is **negligible** or **neutral**, resulting in the overall effect of changes to groundwater quality during operations considered to be to be **negligible** to **neutral** and **not significant** in EIA terms.

15.9.121 A detailed assessment table to sit alongside this assessment of groundwater quantity at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Environmental designations and WDTEs

15.9.122 Both environmentally designated sites within the Study Area with a high or very high importance, Burr Closes SSSI and Skipwith Common SSSI, are excluded from assessment at the operational phase. These are within 1km of the Cable Route Corridor (low risk activities, cable in situ for operation) but not within 1km

of the Solar Development Sites. Consequently, they are not assessed during the operational phase of the development.

15.9.123 There are some SINCs with water dependence within the Study Area that are still included in assessment at the operational phase. For these sites, there is a potential risk of increased pollution to designated sites during the operation phase. As with the watercourses within the Order Limits, there is a risk of pollution from contaminants during proposed operation, traffic accidents/spillages of lubricants, oils, diesel generators on new access roads and transmission corridors as a result of operational and vehicle maintenance.

15.9.124 There is also the risk of change of surface water body flows and water levels within the Order Limits and downstream as a result of changes to surface water runoff patterns and land drainage, and physical degradation or loss of surface water features which could impact aquatic habitat quality due to changes to the drainage network. With embedded mitigation, appropriate drainage design and good practice surface water management measures implemented (as outlined in the oOEMP [**EN0110012/APP/LVS/07.03**] and in the Outline Drainage Strategy provided as Appendix 15.4 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]), it is considered that the impacts to surface water quantity and the resulting impact on environmentally designated sites and WDTEs can be minimised by maintaining natural catchments in line with their baseline condition.

15.9.125 The magnitude of impact on SINCs are considered **negligible** resulting in **negligible** and **not significant** in EIA terms.

15.9.126 A detailed assessment table to sit alongside this assessment of Environmental Designations and WDTEs at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Fluvial flood risk

15.9.127 Site specific modelling has been used to inform the Proposed Development layout for the Solar Development Sites shown in Figure 2.1: Illustrative Site Layout Plan (ES Volume 2) [**EN0110012/APP/LVS/06.02.02.01**]. Flood-sensitive infrastructure has been located outside of the anticipated flood envelope for the design event and all future designs given the works plan (further detail is provided in the FRA in Appendix 15.1 (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]). This Design Principle has been achieved in the Proposed Development layout.

15.9.128 The FRA considers that the Proposed Development satisfies the requirements of both the Sequential and Exception Tests, with an assessment of non-flood sensitive assets also provided in the FRA. The FRA considers that the Proposed Development can be made safe from flooding from all sources throughout its lifetime without increasing flood risk elsewhere.

15.9.129 Vulnerable components will be raised above the predicted maximum flood depth plus freeboard for the appropriate design flood. The minimum FFL would be set

to the design event flood level plus 0.3 m freeboard or the credible maximum scenario flood level, whichever is greater. This is secured through the Design Parameters and Commitments document **[EN0110012/APP/LVS/05.06].**

15.9.130 Solar Development Sites themselves will have very high importance, and local infrastructure will have a high to medium importance. With appropriate mitigation measures in place, impacts are expected to be negligible.

15.9.131 Taking the **high** to **low** importance of flood risk receptors, and the **negligible** magnitude of the impact, the overall effect on flood risk during operation is considered to be **minor adverse** to **negligible**, and **not significant** in EIA terms.

15.9.132 A detailed assessment table to sit alongside this assessment of fluvial flood risk at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Pluvial flood risk

15.9.133 During operation, the cable routes are considered to be flood resilient infrastructure and therefore the potential impact is in regards to the substation and BESS.

15.9.134 An increase of impermeable surface caused by the on-site substation may have an impact on the surface water and dynamics of watercourse catchments. This has the potential to increase surface water runoff and the risk of pluvial flooding.

15.9.135 Regular inspections and maintenance of drainage systems, SuDS and culverts will take place throughout the operational phase, secured within the oOEMP **[EN0110012/APP/LVS/07.03]**.

15.9.136 A drainage strategy will be in place at the operational phase, the outline Drainage Strategy is presented in Appendix 15.4 (ES Volume 3) **[EN0110012/APP/LVS/06.03.15.04].**

15.9.137 Taking the **high** to **low** importance of flood risk receptors, and the **negligible** magnitude of the impact, the overall effect on flood risk during operation is considered to be **minor adverse** to **negligible**, and **not significant** in EIA terms.

15.9.138 A detailed assessment table to sit alongside this assessment of pluvial flood risk at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Groundwater flood risk

15.9.139 The Proposed Development is not expected to include the creation of permanent diversions due to the excavation for foundations of structures and installation of cables. This is due to the proposed depths of foundations being at a higher elevation than expected groundwater level, however a Ground Investigation will need to be completed at these locations to confirm. Should there be the creation of permanent diversions, which would only occur if localised groundwater levels

are higher than expected, they would have the potential to alter the flow of water from springs and within pockets of groundwater, this may lead to localised changes in the patterns of groundwater flooding.

15.9.140 With embedded mitigation implemented, together with good practice flood management measures as outlined in the oOEMP [**EN0110012/APP/LVS/07.03**], it is considered there will be a negligible magnitude of impact from groundwater flooding on the Proposed Development and nearby receptors as a result of the Proposed Development.

15.9.141 Taking the **high** to **low** importance of flood risk receptors, and the **negligible** magnitude of the impact, the overall effect on flood risk during operation is considered to be **minor adverse** to **negligible**, and **not significant** in EIA terms.

15.9.142 A detailed assessment table to sit alongside this assessment of groundwater flood risk at the operational phase is presented in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Decommissioning effects

15.9.143 During the decommissioning phase, the following potential risks to the water environment have been identified:

1) Changes to surface runoff patterns and land drainage as a result of decommissioning activities, resulting in altered surface water flows and water levels within the Order Limits and downstream, including flood risk. Assume return to similar baseline conditions.
2) Reductions in water quality and aquatic habitat quality of surface water bodies present within the Order Limits (excluding Cable Route Corridors), or downstream waterbodies, as a result of ground disturbance and associated sediment releases during decommissioning activities.
3) Subsoil compaction and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater.
4) Impacts on local hydrogeology and groundwater resources including any private water supplies and abstractions. Changes to groundwater levels, flows and quality arising from decommissioning activities.
5) Reductions in water quality and increased turbidity of groundwater, resulting from the groundwork and associated sediment releases during decommissioning activities.
6) Potential creation of pollution pathways to aquifers and connected abstractions due to removing of piles, increasing the risk of groundwater contamination during decommissioning.
7) Reductions in water quality of surface water bodies or groundwater bodies present within the Order Limits (excluding Cable Route Corridors), as a result of accidental release of contaminants (fuel oils and lubricants from

decommissioning plant and vehicles – accidental spillage during refuelling and/or leakage from storage; waste removal and storage, wheel washing).

8) Other flooding related impacts may potentially arise from the decommissioning of any flood risk infrastructure introduced in the design or mitigation, such as culverts for access routes or compensation floodplain storage.

15.9.144 In the absence of detailed information regarding decommissioning works, it is assumed that all above ground infrastructure (except the substations and access tracks) will be removed and most in ground infrastructure below to 1.2 mbgl will be left in situ. Whilst the most environmentally acceptable method is to leave the cables in-situ, the cables may be removed by opening up the ground at regular intervals and pulling the cable through to the extraction point. If cables were to be removed from under Avoidance Areas, the cable removal would take place from outside of the Avoidance Area. Therefore, the impacts during the decommissioning are considered comparable with, or likely less than, those of the construction stage.

15.9.145 The most appropriate method of decommissioning and the handling and disposal of materials will be undertaken in agreement with the relevant authorities at the time pursuant to the DEMP, utilising measures similar to those incorporated into the CEMP. Any applicable new legislation or guidelines published prior to decommissioning will be taken into account in relation to any design of mitigation prior to decommissioning occurring.

15.10 Additional mitigation

15.10.1 Additional mitigation is actions that require additional site and project specific activity in order to achieve a reduction in effect, and/or anticipated outcome.

15.10.2 There are no significant effects as a result of the assessment. Therefore there is no additional mitigation required.

15.11 Residual effects

Construction effects

15.11.1 No significant effects have been identified through assessment, after embedded mitigation has been taken into account. No additional mitigation is required, therefore the residual effects are the same as reported in Section 15.9 and summarised in Table 15-20.

Operational effects

15.11.2 No significant effects have been identified through assessment, after embedded and essential mitigation has been taken into account. No additional mitigation is required, therefore the residual effects are the same as reported in Section 15.9 and summarised in Table 15-20.

15.12 Monitoring

15.12.1 Long term monitoring of the Proposed Development will occur to ensure that the Proposed Development operates as designed. This includes:

1) Monitoring and maintenance of vegetation beneath the solar PV panels to ensure that erosion and sediment mobilisation is not increased and to ensure interception and infiltration of rainwater.

2) Monitoring of water receptors close to key infrastructure or works, this is for both surface water and groundwater. These will be identified at the final detailed design once the design is complete, and monitoring requirements as set out in the final CEMP, the principles for this are set out in oCEMP [**EN0110012/APP/LVS/07.02**] where necessary.

15.13 Summary

15.13.1 Table 15-20 presents a summary of the water resources and flood risk assessment, detailing further mitigation requirements and residual effects. A more detailed version of this table is available in Appendix 15.3: Water Resources and Flood Risk Assessment Table (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.03**].

Table 15-20 Water resources and flood risk - assessment summary

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
Construction						
Surface water quality and environmentally designated sites	Very High	Release of contaminants from construction activity including chemicals, hydrocarbons, oils, concrete/ cement, sediment and breakout from HDD (or other trenchless methods).	Negligible (close proximity receptors and all HDD risks) Neutral (all others including Skipwith Common SSSI)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	High	Release of contaminants from construction activity including chemicals, hydrocarbons, oils, concrete/ cement, sediment and breakout from HDD (or other trenchless methods).	Negligible (close proximity receptors, Burr Closes SSSI and all HDD risks) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	Medium	Release of contaminants from construction activity including chemicals, hydrocarbons, oils,	Negligible (close proximity receptors and all HDD risks)	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		concrete/ cement, sediment and breakout from HDD (or other trenchless methods).	Neutral (all others)	Neutral, not significant		Neutral, not significant
	Low	Release of sediment as a result of emplacement of culverts and trenched cables through watercourses.	Minor	Negligible, not significant	N/A	Negligible, not significant
		Release of contaminants from construction activity including chemicals, hydrocarbons, oils, concrete/ cement, sediment and breakout from HDD (or other trenchless methods).	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
Surface water quantity and geomorphology, and environmentally designated sites	Very High	Abstraction of water for construction works could affect water quantity.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
		Reduction or loss of water supply to receptor due to construction activities.	Negligible (close proximity receptors and all HDD risks) Neutral	Minor adverse, not significant	N/A	Minor adverse, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
			(all others including Skipwith Common SSSI)	Neutral, not significant		Neutral, not significant
	High	Abstraction of water for construction works could affect water quantity	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
		Reduction or loss of water supply to receptor due to construction activities.	Negligible (close proximity receptors, Burr Closes SSSI and all HDD risks) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	Medium	Abstraction of water for construction works could affect water quantity	Negligible	Negligible, not significant	N/A	Negligible, not significant
		Reduction or loss of water supply to receptor due to construction activities.	Negligible	Negligible, not significant	N/A	Negligible, not significant
	Low	Abstraction of water for construction works could affect water quantity	Negligible	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		Direct physical impact upon receptor as a result of construction works.	Minor	Negligible, not significant	N/A	Negligible, not significant
		Reduction or loss of water supply to receptor due to construction activities.	Negligible	Negligible, not significant	N/A	Negligible, not significant
Groundwater quality	Very High	Reduction of groundwater quality as a result of contamination from construction activities, including chemicals, hydrocarbons, oils, sediment, concrete/cement and breakout from HDD (or other trenchless methods).	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
		Physical disturbance of ground creating pathway to aquifer.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
	High	Reduction of groundwater quality as a result of contamination from construction activities, including chemicals, hydrocarbons, oils, sediment,	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Minor adverse, not significant	N/A	Minor adverse, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		concrete/cement and breakout from HDD (or other trenchless methods).		Neutral, not significant		Neutral, not significant
		Physical disturbance of ground creating pathway to aquifer.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
	Medium	Reduction of groundwater quality as a result of contamination from construction activities, including chemicals, hydrocarbons, oils, sediment, concrete/cement and breakout from HDD (or other trenchless methods).	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
		Physical disturbance of ground creating pathway to aquifer.	Negligible	Negligible, not significant	N/A	Negligible, not significant
	Low	Reduction of groundwater quality as a result of contamination from construction activities, including chemicals, hydrocarbons, oils,	Negligible (close proximity receptors and all HDD risks) Neutral	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		sediment, concrete/cement and breakout from HDD (or other trenchless methods).	(all others)	Neutral, not significant		Neutral, not significant
		Physical disturbance of ground creating pathway to aquifer.	Negligible	Negligible, not significant	N/A	Negligible, not significant
Groundwater quantity	Very High	Impact on water balance, local hydrogeology, groundwater level, groundwater flow and infiltration due to construction activities.	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	High	Impact on water balance, local hydrogeology, groundwater level, groundwater flow and infiltration due to construction activities.	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
	Medium	Impact on water balance, local hydrogeology, groundwater level, groundwater flow and infiltration due to construction activities.	Negligible (close proximity receptors and all HDD risks) Neutral (all others, including spring)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
	Low	Impact on water balance, local hydrogeology, groundwater level, groundwater flow and infiltration due to construction activities.	Negligible (close proximity receptors and all HDD risks) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
Flood risk (fluvial, pluvial and groundwater)	High	Increase in fluvial, pluvial and groundwater flood risk due to construction activities including increasing impermeable area, modifying ground levels and excavations.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
	Medium	Increase in fluvial, pluvial and groundwater flood	Negligible	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		risk due to construction activities including increasing impermeable area, modifying ground levels and excavations.				
	Low	Increase in fluvial, pluvial and groundwater flood risk due to construction activities including increasing impermeable area, modifying ground levels and excavations.	Negligible	Negligible, not significant	N/A	Negligible, not significant
Operation						
Surface water quality and environmentally designated sites	Very High	Risk of deterioration of water quality due to changes in the drainage network and accidental contaminant releases during operations.	Neutral	Neutral, not significant	N/A	Neutral, not significant
	High (The Fleet from Source to River Aire WER Water Body and associated receptors)	Risk of deterioration of water quality due to changes in the drainage network and accidental contaminant releases during operations.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
	High (all other receptors)	Risk of deterioration of water quality due to changes in the drainage network and accidental contaminant releases during operations.	Neutral	Neutral, not significant	N/A	Neutral, not significant
	Medium	Risk of deterioration of water quality due to changes in the drainage network and accidental contaminant releases during operations.	Negligible	Negligible, not significant	N/A	Negligible, not significant
	Low	Risk of deterioration of water quality due to changes in the drainage network and accidental contaminant releases during operations.	Negligible	Negligible, not significant	N/A	Negligible, not significant
Surface water quantity and geomorphology, and environmentally designated sites	Very High	Changes to surface water runoff patterns and land drainage may alter flows and water levels. Permanent access tracks and drainage network changes could result in loss, physically	Neutral	Neutral, not significant	N/A	Neutral, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		degradation and impact of receptors.				
	High (The Fleet from Source to River Aire WER Water Body and associated receptors)	Changes to surface water runoff patterns and land drainage may alter flows and water levels. Permanent access tracks and drainage network changes could result in loss, physically degradation and impact of receptors.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
	High (all other receptors)	Changes to surface water runoff patterns and land drainage may alter flows and water levels. Permanent access tracks and drainage network changes could result in loss, physically degradation and impact of receptors.	Neutral	Neutral, not significant	N/A	Neutral, not significant
	Medium	Changes to surface water runoff patterns and land drainage may alter flows and water levels. Permanent access tracks	Negligible	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		and drainage network changes could result in loss, physically degradation and impact of receptors.				
	Low	Changes to surface water runoff patterns and land drainage may alter flows and water levels. Permanent access tracks and drainage network changes could result in loss, physically degradation and impact of receptors.	Minor or Negligible	Negligible, not significant	N/A	Negligible, not significant
Groundwater quality	Very High	Reduction of groundwater quality as a result of accidental release of contaminants during proposed operation.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
		Potential release of firewater and other chemicals from BESS and substation.	Negligible (close proximity receptors) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
	High	Reduction of groundwater quality as a result of accidental release of contaminants during proposed operation.	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant
		Potential release of firewater and other chemicals from BESS and substation.	Negligible (close proximity receptors) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	Medium	Reduction of groundwater quality as a result of accidental release of contaminants during proposed operation.	Negligible	Negligible, not significant	N/A	Negligible, not significant
		Potential release of firewater and other chemicals from BESS and substation.	Negligible (close proximity receptors) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
	Low	Reduction of groundwater quality as a result of accidental release of	Negligible	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		contaminants during proposed operation.				
		Potential release of firewater and other chemicals from BESS and substation.	Negligible (close proximity receptors) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
Groundwater quantity	Very High	Placement of impermeable structures and surfaces and reduced infiltration, resulting in increases in localised overland flooding, reduced recharge to groundwater and alteration of shallow groundwater flow paths.	Negligible (close proximity receptors) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
		Changes to water balance as a result of change in ground surface cover and new drainage systems.	Negligible (close proximity receptors) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	High	Placement of impermeable structures	Negligible (close proximity receptors)	Minor adverse, not significant	N/A	Minor adverse, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		and surfaces and reduced infiltration, resulting in increases in localised overland flooding, reduced recharge to groundwater and alteration of shallow groundwater flow paths.	Neutral (all others)	Neutral, not significant		Neutral, not significant
		Changes to water balance as a result of change in ground surface cover and new drainage systems.	Negligible (close proximity receptors) Neutral (all others)	Minor adverse, not significant Neutral, not significant	N/A	Minor adverse, not significant Neutral, not significant
	Medium	Placement of impermeable structures and surfaces and reduced infiltration, resulting in increases in localised overland flooding, reduced recharge to groundwater and alteration of shallow groundwater flow paths.	Negligible (close proximity receptors) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
		Changes to water balance as a result of change in	Negligible (close proximity receptors)	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		ground surface cover and new drainage systems.	Neutral (all others)	Neutral, not significant		Neutral, not significant
	Low	Placement of impermeable structures and surfaces and reduced infiltration, resulting in increases in localised overland flooding, reduced recharge to groundwater and alteration of shallow groundwater flow paths.	Negligible (close proximity receptors) Neutral (all others)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
		Changes to water balance as a result of change in ground surface cover and new drainage systems.	Negligible (close proximity receptors) Neutral (all others including wells)	Negligible, not significant Neutral, not significant	N/A	Negligible, not significant Neutral, not significant
Flood risk (fluvial, pluvial and groundwater)	High	Change in flood flow pathways as a result of the proposed development may impact receptors within and	Negligible	Minor adverse, not significant	N/A	Minor adverse, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		associated with flood zones. Potential to increase surface water runoff and risk of pluvial flooding due to increase of impermeable surfaces. Localised changes in the patterns of groundwater flooding due to permanent diversions of groundwater from excavations as part of the proposed development.				
	Medium	Change in flood flow pathways as a result of the proposed development may impact receptors within and associated with flood zones. Potential to increase surface water runoff and risk of pluvial flooding due to increase of impermeable surfaces.	Negligible	Negligible, not significant	N/A	Negligible, not significant

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
		Localised changes in the patterns of groundwater flooding due to permanent diversions of groundwater from excavations as part of the proposed development.				
	Low	Change in flood flow pathways as a result of the proposed development may impact receptors within and associated with flood zones. Potential to increase surface water runoff and risk of pluvial flooding due to increase of impermeable surfaces. Localised changes in the patterns of groundwater flooding due to permanent diversions of groundwater from excavations as part of the proposed development.	Negligible	Negligible, not significant	N/A	Negligible, not significant
Decommissioning						

Assessment category	Receptor importance	Description of impact	Magnitude	Significance of effect	Additional mitigation	Residual effect and significance
See Construction Assessment for those receptors screened in at Decommissioning Phase						

15.14 Cumulative assessment

15.14.1 This section presents an assessment of cumulative effects between the Proposed Development and other proposed and committed plans and projects.

15.14.2 This assessment has been made with reference to the methodology and guidance set out in Chapter 17: Cumulative and In-Combination Effects (ES Volume 1) [**EN0110012/APP/LVS/06.01.17**] and the shortlist of cumulative plans and projects identified within Chapter 17.

15.14.3 For individual receptors, this cumulative effect assessment identifies where the predicted effects of the Proposed Development could interact with effects arising from other plans and/or projects based on a spatial and/or temporal basis.

15.14.4 Plans and projects identified within Chapter 17 (ES Volume 1) [**EN0110012/APP/LVS/06.01.17**] which have the potential to result in cumulative effects on water resources and flood risk are set out in Table 15-21 and are considered below. Chapter 17 is the only location in which in-combination effects are being considered.

15.14.5 Plans and projects identified in Chapter 17 (ES Volume 1) [**EN0110012/APP/LVS/06.01.17**] which are not within the water resources and flood risk 1 km Study Area have not been considered as part of the cumulative assessment, other than schemes which are considered to have the potential for cumulative effects on receptors located between the Proposed Development and the scheme. The remaining plans and projects were reviewed in relation to the water resources and flood risk receptors identified in this assessment and no further potential for significant cumulative effects are identified due to the temporary nature of construction and limited impacted from operation and maintenance.

Table 15-21 Plans and projects relevant to the water resource and flood risk cumulative assessment

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
Yorkshire Green EN020024	A proposed reinforcement project comprising a new 400 kV and 275 kV electricity transmission connection and associated development.	300 m south of Solar Development Site 3 0 m from Cable Route Corridor (overlap in site boundaries due to works at Monk Fryston substation – CRC 4-POC)	Potential cumulative impacts on watercourses, aquifers, and associated groundwater and surface water abstractions present and surface water quality where CRC 4-POC is being laid close to the Monk Fryston substation, which could cross over in planned construction dates, with Yorkshire Green and Light Valley Solar potentially overlapping in construction in 2028. Assuming no overlap in construction duration at Solar Development Site 3 which has from the indicative programme is planned to start construction 24 months after a 2028 project start date, there will be no cumulative impacts in relation to the receptors close to the Solar Development Site. If there were overlap, this scheme would be required to put in CEMP measures similar to those set out in the oCEMP [**EN0110012/APP/LVS/07.02**] of the Proposed Development.
Ferrybridge Next Generation Power Station	A generating station of up to 1.2 GW output capacity designed to run	0 m from Solar Development Site (crosses Solar Development Site 4)	Potential cumulative impacts on the water quality of watercourses,

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
Also, local plan land allocation ES08 EN0110011	on 100% hydrogen and able to run on 100% natural gas and associated infrastructure including a gas pipeline of up to 10 km to connect with the existing Feeder 29 of the National Grid transmission system; water supply and electricity connections; above ground installations; utilities connections; construction and operational laydown areas; access(es); and other associated and ancillary development. There are two options for the Gas Pipeline, both of which cross Solar Development Site 4.	0 m from Cable Route Corridor (crosses CRC 4-POC)	aquifers, and associated groundwater and surface water abstractions present within the Order Limits and 1 km Study Area, should construction coincide. Gas Pipeline crosses Solar Development Site 4, 200 m south of two Solar Development Site Construction Compounds, and 300 m south of the 275 kV substation in Solar Development Site 2. The pipeline will be buried to at least 1.1 m to the top of the pipe, with trenchless crossing methods applied when crossing any significant drains, ditches, watercourses and other infrastructure. If construction were to coincide, there would be a greater risk to impacts on receptors in the area, however, this is not expected to be significant. Minor adverse and not significant is the worst-case assessment for water resources and flood risk for the Proposed Development, assuming Ferrybridge Next Generation Power Station has appropriate embedded mitigation, there will not be a significant effect.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
Installation and operation of a battery storage facility and ancillary development 2021/0633/FULM (also ZG2023/0956/FUL, 2022/1482/S73 and 2022/1501/FUL)	Installation of a revised access road layout and drainage connection pipe and a new fibre connection cable for the approved Monk Fryston Battery Storage Facility off Rawfield Lane, Monk Fryston (planning reference 2021/0633/FULM / appeal reference APP/N2	2.45 km southeast of Solar Development Site 6 0 m from CRC 4-POC (overlap in site boundaries due to works at Monk Fryston substation)	Potential cumulative impacts on watercourses, aquifers, and associated groundwater and surface water abstractions present and surface water quality where CRC 4-POC is being laid close to the Monk Fryston substation. No impact expected at Solar Development Sites due to distance being sufficiently far.
Erection and operation of a mushroom and algae cultivation facility ZG2024/1101/FULM	Erection and operation of a mushroom and algae cultivation facility, ancillary structures and associated scheme of landscaping and biodiversity enhancement	11 m south of Solar Development Site 7 50 m west of Cable Route Corridor (west of CRC 6-7)	Adjacent to Solar Development Site 7. No dewatering expected as part of construction of the cultivation facility. Discharges from the application site for this project will not take place until works to provide a satisfactory outfall are completed. No potential cumulative impacts expected.
Outline application for development of 150 dwellings ZG2023/1152/OUTM	Outline application with all matters reserved except for means of access to, but not within, the site for the development of up to 150 dwellings and associated landscaping and infrastructure works.	1.15 km southeast of Solar Development Site 8 280 m north of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
Erection of a Solar Farm AP/2025/0037/REF	Erection of a solar farm together with ancillary development including cable trenches, internal access tracks, access into the site, an inverter station and fencing.	0 m from Solar Development Site (adjacent to Solar Development Site 3 and 4 boundaries) 0 m from Cable Route Corridor (intersects CRC 3-4 and CRC 3-4a)	Adjacent to the proposed 33 kV substation area in Solar Development Site 3. There is the potential cumulative effect on watercourses, aquifers, and associated groundwater and surface water abstractions should dewatering in this development occur at the same time as Light Valley Solar, but this should not result in a significant effect as both schemes will have sufficient embedded mitigation. The worst-case impact on water resources and flood risk at Light Valley Solar is minor adverse – not significant, assuming a similar assessment at Hillam Solar Farm, there will be no significant cumulative effects.
Solar development with co-located Battery Energy Storage System ZG2024/1129/FULM	Solar development with co-located Battery Energy Storage System and associated works.	1.55 km east of Solar Development Site 8 100 m north of CRC 1-4	No significant cumulative effects have been identified assuming only activity of the Solar development with co-located BESS is below ground work for cable installation and associated haul road. If this is the case it is considered sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect, and

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			sufficiently far away from construction activity in Solar Development Site 8 to not cause a cumulative effect.
Development of Battery Energy Storage System ('BESS') ZG2024/1099/SCN	EIA Screening Opinion in relation to the development of Battery Energy Storage System ('BESS') and associated infrastructure	1.8 km southwest of Solar Development Site 6 0 m from CRC 4-POC (overlap in site boundaries due to works at Monk Fryston substation)	Potential cumulative impacts on watercourses, aquifers, and associated groundwater and surface water abstractions present and surface water quality where CRC 4-POC is being laid close to the Monk Fryston substation. No impact expected at Solar Development Sites due to distance being sufficiently far.
Outline planning application for development of 140 dwellings ZG2023/0551/OUTM	Permitted outline application with all matters reserved except for means of access to, but not within, the site for the development of up to 140 dwellings and associated landscaping and infrastructure	2.6 km east of Solar Development Site 8 0 m (adjacent) to CRC 1-4	No significant cumulative effects have been identified, noting that both the Cable Route Corridor and this proposed development cross Town Dike. The cable crosses Town Dike by HDD. This is on the basis that it is assumed that the oCEMP [**EN0110012/APP/LVS/07.02**] for both developments will mitigate risks.
Outline planning application for development of 110 dwellings ZG2023/1017/OUTM	Outline Planning Application including access, with all other matters reserved, for up to 110 residential dwellings	3.2 km southeast of Solar Development Site 8 660 m southeast of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
Construction and operation of a solar farm ZG2023/0481/SCN	EIA Screening Opinion in relation to the construction and operation of a solar farm together with all associated works, equipment, necessary infrastructure, and landscaping	50 m east of Solar Development Site 7 10 m east of CRC 6-7	250 m north of the Solar Development Site 6 Construction Compound, and close to Solar Development Site 7. Potential cumulative effect on watercourses, aquifers, and associated groundwater and surface water abstractions should dewatering in this development occur at the same time as Light Valley Solar but this should not result in a significant effect as both schemes will have sufficient embedded mitigation. The worst-case impact on water resources and flood risk at Light Valley Solar is minor adverse – not significant, assuming a similar assessment at this Solar Farm, there will be no significant cumulative effects.
Gascoigne Wood Power Plant Reserved Matters Application including layout of planning	Application for the demolition of existing colliery buildings and the construction of up to 1,460,000 sq ft	60 m north of Solar Development Site 7 660 m north of CRC 2-6	No significant cumulative effects have been identified, noting that Low Common Drain runs between

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
permission 2021/1531/EIA Outline application for the demolition of existing colliery buildings and the construction of up to 1,460,000 sq ft of employment floorspace. ZG2025/0529/REMM Also local plan land allocation SHERBURN/028	of employment floorspace comprising Use Classes B2, B8 and E(g) to include access (with all other matters reserved).		the two developments. This is on the basis that it is assumed that the oCEMP [**EN0110012/APP/LVS/07.02**] for both developments will mitigate risks.
Proposed new quarry to extract approximately 6 million tonnes of clay by 2053 and restoration of the site to agriculture and nature conservation with the importation of up to 2.67 million tonnes of inert materials NY/2019/0136/ENV	Proposed new quarry to extract approximately 6 million tonnes of clay by 2053 and restoration of the site to agriculture and nature conservation with the importation of up to 2.67 million tonnes of inert materials together with the construction of new internal site access haul road, site compound, car park, site office, wheel washing facility, security fencing and gates and the construction of a temporary bridge crossing over the National Route 65 of the National Cycle Network	2.1 km west of Solar Development Site 1 1.8 km northwest of CRC 1-4	No significant cumulative effects have been identified. This is on the basis that it is assumed that the oCEMP [**EN0110012/APP/LVS/07.02**] for both developments will mitigate risks, with specific attention to the groundwater control measures at the proposed quarry.
Development of an Agricultural Anaerobic Digestion (AD) Facility NY/2024/0200/FUL	Development of an Agricultural Anaerobic Digestion (AD) Facility and associated plant and equipment and soft landscaping	70 m northwest of Solar Development Site 7 400 m northwest of CRC 6-7	No significant cumulative effects have been identified because the development is a sufficient distance away from any areas which will require deeper excavation, such as construction compounds and

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			substations, and is sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
100 dwelling development ZG2025/0928/OUTM	Outline application for up to 100 residential dwellings with all matters reserved except for access	4 km northeast of Solar Development Site 8 250 m southwest of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
75 dwelling development ZG2025/1019/FULM	Erection of up to 75 No. residential dwellings, open space, landscaping, drainage infrastructure and associated works	1.55 km southeast of Solar Development Site 8 30 m northwest of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites. The development is 30 m from the Cable Route Corridor, however given the shallow depth of cable installation, there is no cumulative effect identified.
180 dwelling development ZG2025/0983/OUTM	Outline planning application for the construction of up to 180 dwellings (Class C3) including access from	400 m west of Solar Development Site 7	No significant cumulative effects have been identified because the development is a sufficient distance

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
	Low Street (all other matters are reserved)	630 m west of CRC 6-7	away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
Outline application for development of 145 dwellings ZG/2023/0358/OUTM	Outline application for up to 145 residential dwellings and associated works, including access from Leeds Road but not access within the site (all other matters reserved).	2.65 km southeast of Solar Development Site 8 290 m northeast of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
Section 73 – vary conditions for development of 168 residential park caravan homes 2021/1162/S73	Section 73 application to vary conditions for development of 168 residential park caravan homes.	2.7 km northeast of Solar Development Site 8 400 m southeast of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
EIA Screening for Monk Fryston battery energy storage system	EIA Screening for proposal for elements green Monk Fryston	870 m southwest of Solar Development Site 6	This is at EIA screening stage, but will be assessed conservatively to

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
ZG2024/1155/SCN	battery energy storage system and associated infrastructure.	450 m northeast of CRC 4 – POC	assume it will be built in this location. No significant cumulative effects have been for the Monk Fryston battery energy storage system. It is considered sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect, and sufficiently far away from construction activity in Solar Development Site 6 to not cause a cumulative effect.
Erection of 76 dwellings ZG2024/0041/FULM	Erection of up to 76 dwellings, including associated landscaping, public open space, and the formation of a new vehicle access off Wheatfields Walk.	3.6 km southwest of Solar Development Site 1 900 m northwest of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
Outline planning application for residential development of up to 110 dwellings ZG2023/1356/OUTM Also local plan land allocation HAMBLETON/008	Outline planning application for residential development of up to 110 dwellings, landscaping, open space and associated infrastructure with all matters reserved other than access into the site.	1.05 km southwest of Solar Development Site 8 Access 540 m west of CRC 1-4	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
			far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.
Demolition of existing property and erection of 27 dwellings ZG2023/0888/FULM	Demolition of an existing single property and the residential development of 27 No. dwellings with associated landscaping and infrastructure works.	1 km northwest of Solar Development Site 3 850 m north of CRC4 – POC	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect. Noting that this is adjacent to Pond at Betteras Hill Road SINC.
Erection of 106 residential dwellings ZG2023/0774/FULM Also local plan land allocation SHERBURN/011	The erection of 106 residential dwellings and associated works.	670 m northwest of Solar Development Site 7 620 m northwest of CRC 6-7	No significant cumulative effects have been identified because the development is a sufficient distance away from the more sensitive construction areas at the Solar Development Sites, and sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect. Noting that this crosses a Selby IDB watercourse.

Application reference	Description	Distance from the Proposed Development	Potential cumulative effects
Extraction and processing of magnesian limestone, the installation and operation of a low-level aggregate processing plant with ancillary buildings and restoration by infilling of the void space with inert waste to original ground levels NY/2022/0102/ENV	Extraction and processing of magnesian limestone, the installation and operation of a low-level aggregate processing plant with ancillary buildings and restoration by infilling of the void space with inert waste to original ground levels	2.15 km southwest of Solar Development Site 6 250 m northwest of CRC 4 - POC	No significant cumulative effects have been identified. This is on the basis that it is assumed that the oCEMP [**EN0110012/APP/LVS/07.02**] for both developments will mitigate risks, with specific attention to the groundwater control measures at the proposed quarry, and because it is sufficiently far enough away from the Cable Route Corridor given the shallow depth of cable installation to not cause a cumulative effect.

Cumulative effects during construction

15.14.6 There is potential for overlap between construction of adjacent schemes and construction of the Proposed Development. Thus, there is the potential for short term, temporary construction related pollutants generated from both the Proposed Development and adjacent developments to impact on water receptors in the Study Area. Moreover, any groundwater control measures have the potential to result in cumulative impact on water levels and flow.

15.14.7 There are multiple adjacent construction schemes close to Monk Fryston Substation at CRC 4-POC with the potential to cause cumulative impacts if construction overlaps with the construction works of the Proposed Development. This could impact watercourses, aquifers, and associated groundwater and surface water abstractions present and surface water quality close to Monk Fryston Substation.

15.14.8 The Ferrybridge Next Generation Power Station plans to lay a gas pipeline across Solar Development Site 4. This could cause a possible cumulative effect on the water quality of watercourses, aquifers, and associated groundwater and surface water abstractions should construction in this development occur at the same time as Light Valley Solar.

15.14.9 There is a proposed Solar Farm and Ancillary development adjacent to the proposed 33 kV substation area in Solar Development Site 3. This could cause a possible cumulative effect on watercourses, aquifers, and associated groundwater and surface water abstractions should dewatering in this development occur at the same time as Light Valley Solar.

15.14.10 There is a proposed Solar Farm 50 m north of Solar Development Site 7, 250 m north of the Solar Development Site 6 Construction Compound. There is a possible cumulative effect on watercourses, aquifers, and associated groundwater and surface water abstractions should dewatering in this development occur at the same time as Light Valley Solar.

15.14.11 Provided that standard and good practice mitigation is implemented on the construction sites through their respective oCEMP [**EN0110012/APP/LVS/07.02**] and as per the conditions of the relevant planning permission, environmental permits and licences, as is being proposed for this Proposed Development, the cumulative risk can be effectively managed and there would not be a significant increase in the risks to any water receptors. As such, there would not be any significant cumulative effects anticipated during construction on the basis of the above assessment.

Cumulative effects during operation

15.14.12 All relevant developments will be required to be supported by drainage strategies with reference to the relevant policies and guidance documents outlined in Section 15.3. In some instances, the developments may not be at the application stage, however, it must be assumed they will be supported by appropriate flood risk assessments and drainage strategies in line with relevant guidance and good

practice. It must also be assumed that the developments will have a thorough WED/WFD compliance assessment.

15.14.13 The Proposed Development will similarly be designed to ensure no long-term deterioration in water quality, water availability beyond permissible levels or increase in flooding. Attenuation and treatment will be provided where necessary for runoff from the Proposed Development prior to discharge to waterbodies or ground. As such, provided that all the mitigation measures are implemented for all schemes, then the cumulative impacts from the Proposed Development and any cumulative schemes are not anticipated to produce any significant effects.

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