



WHITESTONE
solar farm

WHITESTONE SOLAR FARM

Volume 6: Environmental Statement

6.10 Chapter 10: Water Resources and Flood Risk

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Glossary

Term	Meaning
<i>Cable Corridors</i>	Corridors within which the high voltage cables would be constructed.
<i>Draft Environmental Statement</i>	The Draft Environmental Statement which presented the preliminary environmental information relating to the Proposed Development. The Draft ES was prepared to present information for statutory consultation in accordance with current EIA regulation.
<i>Environmental Statement (ES)</i>	The Environmental Statement which presents the environmental information relating to the Proposed Development. The ES has been prepared to present information for formal consultation in accordance with current EIA regulation.
<i>Order Limits</i>	Maximum extent of the Proposed Development comprising the Site and Cable Corridors.
<i>The Applicant</i>	Whitestone Net Zero Ltd.
<i>The Application</i>	The Application submitted to the Secretary of State for a Development Consent Order.
<i>The Proposed Development</i>	The proposed Whitestone Solar Farm.
<i>The Site</i>	The land planned to be used for solar PV array and associated infrastructure, BESS substation, and landscaping and habitat enhancement. The Site is split into W1, W2, and W3.
<i>Study Area</i>	The spatial extent within which environmental receptors may experience likely significant effects from the Proposed Development.
<i>Whitestone 1 (W1)</i>	The northern parcels of the Whitestone Solar Farm.
<i>Whitestone 2 (W2)</i>	The middle parcels of the Whitestone Solar Farm.

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Term	Meaning
<i>Whitestone 3 (W3)</i>	The southern parcels of the Whitestone Solar Farm.

Acronyms

Acronym	Meaning
<i>AEP</i>	Annual Exceedance Probability
<i>AIL</i>	Abnormal Indivisible Load
<i>BESS</i>	Battery Energy Storage System
<i>BGS</i>	British Geological Survey
<i>CDC</i>	City of Doncaster Council
<i>CEMP</i>	Construction Environmental Management Plan
<i>CIRIA</i>	Construction Industry Research and Information Association
<i>CRT</i>	Canal and River Trust
<i>CTM</i>	Conventional Tunnelling Method
<i>DCLG</i>	Department of Communities and Local Government
<i>DCO</i>	Development Consent Order
<i>DEMP</i>	Decommissioning Environmental Management Plan
<i>DMRB</i>	Design Manual for Roads and Bridges
<i>EA</i>	Environment Agency
<i>ECOW</i>	Ecological Clerk of Works
<i>EIA</i>	Environmental Impact Assessment
<i>ES</i>	Environmental Statement
<i>FRA</i>	Flood Risk Assessment
<i>HDD</i>	Horizontal Direction Drilling
<i>LLFA</i>	Lead Local Flood Authorities
<i>LSE</i>	Likely Significant Effects
<i>LVIA</i>	Landscape and Visual Impact Assessment
<i>MAGIC</i>	Multi-Agency Geographic Information for the Countryside
<i>NEDDC</i>	North East Derbyshire District Council
<i>NNR</i>	National Nature Reserves
<i>NPPF</i>	National Planning Policy Framework
<i>NPS</i>	National Policy Statement
<i>NRFA</i>	Nearest National River Flow Archive
<i>NSIP</i>	Nationally Significant Infrastructure Project
<i>NVZ</i>	Nitrate Vulnerable Zone
<i>oBSMP</i>	Outline Battery Safety Management Plan
<i>oCEMP</i>	Outline Construction Environmental Management Plan
<i>oDEMP</i>	Outline Decommissioning Environmental Management Plan

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Acronym	Meaning
<i>OEMP</i>	Operational Environmental Management Plan
<i>oOEMP</i>	Outline Operational Environmental Management Plan
<i>OS</i>	Ordnance Survey
<i>oSWDS</i>	Outline Surface Water Drainage Strategy
<i>PPG</i>	Pollution Prevention Guidelines
<i>PWS</i>	Private Water Supply
<i>PV</i>	Photovoltaic
<i>RMBC</i>	Rotherham Metropolitan Borough Council
<i>SAC</i>	Special Area of Conservation
<i>SFRA</i>	Strategic Flood Risk Assessment
<i>SPA</i>	Special Protection Area
<i>SPR</i>	Source Pathway Receptor
<i>SPZ</i>	Source Protection Zone
<i>SSSI</i>	Sites of Special Scientific Interest
<i>SuDS</i>	Sustainable Drainage Strategies
<i>TBM</i>	Tunnel Boring Machine
<i>WFD</i>	Water Framework Directive
<i>W1</i>	Whitestone 1
<i>W2</i>	Whitestone 2
<i>W3</i>	Whitestone 3
<i>YWS</i>	Yorkshire Water
<i>ZoI</i>	Zone of Influence

Units

Units	Meaning
<i>km</i>	Kilometres
<i>kV</i>	Kilovolt
<i>m</i>	Metres
<i>MW</i>	Megawatt

10 WATER RESOURCES AND FLOOD RISK

10.1 Introduction

- 10.1.1 This Chapter of the Environmental Statement (ES) evaluates the potential effects of the construction, operation and maintenance, and decommissioning of Whitestone Solar Farm (the Proposed Development) in relation to Water Resources and Flood Risk. The Proposed Development is described in **ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5]**.

Order Limits

- 10.1.2 The extent of the Order Limits are described in **ES Volume 1, Chapter 3: The Site and Surrounding Area [EN0110020/APP/6.3]** and shown in **ES Volume 3, Figure 3.1: Order Limits [EN0110020/APP/6.19]**. The Proposed Development is described in **ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5]** and shown spatially on the **Works Plans [EN0110020/APP/2.3.1]**.

The Proposed Development

- 10.1.3 The Proposed Development involves the construction, operation and maintenance, and decommissioning of more than 100 megawatt (MW) of solar photovoltaic (PV) array, Battery Energy Storage System (BESS), onsite substations and supporting infrastructure, and grid connection infrastructure. The grid connection infrastructure would connect the Proposed Development to the National Grid at the new 400 kilovolt (kV) National Grid substation proposed on land immediately east of Long Lane, Brinsworth, S60 4JJ (Long Lane 400kV Substation). National Grid have applied to Rotherham Metropolitan Borough Council (RMBC) for the development of this new substation which is intended by National Grid to be operational in time for the Proposed Development to connect in 2029. This substation is therefore not included in the Proposed Development and will be subject to a separate planning application taken forward by National Grid.
- 10.1.4 As the Proposed Development would have a generating capacity in excess of 100MW, it is considered to be a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008.
- 10.1.5 The Proposed Development would be located within the Order Limits. The Order Limits encompass the total area of the project comprising the Site and Cable Corridors. The Site is specifically the land that is planned to be used for solar PV array and associated infrastructure, BESS, substation, landscaping and habitat enhancement. The Site is split into Whitestone 1 (W1), Whitestone 2 (W2), and Whitestone 3 (W3).
- 10.1.6 Highway Works are sections of the highway network that will contain localised improvements, such as improvements to road edge where it is deteriorated, or temporary highway and traffic works required to safely accommodate the

Abnormal Indivisible Load (AIL) deliveries. These areas will support the movement of construction vehicles on narrower sections of the local highway network within parts of the construction vehicle routes to the Site (as described in **ES Volume 2, Chapter 13: Traffic and Transport [EN0110020/APP/6.13.1]**)

10.1.7 This Chapter of the Environmental Statement includes the following sections:

- Legislation, Policy, and Guidance
- Consultation
- Assessment Methodology
- Baseline
- Embedded Mitigation
- Assessment of Effects;
- Additional Mitigation and Residual Effects; and
- Cumulative Effects.

10.1.8 This Chapter is supported by the following figures in **ES Volume 3, Figures [EN0110020/APP/6.19]**:

- **Figure 10.1: Water Resources and Flood Risk Study Area;**
- **Figure 10.2: Water Framework Directive Designated Watercourses;**
- **Figure 10.3: Surface Watercourses and Waterbodies;**
- **Figure 10.4: EA Flood Map for Planning Flood Zones;**
- **Figure 10.5: Flood Risk from Surface Water;**
- **Figure 10.6: Flood Risk from Reservoirs;**
- **Figure 10.7: Historic Flood Map;**
- **Figure 10.8: Nitrate Vulnerable Zones;**
- **Figure 10.9: Environment Agency Licensed Abstractions and Private Water Supplies;**
- **Figure 10.10: Designated Sites;**
- **Figure 10.11: Hydrogeology;**
- **Figure 10.12: Water Framework Directive Groundwater Bodies Classifications;**
- **Figure 10.13: Source Protection Zones; and**
- **Figure 10.14: Watercourse Crossings.**

10.1.9 This Chapter is supported by the following appendices in **ES Volume 3, Appendices [EN0110020/APP/6.20]**:

- **Appendix 10.1: Legislation, Policy, and Guidance;**
- **Appendix 10.2: Flood Risk Assessment; and**
- **Appendix 10.3: Water Framework Directive Compliance Assessment.**

10.2 Legislation, Policy and Guidance

- 10.2.1 The legislation, policy and guidance related to water resources and flood risk as detailed in **ES Volume 3, Appendix 10.1: Legislation Policy and Guidance [EN0110020/APP/6.20]**, and relevant to the Proposed Development, are outlined below.

Legislation

- 10.2.2 Legislation that has been considered includes:

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017¹;
- The Flood Directive 2007/60/EC²;
- Environmental Protection Act 1990³;
- The Water Resources Act 1991⁴ (as amended by the Water Act 2003⁵);
- The Water Act 2014⁶;
- The Environment Act 2021⁷;
- The Environmental Targets (Water) (England) Regulations 2023⁸;
- Flood and Water Management Act 2010⁹;
- The Land Drainage Act 1991¹⁰;
- The Environmental Damage (Prevention and Remediation) Regulations 2015¹¹;
- The Water Supply (Water Quality) Regulations 2016¹²;
- The Private Water Supplies (England) (Amendment) Regulations 2018¹³;
- The Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018)¹⁴;
- The Groundwater (Water Framework Directive) (England) Direction 2016¹⁵; and
- The Control of Pollution (Oil Storage) (England) Regulations 2001¹⁶.

National Policy

- 10.2.3 National policy that has been considered includes:

- Overarching National Policy Statement (NPS) for energy (EN-1), (2025)¹⁷;
- NPS for Renewable Energy Infrastructure (EN-3), (2025)¹⁸;
- NPS for Electricity Networks Infrastructure (EN-5) (2025)¹⁹; and
- The National Planning Policy Framework (2024)²⁰.

Local Policy

- 10.2.4 Local policy that has been considered includes:

- City of Doncaster Council Local Plan 2015-2035²¹;

- Rotherham Metropolitan Borough Council Local Plan Core Strategy 2014-2028²²;
- Wickersley Neighbourhood Plan 2021-2028²³;
- Dinnington Neighbourhood Plan 2016-2028²⁴;
- Maltby Neighbourhood Plan 2017-2028²⁵; and
- North East Derbyshire Local Plan 2014-2034²⁶.

Guidance

10.2.5 Supporting guidance that has been considered includes:

- Construction Industry Research and Information Association (CIRIA) Control of Water Pollution from Construction Sites (C532);²⁷
- CIRIA Development and flood risk: guidance to the construction industry, (C624D);²⁸
- CIRIA The Sustainable Drainage Strategies (SuDS) Manual (C753);²⁹
- CIRIA Environmental Good Practice on Site (C741);³⁰
- CIRIA Culvert, Screen and Outfall Manual (C786F);³¹
- National Standards for Sustainable Drainage Systems (SuDS) (2025);³²
- Code of Practice for Works Affecting the Canal & River Trust Part 1: General Information (2025);³³
- Code of Practice for Works Affecting the Canal & River Trust Part 2: Detailed Information (2025);³⁴
- Code of Practice for Works Affecting the Canal & River Trust Part 3: Forms (2025);³⁵
- British Standard Code of Practice for Earthworks BS 6031 200928;³⁶
- Department of Communities and Local Government (DCLG) Planning Practice Guidance: Flood risk and coastal change 2024;³⁷
- National Highways' Design Manual for Roads and Bridges (DMRB) LA 113 – Road drainage and the water environment, formerly HD45/09, Revision 1, 2020;³⁸
- Department for Environment Food and Rural Affairs and Environment Agency Pollution Prevention for Businesses 2026;³⁹
- National Flood and Coastal Erosion Risk Management Strategy 2022;⁴⁰
- Flood Risk Activities: Environmental Permits 2025;⁴¹
- Environment Agency (EA) Peak River Flow Climate Change Allowances by Management Catchment 2022;⁴²
- EA Peak Rainfall Climate Change Allowances by Management Catchment 2022;⁴³
- Discharges to Surface Water and Groundwater: Environment Permits 2024;⁴⁴
- EA Guidance on Applying for a Water Abstraction or Impounding License 2026;⁴⁵
- Oil Storage Regulations for Businesses 2023;⁴⁶

- Manage Water on Land: Guidance for Land Managers 2026;⁴⁷
- Planning Inspectorate's Technical Advice Page for Scoping Solar Development 2025;⁴⁸
- EA Approach to Groundwater Protection 2018;⁴⁹
- EA Groundwater Source Protection Zones (SPZs);⁵⁰
- EA Protect Groundwater and Prevent Groundwater Pollution 2025⁵¹; and
- Humber River Basin District River Management Plan 2024⁵².

10.2.6 More detailed information regarding the above legislation, policy and guidance can be found in **ES Volume 3, Appendix 10.1: Legislation, Policy and Guidance [EN0110020/APP/6.20]**.

10.3 Consultation

10.3.1 This section provides a summary of the consultation undertaken to date regarding the Proposed Development. Further detail on the consultation can also be found in **ES Volume 1, Chapter 2: EIA Methodology [EN0110020/APP/6.2.1]**.

EIA Scoping

- 10.3.2 A Scoping Opinion was sought from the Planning Inspectorate to determine the content of the assessment, as well as the approach and methods to be used. The outcomes of this exercise were documented in the Scoping Report (**ES Volume 3, Appendix 2.1: EIA Scoping Report [EN0110020/APP/6.20]**), which was submitted to the Planning Inspectorate on 23 April 2025. The Scoping Report captures the findings of the scoping exercise and outlines the technical guidance, standards, best practices and criteria to be applied in the assessment to identify and evaluate the likely significant effects of the Proposed Development on Water Resources and Flood Risk.
- 10.3.3 A Scoping Opinion was received from the Planning Inspectorate on 3 June 2025 (**ES Volume 3, Appendix 2.2: EIA Scoping Opinion [EN0110020/APP/6.20]**).
- 10.3.4 **Table 10.1** summarises how this Chapter of the ES addresses key points from the Environmental Impact Assessment (EIA) Scoping Opinion comments related to Water Resources and Flood Risk.

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Table 10.1: Scoping Opinion Comments and How They Are Addressed in This ES

Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
Planning Inspectorate	ID 3.5.3 Potable and Wastewater Supplies <i>“The Scoping Report explains that there would be no connection to existing networks and no additional demands on supply and demand of potable water networks. However, the Inspectorate notes in Scoping Report paragraph 11.6.2 that the management and discharge of wastewater is not yet confirmed and therefore subsequent effects are unknown. Consumptive uses of water are referenced in the report such as supply for welfare stations, dust suppression measures and wheel washing (Scoping Report paragraph 3.5.35). In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope this matter from the assessment. Accordingly, the ES should include an assessment of these matters, or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a LSE.”</i>	A Water Consumption Plan will be developed for the Proposed Development during the post consent phase (prior to construction starting) which will identify the appropriate sources and volumes of water that can be abstracted and getting the appropriate approvals and permits. This will ensure water demand is appropriately managed so as not to adversely affect surface water features and water resources needed for construction and operation. Worst case impacts related to water consumption are set out in this Chapter, however the final significance of effect takes into account the commitment to produce a Water Consumption Plan. Wastewater will be disposed of via a licensed carrier and foul water removals such that there is no direct discharge to surface water features.	The need for a Water Consumption Plan is set out in Section 10.6.50 and Section 10.7.72. Wastewater mitigation is set out in Section 10.6.51-10.6.52 for construction and Section 10.6.75-10.7.75 for operation. Impacts relating to water consumption and wastewater are covered in Section 10.7.66-10.7.70 for construction, and Section 10.7.105-10.7.109 for operation.

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
Planning Inspectorate	ID 3.5.4 Aquifers <i>"Aquifers are mentioned in Scoping Report paragraph 10.3.7 as 'other receptors considered within the Study Area' but are not described in the preliminary baseline conditions and it is unknown whether they are present in the Study Area. The ES should describe the baseline conditions in terms of aquifers and assess any significant effects on these receptors where they are likely to occur."</i>	Details of aquifers are given in the baseline section of this Chapter and the assessment of likely significant effects (LSEs) includes impacts to groundwater sources.	Details of aquifers are given in Section 10.5.53 and potential effects to groundwater sources are detailed in Section 10.7.44 and Section 10.7.96. Direct groundwater impacts are covered in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9] .
Planning Inspectorate	ID 3.5.6 Cumulative Effects During Operation <i>"The Scoping Report does not explain why cumulative effects are not proposed to be assessed during operation. As impacts during operation are identified in Scoping Report paragraph 11.4.2, the Inspectorate considers that these could act cumulatively with other plans and projects during operation. The ES should describe an appropriate methodology for identifying and assessing cumulative effects and should provide an assessment of LSE with cumulative schemes for all phases of the development where they are likely to occur."</i>	Potential cumulative effects for the operational phase of the Proposed Development including relating to water resources and flood risk have been included in this Chapter.	Section 10.9
Planning Inspectorate	ID 3.5.6 Culverts <i>"Potential impacts include construction of culverts for access in Scoping Report paragraph 11.4.1. Where culverts are</i>	Engagement with the EA is ongoing and the approach for watercourse crossings will be discussed with the EA and	Mitigation in relation to access track crossings is set out in Sections 10.6.25-10.6.32.

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
	<i>proposed, the ES should demonstrate in line with the mitigation hierarchy, why culverts are required instead of alternative means. The Applicant should discuss the approach to watercourse crossings with the EA and demonstrate any relevant agreement in the ES.</i>	Lead Local Flood Authorities (LLFA) prior to construction. Details are provided in the Table 10.15 and Table 10-16 . In accordance with the Rochdale Envelope assessment approach, the assessment has considered a reasonable worst - case scenario comprising in - channel works associated with potential culvert crossings. The effects of such works have been assessed and mitigation measures have been identified to manage any potential impacts associated with any proposed required crossings.	Impacts associated with culverts is assessed in Section 10.7.23.

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
Planning Inspectorate	ID 3.5.7 Concrete Ballast Foundations <i>“These are proposed as potential mounting structures where ground penetration is unsuitable. Scoping Report paragraph 11.5.14 states that Sustainable Urban Drainage Systems principles will be incorporated into the design to ensure that runoff from hardstanding areas does not result in an increase in flood risk elsewhere. However, it only proposed this will be applied to the BESS and substation areas. The Inspectorate considers that there should be assessment of potential effects from runoff for areas where concrete ballast foundations are proposed and that where effects are identified appropriate mitigation should be described and secured where relevant.”</i>	Runoff and flood risk for areas associated with solar PV Array is assessed within this Chapter along with appropriate mitigation measures to prevent any potential impacts.	Drainage management in relation to the solar panels are detailed in Section 10.6.57 and comprehensively in the outline Surface Water Drainage Strategy (oSWDS) [EN0110020/APP/5.17] . This will be developed further throughout the detailed design stage. Assessment of effects regarding runoff and flood risk is detailed in Sections 10.7.79 - 10.7.86.
Planning Inspectorate	ID 3.5.8 Harthill Reservoir <i>“The Proposed Development is located adjacent to Harthill Reservoir. Whilst impacts to the reservoir are proposed to be assessed in terms of [Landscape and Visual Impact Assessment] (LVIA) effects, there is no mention of assessing potential effects to its function in the Water Resources and Flood Risk Chapter. The ES should assess potential significant effects to the reservoir and its functional operations in relation to water resources and flood risk and where they are likely to occur. This should include effects on any associated</i>	Details of Harthill Reservoir and the associated watercourses are set out in the baseline section of this Chapter. Consideration of any effects on the reservoir and associated watercourses are also provided in this Chapter.	Baseline details are provided in Section 10.5.15 and potential effects in Section 10.7.61 and Section 10.7.103 of this Chapter.

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
	<i>watercourses e.g., Broadbridge Dyke feeder and the Chesterfield Canal</i>		
Environment Agency	<i>"It is confirmed that no built infrastructure will be located within Flood Zone 3b, however 3b is referred to as the 5% Annual Exceedance Probability (AEP) event. Following changes to the classification of Flood Zone 3b, this is now incorrect and should refer to the 3.3% AEP or the 1 in 30 year flood event."</i>	The Flood Risk Assessment (FRA) for the Proposed Development assesses the functional floodplain (Flood Zone 3b) as the 1 in 30-year flood event.	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1].
Environment Agency	<i>"Despite Para 11.5.9 stating that the sequential approach to layout in the floodplain will be applied, it is ambiguous if this extends to steering all development to the land at lowest risk of flooding, or if it is intended only to locate the various elements of the development appropriate to the flood zone."</i>	Most of the Site is located in Flood Zone 1. However, there are small areas along the Ulley Brook, Anston Brook, and Broad Bridge Dyke are within Flood Zone 2 and 3. The FRA accompanying this Chapter has identified where solar panels need to be raised so that they remain operational without increasing flood risk elsewhere under a 1 in 100-year plus climate change event. The design principles for the Proposed Development are detailed in ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5].	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]; ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5].
Environment Agency	<i>"Appropriate climate change criteria is unable to be ascertained because although the</i>	The operational lifetime of the Proposed Development is	ES Volume 3, Appendix 10.2: Flood Risk

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
	<i>vulnerability classification has been confirmed as Essential Infrastructure, the development's lifetime has not been stated."</i>	anticipated to be 60 years (as detailed in ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5]). The 2080s epoch higher central climate change allowance for the Don and Rother and Idle and Torne catchments (which the Study Area is within) are 38% and 39% respectively. The fluvial flood risk areas with no modelling will use the non climate change (+0%) and central climate change (+27%) mapped extents and extrapolate these to get the higher climate change (+39%) extents. Where there is modelling, the higher climate change results will be used. For pluvial areas we will use the available central estimates and a 600mm freeboard to account for the unavailability of the higher estimates.	Assessment [EN0110020/APP/6.20.1]
<i>Environment Agency</i>	<i>"It is stated that PV panels in the floodplain would not require floodplain compensation. Although it is proposed to install the arrays on narrow pile-driven supports there still could be a loss of floodplain as a result of the arrays. If</i>	The FRA includes assessment of the potential impact of PV supports on floodplain storage.	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1].

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
	<i>this is not assessed and mitigated for the scheme could result in a loss of flood capacity and an increase in flood risk. An increase in flood risk is contrary to planning policy."</i>		
Environment Agency	<i>"Although 10.3.7 states: "receptors considered within the Study Area will include ... designated Principal and Secondary Aquifers", this information does not appear to be included within the scoping report."</i>	Details of designated principal and secondary aquifers have been included within the baseline conditions of this Chapter.	Section 10.5.53 of this Chapter.
Environment Agency	<i>"There does not appear to be any consideration of groundwater springs within the report. It is understood they are possible, especially in the region of Brampton Common."</i>	Springs within the Study Area have been identified on Ordnance Survey (OS) 1:25,000 scale mapping and are detailed in this Chapter.	Springs within the Study Area are detailed in Section 10.5.55 of this Chapter and potential impacts on springs and hydrogeology is assessed in Section 10.7.57 and Section 10.7.101.
Environment Agency	<i>We welcome the chemical contamination risks of the BESS being scoped in, however note that the indicate locations for the BESS have not yet been finalised. Factors identified which should be considered when locating the BESS do not include sensitivity of the water and groundwater environment. Primary mitigation in terms of location does not appear to be considered.</i>	The location of the BESS has been informed by a range of environmental considerations, including the sensitivity of local groundwater and surface water receptors. These factors have guided the siting.	The design refinement / location of the BESS is detailed in ES Volume 1, Chapter 4: Alternatives and Design Iterations [EN0110020/APP/6.4] .
Environment Agency	<i>"Potable and wastewater supplies has been scoped out of the ES, however it is currently unclear what the alternative solution is, and if this is viable. Sources of fresh water and disposal of wastewater have not been</i>	A Water Consumption Plan will be developed for the Proposed Development post consent and will be included as part of the Construction	The need for a Water Consumption Plan is set out in Section 10.6.50 and Section 10.7.72.

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
	<i>adequately assessed, therefore it is unknown at this stage whether it is viable to state existing potable water networks will not be used, as currently proposed. Alternative sources of water such as groundwater or surface water abstraction and disposal may require specific permits or exemptions which may not be granted. Obtaining and removing water via tanker may have significant environmental impacts needing to be considered within the ES. It is possible that these sources of water are not viable."</i>	Environmental Management Plan (CEMP) secured through a requirement in Schedule 2 of the Draft Development Consent Order (DCO) [EN0110020/APP/3.1.1]. It will identify the appropriate sources and volumes of water needed for construction and operation. Wastewater will be disposed of via a licensed carrier and foul water removals.	Wastewater mitigation is set out in Section 10.6.51-10.6.52 for construction and Section 10.6.75-10.7.75 for operation. Impacts relating to water consumption and wastewater are covered in Section 10.7.66- 10.7.70 for construction, and Section 10.7.105-10.7.109 for operation.
Environment Agency	<i>"The Section mentions the possibility of installing culverts during the construction phase to facilitate access over watercourses. Culverts have the potential to fragment habitats and reduces connectivity, making dispersal and commuting for some species difficult. Culverts also put an added pressure on otters during periods of high water-levels, as culverts offer little room for conveyance and put otters at risk of being killed when crossing roads. Culverts restrict flow, interfere with sediment transport pathways and may cause harm to channel morphology."</i>	Engagement with the EA is ongoing and the approach for watercourse crossings will be discussed with the EA and LLFA prior to construction. Details are provided in the Table 10.15 and Table 10-16 . In accordance with the Rochdale Envelope assessment approach, the assessment has considered a reasonable worst - case scenario comprising in - channel works associated with potential culvert crossings. The effects of such works have been assessed and	Mitigation in relation to access track crossings is set out in Section 10.6.25-10.6.32. Impacts associated with culverts is assessed in Section 10.7.23.

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Consultee	Issue Raised	How This is Addressed	Where This is Addressed in the ES
		mitigation measures have been identified to manage any potential impacts associated with any proposed required crossings.	

Issue Scoped Out of Assessment

- 10.3.5 Following the scoping exercise and drafting of this ES some elements have been scoped out of assessment in this Chapter. **Table 10.2** presents the topics scoped out of assessment.

Table 10.2: Issues Scoped Out of this Assessment

Potential Effect / Topic	Development Phase	Rationale
Soils, ground conditions, contaminated land, and impacts to groundwater including effects of dewatering	Construction, operation (including maintenance) and decommissioning	Potential effects to be assessed in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9].
Ecological receptors	Construction, operation (including maintenance) and decommissioning	Potential effects relating to ecological receptors will be assessed within ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.15].

Statutory Consultation

- 10.3.6 A Statutory Consultation period was held between 16 September and 28 October 2025 in line with Section 47 of the Planning Act 2008. Feedback was sought from the local community and a range of consultee bodies based on the preliminary information and assessments presented in the Draft Environmental Statement (Draft ES).
- 10.3.7 **Table 10.3** presents feedback from statutory consultees given at Statutory Consultation, and how this is addressed in this ES.

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Table 10.3: Statutory Consultation Feedback from the Statutory Consultation Period

Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
Natural England	<i>"It is unclear if Anston Stones Wood SSSI and Lindrick Golf Course SSSI will be assessed further in regards to water quality impacts. Natural England advises that Anston Stones Wood SSSI, Lindrick Golf Course SSSI and Sprotbrough Gorge SSSI are scoped in for assessment of potential water quality impacts during operation, and identified as ecological receptors in any management plan".</i>	Lindrick Golf Course is located more than 2km from the Proposed Development and not within the Study Area. While a wider hydrological connection is recognised via the River Don catchment, the distance from the Site, the scale of the receiving watercourse and the potential for dilution mean that any potential effects from the Proposed Development would be Negligible at the Sites of Special Scientific Interest (SSSI). On this basis, although the hydrological linkage has been acknowledged, there is no reasonable source -pathway - receptor mechanism by which likely significant effects on the SSSI could arise and further detailed assessment is not required. The SSSI is	Anston Stones Woods SSSI and its hydrological connection to the Site is detailed in Section 10.5.51 The potential for impacts to water quality within the SSSI arising from its upstream hydrological linkage to the Anston Brook is considered in Section 10.7.42 and Section 10.7.93.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
		therefore scoped out of further consideration. Sprotbrough Gorge is located more than 2km from the Proposed Development and not within the Study Area. It is also not within the same hydrological catchment as the Proposed Development. As such it remains scoped out. Anston Stones Woods SSSI is located within the Study Area and potential for impacts to water quality is therefore considered in this Chapter.	
Natural England	<i>“Natural England advise that all SSSIs with relevant hydrological links to the Site should be considered for further assessment and identified as ecological receptors in the oCEMP where mitigation is required.”</i>	Anston Woods SSSI is hydrologically connected to the Site and within the Study Area and is therefore assessed in this Chapter. No other SSSI are within the Study Area and are	Anston Stones Woods SSSI and its hydrological connection to the Site are detailed in Section 10.5.51, and assessment of effects in Section 10.7.42 and Section 10.7.93. Mitigation measures to protect water quality and thus prevent

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
		therefore scoped out of further assessment. Mitigation in relation to the SSSI are set out in this Chapter and the outline Construction Environmental Management Plan (oCEMP)	impacts to the SSSI during the construction of the Proposed Development are set out in Section 10.6 and within the oCEMP [EN0110020/APP/5.9] .
Natural England	<i>“Methodology of crossing and the potential pollutant risks associated with one of the cable corridor options crosses a watercourse connected to Roche Abbey Woodlands SSSI should be considered. Where trenchless crossing via Horizontal Directional Drilling (HDD) is proposed to avoid direct damage to habitat, a bentonite break out plan should be produced to prevent other pollutant risk.”</i>	Impacts associated with cable crossings have been assessed in this Chapter.	Section 10.7.26
Environment Agency	<i>“Groundwater springs Document Reference(s): Draft ES Volume 1 Chapter 10 Table 10.1 Issue: EA comment relating to groundwater springs: the Applicant states that none have been identified at the time of writing. It is unclear what searches the Applicant has made to date, as this information is available in data submitted with this report. OS Maps are listed as a source of information in 10.5.5. Springs are shown</i>	Springs within the Study Area have been identified using Envirocheck® data searches and on OS 1:25k mapping and are detailed in this Chapter.	Springs within the Study Area are detailed in Section 10.5.55 of this Chapter and potential impacts on springs and hydrogeology is assessed in Section 10.7.57 and Section 10.7.101.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>on several current and historical map excerpts included with the Envirocheck data searches supplied by the Applicant (see Appendix 9.3 for area W2).</i> <i>Impact:</i> <i>The Applicant has missed important local information and not fully considered previous advice.</i> <i>Solution:</i> <i>Review all available data. Update this assessment in the final ES.</i> <i>Additional narrative/explanation (if necessary):</i> <i>On current Ordnance Survey 1:25,000 scale mapping for the Proposed Development area, numerous springs (denoted as “Spr” or “Sprs”) are shown within and near to the DCO boundary.”</i>		
Environment Agency	<i>“Aquifer descriptions</i> <i>Document Reference(s):</i> <i>Draft ES Volume 1 Chapter 10 Section 10.6.31</i> <i>Draft ES Volume 2 Figure 10.11.1 – 10.11.3 British Geological Survey (BGS) Aquifer Designations</i> <i>Issue:</i> <i>Aquifer designations given in figures 10.11.1 to 10.11.3 are not consistent with the terms used in Chapter 10 Section 10.6.31 and elsewhere, or BGS</i>	Noted. BGS and EA aquifer designations have been reviewed and all terminology has been updated in both the Chapter and associated figures to ensure full consistency with standard EA / BGS classifications.	Section 10.5.53 of this Chapter and ES Volume 3, Figure 10.12: Hydrogeology [EN0110020/APP/6.19].

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	or EA terminology. The source of these terms is unclear. Secondary B aquifer shown in Figure 10.11.1 is defined as “Rocks with essentially no groundwater”. This is incorrect and may result in the sensitivity of this aquifer being considered as lower than is appropriate. Impact: Aquifer descriptions in figures are confusing and not representative of the Site. Solution: Review designations and ensure the correct terminology and definitions are used. Additional narrative/explanation (if necessary): The Applicant refers to “Class 2A” aquifer where Principal aquifers are shown. “Class 2B” is used where Secondary A aquifers are shown. “Class 3” is used where Secondary B or Principal aquifers are shown. The definition of Class 3 as “Rocks With Essentially No Groundwater” does not apply to Secondary B or Principal aquifers.”		
Environment Agency	<i>“Inadequate geological model</i> Document Reference(s): Draft ES Volume 1 Chapter 10 Section 10.8.7 to 10.8.10	Noted. The geological baseline has been updated following completion of a geological desk study, including a review of BGS borehole	The hydrogeological baseline is discussed in Section 10.5.53 of this Chapter.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>Issue:</i> <i>Assessment of effects is based on an unsound geological model. See additional narrative.</i> <i>Deeper piles discussed in other chapters are not considered here.</i> <i>We cannot agree with the assessed magnitude of impact (“negligible”) based on the current model.</i> <i>Impact:</i> <i>Potential risk to controlled waters due to inadequate geological model.</i> <i>Solution:</i> <i>Review available data, carry out additional studies if required, and resubmit the assessment when complete.</i> <i>Additional narrative/explanation (if necessary):</i> <i>The Applicant describes geology across the Study Area as “predominantly consisting of clay-based strata” and states “groundwater is unlikely to be present near the surface”.</i> <i>It is unclear how these conclusions have been derived. No review of historical borehole records has been presented. The Applicant has not discussed any geological desk study other than aquifer designations. The surface geology across most of the Site comprises mudstone, siltstone and sandstone. It is predominately designated as Secondary A aquifer with some areas of Principal</i>	data. Revisions have been made to reflect the derived stratigraphic and hydrogeological conditions. Potential hydrogeological effects are covered in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9].	Impacts to groundwater are discussed in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]. This Chapter only considers impacts to water resources (private water supply (PWS), licenced abstractions, and springs) in relation to groundwater.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>aquifer. This indicates permeable soils are likely to be present at surface. The presence of springs (see comment relating to Draft ES Chapter 10 Table 10.1) suggests shallow groundwater should be expected. Piles for the PV arrays are discussed in 10.8.7, but potentially deeper piles required for the BESS and PCS are not discussed. See our separate comments on this subject."</i>		
Environment Agency	<i>"Private water supply boreholes and groundwater abstraction</i> <i>Document Reference(s):</i> <i>Draft ES Volume 1 Chapter 10 Section 10.8.14</i> <i>Issue:</i> <i>"No mention of private water supply boreholes not licensed by the EA.</i> <i>Impact:</i> <i>Impacts on some private water supplies could be overlooked.</i> <i>Solution:</i> <i>Obtain information on private water supply boreholes not licensed by the EA from the relevant local authorities.</i> <i>Additional narrative/explanation (if necessary):</i> <i>Local planning authorities are mentioned in discussion of private water supplies in 10.8.34. They should also be mentioned in 10.8.14 for completeness.</i>	Information on PWS' (including private water supply boreholes) not licensed by the EA have been obtained from the relevant local authorities and from questionnaires issued to residents within the Study Area. Details on PWS are included in this Chapter.	The baseline PWS conditions are set out in Section 10.5.45 of this Chapter. Assessment of effects are set out in Section 10.7.44 and Section 10.7.96.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>For all private water supply boreholes for domestic supply or for food production, whether they are licensed by the EA or not, the area within at least 50m of the abstraction point is given a SPZ1 designation. This has an associated SPZ2 designation for the area within at least 250m, or further dependent on abstraction volumes and flow rates. See our guidance on GOV.UK for further information."</i>		

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Environment Agency Environment Agency	<i>“Issue: NPS EN-1 requires that the ES should assess the impact of the scheme on water resources, and how water consumption will be minimised. There has been no assessment of the water required for the construction and operation of the scheme, or where this can be sourced from.</i> <i>Impact: Lack of consideration for the impacts of water availability upon the scheme can result in significant problems and delays to construction</i> <i>Solution: A Water Supply Strategy should be undertaken to provide reassurance that water supply options are sustainable and also achievable applications.</i> <i>A basic water supply strategy should:</i> <i>• Provide a plan B to water company supply in the case that it is not available for nondomestic purposes;</i> <i>• Evaluates the scope of available alternative sources;</i> <i>• Manage expectations of water availability and the implications for likely licence conditions such as hands off flows for the scheme;</i> <i>• Allow time for the development of solutions such as storage or</i>	A Water Consumption Plan will be developed for the Proposed Development in the post consent phase (prior to construction starting) which will identify the appropriate sources and volumes of water needed for construction and operation. Wastewater will be disposed of via a licensed carrier and foul water removals.	The need for a Water Consumption Plan is set out in Section 10.6.50 and Section 10.7.72. Wastewater mitigation is set out in Section 10.6.51-10.6.52 for construction and Section 10.6.75-10.7.75 for operation. Impacts relating to water consumption and wastewater are covered in Section 10.7.66-10.7.70 for construction, and Section 10.7.105-10.7.109 for operation.
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	<i>for a mix of sources to be considered in advance of detailed design;</i> <i>• Provide clarity on permits likely to be required;</i> <i>• Reduce the risk of problem solving and process lead times causing delays pre commencement.</i> <i>Additional narrative/ explanation (if necessary)</i> <i>Finally, the assessment should provide a brief options appraisal of the sources of supply which are available to the project.”</i>		
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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
Environment Agency	<i>"Issue: No Flood Risk Assessment has been submitted as an appendix to Chapter 10.</i> <i>Impact: As the FRA has not been submitted, it is not possible to provide detailed comments, however we offer the following recommendations:</i> <i>Solution:</i> <i>A draft FRA should be submitted for comment at the earliest opportunity, see guidance below.</i> <i>Sequential Test - In accordance with National Planning Policy Framework and the sequential test (paragraph 168), development should apply a sequential, risk-based approach to the location of development, taking into account all sources of flood risk and the current and future impact of climate change, to avoid (where possible) flood risk to people and property. The project should take a sequential approach where it can, if there are any opportunities for development to be located outside of flood zones 2 and 3 and into flood zone 1, this should be prioritised.</i> <i>Flood Zones - The FRA will need to consider the future flood extent of the design flood plus climate change which should be informed by the design life of the development. We would also recommend development be setback from watercourses and the design flood extent. This allows for future</i>	An FRA has been submitted as a supporting appendix to this Chapter. Most of the Site is located in Flood Zone 1. However, there are small areas along the Ulley Brook, Anston Brook, and Broad Bridge Dyke are within Flood Zone 2 and 3. Discussion of the sequential test is provided in the FRA. The FRA has considered the appropriate climate change uplifts inline with the proposed lifetime (60 years) of the Proposed Development. As the Proposed Development is 'Essential Infrastructure' the higher climate change allowance for the 2080s epoch has been used. Engagement with the EA is ongoing and the	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]. Mitigation in relation to access track crossings is set out in Sections 10.6.25-Error! Reference source not found.. Impacts associated with culverts is assessed in Section 10.7.23.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>remediation, replacement, raising of flood assets in the context of a changing climate and increasing flood risk.</i> <i>Proposed Development Lifetime - The Proposed Development lifetime, including the construction, operation, and decommissioning phases should be confirmed. [Pollution Prevention Guidelines] (PPG) (Paragraph: 006 Reference ID: 7-006-20220825) states: "The lifetime of a non-residential development depends on the characteristics of that development but a period of at least 75 years is likely to form a starting point for assessment.</i> <i>Climate Change - If the development is classed as essential infrastructure, then from a fluvial flood risk perspective the higher central climate change allowance should be used (70th percentile). A sensitivity test for the credible maximum scenario, which in this case would be the upper climate change allowance for fluvial flows (95th percentile), should also be completed. Essential infrastructure should be designed to remain operational during the design flood scenario.</i> <i>Watercourse Crossings – Culverting existing watercourses / drainage ditches should be avoided. Where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period.</i>	approach for watercourse crossings will be discussed with the EA and LLFA prior to construction. All watercourses to be crossed are Ordinary watercourses, as such the permitting needs fall under the LLFA. The need to obtain the appropriate permits for watercourse crossings have been set out in this Chapter. The need for the appropriate permits to be obtained for any crossing construction is set out in Section 10.6.27.	

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>[paragraph 2.10.87 and 2.10.88 of NPS EN-3]. Consent for construction of such crossings may be required, see Permitting Advice.</i> <i>Permitting Requirements - The Environmental Permitting (England and Wales) Regulations 2016 require a permit to be obtained for any activities which will take place:</i> <i>• on or within 8 metres of a main river (16 metres if tidal);</i> <i>• on or within 8 metres of a flood defence structure or culvert (16 metres if tidal);</i> <i>• involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert;</i> <i>• In a floodplain more than 8 metres from the river bank, culvert or flood defence structure (16 metres if it's a tidal main river) and you don't already have planning permission."</i>		
City of Doncaster Council (CDC)	<i>"At the time of writing, technical advice from the Lead Local Flood Authority is awaited. CDC therefore reserves it's right to provide further detailed comments in this respect and undertakes to submit these under separate cover at the earliest opportunity."</i>	Noted.	Consultation undertaken since statutory consultation is provided in Table 10.4 .
Rotherham Metropolitan	<i>"Recommendations:</i>	The FRA that accompanies this Chapter discusses floodplain storage and demonstrates	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1].

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
Borough Council	<i>The FRA methodology is robust. Final FRA submission should confirm compensatory storage volumes and demonstrate no increase in flood risk elsewhere.</i> <i>The final Surface Water Drainage Strategy should include detailed hydraulic calculations, exceedance flow routing, and maintenance plans for SuDS features.</i> <i>Watercourse consent applications should include ecological impact assessments and demonstrate compliance with the mitigation hierarchy.</i> <i>Groundwater protection measures should be secured via the Construction Environmental Management Plan (CEMP) and monitored during construction.</i> <i>Reservoir impact assessments should be included in the final ES, with buffer zones and construction controls clearly defined.</i> <i>Permit applications should be submitted early to avoid delays, and include method statements, pollution prevention plans, and hydraulic assessments."</i>	that there will be no increase in flood risk elsewhere as a result of the Proposed Development. An oSWDS [EN0110020/APP/5.17] is submitted with the Application. It includes initial hydraulic calculations, proposed SuDS features, and maintenance plans. This will be developed further throughout the detailed design phase. Potential effects relating to ecological receptors are covered in ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]. Groundwater protection is discussed in ES Volume 2, Chapter 9: Ground Conditions and Land	oSWDS [EN0110020/APP/5.17] Ecological receptors are assessed in ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]. Groundwater is discussed in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]. Reservoir baseline details are provided in Section 10.5.15 and potential effects in Section 10.7.61 and Section 10.7.103 of this Chapter.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
		Quality [EN0110020/APP/6.9]. All infrastructure has been located 10m from reservoirs. Potential effects on hydrologically connected reservoirs within the Study Area are assessed in this Chapter. Noted that permits and consents should be sought in advance and be supported by any required method statements, pollution prevention plans and hydraulic assessments.	
Canal & River Trust (CRT)	<i>“Broadbridge Dyke Feeder runs through land identified to be used as one of the Solar Farms. This provides water between Harthill Reservoir and the Chesterfield Canal. It is important for the Trust to maintain access to the Dyke in order to allow us to carry out maintenance activities. The construction schedule for the Solar Farm and the final layout of development should be designed to enable such access. Failure to safeguard this access could otherwise increase the risk of flooding from the Dyke Feeder should it become blocked, and could have an impact on the water management of Harthill</i>	The Proposed Development has been designed to maintain a 10m buffer from all watercourses, including rivers, streams and canals and thus from the Broadbridge Dyke Feeder. Consultation is ongoing with the CRT to agree setbacks and	The need for access to be maintained is set out in Section 10.6.60 of this Chapter.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>Reservoir, which could have significant health and safety implications. The Trust has previously had to access the farmland with machinery for tree work and silt removal relatively recently, and any future access would need to allow for machinery access to the Feeder channel. To avoid any loading on the Dyke Feeder, the development should incorporate an appropriate stand off to prevent any vibrations during construction works or any permanent loading post development, which could result in the same risks discussed above”.</i>	ensure access to assets will be maintained. Furthermore, protection for statutory undertakers’ assets is included within the protective provisions in the Draft DCO [EN0110020/APP/3.1.1].	
Canal & River Trust	<i>“The Trust made previous comments on this topic, which are not referred to in table 10.1. These concern the description of the flow of Broad Bridge Dyke Feeder, and the impact on water flows to the Feeder. On the first matter, we wish to confirm that the feeder flows south to north, not east - west as described in table 10.7. To avoid confusion, we recommend that this is amended for future documentation. We also note that 10.8.33 implies that the feeder feeds the reservoir, which is incorrect. The feeder provides water from the reservoir to the Chesterfield Canal.</i> <i>On the second matter, paragraph 10.8.41 and the outline surface water drainage strategy suggests that no additional discharge to the feeder is sought, which the Trust has no issue with.</i>	Noted. The flow direction of the Broadbridge Dyke Feeder has been revised within the Chapter. It remains that no additional discharge to the feeder is sought. The new spillway is not yet reflected in OS mapping and OS opensource datasets. As such it is not possible to accurately update the figure at the time of writing. Instead, a call out box has been added to	The Broad Bridge Dyke Feeder and its hydrological characteristics are detailed in Table 10.8 of this Chapter. The design and refinement of the Proposed Development throughout the DCO process is detailed in ES Volume 1, Chapter 4: Alternatives and Design Evolution [EN0110020/APP/6.4]. ES Volume 3, Figure 10.3: Surface Watercourses and Waterbodies [EN0110020/APP/6.19].

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>As highlighted in our comments above, it is essential that the proposals do not interfere with access for the Trust to the Feeder nor to the spillway from the Reservoir. This is essential to manage water flows safely from the reservoir. As highlighted above, the draft Environmental Statement appears to include information showing the incorrect position of the spillway to the reservoir (e.g. figure 10.2.3 shows the presence of water flows from the northeast of the reservoir, in the location of a previous spillway, which has now been blocked up and replaced by the new spillway. The drawing does not show the existing spillway)."</i>	ES Volume 3, Figure 10.3: Watercourses and Waterbodies [EN0110020/APP/6.19] with aerial imagery which does show the new spillway location. Design amendments following statutory consultation have moved the Order Limits to outside the area where the new spillway has been constructed, and therefore no impacts on access to the spillway are anticipated. Access arrangements for Broadbridge Dyke Feeder are under discussion and will be secured within the DCO and / or protective provisions.	The need for access to be maintained is set out in Section 10.6.60 of this Chapter.
Chesterfield Canal Trust	<i>"Figure 2.3.6 (later figure 10.4.3) indicates that there is a small area of Whitestone 3 within flood zones 2 and 3. This area is alongside Broad Bridge Dyke and includes parts of land parcels 173 and 177B. From the indicative masterplan, it would appear that there are solar panels located within these flood areas,</i>	The Proposed Development is at risk of flooding around the Ulley Brook, Anston Brook, and Broad Bridge Dyke. Solar panel raising in these	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1].

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>and it is presumed that the flood height is such that this is compatible. From previous review of water flows around Kiveton Waters, it is evident that the flood risk arises from the number of culverts and other blockages on the channels (including Broad Bridge Dyke). Many of these will be removed or enlarged in due course as part of the new route for the Chesterfield Canal. Engagement with the Trust, the Land Trust and the Canal & River Trust could enable relevant works to take place early and reduce the flood risk in this area.”</i>	areas is detailed in the FRA.	
Yorkshire Water (YWS)	“Assets <i>YWS water and wastewater infrastructure is present within the development boundary of Whitestone Solar 1–3. Notably, parcel W1 S3 contains several clean water assets, including:</i> <i>• A 24” cast iron live water main</i> <i>• An 18” cast iron water main</i> <i>It is essential that the Whitestone project team identifies appropriate stand-off distances and implements safeguarding or protective measures for all YWS assets within the red line boundary. This responsibility lies with the project promoters.</i> <i>We recommend that the project team undertake a desktop study using YWS statutory mapping records available at http://maps.yorkshirewater.com. This will support the development of a crossing schedule identifying any groundworks likely to require asset diversion or protection. Where</i>	The presence of YWS assets within the Study Area has been included in the baseline section of this Chapter. Construction in proximity to YWS and private pipeline assets will not commence until the location of assets has been confirmed through consultation and ground-truthing where required. Appropriate stand-off distances will be incorporated into the detailed design and construction will be undertaken in accordance	YWS assets are covered in the baseline Section 10.5.40. Mitigation in relation to the assets is set out in Section 10.6.58 - 10.6.59 and Section 10.6.47 of this Chapter and comprehensively in the oCEMP [EN0110020/APP/5.9]. Assessment of effects is covered in Section 10.7.54 and Section 10.7.100.

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
	<i>diversion of YWS assets is necessary the project team is invited to engage with our wastewater and water diversions teams at: www.yorkshirewater.com/developers/sewerage/sewer-diversions/ and www.yorkshirewater.com/developers/water/water-main-diversion/. YWS would welcome any engagement and asks that adequate assessment of our assets is given to minimise the need to disrupt or divert utility assets.</i> <i>Under no circumstances should construction activity near YWS assets commence until the actual position of the company's assets within the draft order limits have been confirmed by trial holes.</i> <u><i>Ongoing Consultation</i></u> <i>There remain some unknown elements of this development and from the information provided it is likely there will be interaction with YWS assets. It is therefore essential that there is ongoing engagement. We would recommend further discussion on the following items:</i> <i>• Design of the scheme to minimise interaction with YWS assets and sensitive receptors.</i> <i>• Where interaction is identified details of required mitigation and / or diversion to be agreed with YWS in advance of development."</i>	with relevant standards and appropriate mitigation to prevent impact to these public water assets as set out in this Chapter. Furthermore, protection for statutory undertakers' assets is included within the protective provisions the Draft DCO [EN0110020/APP/3.1.1]	

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Consultee	Consultee Feedback	How This is Addressed	Where This is Addressed in the ES
Sheffield Wildlife Trust	<i>“Flood and pollution risk if BESS areas were flooded, electrical and chemical hazards could arise risking contamination of priority habitats and wildlife. Given the proximity to priority habitats around Brampton Common and Anston Brook, we are concerned that there appears to be no flood risk assessment.”</i>	As set out in the FRA the BESS is located away from these priority habitats and in Flood Zone 1 and is not considered at risk of flooding. Assessment of priority habitats is provided in ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.1].	ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1].

Other Consultation

10.3.8 Details of consultation to date undertaken outside of the scoping exercise and statutory consultation are presented in **Table 10.4**.

Table 10.4: Summary of Other Consultation

Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
Canal & River Trust	13 January 2024	The Canal & River Trust generally welcomes the approach of underground cables as it would help minimise any impact on the visual appearance of their waterway corridors and potential harm to navigation that could be caused through the positioning of cables above navigable channels. Any new cable crossing under the Canal & River Trust network should be located at least 3m below the bed of the canal / waterway to prevent any damage to the canal. Landowner consents will be required from the Canal & River Trust for the installation of a new cable below their assets. The Applicant is advised to contact Canal & River Trust for further advise. The Applicant will likely be required to comply with 'Code of Practice for	Compliance with the Canal & River Trust's Code of Practice has been considered as part of this assessment as detailed in Section 10.6.33 and these are listed in Section 10.2.5; the associated documents will inform the CEMP, which will be secured through the DCO. Trenchless construction methods will be used beneath Canal & River Trust assets in line with Canal & River Trust codes of practice. The CRT will be consulted to agree specific mitigation and depth of cables as detailed in Section 10.6.33.

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
		Works affecting the Canal & River Trust' for the works shown.	
<i>Canal and Rivers Trust</i>	14 January 2026	Updates were provided regarding the updated Order Limits and design following statutory consultation. These particularly focused on the removal of solar panels near Harthill Reservoir, Broadbridge Dyke Feeder, and the Chesterfield Canal, and the movement of the Order Limits away from the new spillway. The Canal and Rivers Trust re-iterated the importance of maintaining access to the spillway and Broadbridge Dyke Feeder, and highlighted that the footway around Harthill Reservoir should remain accessible. Wording within the DCO and / or protective provisions to secure access was raised, and conservations are in progress with the Applicant.	The design and refinement of the Proposed Development throughout the DCO process is detailed in ES Volume 1, Chapter 4: Alternatives and Design Evolution [EN0110020/APP/6.4]. The Proposed Development has been designed to maintain a 10m buffer from all watercourses, including rivers, streams and canals and thus from the Broadbridge Dyke Feeder. Consultation is ongoing with the CRT to agree setbacks and ensure access to assets will be maintained. Furthermore, protection for statutory undertakers' assets is included within the protective provisions in the Draft DCO [EN0110020/APP/3.1.1]. The need for access to be maintained is set out in Section 10.6.60 of this Chapter. Assessment of impacts to CRT assets are discussed in Sections 10.7.61 - 10.7.65 and Sections 10.7.103 - 10.7.104 for the construction and operation of the Proposed Development respectively.
<i>Environment Agency</i>	8 January 2025	The need for flood risk activity permits for cable crossings will need to be identified. Preference for trenchless crossings of watercourses (especially for main	All cable crossings are over Ordinary rivers therefore no EA permits are needed but consent and the relevant permits will be obtained from the local authority. This is set out in Section 10.6.36.

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
		rivers). Sufficient assessment and justification should be provided for why trenchless crossings weren't used.	The preference for open/clear span bridges, or if this is not achievable the design parameters needed for culverts is set out as mitigation in Section 10.6.26. An assessment of the impacts of crossings are provided in Section 10.7.18 – Section 10.7.25.
<i>Environment Agency</i>	23 January 2025	Feedback provided as part of non-statutory consultation period. Historic Landfills, floodplain, surface watercourses, Main Rivers, flood defence assets, and groundwater will all need to be considered within the assessment to ensure appropriate mitigation is included in the DCO. Recommend that Historic Landfills are avoided where possible to avoid mobilising contaminants during the construction phase, which may pollute underlying aquifers. Development should be completely set back from Flood Zones 2 and 3, ensuring a sequential approach is applied in line with National Planning Policy Framework (NPPF) paragraphs 161 and 162 with regards to the development location and layout.	The potential impacts of the Proposed Development have been assessed within Section 10.7, including consideration of water quality and pollution. The design of the Proposed Development has been amended to avoid historic landfills and this is discussed further in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]. ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1] provides information regarding Flood Zones and the sequential approach. Details of the design evolution of the Proposed Development is provided in ES Volume 1, Chapter 4: Alternatives and Design Evolution [EN0110020/APP/6.4]. The WFD Compliance Assessment is provided in ES Volume 3, Appendix 10.3: Water Framework Directive Compliance Assessment [EN0110020/APP/6.20.1]. ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1] includes consideration of climate change. The potential impact of climate change on the Proposed Development is detailed in ES Volume 1, Chapter

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
		The EA recommend that a Water Framework Directive (WFD) assessment is completed in order to identify measures to improve watercourse condition, and the scheme should look to incorporate watercourse enhancements to improve WFD status. The likely lifespan of the development will mean that it will need to operate within a changing climate, therefore the design will need to consider flood risk, increased heat and drought which could impact the Site in the future. A climate change impact risk assessment should include the potential impact of a changing climate on site operations. It will be crucial to ensure appropriate groundwater pollution prevention measures are implemented during the construction and lifetime of the scheme to prevent cabling acting as a preferential pathway for any present contamination. The EA requires the potential thermal implications of buried cables, in	11: Climate Change and Greenhouse Gases [EN01100200/APP/6.11]. The preference for open/clear span bridges, or if this is not achievable the design parameters needed for culverts is set out as mitigation in Section 10.6.26. An assessment of the impacts of crossings are provided in Section 10.7.18 – Section 10.7.25. An offset of 10m from the bank top between watercourses and infrastructure will be secured by the Outline Design Parameters [EN0110020/APP/7.3]. The potential impacts of the Proposed Development have been assessed within Section 10.7, including consideration of water quality and pollution. ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1] includes consideration of climate change. The thermal implications of buried cables in relation to risks to groundwater are discussed in ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]. The oCEMP [EN0110020/APP/5.9] sets out mitigation measures and best practice measures to prevent pollution from contaminating water resources. In addition, details of

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
		relation to risks to groundwater, to be considered within the proposal. The EA recommend that the oCEMP includes mitigation measures that can withstand heavy rainfall events, and includes monitoring, reporting and reviewing procedures to ensure that measures are appropriately implemented. Trenchless techniques for Cable Corridors across main watercourses are favoured, and a full method statement for each watercourse crossing will be required, detailing the method and any mitigation required. Consideration should be given to pollution, ecological receptors and Protected Species, fluvial processes, geomorphology, and future flood or WFD mitigation measures. Culverting of any watercourse should be avoided due associated adverse impacts. The EA would expect to see an open-span or bank top to bank top option bridge design. If culverts are the only feasible option, appropriate mitigation measures should be put in place.	procedures to follow during heavy rainfall events and weather monitoring which will be followed by the Principal Contractor are detailed in Sections 10.6.43 - 10.6.46. Engagement with the EA is ongoing and the approach for watercourse crossings will be discussed with the EA and LLFA prior to construction. In accordance with the Rochdale Envelope assessment approach, the assessment has considered a reasonable worst - case scenario comprising in - channel works associated with potential culvert crossings. The effects of such works have been assessed and mitigation measures have been identified to manage any potential impacts associated with any proposed required crossings. Crossing of WFD watercourses will all be trenchless. An assessment of the impact of the trenchless techniques on ecological and fluvial geomorphology water quality elements are provided in ES Volume 3, Appendix 10.3: Water Framework Directive Compliance Assessment [EN0110020/APP/6.20.1] as well as in Sections 10.6.33 - 10.6.40 and Section 10.6.71 of this Chapter which also includes flood risk during construction and operation. Assessment of ecological receptors and protected species are provided in ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]. The assessment of impacts of potential pollution to the water environment due to abnormal and emergency situations including in the event of a fire at the BESS, is discussed in Sections 10.7.110 - 10.7.113. The respective mitigation in the event of a fire at the BESS is discussed in Sections 10.6.67 -

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
		The Applicant should ensure there is sufficient buffer between the development, any fences, and any watercourse or ditch. As a minimum, the EA would expect this to be 10m from the bank-top. Potential pollution of the water environment due to abnormal and emergency situations at the BESS, in particular fires. Risks to groundwater should be assessed and appropriate mitigation put in place. It should be considered how foul sewerage will be managed particularly during the construction period. Flood risk from all sources will need to be assessed within the Flood Risk Assessment, including climate change for the lifetime of the solar farm.	10.6.70. Mitigation measures relating to the safety and fire risk of the BESS are included within the outline Battery Safety Management Plan (oBSMP) [EN0110020/APP/5.15].
<i>Environment Agency</i>	10 April 2025	The EA design preference for watercourse crossings is clear span bridge crossings rather than culverts. Concerns have also been raised regarding flood risk in W1.	Engagement with the EA is ongoing and the approach for watercourse crossings will be discussed with the EA and LLFA prior to construction. In accordance with the Rochdale Envelope assessment approach, the assessment has considered a reasonable worst - case scenario comprising in - channel works associated with potential culvert crossings. The effects of such works have been assessed and mitigation measures have been identified to manage any

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
			potential impacts associated with any proposed required crossings. Where culverts are proposed this Chapter has assessed the potential impacts in Section 10.7.23. Mitigation in relation to access track crossings is set out in Section 10.6.25-10.6.32. Flood risk at the Site is assessed in detail in ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1].
<i>Yorkshire Water</i>	03 June 2025	Water network enquiry of public water potable and wastewater assets within the Study Area.	Public water assets and the interaction with the Proposed Development and Study Area is detailed in Section 10.5.39 – Section 10.5.41. An assessment of impacts on public water assets is detailed in Section 10.7.54 - Section 10.7.56.
<i>North East Derbyshire District Council</i>	07 August 2025	PWS under their jurisdiction within the Study Area. No PWS located within the Study Area to their knowledge.	There are no PWS located within the Study Area under North East Derbyshire District Council (NEDDC) jurisdiction. However, following the issue of questionnaires within the Study Areas as detailed in Section 10.5.43, one groundwater spring was identified in the Study Area and is detailed in Table 10.13 and shown in ES Volume 3, Figure 10.10: EA Licensed Abstractions and Private Water Supplies [EN0110020/APP/6.19] . An assessment on the impacts on the PWS is detailed in Section 10.7.54 - Section 10.7.56.
<i>Rotherham Metropolitan Borough Council</i>	15 August 2025	PWS under their jurisdiction within the Study Area. No PWS located within the Study Area to their knowledge.	RMBC stated that there are no PWS located within the Study Area under their jurisdiction. However, following the issue of questionnaires within the Study Areas as detailed in Section 10.5.43, one groundwater spring was identified and is detailed in Table 10.13 and shown in ES Volume 3, Figure 10.10: EA Licensed Abstractions and Private Water Supplies [EN0110020/APP/6.19] . An assessment on the

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
			impacts on the PWS is detailed in Section 10.7.54 - Section 10.7.56.
<i>Environment Agency</i>	26 August 2025	Abstraction Licence records within the Study Area.	Licensed abstractions within the Study Area are listed in Table 10.12 and shown in ES Volume 3, Figure 10.10: EA Licensed Abstractions and Private Water Supplies [EN0110020/APP/6.19] . An assessment of impacts on abstractions is detailed in Section 10.7.44 – Section 10.7.53.
<i>City of Doncaster Council</i>	13 February 2025	ERM requested Information regarding the Conisbrough and Tickhill Natural Flood Management scheme.	Information received was used to inform a baseline understanding of fluvial and pluvial (surface water) flood risk in the Study Area. Further details on fluvial and pluvial flood risk is provided in Sections 10.5.17 - 10.5.23.
<i>City of Doncaster Council</i>	10 September 2025	PWS under their jurisdiction within the Study Area. No PWS within the Study Area to their knowledge.	There are no PWS located within the Study Area under City of Doncaster Council jurisdiction. However, following the issue of questionnaires within the Study Areas as detailed in Section 10.5.43, one groundwater spring was identified and is detailed in Table 10.13 and shown in ES Volume 3, Figure 10.10: EA Licensed Abstractions and Private Water Supplies [EN0110020/APP/6.19] . An assessment on the impacts on the PWS is detailed in Section 10.7.54 - Section 10.7.56.
<i>Environment Agency</i>	18 February 2026	Request for flood model information to inform the FRA.	The approach to flood risk assessment has been discussed with the EA and further details on flood modelling is provided in ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1] .
<i>Environment Agency</i>	24 February 2026	Proposed approach to calculating the anticipated flood depths within Flood Zones 2 and 3 (including the climate change allowance) along Ulley Brook, Anston Brook, and Broadbridge Dyke was discussed for the FRA. The	The approach to flood risk assessment has been discussed with the EA and further details are provided in ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1] .

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Consultee	Date	Summary of Discussion	How & Where Topic is Addressed in the ES
		method of inferring flood depths using LiDAR data and EA Flood Model Extents was proposed, and the EA requested further information on this approach prior to agreement.	
Environment Agency	9 March 2026	The draft Watercourse Crossing Schedule states that the “<i>order of preference for crossings would be culvert and then bridge (where culvert is not acceptable)</i>”. The Environment Agency is opposed to the culverting of any watercourse because of the adverse ecological, flood risk and geomorphological impacts. Change the order of preference to prioritise the use of open/clear span bridges before culverts. In circumstances where culverts must be used, these should be three-sided culverts which preserve the natural bed of the watercourse and enables normal conveyance of water and sediment. Where culverting for access is unavoidable, it must be demonstrated that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period.	The preference for watercourse crossings is to avoid culverting where practicable, with open or clear-span bridge structures considered the preferred option due to their reduced potential for adverse ecological, geomorphological and flood risk impacts. Where a clear-span bridge is not practicable or achievable, culverts may be considered where they are demonstrated to be necessary and represent the most appropriate solution for the specific site constraints. In such cases, culverts will be designed in accordance with EA and LLFA guidance, with a preference for three-sided structures that maintain the natural channel bed and enable the conveyance of water and sediment. The design parameters needed for culverts is set out as mitigation in Section 10.6.26. An assessment of the impacts of crossings (including culverts) are provided in Section 10.7.18 – Section 10.7.25.

Targeted Consultation

- 10.3.9 A Targeted Consultation period was held between 4 March and 3 April 2026 on proposed changes to the Order Limits. This included notifying relevant prescribed consultees. Feedback from this Targeted Consultation and the Applicant's response is included the **Consultation Report [EN0110020/APP/5.1]**.
- 10.3.10 A second Targeted Consultation was held for any individuals that had been identified as land interests after the Statutory Consultation.
- 10.3.11 No comments were provided by statutory consultees through the Targeted Consultation period in relation to Water Resources and Flood Risk.

10.4 Assessment Methodology and Significance Criteria

- 10.4.1 This section sets out the scope and methodology for the assessment of the impacts of the Proposed Development on water resources and flood risk from the construction, operation (including maintenance) and decommissioning phases.

The Study Area

- 10.4.2 The Study Area has been determined using professional judgment and is in line with industry best practice. The Study Area incorporates all watercourses within the Proposed Development, and a 1km buffer of the Order Limits to capture all the receptors that could potentially be affected by impacts to watercourses, and potential changes to flood risk arising from the construction, operation (and maintenance) and decommissioning of the Proposed Development.
- 10.4.3 The Study Area is shown on **ES Volume 3, Figure 10.1: Water Resources and Flood Risk Study Area [EN0110020/APP/6.19]**.

Assessment Methodology

Assessment Criteria

- 10.4.4 There is no specific methodology which sets out how water resources and flood risk effects should be assessed. Accordingly, the assessment is based on technical understanding, professional judgement and experience on similar schemes. The approach for assessment is based on a source-pathway-receptor (SPR) methodology i.e. considering the hydrological connectivity between e.g. construction works and the receiving water environment.
- 10.4.5 The determination of the significance of effects relating to water resources and flood risk are based on combining the receptor sensitivity and the magnitude of change (impact). The criterion for sensitivity and magnitude of change is set out in **Table 10.5** and **Table 10.6**, with the matrix for determining significance of effect set out in **Table 10.7**.
- 10.4.6 The same methodology for determining the significance of effect is used throughout all phases of the Proposed Development (construction, operation (including maintenance) and decommissioning) within this Chapter.

Receptor Sensitivity

10.4.7 The framework used to assign an overall sensitivity to each of the baseline receptors is detailed in **Table 10.5**.

Table 10.5: Framework for Determining Sensitivity of Receptors

Sensitivity of Receptor	Definition
High	The receptor is of national importance with limited ability to absorb change without fundamentally altering its present character. The receptor is of local scale and of high environmental value and rarity, or is of national or regional scale and of moderate / medium environmental value and rarity.
Medium	The receptor is of regional importance with limited ability to absorb change without fundamentally altering its present character. The receptor is of local scale and of medium environmental value and rarity, or is of national or regional scale and of low environmental value and rarity.
Low	The receptor is of local importance and scale, tolerant of change without detriment to its character and is of low environmental value and rarity.
Negligible	The receptor is resistant to change and is of little environmental value.

Magnitude of Impact

10.4.8 The magnitude of potential impacts will be identified through consideration of the activities associated with the Proposed Development, the degree of change to baseline conditions, and the duration and reversibility of a resultant impact.

10.4.9 The criteria for assessing the magnitude of an impact are presented in **Table 10.6**. If an impact falls into two different categories, the assessment will be undertaken using the greater of the two categories.

Table 10.6: Framework for Determining Magnitude of Impact

Magnitude of Impact	Definition
High	- A short or long-term major shift in hydrochemistry or hydrological conditions sufficient to negatively change water quality or quantity in waterbodies. This change could for example equate to a downgrading of a WFD classification e.g. from 'High' to 'Moderate'; - A sufficient material increase in the probability of flooding onsite and offsite, adding to the area of land which requires protection by flood prevention measures or affecting the ability of the functional flood plain to attenuate the effects of flooding by storing flood water (in accordance with NPPF; and / or

Magnitude of Impact	Definition
	Major long-term or short-term reduction in water quantity and / or deterioration in quality of water supplies.
Medium	- A short-term non-fundamental change in hydrochemistry or hydrological conditions sufficient to negatively change water quality or quantity in waterbodies; - A moderate increase in the probability of flooding onsite and offsite and affecting the ability of the functional flood plain to attenuate the effects of flooding by storing flood water; and / or - Medium-term reduction in water quantity and / or deterioration in quality of water supplies.
Low	- A detectable but non-detrimental change to the baseline hydrochemistry or hydrological conditions. - A marginal increase in the probability of flooding onsite but attenuation measures will prevent impacts to offsite flood risk; and / or - Short-term reduction in water quantity and / or deterioration in quality of water supplies.
Negligible	- A barely distinguishable or no change from baseline conditions. - No perceptible changes to the baseline hydrochemistry or hydrological conditions. - No increase in the probability of flooding onsite and offsite.

Defining the Effect

10.4.10 The significance of effect can be either Significant (Major or Moderate effects) or Not Significant (Minor or Negligible effects) in EIA terms. The significance of effect will be defined using the definition matrix detailed in **Table 10.7**.

Table 10.7: Framework for Significance of Effect

Magnitude of Impact	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Basis of the Assessment

- 10.4.11 **ES Volume 1, Chapter 5: Proposed Development [EN0110020/APP/6.5]** presents a summary of the design information for the Proposed Development which has been used to inform this assessment.
- 10.4.12 Based on the Scoping Opinion and statutory consultation on the Draft ES, the following basis of the assessment and potential effects are considered in this Chapter.
- 10.4.13 The aspects of the construction phase of the Proposed Development which have the potential to effect water resources and flood risk include:
- Early enabling works, preparation of temporary primary and secondary construction compounds, parking and laydown areas introducing areas of impermeable surface;
 - Excavation of foundations for substations and BESS which may include dewatering of excavations;
 - Subsequent construction of permanent above-ground structures introducing new areas of hardstanding;
 - Piling for solar panels in the arrays, involving driving metal rods into the earth;
 - Access track construction introducing areas of hardstanding and watercourse crossings;
 - Excavations for below-ground cable installation (that may include dewatering of excavations), or cable installation by horizontal directional drilling (HDD) and the associated launch and reception pits;
 - Management of waste and surplus soil; and
 - Fuel and other materials storage and use.
- 10.4.14 Therefore the potential effects that are considered in this Chapter include:
- Impacts to surface water quality as a result of chemical pollution from mobilisation of pollutants through surface water runoff, or from accidental spills and leaks;
 - Impacts to surface water quality and watercourse geomorphology as a result of erosion and sedimentation associated with excavations and stockpiling;
 - Impacts to surface water quality, quantity and watercourse geomorphology as a result of watercourse crossing construction for access tracks;
 - Impacts to surface water quality, quantity and watercourse geomorphology as a result of cable crossings;
 - Increases in run-off due to greater areas of hardstanding and soil compaction and flood risk;
 - Impacts to designated sites;
 - Impacts to water resources (covering impacts to licenced abstractions and PWS as a result of changes to surface water quality and / or quantity and direct impacts to public and private water assets, as well as impacts to groundwater springs);
 - Impacts to CRT assets; and
 - Water consumption and wastewater.

- 10.4.15 In the context of water resources and flood risk, the aspects of the operational phase of the Proposed Development which have the potential to effect water resources and flood risk include:
- New areas of permanent hardstanding associated with the BESS, substation, areas where concrete ballast is needed for solar panels, and access tracks;
 - Solar panels which will concentrate runoff and require cleaning;
 - Watercourse crossings;
 - Welfare facilities; and
 - Storage of fuel / oils / other potential pollutants.
- 10.4.16 During the operation and maintenance phase the potential effects relating to water resources and flood risk include:
- Impacts to surface water quality as a result of chemical pollution from accidental spills and leaks and during maintenance activities;
 - Impacts to surface water quality and watercourse geomorphology as a result of erosion and sedimentation;
 - Increase in flood risk and runoff due to the increase in area of permanent hardstanding;
 - Impacts to flood risk and watercourse geomorphology as a result of watercourse crossings for access tracks;
 - Impacts related to the maintenance of cables;
 - Impacts to designated sites;
 - Impacts to water resources;
 - Impacts to CRT assets;
 - Water consumption and wastewater; and
 - Impacts associated with fire suppression.
- 10.4.17 The Proposed Development would be operational for 60 years, and, after which time it would be decommissioned. Decommissioning is likely to involve the dismantling and recycling of the PV arrays with associated vehicle movements. Components of the Proposed Development such as mitigation planting, Site accesses, and ducts for cabling buried beneath plough-depth would be left in place subject to landowner agreement. These activities would be managed through appropriate environmental management plans and industry best practices. It is considered that the potential effects to water resources and flood risk will be similar or less than those outlined for the construction phase as set out in paragraph 10.4.14.
- 10.4.18 Impacts relating to groundwater and dewatering are covered in **ES Volume 2, Chapter 9, Ground Conditions and Land Quality [EN0110020/APP/6.9]**.
- 10.4.19 Impacts to the qualifying features of designated sites where they are not directly hydrological, and impacts to aquatic ecology are covered in **ES Volume 2, Chapter 6, Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]**.

Assumptions, Exclusions and Limitations

- 10.4.20 This assessment refers to and uses publicly available data sources for the baseline conditions and relies upon the accuracy of the data.
- 10.4.21 PWS have been identified using data obtained from the CDC, RMBC, and NEDDC alongside responses to the PWS questionnaire issued by the Applicant. This assessment relies on the accuracy of data received from both.
- 10.4.22 This assessment is informed by the key parameters of the Proposed Development detailed in **ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5]**. Where the Proposed Development's designs and details require further development e.g. Cable Corridors and crossing methods, track crossing design, etc either assumptions have been made based on professional judgment and on a worst-case scenario basis in line with the Rochdale Envelope method of assessment.

10.5 Baseline

Data Sources

Existing Baseline Data Sources

- 10.5.1 Existing water resource and flood risk conditions within the Study Area have been defined and identified via a desk-based assessment using a number of approaches and sources, including:
- OS maps (1:25,000 scale);
 - OS AddressBase Dataset;
 - BGS Online database (Borehole and Geology Mapping⁵³ and Groundwater Flooding⁵⁴);
 - EA Catchment Data Explorer;⁵⁵
 - EA Flood Map for Planning;⁵⁶
 - EA Long Term Flood Risk Map (including Surface Water Flood Risk Mapping and Reservoir Flood Risk Mapping);⁵⁷
 - EA Recorded Flood Outlines;⁵⁸
 - EA Historic Flood Map;⁵⁹
 - National Rivers Flow Archive;⁶⁰
 - EA AIMS Spatial Flood Defences;⁶¹
 - EA Drinking Water Safeguard Zones (Surface Water);⁶²
 - EA Drinking Water Safeguard Zones (Groundwater);⁶³
 - EA Nitrate Vulnerable Zones (NVZ) 2021 Designations ;⁶⁴
 - EA Source Protection Zones;⁶⁵
 - EA Public Registers Website – Discharges to Water and Groundwater;⁶⁶
 - Multi-Agency Geographic Information for the Countryside (MAGIC) Mapping Database;⁶⁷

- UK Centre for Ecology and Hydrology Flood Estimation Web Service;⁶⁸
- RMBC Level 1 Strategic Flood Risk Assessment;⁶⁹
- Derbyshire County Council Strategic Level 1 Strategic Flood Risk Assessment;⁷⁰
- Chesterfield, Bolsover and North East Derbyshire Strategic Flood Risk Assessment;⁷¹
- City of Doncaster Council Level 1 Strategic Flood Risk Assessment;⁷²
- Three Landmark Envirocheck® Reports for W1, W2 and W3 (see **ES Volume 3, Appendix 9.2 – 9.4 Landmark Envirocheck® Reports [EN0110020/APP/6.20]**); and
- Landmark Envirocheck® Reports for the Cable Corridors (see **ES Volume 3, Appendix 9.5: Landmark Envirocheck® Report for Cable Corridors [EN0110020/APP/6.20]**).

10.5.2 Additional information and datasets were also sourced directly from the EA, including abstraction licence records on 26 August 2025. Public water supply and wastewater network data were obtained through a Yorkshire Water asset water network enquiry on 3 June 2025. PWS information was provided by CDC, RMBC and NEDDC on 10 September 2025, 15 August 2025 and 7 August 2025 respectively, supplemented by resident questionnaires issued on 16 December 2025.

Future Baseline Data Sources

10.5.3 The main alterations to baseline conditions will be impacts on rainfall and river flows as a result of climate change. As such, the future baseline primarily relates to the FRA which has taken account of the relevant uplifts to set the future baseline for flood risk, further details of which are supplied in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**.

Existing Baseline Conditions

Surface Watercourses

- 10.5.4 The EA catchment data explorer shows that the Study Area is located within the Don and Rother Management Catchment and the Idle and Torne Management Catchment of the Humber River Basin District.
- 10.5.5 W1 is located entirely within the Don and Rother Management Catchment, along with a short section of the associated Cable Corridors connecting W1 to W2, corridor reference CRB. The western extents of W2 and W3 also fall within this catchment.
- 10.5.6 The eastern extents of W2 and W3 sit within the Idle and Torne Management Catchment, which also includes substantial sections of the Cable Corridors connecting W1, W2 and W3, corridor references CRB and CRC.
- 10.5.7 There are ten WFD designated watercourses within the Study Area. Details on the proximity of the WFD watercourses to the Order Limits, flow directions, and flow conditions are detailed in **Table 10.8**. The WFD watercourses are shown in **ES Volume 3, Figure 10.2: Water Framework Directive Designated Watercourses [EN0110020/APP/6.19]**.

- 10.5.8 Within the Study Area, the River Rother is the only EA Main River, which flows from south to north, to the west of the Study Area. The hydrological network within the Study Area comprises several WFD designated watercourses, ordinary watercourses and drainage channels that provide hydrological connectivity to downstream EA Main Rivers. The Kearsley Brook and Hooton Brook convey flows northwards and westwards respectively, establishing hydrological pathways from the Study Area to the River Don, situated to the northwest and north of W1. The Anston Brook and Oldcotes Dyke Catchment drain eastwards towards the River Ryton, while Pigeon Bridge Brook and Ulley Brook both flow westwards towards the River Rother. The characteristics of these watercourses and their associated hydrological connectivity to the EA Main Rivers is summarised in **Table 10.8**.
- 10.5.9 The EA Main Rivers, ordinary watercourses, surface waterbodies and drainage channels within and hydrologically connected to the Study Area are shown in **ES Volume 3, Figure 10.3: Surface Watercourses and Waterbodies [EN0110020/APP/6.19]**.

Table 10.8: WFD Designated Watercourses Flow Conditions

Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
Hooton Brook from Source to River Don	GB104027057430	Originates approximately 0.3km west of W1. The watercourse flows northwest towards its confluence with the River Don, located outside the Study Area. Headwater tributaries associated with Firsby Reservoir and the upper Hooton Brook river system flow westwards adjacent to W1 and intersects the Cable Corridor linking W1 and W2 (reference CRB) before discharging to the Hooton Brook. From this point, the combined flow continues downstream beyond the limits of the Study Area.	No representative NRFA / EA Gauge.				
Kearsley Brook	GB104027064244	Flows along the northeastern boundary of W1 and continues northwards to its confluence with the River Don outside the Study Area, approximately 1.2km north of Study Area. A minor headwater tributary associated with the Kearsley Brook sub-catchment flows directly through W1, providing a localised tributary inflow before discharging to the main Kearsley Brook channel. This establishes a hydrological connection between W1 and the	No representative NRFA / EA Gauge.				

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Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
		downstream Kearsley Brook system, which subsequently conveys water beyond the limits of the Study Area.					
Oldcotes Dyke Catchment (tributary of the River Ryton)	GB104028058230	The Newhall Dike, forming part of the WFD designated Oldcotes Dyke Catchment, originates near Cumwell Lane, Hellaby, approximately 0.35km east of the Cable Corridor connecting W1 and W2 (reference CRB) and flows eastwards outside the Study Area. The Kingsforth Brook drains from west to east, originating from approximately 90.5m east of W2, before discharging into the Newhall Dike downstream of the Study Area. Hellaby Brook, along with unnamed tributaries, flow in a south-easterly direction and directly intersect the Cable Corridor between W1 and W2 (reference CRB). Collectively, these watercourses demonstrate hydrological connectivity	Oldcotes Dyke NRFA Gauge (ID: 28047) at Blyth.	1970 - 2023	0.72	0.26	N / A

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Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
		between the Site and the Oldcotes Dyke catchment.					
Anston Brook from Source to River Ryton	GB104028058210	Originates north of Hardwick Lane and flows broadly east - southeast through Anston and W2, before converging with the Cramfit Brook where it receives additional inflows from the Cramfit Brook system. Anston Brook flows directly through W2, receiving multiple sub-catchment inflows from local drainage channels that establish a clear functional hydraulic pathway across W2 into the main Anston Brook channel. Cramfit Brook is supported by a series of minor tributary and drainage channels that drain westwards from W2 prior to their convergence with the main brook. Following tributary confluence, Cramfit Brook discharges to Anston Brook, which then continues southeast beyond the limits of the Study Area before ultimately discharging to the River Ryton. Collectively, these watercourses form an integrated network of sub - catchment inflows, tributary convergence points and downstream receptor pathways, demonstrating hydraulic and hydrological	No representative NRFA / EA Guage.				

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Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
		connectivity between W2, Anston Brook and the wider Anston – River Ryton catchment.					
Pigeon Bridge Brook from Source to River Rother	GB104027057730	Flows adjacent to Storth Lane, approximately 1.16km west of W2 (reference 1 - 2G) and the A57, before continuing west to its confluence with the River Rother outside the Study Area. The brook also receives inflow from a small unnamed tributary located approximately 1.3km southwest of W2 at Hardwick, which flows southwest through Fiddle Neck Pond and Hepworth Pond before joining the brook downstream, outside of the Study Area. There is a clear hydrological disconnection between the Pigeon Bridge Brook and the Proposed Development due to the intervening A57 and Goose Carr Lane, which form established barriers to overland flow routes and surface water connectivity.	No representative NRFA / EA Gauge.				
Ulley Brook from Source to River Rother	GB104027057740	The brook originates from upstream inflows associated with the Morthern Brook sub - catchment, before flowing westerly through Swall Mills Pond and Ulley Reservoir. Along its upper reaches,	No representative NRFA / EA Gauge.				

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Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
		the brook receives minor sub-catchment inflows from unnamed tributaries and spring - fed sources before continuing westerly directly intersecting W2 and Cable Corridor (reference CRF) towards its confluence at the River Rother, south of the M1 and approximately 0.54km northwest from W2 (reference 1 - 2B).					
River Rother, Doe Lea to Don	GB104027057772	The River Rother exhibits a south to north flow direction. A tributary of the River Rother, situated approximately 0.6km west of W3, flows east to west, receiving upstream inflows from Park Brook before discharging into the River Rother beyond the western boundary of the Study Area. A further tributary located approximately 0.4km southwest of W2 flows south to north towards its confluence with the River Rother, approximately 0.63km west of W2. The River Rother also receives inflows from the Ulley Brook system and minor sub - catchment drainage channels that interact hydraulically with W2, establishing a clear hydrological connection between W2 and the River Rother. Downstream of these tributary confluences, the River Rother continues northwards through and	River Rother, Woodhouse Mill NRFA Gauge (ID: 27025)	1961 - 2023	4.28	1.07	123.12, (recorded 26/06/2007)

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Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
		beyond the Study Area, ultimately discharging to the River Don.					
Broad Bridge Dyke Catchment (tributary of Chesterfield Canal)	GB104028058161	Flows from south to north, directly intersecting W3, establishing a clear hydrological connection between the watercourse and the Proposed Development. The dyke then turns west and continues east to west past Kiveton Waters before ultimately discharging to the Chesterfield Canal approximately 1.05km northeast of W3. Broad Bridge Dyke receives controlled inflows from Harthill Reservoir via the reservoir's spillway infrastructure located to the northwest of the reservoir, providing supplementary upstream inputs that contribute to the functional hydrological pathway through W3.	No representative NRFA / EA Gauge.				
Ryton from Chesterfield Canal to Anston Brook Water Body	GB104028058162	Pudding Dike, a tributary of the River Ryton, flows adjacent to the Chesterfield Canal from a point approximately 2.01km east of W3. The watercourse follows a west to east alignment and directly intersects the Cable Corridor (reference CRL) linking W2 and W3, establishing a clear hydraulic interaction with the Proposed Development. Downstream,	No representative NRFA / EA Gauge.				

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Name	WFD ID	Direction and Distance from Site	Nearest National River Flow Archive (NRFA)/EA Gauge	Gauge Record	Average Flow (m³/s)	Q95 Flow (m³/s)	Peak Flow (m³/s)
		Pudding Dike continues eastwards before discharging to the River Ryton at its confluence with Anston Brook, located approximately 1.25km west of the Study Area.					
Chesterfield Canal, upper section	GB70410526	Originating approximately 0.6km northeast of W3, the watercourse flows west to east, receiving upstream inflows conveyed from Broadbridge Dyke via its downstream drainage pathway. This establishes a direct hydrological linkage between the two systems, with Broadbridge Dyke acting as the primary feeder channel supplying baseflow and stormflow inputs into the receiving Chesterfield Canal. Along its course, the canal continues easterly and intersects the W2 - W3 Cable Corridor (reference CRL), establishing a hydraulic connection with the Proposed Development, before continuing eastwards beyond the boundaries of the Study Area.	No representative NRFA / EA Gauge.				

10.5.10 The ecological and chemical classification for each of the WFD designated watercourses from the EA Catchment Data Explorer is summarised in **Table 10.9**.

10.5.11 WFD watercourses are assigned a status from high to bad (high, good, moderate, poor, bad) for ecological status; how heavily modified by human activity the watercourse is (hydromorphological designation); and the chemical classification which is either good or failing based on 52 different chemical elements.

Table 10.9: WFD Designated Watercourses Classifications

Watercourse	Ecological Classification	Hydromorphological Designation	Chemical Classification
Hooton Brook from Source to River Don	Good	Heavily modified	Fail
Kearsley Brook	Moderate	Heavily modified	Fail
Oldcotes Dyke Catchment (tributary of the River Ryton)	Poor	Not designated artificial or heavily modified	Fail
Anston Brook from Source to Ryton	Moderate	Not designated artificial or heavily modified	Fail
Pigeon Bridge Brook from Source to River Rother	Poor	Not designated artificial or heavily modified	Fail
Ulley Brook from Source to River Rother	Good	Heavily modified	Fail
Rother, Doe Lea to Don	Moderate	Heavily modified	Fail
Broad Bridge Dyke Catchment (tributary of Chesterfield Canal)	Poor	Not designated artificial or heavily modified	Fail
Ryton from Chesterfield Canal to Anston Brook Water Body	Good	Not designated artificial or heavily modified	Fail
Chesterfield Canal, upper section	Good	Artificial	Fail

Reservoirs

- 10.5.12 Firsby Reservoir is located approximately 263m west of W1 and receives inflows from multiple unnamed tributaries, including a tributary that flows through the Cable Corridor (reference CRB) adjacent to two W1 parcels (references 1-1). These upstream inflows contribute to the reservoir's storage, which subsequently discharges northwards into the downstream tributary network hydraulically connected to Hooton Brook as detailed in **Table 10.8**. Firsby Reservoir is owned and maintained by RMBC.
- 10.5.13 The Ulley Reservoir is located between three W2 parcels (references 1 - 2 B,C,D). The Ulley Brook is hydraulically connected to the reservoir and flows along the eastern boundary of W2 (reference 1 - 2B) and crosses the Cable Corridor (reference CRF) to the east of the 1 - 2B parcels. Ulley Reservoir is owned and maintained by RMBC.
- 10.5.14 The Pebley Reservoir is located immediately southeast of W3. It was built in 1776 to supply water to the Chesterfield Canal via a feed into Harthill Reservoir⁷³. The connecting watercourse between the two reservoirs flows north through Birkenhead Wood and along the eastern boundary of W3 (reference 1 - 3C).
- 10.5.15 Harthill Reservoir is located immediately east of W3 (reference 1 - 3C). The reservoir supplies water to the Chesterfield Canal via the Broadbridge Dyke Feeder which flows north into the canal. The Broadbridge Dyke Feeder is located to the east of the Order Limits but intersects it within W3 (reference 1 - 3A) to the north of Harthill Reservoir. The reservoir overflow spillway infrastructure is located to the east of W3 (reference 1 - 3C). The spillway has recently been replaced on the western side of the reservoir. The Cable Corridor linking W2 and W3 (reference CRL) intersects the Chesterfield Canal approximately 3km north-east of Harthill Reservoir.

Existing Watercourse Crossings

- 10.5.16 There are four existing watercourse crossings associated with existing access tracks within the Study Area which will be utilised by the Proposed Development. These are detailed in **Table 10.10** and **ES Volume 3, Figure 10.15: Watercourse Crossings [EN0110020/APP/6.19]**. All existing culverts will either be capped (sealed and decommissioned, with the specific method of capping to be defined at detailed design stage) or removed and replaced with a similar crossing.

Table 10.10: Existing Watercourse Crossings.

ID*	Easting	Northing	Watercourse
8	449978	396751	Unnamed, ordinary
9	449525	386131	Anston Brook, ordinary, WFD
10	449304	386031	Anston Brook, ordinary, WFD
11	449196	387597	Unnamed, ordinary

*Numbering starts at 8 because all crossings including proposed new crossings set out in **Table 10.15** have been numbered sequentially from 1.

Flood Risk

10.5.17 **ES Volume 3, Appendix 10.2: Flood Risk Assessment**

[EN0110020/APP/6.20.1] provides a detailed baseline (and assessment) of flood risk in the Study Area. However, a summary of the baseline flood risk is provided in the following sections.

Fluvial Flood Risk

- 10.5.18 The EA Flood Map for Planning shows that the Site is predominantly located in Flood Zone 1, land defined as having a less than 0.1%, or 1 in 1000, annual probability of flooding. However, there are small areas of the Site which fall within Flood Zone 2, land defined as having a 0.1%-1% annual probability of flooding from rivers, or between 0.1%-0.5% from the sea; and Flood Zone 3, land defined as having a 1% or higher annual probability of flooding from rivers, or 0.5% from the sea. The Flood Zone 2 and 3 flood risk within the Site is in three distinct locations: along the Ulley Brook, Anston Brook, and Broad Bridge Dyke.
- 10.5.19 In the wider Study Area, Flood Zones 2 and 3 encompass the River Rother, Kearsley Brook, Hooton Brook, Oldcotes Dyke, Cramfit Brook, Pudding Dikey, and Chesterfield Canal.
- 10.5.20 Flood Zones 2 and 3 within the Study Area are shown in **ES Volume 3, Figure 10.4: EA Flood Map for Planning Flood Zones [EN0110020/APP/6.19]**.
- 10.5.21 A more detailed description of flood risk, including discussion of the detailed flood modelling results provided by the EA, as well as several more detailed figures of flood risk within the Site, are provided in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**. The EA Spatial Flood Defences show that the River Rother and River Don have flood defences running along the entirety of the banks of each watercourse within the Study Area. The flood defences consist of natural high ground and embankments along the River Rother, west of W2 and W3, and along the River Don, west and north of W1.

Surface Water Flood Risk

- 10.5.22 The EA Risk of Flooding from Surface Water dataset shows that the majority of the Order Limits is at very low risk of surface water flooding, meaning the annual chance of surface water flooding is less than 0.1%. Isolated areas within the Site are defined as being at 'Low', 'Medium' and 'High' risk of surface water flooding, corresponding to an annual chance of flooding of between 0.1% and 1%, between 1% and 3.3%, and greater than 3.3% respectively. The location of the areas at risk of surface water flooding generally coincide with topographical lows in the terrain and drainage ditches/ponds.
- 10.5.23 The risk of flooding from surface water extents for the low, medium and high probability events are shown in **ES Volume 3, Figure 10.5: Flood Risk from Surface Water [EN0110020/APP/6.19]**. More detailed figures and further discussion of surface water flood risk within the Site are provided in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**.

Tidal / Coastal Flood Risk

- 10.5.24 The Study Area is located inland. As such, there are no tidally influenced watercourses within the Study Area and no risk of coastal flooding.

Groundwater Flood Risk

- 10.5.25 Groundwater flood risk within the Study Area is considered low due to the type of soil that overlies the underlying aquifer and based on the findings of the Strategic Flood Risk Assessments (SFRA) of the various council areas in which the Proposed Development is located. Groundwater flood risk is discussed in detail in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**.

Reservoir

- 10.5.26 The EA Reservoir Flood Extents Mapping identifies a small section of the Hooton Brook, approximately 0.9km west of W1, as vulnerable to flooding under a 'wet day' scenario (i.e., where a reservoir breach coincides with an extreme natural flood event).
- 10.5.27 W2 is shown to be at risk of flooding under both 'wet day' and 'dry day' (if reservoir flooding were to occur when river levels are at normal levels) breach scenarios. Land adjacent to Ulley Reservoir, the River Rother, and Ulley Brook, east of the A630 and south of the M1, is mapped as vulnerable to flooding from a reservoir breach in both scenarios. Areas along the A618, adjacent to Ulley Reservoir, are identified as being at risk during a 'dry day' scenario.
- 10.5.28 W3 is mapped as vulnerable to reservoir breach flooding under both 'wet day' and 'dry day' scenarios, including areas near Harthill Reservoir, the Broad Bridge Dyke, and Chesterfield Canal.
- 10.5.29 The flood extents from both the wet and dry day scenarios are shown in **ES Volume 3, Figure 10.6: Flood Risk from Reservoirs [EN0110020/APP/6.19]**.

Flooding from Artificial Sources

- 10.5.30 The Chesterfield Canal crosses the Cable Corridor. Flooding from canals can occur via two primary mechanisms: overtopping or an embankment breach. Because the Chesterfield Canal is a heavily engineered and managed watercourse, water levels are strictly controlled through a series of local locks, sluices, and overflow weirs. While canals can sometimes act as a conduit for broader fluvial flood risk, a review of the available flood mapping confirms the risk of overtopping under normal rainfall, extreme rainfall, or fluvial events is considered low.

Historical Flooding

- 10.5.31 The EA historic flood map shows the maximum extent of individual recorded flood outlines from rivers, the sea, groundwater and surface water dating back to 1946.
- 10.5.32 The only area of the Site included within the EAs historic flooding dataset is at the Ulley Brook within W2. Recorded flood outlines show flood events along the Ulley Brook occurred in 1947, 2000, 2019, and 2023 caused by fluvial flooding. The 2023 event during Storm Babet was the most significant of these events.

10.5.33 Flooding also occurred in 2007, due to an operational failure/breach of defences at Ulley reservoir.

10.5.34 The recorded flood outlines in the Study Area are shown in **ES Volume 3, Figure 10.7: Historic Flood Map [EN0110020/APP/6.19]**.

Water Resources

Drinking Water Safeguard Zones

10.5.35 There are no surface water or groundwater drinking water safeguard zones in the Study Area and these are therefore not considered further within this assessment.

Surface Water Drinking Water Protected Areas

10.5.36 There are no surface water drinking water protected areas in the Study Area and are therefore not considered further within this assessment.

Nitrate Vulnerable Zones

10.5.37 NVZs are areas designated as being at risk from agricultural nitrate pollution. NVZs in the Study Area are detailed in **Table 10.11** and presented in **ES Volume 3, Figure 10.9: Nitrate Vulnerable Zones [EN0110020/APP/6.19]**.

Table 10.11: Nitrate Vulnerable Zones in the Study Area

NVZ ID	Name	Type
40	Nottinghamshire	Groundwater
101	Yorkshire Mag Limestone	Groundwater
260	Hooton Brook from Source to River Don	Surface Water
262	River Don (from Rother to Dearne)	Surface Water
267	River Rother (source to Don)	Surface Water
298	Lower Don	Surface Water
335	River Idle from River Ryton to River Trent	Surface Water
351	River Torne / Three River from Mother Dr to River Trent	Surface Water

Licensed Abstractions

10.5.38 Data regarding surface and groundwater abstractions in the Study Area were obtained directly from the EA on 26 August 2025. These abstractions are presented in **ES Volume 3, Figure 10.10: Environment Agency Licensed Abstractions and Private Water Supplies [EN0110020/APP/6.19]** and detailed in **Table 10.12**.

Table 10.12: EA Licensed Abstractions within the Study Area

Figure Ref.	Licence Holder	Licence No.	Use	Source Description	National Grid Reference (NGR)	Surface / Groundwater
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A1	G.W. Woolhouse & Sons Limited	03/28/76/0038	N / A	Single Point / Multiple Purposes	SK49809256	Surface Water – Hellaby Brook
A2	Sitwell Park Golf Co Ltd	2/27/03/021	Spray Irrigation - Direct	Industrial, Commercial and Public Services	SK4656690552	Groundwater – Borehole
A3	J Cox	03/28/75/0098	N / A	Single Point / Multiple Purposes	SK49608619	Groundwater - Borehole
A4	Kiveton Park Steel Limited	03/28/75/0071	N / A	Single Point / Multiple Purposes	SK5075382706	Groundwater - Borehole
A5	K E Brocksopp	03/28/75/0099	N / A	Single Point / Multiple Purposes	SK49708193	Surface Water – Unnamed Watercourse
A6	K E Brocksopp	MD/028/0075/012	N / A	Single Point / Multiple Purposes	SK4950081440	Groundwater - Borehole

Public Water Assets

- 10.5.39 A water network enquiry was made to YWS on 03 June 2025 to determine the location and type of YWS assets within the Study Area.
- 10.5.40 YW asset plans indicate an extensive network of water distribution mains, including pipes up to and exceeding approximately 101.6mm in diameter, serving the local communities of Conisbrough, Hellaby, Bramley, Ulley, Hardwick, Anston, Woodall and Harthill, as well as the surrounding roads within the Study Area.
- 10.5.41 There is one private pipeline that connects into the YWS mains network at parcel 1-1 to the east of W1.

Private Water Supplies

- 10.5.42 Consultation with CDC, RMBC and NEDDC was carried out on 10 September 2025, 15 August 2025, and 07 August 2025 respectively, to identify private water supplied (PWS) within the Study Area. CDC, RMBC and NEDDC responses confirmed that there are no PWS under their jurisdiction within the Study Area.
- 10.5.43 In addition, questionnaires were issued on 16 December 2025 to properties within the Study Area as identified through the OS AddressBase. In total, 77 properties were contacted and five responses have been received at the time of writing, of which only one PWS is located within the Study Area, which is detailed in **Table 10.13**.

- 10.5.44 Where questionnaire responses indicated that their water supply is sourced from YW mains, assessment of risk is considered under public water assets. One property indicated that their water supply is sourced from a stream / burn but in their comments indicated that the water supply is a YW mains supply, fed to the property via private pipeline. Thus, it has been assumed for the purposes of this assessment that the property is supplied by mains water and is assessed under public water assets. Details of this private pipeline is discussed in Section 10.5.41.
- 10.5.45 The location of PWS are shown in **ES Volume 3, Figure 10.10: Environment Agency Licensed Abstractions and Private Water Supplies [EN0110020/APP/6.19]**.

Table 10.13: PWS within the Study Area

Figure Ref.	Property	Data Source	Source Water	Easting, Northing	Distance from the Proposed Development	Hydrologically Connected to the Proposed Development	Comment
P1	Spa House Farm	Questionnaire	Groundwater (Spring)	444220, 388184	Located within Cable Corridor (reference CRG - 1).	Yes	<i>“Underground spring water supplied from storage tank in field. Filter system. Supplies 3 houses. 3 people and 28 horses. Periodically checked for maintenance and risk assessed by Rotherham Metropolitan Borough Council. Spring water is only source of supply.”</i> It is unclear from the questionnaire if the location of the tank provided by the resident is also the location of the source spring and therefore the source of the

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							supply. The tank is located within the Cable Corridor (reference CRG -1) and less than 50m to the east of parcel 1 - 2B and is therefore considered hydrologically connected to the Proposed Development in accordance with EA's approach to groundwater protection ⁴⁹ .
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Discharge Consents

10.5.46 Discharges of liquid effluent or wastewater into surface waters are regulated by the EA using discharge consents and environmental permits.

10.5.47 A review of EA datasets⁶⁶ indicate 33 active consented discharges to surface waters and groundwaters within the Study Area. These are summarised in **Table 10.14**.

Table 10.14: Discharge Consents (Water Activity Permits) in the Study Area

Name of Company / Individual Holding Permit	Permit Number	Location (NGR)	Discharge Type	Receiving Waters
Yorkshire Water Services Limited	WRA7381	SK 50970 97850	Sewage – Sewer Storm Overflow – Water Company	Kearsley Brook
Yorkshire Water Services Limited	E727(SS)	SK 51658 96689	Sewage – Final / Treated Effluent – Water Company	Freshwater River
Mr Smith	WRA8019	SK 49500 97600	Sewage – Final / Treated Effluent – Not Water Company	Land / Infiltration System
Mrs Kerry Hugget	EPRVP3325PF	SK 49464 95897	Sewage – Final / Treated Effluent – Not Water Company	Tributary of Firsby Reservoir
Severn Trent Water Limited	T/76/03427/O	SK 49900 93700	Sewage – Sewer Storm Overflow – Water Company	Hellaby Brook
Green GP Property Ltd	T/76/07746/T	SK 50870 92830	Trade Discharges – Mineral Workings	Hellaby Brook
Mr Thomas Gaskin	T/76/46124/T	SK 50761 92455	Trade Discharges – Site Drainage	Hellaby Brook
Mr Simon Nixon	T/75/46087/SG	SK 50262 91006	Sewage – Final / Treated Effluent – Not Water Company	Groundwaters via Soakaway
Severn Trent Water Limited	T/76/09342/O	SK 48806 90693	Sewage – Sewer Storm Overflow – Water Company	Tributary of Kingsforth Brook

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Parkcliffe Farm	2237	SK 47197 90327	Sewage – Final / Treated Effluent – Not Water Company	Pinch Mill Brook
Vale Farm	WA6138	SK 47700 89400	Sewage – Final / Treated Effluent – Not Water Company	Groundwater
Yorkshire Water Services Limited	WRA7787	SK 46030 90180	Sewage Discharges – Pumping Station – Water Company	Whiston Brook
Yorkshire Water Services Limited	WRA8239	SK 46000 90170	Sewage – Sewer Storm Overflow – Water Company	Tributary of the Whiston Brook
Geoffrey Barker	3/28/76/1194	SK 50400 88500	Sewage – Final / Treated Effluent – Not Water Company	Underground Strata – Land / Infiltration System
Yorkshire Water Services Limited	2081	SK 44040 88880	Sewage Discharges – Storm Overflow / Storm Tank – Water Company	River Rother
Yorkshire Water Services Limited	WRA7688	SK 42740 88840	Sewage Discharges – Pumping Station – Water Company	Tributary of the River Rother
Yorkshire Water Services Limited	WRA8727	SK 44950 87070	Sewage – Sewer Storm Overflow – Water Company	Tributary of the Ulley Brook
Mr David Bricknell	EPRYB3392AD	SK 47969 85448	Sewage – Final / Treated Effluent – Not Water Company	Groundwater via Borehole
Thornberry Animal Sanctuary	EPREB3391WD	SK 50753 85941	Sewage – Final / Treated Effluent – Not Water Company	Cramfit Brook
Severn Trent Water Limited	T/75/46295/R	SK 51668 86036	Sewage – Final / Treated Effluent - Water Company	Cramfit Brook

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Severn Trent Water Limited	T/75/46295/R	SK 51668 86036	Sewage Discharges – Storm Overflow / Storm Tank – Water Company	Cramfit Brook
Severn Trent Water Limited	T/75/46295/R	SK 51668 86036	Sewage Discharges – Pumping Station – Water Company	Cramfit Brook
Severn Trent Water Limited	T/75/12427/O	SK 51963 84096	Sewage Discharges – Sewer Storm Overflow – Water Company	Anston Brook
Severn Trent Water Limited	T/75/08213/O	SK 50900 82400	Sewage Discharges – Pumping Station – Water Company	Chesterfield Canal
Forticrete Limited	T/75/21781/T	SK 50560 82400	Trade Discharges – Site Drainage	Chesterfield Canal
Severn Trent Water Limited	T/75/46091/O	SK 49520 82571	Sewage Discharges – Pumping Station – Water Company	Broad Bridge Dyke
Severn Trent Water Limited	T/75/40098/O	SK 48350 82926	Sewage Discharges – Sewer Storm Overflow – Water Company	Tributary of Broad Bridge Dyke
Severn Trent Water Limited	T/75/01294/O	SK 49200 82200	Sewage Discharges – Pumping Station – Water Company	Broad Bridge Dyke
Severn Trent Water Limited	T/75/07062/O	SK 49010 81511	Sewage Discharges – Sewer Storm Overflow – Water Company	Broad Bridge Dyke
Mrs D Skepper	3/28/75/0078	SK 49300 80000	Sewage – Final / Treated Effluent – Not Water Company	Underground Strata – Land / Infiltration System

Severn Trent Water Limited	T/75/08768/O	SK 4891080690	Sewage Discharges – Pumping Station – Water Company	Broad Bridge Dyke
Severn Trent Water Limited	WRA7710	SK 48130 80740	Sewage Discharges – Pumping Station – Water Company	Tributary of County Dike
Severn Trent Water Limited	1798	SK 47680 80510	Sewage – Final / Treated Effluent – Water Company	Tributary of the River Rother

Designated Sites

- 10.5.48 A small section of the Anston Stones Wood SSSI lies to the east of South Anston and Cable Corridor (reference CRL). The SSSI is hydrologically connected to the Proposed Development via the Anston Brook, which flows southeast through W2 (parcel reference 1 - 2G) and Anston Woods before ultimately discharging to the River Ryton outside the Study Area.
- 10.5.49 A small section of the Crabtree Wood SSSI lies to the south of Pebley Reservoir, and to the east of the A618, approximately 0.91km to the south of W3. The SSSI is hydrologically disconnected from the Proposed Development; the intervening topography and absence of any surface water or drainage pathways prevent any hydrological interaction between the Proposed Development and SSSI. Thus, impacts on the Crabtree Wood SSSI have not be assessed further.
- 10.5.50 There are no Special Protection Areas (SPA), Special Areas of Conservation (SAC), National Nature Reserves (NNR) and / or other environmentally sensitive areas in the Study Area.
- 10.5.51 The designated sites within the Study Area are shown in **ES Volume 3, Figure 10.11: Designated Sites [EN0110020/APP/6.19]**.

Hydrogeology

- 10.5.52 The BGS 625k Geological map shows that the Study Area is predominantly underlain by Sandstone, Siltstone and Mudstone of the Pennine Upper Coal Measures Formation bedrock and the Pennine Middle Coal Measures and South Wales Middle Coal Measures Formation bedrock. According to The BGS 625k Hydrogeology map, these bedrock formations are classified as moderately productive aquifers with moderate yields from sandstones and supporting numerous springs. The EA defines these rock units as 'secondary A aquifers', designated as minor aquifers that comprise permeable layers that can support local water supplies and may contribute base flow to rivers⁵¹. A small extent of Dolomitised Limestone and Dolomite of the Zechstein Group Formation underlies the northern and southeastern boundary of the Study Area. This unit forms a highly productive regional dolomitised limestone aquifer, locally up to 300m thick and capable of yielding up to 50L/s of very hard water. The EA defines this as a

'principal aquifer', designated by the EA as strategically important rock unit that has high permeability and water storage capacity.

10.5.53 Hydrogeology within the Study Area is shown in **ES Volume 3, Figure 10.12: Hydrogeology [EN0110020/APP/6.19]**.

10.5.54 Numerous BGS boreholes are recorded across the Study Area. The boreholes typically log interbedded mudstone, sandstone, siltstone and coal seams with localised clay deposits within W2. Across all reviewed BGS logs, no groundwater strikes were recorded.

10.5.55 A review of OS 1:25,000 scale mapping identified several mapped springs within the Study Area, with four springs located within W2. These features indicate localised groundwater emergence where permeable sandstone units overlie less permeable mudstones. The springs are shown in **ES Volume 3, Figure 10.12: Hydrogeology [EN0110020/APP/6.19]**.

10.5.56 W1 and Cable Corridor (reference CRB) connecting W1 and W2 is primarily underlain by the Pennine Upper Coal Measures Formation Bedrock, with a small area of Zechstein Group Formation underlying the northwestern boundary of W1.

10.5.57 W2 and Cable Corridor (reference CRC, CRD-1, CRD-2, CRE, and CRF) connecting W2 and W3 is largely underlain by the Pennine Middle Coal Measures and South Wales Middle Coal Measures Formation bedrock. The eastern extent of W2 is underlain by the Pennine Upper Coal Measures Formation and a short section of the Cable Corridor (reference CRL) between W2 and W3 overlies the Zechstein Group Formation.

10.5.58 W3 is entirely underlain by the Pennine Middle Coal Measures and South Wales Middle Coal Measures Formation bedrock.

10.5.59 The Study Area lies predominantly within the Don and Rother Millstone Grit and Coal Measures WFD Groundwater Body (ID: GB40402G992300), which is classified as having poor ecological status. Small sections at the northeastern and southeastern boundaries, including part of the Cable Corridor (reference CRL) linking W2 and W3, fall within the Idle Torne - Magnesian Limestone Groundwater Body (ID: GB40401G300600), which is also classified as having poor ecological status. A very small extent of the Study Area to the northeast of W1 falls within the Aire and Don Magnesian Limestone Groundwater Body (ID: GB40401G700900), which is also classified as having poor ecological status.

10.5.60 The designated WFD groundwater bodies within the Study Area are shown in **ES Volume 3, Figure 10.13: WFD Groundwater Bodies Classifications [EN0110020/APP/6.19]**.

Source Protection Zones

10.5.61 A groundwater SPZ 3 is located within the Study Area at South Anston and intersects a very small area (~500m²) of Cable Corridor linking W2 and W3 (reference CRL). This is defined as the total groundwater catchment required to sustain a drinking water abstraction. It includes all land from which water may eventually flow to the source over longer timescales, indicating areas where activities could still pose a risk to groundwater quality.

10.5.62 The SPZs within the Study Area are shown in **ES Volume 3, Figure 10.14: Source Protection Zones [EN0110020/APP/6.19]**.

10.5.63 Hydrogeology at the Site is detailed further in **ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]**.

Future Baseline Conditions

- 10.5.64 It is anticipated that there will be minimal changes to the Study Area in the future baseline scenario. The main alterations to baseline conditions will be impacts on rainfall and river flows as a result of climate change, which in turn will change the flood extents within the Study Area. As such, the future baseline conditions primarily relate to the FRA. The FRA has taken into account the appropriate climate change uplifts when assessing flood risk, and the flood extent are shown and discussed in detail in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**.

10.6 Embedded Mitigation

- 10.6.1 The following specific embedded mitigation measures relevant to water resources and flood risk have been identified and have been considered as part of the assessment. A Commitments Register has been included within this ES (see **ES Volume 3, Appendix 2.3: Commitments Register [EN0110020/APP/6.20]**).

Construction

Construction Environmental Management Plan

- 10.6.2 The Applicant has committed to implementing a CEMP during construction activities for the Proposed Development, which will be submitted to the Local Planning Authorities for review and approval prior to commencement of construction. An **oCEMP [EN0110020/APP/5.9]** has been submitted with this Application and secured by the DCO.
- 10.6.3 The CEMP will outline the measures needed to avoid, minimise, or mitigate environmental impacts. This includes procedures to prevent impacts to water quality e.g. through sediment control and chemical spill management; measures manage runoff; wastewater management; and general best practice to prevent impacts to the water environment and manage flood risk. The contractor will audit and monitor all construction phases to ensure compliance with the commitments outlined in the CEMP.
- 10.6.4 The CEMP will be developed post-consent. The following mitigation measures which are a combination of best practice, specific measures relevant to this Proposed Development, and based on consultee feedback are included in the oCEMP submitted with the Application and will be incorporated into the CEMP to prevent potential impacts on water resources and flood risk.

Management of Chemical Pollution

- 10.6.5 10m watercourse buffers will be in place for construction works with the exception of watercourse crossings for access tracks and cable crossings. This is to reduce the risk of direct spills to watercourses.
- 10.6.6 A pollution prevention plan will be drafted and form part of the CEMP. It may include but is not limited to containing the following measures.
- 10.6.7 Fuels and other potentially polluting chemicals will be stored in accordance with the relevant UK legislation, regulations, and good practice. Storage is assumed to be likely within the construction compounds. This will include fuels and / or chemicals being stored either in self bunded leak proof containers, or within

secure bunded areas underlain by an impermeable ground membrane layer, with the bunded containment designed to a minimum capacity of 110% of the largest container stored. This will reduce the potential for accidental spillages to contaminate surface water or groundwater. Regular maintenance and inspection of chemical storage facilities to be conducted.

- 10.6.8 Spill prevention measures will be implemented based on best practice guidance, and will comprise:
- Areas where transfer and handling of chemicals is to occur will have an impermeable surface;
 - Drainage systems onsite will be designed to enable the containment of spillages and appropriate disposal and treatment;
 - Emergency procedures are implemented for a spillage incident and leak detection measures (if appropriate); and
 - Regular maintenance and inspection of chemical storage facilities to be conducted (may be carried out by onsite Ecological Clerk of Works (ECoW)).
- 10.6.9 Appropriately sized and equipped spill kit(s) will be provided and maintained. They will be situated at strategic points e.g. where there is fresh concrete or stored fuel. The spill kits will contain materials such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillages and will deployed, as necessary, should a spillage occur.
- 10.6.10 All workers will be briefed on the emergency spill procedures and ensuring they are implemented.
- 10.6.11 The construction drainage management system to be in place throughout construction will incorporate the appropriate surface water treatment trains to ensure any water discharged from the Site is of a suitable water quality.
- 10.6.12 Speed limits for vehicles transporting fresh concrete will be set at a maximum of 15 miles per hour (mph) once on site within the Order Limits. Maximum vehicle load capacities will not be exceeded. Although tracks will be maintained in good condition, vehicle loads and/or speeds will be reduced when a rougher surface is identified prior to track maintenance. This is to prevent the spill of materials which could be washed towards watercourses.
- 10.6.13 There will be a designated wash-out facility within the construction compounds which will have suitable containment measures in place to prevent contaminated wash out from passing untreated into surface water features.
- 10.6.14 During construction, machinery will be regularly maintained to ensure that there is minimal potential for fuel or oil leaks / spillages to occur. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for surface water pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages. Appointed refuelling personnel will be trained in the correct methods of refuelling onsite to ensure that pollution incidents are prevented and a quick response plan is implemented should a spill occur.
- 10.6.15 Where practicable concrete mixing and washing down of mixing plant is to be carried out by the suppliers and undertaken offsite. Should on-site concrete washout be required, suitable facilities (e.g. geotextile wrapped sealed skip placed within a bunded area or specialist mobile concrete washout facility) will be provided to ensure that the high alkalinity wash water is adequately contained and prevented from entering surface or groundwater. Wash water will either be removed by a licensed carrier or, where the water quality meets EA standards,

discharged to vegetated areas. Concrete washout is prohibited within a minimum of 10m of any body of water, including drainage ditches, or watercourses.

Management of Sedimentation and Erosion

- 10.6.16 10m watercourse buffers will be in place for construction works with the exception of watercourse crossings for access tracks and cable crossings. This is to reduce the risk high influxes of sediment into watercourses.
- 10.6.17 Where new large excavations / earthworks are needed e.g. for substation foundations, these works will be minimised during heavy precipitation events to avoid wash off of sediment towards receiving watercourses and waterbodies, and prevent erosion of the excavations.
- 10.6.18 The construction drainage management system to be in place throughout construction will incorporate the appropriate sediment capture methods to ensure any water discharged is of a suitable water quality.
- 10.6.19 Silt traps and other appropriate sediment capture measures will be utilised during construction to trap and filter sediment-laden runoff from excavation works and other areas as required, including at the outfall of drainage systems where needed.
- 10.6.20 All stockpiled material (soils) will be stored in accordance with the outline Soil Management Plan which is included within the **oCEMP [EN0110020/APP/5.9]**.
- 10.6.21 As such, as relevant to water resources and flood risk; stockpiles will not be stored within 10m of a watercourse, waterbody, or drainage ditch. Soil will be seeded or covered in a geotextile membrane to prevent sediment erosion and wash towards surface water features. Sediment traps around stockpiles will be employed where needed. Stockpiles will be regularly inspected to ensure there is no erosion and wash out of sediment towards surface water features.

Access Tracks & Watercourse Crossings

- 10.6.22 Onsite access tracks will utilise existing access road and / tracks where possible, limiting the need for construction of new access tracks, minimise ground disturbance and soil compaction, reduce the need for new watercourse crossings, and minimise the associated impacts to water quality and watercourse geomorphology.
- 10.6.23 To align with NPS EN-3 and as set out in the **oSWDS [EN0110020/APP/5.17]** access tracks will be constructed from permeable aggregate to encourage infiltration of rainwater. In addition, the appropriate track drainage systems will be in place which will incorporate SuDS, such as swales and infiltration trenches, to control runoff towards surface water features, prevent increases in runoff rates, and control sediment and pollutant risks from access tracks.
- 10.6.24 Access track drainage systems will be regularly inspected and maintained. Excess silt will be disposed of within designated areas at least 10m from watercourses or waterbodies
- 10.6.25 Where new watercourse crossings are needed, they will be designed with sufficient capacity to convey the 1 in 100 year plus climate change event and freeboard allowance, in accordance with best practice. Engagement with the EA is ongoing and the approach for watercourse crossings will be discussed with the EA and LLFA prior to construction. In accordance with the Rochdale Envelope assessment approach, the assessment has considered a reasonable worst case

scenario comprising in channel works associated with potential culvert crossings. The effects of such works have been assessed and mitigation measures have been identified to manage any potential impacts associated with any proposed required crossings. Exact type and design of crossings will be developed post-consent and in discussion with the EA, LLFA, and/or Natural England where applicable prior to construction. Each watercourse crossing will be designed on a case by case basis so that it is appropriate to the type of drainage feature (watercourse or drainage ditch), ecological conditions (discussed more in **ES Volume 2, Chapter 6, Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]**), hydrological conditions, and whether it will be temporary or permanent.

- 10.6.26 In circumstances where culverts must be used, these will be three-sided culverts which preserve the natural bed of the watercourse and enables normal conveyance of water and sediment.
- 10.6.27 As all access track crossings will be across Ordinary watercourses, the appropriate consultation with the LLFA will be undertaken to agree the type of crossing to be installed and ensure all necessary permits and licences are obtained prior to construction.
- 10.6.28 It is also anticipated upgrades will need to be made to existing crossings. Any works will be within the footprint of the existing crossing and there will be a like-for-like crossing installed.
- 10.6.29 Where there is any need for in-channel works to install a crossing, it may require the use of a cofferdam or over-pumping to create an in-channel works area. Flow will be maintained to the downstream channel and / or kept out of the work area by pumping water from upstream of the dam to the downstream channel to maintain downstream water quantity. Suitable sediment and pollutant capture and control measures will also be in place to ensure no degradation in downstream water quality. Where there is a risk water has been polluted within the works area, it will be treated prior to subsequent discharge.
- 10.6.30 Watercourse crossing installation will be carried out in the drier months where practicable as flows will be lower and the risk of pollution or sedimentation propagating downstream is reduced. Once the watercourses are reinstated, silt fences, geotextile matting, or straw bales will be used initially to capture mobilised sediments until the watercourse has returned to a settled state.
- 10.6.31 Where crossings require in channel works and / or works that disturb the bed and banks of the watercourse, a period of surface water quality (and quantity) monitoring will be required. The duration, frequency, and parameters to be monitored will be agreed with the EA and/or the LLFA prior to construction. It is assumed a period of pre-construction monitoring will be required to establish baseline conditions, construction phase monitoring, and post-construction monitoring to ensure no long-term impacts.
- 10.6.32 All in-channel works will be overseen by an ECoW to ensure that no adverse impacts occur.

Cable Crossings

- 10.6.33 Trenchless construction methods will be used beneath CRT assets in line with CRT 'Code of Practice for Works affecting the Canal & River Trust'³⁴. CRT will also be consulted where their assets are to be crossed to agree the specific mitigation and depth cables should be buried to so as to avoid impacts to their

assets. Furthermore, protection for statutory undertakers' assets is included within the protective provisions in the **Draft DCO [EN0110020/APP/3.1.1]** and construction in close proximity to these assets will be undertaken in compliance with the relevant standards.

- 10.6.34 Some trenchless crossings for cable installation, such as crossing of CRT assets; will be undertaken in accordance with industry best practice and carefully managed to prevent the inadvertent release of drilling fluids into the surrounding surface environment including surface watercourses and waterbodies.
- 10.6.35 Temporary construction laydown areas needed for the trenchless crossings will be located more than 10m from the bank of the watercourse. Within these areas the measure set out above to control sedimentation and chemical pollution will be in place.
- 10.6.36 Where cables cross ordinary rivers, any relevant permits and / or licences for works in and near the watercourses will be obtained from the LLFA prior to construction.
- 10.6.37 Trenched cable crossings may be required for cables within the solar panel areas or where channel conditions prior to construction allow for trenched techniques to be suitable. Where there is any need for in-channel works to lay the cable which will require the use of a cofferdam or over-pumping to create an in-channel works area, flow will be maintained to the downstream channel by pumping water from upstream of the dam to the downstream channel to maintain downstream water quantity. Suitable sediment and pollutant capture and control measures will also be in place to ensure no degradation in downstream water quality. Where there is a risk water has been polluted within the works area, it will be treated prior to subsequent discharge.
- 10.6.38 Trenched cable installation will be carried out in the drier months where practicable as flows will be lower and the risk of pollution or sedimentation propagating downstream is reduced. Once the watercourses are reinstated, silt fences, geotextile matting, or straw bales will be used initially to capture mobilised sediments until the watercourse has returned to a settled state.
- 10.6.39 Where cable crossings require in channel works and / or works that disturb the bed and banks of the watercourse, a period of surface water quality monitoring will be required. The duration, frequency, and parameters to be monitored will be agreed with the EA and/or the LLFA prior to construction. It is assumed a period of pre-construction monitoring will be required to establish baseline conditions, construction phase monitoring, and post-construction monitoring to ensure no long term impacts.
- 10.6.40 All in-channel works will be overseen by an ECoW to ensure that no adverse impacts occur.

Management of Runoff & Flood Risk

- 10.6.41 The appropriate construction drainage management systems will be in place during construction to control runoff from the Proposed Development. The drainage system will be developed by the Principal Contractor prior to construction, and will be specific and compliant with SuDS principles. The drainage system will attenuate and release runoff such that flood risk is not increased within the Study Area. All drainage systems will be maintained throughout construction in order to ensure they function as intended.

- 10.6.42 As set out in the **oSWDS [EN0110020/APP/5.17]** efforts will be made during construction to minimise the disturbance of vegetation beneath solar panels and re-establish vegetation to ensure runoff rates are not increased.
- 10.6.43 During the construction phase, the Contractor will monitor the weather forecasts daily, and review the weekly and monthly weather forecasts each week, and plan works accordingly. For example, works in the channel of any watercourses will be avoided or halted were there to be a significant risk of high flows or flooding. Construction works in other areas e.g. within the floodplain of watercourses or areas at risk of surface water flooding as shown on the EA flood maps will also be minimised or halted during periods of heavy rain where there is a risk of flooding, and / or when there is an active flood warning.
- 10.6.44 No soils, fuels / chemicals, or other construction materials will be stored within the flood extents shown on the EA flood maps. No temporary construction compounds will also be located within the floodplain.
- 10.6.45 The Principal Contractor will sign up to the EA Flood Alerts and Warnings and suspend works where flood alerts or warnings will impact the location of and/or access to construction works. The Principal Contractor will be responsible for ensuring the flood alert is disseminated to all Site operatives and the Incident Response Plan followed.
- 10.6.46 An outline Incident Response Plan is included in the **oCEMP [EN0110020/APP/5.9]** and will be developed into an Incident response plan prior to the start of Construction. This will detail the response to a flood event including:
- A 24-hour ability to mobilise staff in the event of a flood warning;
 - The removal of all plant, machinery and material capable of being mobilised in a flood for the duration of any holiday close down period where there is a forecast risk that the construction area may be flooded;
 - Details of the evacuation and construction area closedown procedures;
 - Arrangements for removing any potentially hazardous material and implement more stringent protection measures; and
 - Safe egress and exits are to be maintained at all times when working in excavations. When working in excavations a banksman is to be present at all times.

Management of Water Resources

- 10.6.47 As set out in Section 10.6.58 - 10.6.59 the detailed design will seek to avoid impacts to YW assets and the private pipeline through incorporation of appropriate stand-off distances. Consultation with YWS and the owner of the private pipeline will also be undertaken to ground truth infrastructure, identify potential impacts to assets based on the final detailed design, and develop the appropriate mitigation to prevent impacts to these public water assets. Mitigation is likely to include appropriate stand-off distances to infrastructure, suitable excavation techniques, demarcation of pipelines on site during construction, and making site operative aware of the pipeline locations etc. Furthermore, protection for statutory undertakers' assets is included within the protective provisions in the **Draft DCO [EN0110020/APP/3.1.1]** and construction in close proximity to these assets will be undertaken in compliance with the relevant standards. Mitigation measures relating to undertaking construction works within close proximity of existing utilities infrastructure are outlined in the **oCEMP [EN0110020/APP/5.9]**.

- 10.6.48 Prior to construction a water supplies risk assessment will be carried out for both the private water supply identified in **Table 10.13**, and the licenced abstractions identified in **Table 10.12**. The risk assessment will be carried out in line with The Private Water Supplies (England) Regulations 2016 and in consultation with the local authority who are responsible for the protection of PWS, the PWS owner, and the EA for licenced abstractions. The purpose of the risk assessment will be to identify the water source and associated infrastructure, the risks to the supply, and the specific detailed mitigation needed to protect water supplies. Although, the mitigation outlined in previous sections above regarding sediment and pollution control, as well as the groundwater protection mitigation set out in **ES Volume 2, Chapter 9, Ground Conditions and Land Quality [EN0110020/APP/6.9]**, will protect the water quality of water supplies, and the Water Consumption Plan committed to (as discussed in the following section) will prevent impacts to water quantity, it is anticipated that bespoke mitigation for water supplies will be required which will be developed through a water supplies risk assessment and protection plan. The protection plan will include contingency plans to provide an alternative water supply (on either a temporary or permanent basis) in the event of unforeseen impacts to an existing supply, and the remedial steps to be taken to restore the abstraction / PWS.
- 10.6.49 Where a water resource is identified as being at risk, a period of surface water quality monitoring will be required. The duration, frequency, and parameters to be monitored will be agreed with the EA and / or local authority prior to construction. It is assumed a period of pre-construction monitoring will be required to establish baseline conditions, construction phase monitoring, and post-construction monitoring to ensure no long term impacts.

Water Consumption & Wastewater

- 10.6.50 A Water Consumption Plan will be developed prior to construction to fully identify the water consumption needs, where water will be sourced from, the relevant licences needed, and to ensure no impacts to water quantity for licenced EA abstractions and / or PWS.
- 10.6.51 During the construction phase, 'Porta-loo' type facilities, or equivalent, will be used. The wastewater (foul water) from welfare facilities will be disposed of by a suitably licenced carrier. No foul water discharge from welfare facilities to surface watercourses or waterbodies are proposed.
- 10.6.52 All wastewater collection systems such as cess pits will be regularly inspected and maintained throughout construction so there is no risk of leakage to surface water features.

Operation and Maintenance

- 10.6.53 Following construction all areas of temporary land take will be re-instated i.e. areas of temporary hardstanding such as laydown areas and construction compounds will be reinstated and re-seeded such that infiltration and natural runoff reduction and sediment capture is restored.

Design Principles

- 10.6.54 As discussed in **ES Volume 1, Chapter 4: Alternatives and Design Evolution [EN0110020/APP/6.4]** the design of the Proposed Development has been developed in line with the design parameters. The design of the Proposed

Development will continue to evolve post-consent and will seek to incorporate the design principles relevant to water resources and flood risk set out in the following paragraphs.

- 10.6.55 Areas of hardstanding (substations, BESS, power conversion stations) will be served by a SuDS to prevent an increase in surface water runoff and control runoff rates to greenfield levels. The SuDS will be designed in accordance with local and national SuDS guidance. An **oSWDS [EN0110020/APP/5.17]** has been submitted. The oSWDS will be refined during the post-consent detailed design phase to provide a details SuDS plan for the Proposed Development.
- 10.6.56 The SuDS will incorporate the appropriate treatment trains for sediment and chemical pollutants so that there is no reduction in water quality to wider surface water features into which the drainage system discharges.
- 10.6.57 As set out in the **oSWDS [EN0110020/APP/5.17]**:
- the PV modules will be raised above the design flood levels as indicated in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**, typically on narrow diameter piled legs. This prevents sealing the ground with an impermeable surface beneath the solar modules but rather allowing rainfall / runoff to infiltrate to ground throughout the Site. As a result, it is considered that the impermeable area within solar PV areas will remain substantively consistent to its pre-development state.
 - the areas between, under and surrounding the solar PV modules will be suitably planted with native grassland and wildflower mix (noting that planting types will be described within the **outline Landscape and Ecological Management Plan (oLEMP) [EN0110020/APP/5.13]**. This planting will intercept and absorb rainfall running off the solar PV modules, preventing it from concentrating and potentially forming channels in the ground.
 - strategic SuDS features, such as filter drains, swales, and basins / scrapes within the solar array areas. These features will promote ground infiltration and provide ecological and biodiversity benefits.
 - land under the PV Arrays will be allowed to naturally vegetate increasing infiltration and surface roughness, thereby reducing surface water runoff. Vegetative cover also provides a natural attenuation mechanism for sediment. Modelling work from Cook and McCuen (2013)⁷⁴ demonstrate that vegetated ground cover beneath solar arrays plays a critical role in moderating runoff dynamics and reducing erosion risk when compared to unvegetated or gravel-covered substrates.
- 10.6.58 There is an extensive network of water distribution mains within the Study Area. During the detailed design phase of the Proposed Development, the Applicant will undertake the appropriate desk-top and field surveys to ensure that all assets are identified, groundtruthed, and the appropriate stand - off distances to the pipelines are incorporated into the final design. This will include identifying where infrastructure crosses the pipeline and therefore where diversion or protection of YWS assets may be needed. This will be done through ongoing consultation with YWS. Furthermore, protection for statutory undertakers' assets is included within the protective provisions in the **Draft DCO [EN0110020/APP/3.1.1]** and construction in close proximity to these assets will be undertaken in compliance with the relevant standards. Mitigation measures relating to undertaking construction works within close proximity of existing utilities infrastructure are outlined in the **oCEMP [EN0110020/APP/5.9]**.

- 10.6.59 Additionally, there is a private pipeline which connects into the YW mains pipes at W1. The exact location of this and the appropriate stand-off distances to it will be developed during the detailed design phase.
- 10.6.60 Consultation is ongoing with the CRT to ensure the appropriate stand-offs and access to their assets will be maintained such that there are no impacts to the Harthill Reservoir.
- 10.6.61 The results of the FRA indicate there are areas of the Site which are at risk of flooding and as such where panels will need uplifted so as to remain operational during periods of flooding. The details of flood risk and all relevant mitigation which will be incorporated into the final detailed design are set out in **ES Volume 3, Appendix 10.2: Flood Risk Assessment [EN0110020/APP/6.20.1]**.

Operational Management Plan

- 10.6.62 An Operational Environmental Management Plan (OEMP) will be in place for the lifetime of the Proposed Development. It will cover the following specifically in relation to water resources and flood risk. An **outline Operational Environmental Management Plan (oOEMP) [EN0110020/APP/5.10]** has been submitted with this Application.

Site Maintenance

- 10.6.63 The SuDS will be maintained so that they operate effectively. Maintenance activities may include regular inspection of gravel bases and buffer strips, removal of sediment, repairing damaged membranes etc. More details on SuDS maintenance is provided in **oSWDS [EN0110020/APP/5.17]**.

Management of Chemical Pollution

- 10.6.64 It is assumed there may be permanent on Site fuels and / or chemicals associated with the BESS and substation.
- 10.6.65 Fuels and other potentially polluting chemicals will be stored in accordance with the relevant UK legislation, regulations, and good practice. This will include fuels and / or chemicals being stored either in self-bunded leak proof containers, or within secure bunded areas underlain by an impermeable ground membrane layer, with the bunded containment designed to a minimum capacity of 110% of the capacity of the largest container stored. This will reduce the potential for accidental spillages to contaminate surface water or groundwater. Regular maintenance and inspection of chemical storage facilities to be conducted.
- 10.6.66 Appropriately sized and equipped spill kit(s) will be provided and maintained on Site and all operational staff will be briefed on the emergency spill procedures and ensuring they are implemented.

Fire Suppression

- 10.6.67 The Incident Response Plan will include appropriate actions in the event of a fire related to the solar panels, substation, or BESS.
- 10.6.68 The **oSWDS [EN0110020/APP/5.17]** sets out the management of fire water during operation. To briefly summarise, the BESS compound will be impermeably lined, with runoff directed to a detention basin sized to accommodate both the design storm event and the required firewater containment volume. An

automatically operated penstock will be installed on the basin outfall to isolate the drainage network in the event of a fire to prevent contamination, with a manual override provided as a secondary safeguard. Fire water runoff will be removed from Site by tanker ensuring it is not discharged into any surface waterbody. In the unlikely event of fire water release at the BESS compound, it will be held and tested to ensure water quality meets EA standards for discharge into the surface waterbodies. Further detailed below.

- 10.6.69 The **oBSMP [EN0110020/APP/5.15]** also details that to prevent any uncontrolled release of firewater, the BESS compound will be impermeably lined and the drainage system will be designed to contain, isolate and manage firewater runoff. All external runoff from the BESS area will be directed to a dedicated detention basin which will be sized to provide capacity for both the design storm event and the full firewater containment volume. An automatically operated penstock valve will be installed on the outfall, enabling the drainage network to be immediately isolated in the event of a fire, with manual override provided as a secondary control measure. This ensures that any potentially contaminated water will not be discharged to the wider drainage system or receiving watercourses.
- 10.6.70 The specific firewater containment arrangements, operational protocols, and pollution prevention measures will be set out in the Operational Management Plan based on the information in the oBSMP and oSWDS, developed in consultation with the Fire and Rescue Service. This ensures that any potential pollutant pathway associated with fire suppression is fully controlled and that no uncontrolled release of contaminated water to surface water can occur.

Cables

- 10.6.71 Maintenance to the cables during operation may require the excavation of section of the cable. As such, the same mitigation used during construction and as set out in Section 10.6.35 - 10.6.37 will be in place. This will be incorporated into the Operational Management Plan.

Water Resources

- 10.6.72 A detailed Water Consumption Plan will be developed to fully identify the water consumption needs, where water will be sourced from, the relevant licences needed, and to ensure no impacts to water quantity for licenced EA abstractions and / or PWS during the operation of the Proposed Development.
- 10.6.73 The mitigation outlined in the previous sections regarding pollution control, implementation of an operational management plan, and fire suppression mitigation, as well as the groundwater mitigation set out in **ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]**, will protect the water quality of water supplies.

Water Consumption and Wastewater

- 10.6.74 A detailed Water Consumption Plan will be developed to fully identify the water consumption needs, where water will be sourced from, the relevant licences needed during the operation of the Proposed Development.
- 10.6.75 Wastewater from permanent welfare facilities (foul water) will be disposed of off-site by a suitably licenced carrier. No foul water discharge from welfare facilities to surface watercourses or waterbodies are proposed.

- 10.6.76 All wastewater collection systems such as cess pits will be regularly inspected and maintained throughout construction so there is no risk of leakage to surface water features.
- 10.6.77 Wastewater from panel cleaning will comprise clean water only and runoff will either infiltrate directly to ground or enter on-Site SuDS where it will be managed as part of the wider drainage system, as set out in the **oSWDS [EN0110020/APP/5.17]**. As no contaminants are anticipated, no specific treatment measures are expected to be required prior to infiltration or discharge to ground.

Decommissioning

- 10.6.78 Potential effects and mitigation associated with decommissioning of the Proposed Development have been assessed on the basis a Decommissioning Environmental Management Plan (DEMP) will be in place during this phase to ensure the safe dismantling of the Proposed Development and restoration of the Site at the end of its operational life. The DEMP will include appropriate mitigation measures to manage potential impacts on water resources and flood risk, informed by best practice and relevant guidance applicable at the time of decommissioning. The nature of works and mitigation measures during decommissioning are anticipated to be similar to those required during construction and, on this basis, the assessment conservatively assumes that mitigation equivalent to that described for the construction phase will be implemented. An **outline Decommissioning Environmental Management Plan (oDEMP) [EN0110020/APP/5.11]** has been submitted with this Application.

10.7 Assessment of Effects

Construction

Impacts to Surface Water Quality as a Result of Chemical Pollution from Mobilisation of Pollutants through Surface Water Runoff, or from Accidental Spills and Leaks

- 10.7.1 Pollutants associated with construction phase activities have the potential to adversely affect surface water quality, primarily through accidental releases and subsequent uncontrolled runoff. Risks arise from the storage, handling and use of fuels, oils, hydraulic fluids, solvents, grouts, concrete, paints, detergents and other construction related chemicals.
- 10.7.2 Spills, leaks or inappropriate handling of materials can result in pollutants directly entering watercourses or being washed into them via overland flow / surface runoff. The risk is greatest where works are undertaken near waterbodies, watercourses, reservoirs, land drainage, and / or on sloping ground draining towards a receptor, as there is an increased potential for direct pathways to surface waters.
- 10.7.3 The release of chemical pollutants into surface water features could result in direct and immediate water quality degradation.
- 10.7.4 The majority of surface waterbodies, watercourses, and drains within the Study Area drain to WFD designated watercourses, EA Main Rivers, and / or Canal & River Trust maintained canals and reservoirs as detailed in Section 10.5.8, **Table**

10.8 and Section 10.5.12 - Section 10.5.15. Watercourses designated under the WFD, EA Main Rivers, and / or Canal & River Trust assets are considered features of national importance due to their regulatory protection. Consequently, for the purposes of this assessment, surface water features are assessed as being of high sensitivity.

- 10.7.5 As set out in the **Outline Design Parameters [EN0110020/APP/7.3]** and Section 10.6.16 a 10m buffer will be maintained from all surface water features. The only exceptions are works that must be undertaken directly within or immediately adjacent to surface water features such as the installation of new access track crossings (Section 10.7.18, or the use of trenchless or trenching techniques to install cabling across watercourses (Section 10.7.26). These are areas where there is a greater risk of direct chemical pollution to surface water.
- 10.7.6 However, as detailed in Section 10.6.5 – Section 10.6.15, appropriate pollution prevention measures will be implemented to ensure activities do not adversely affect the chemical characteristics of these surface water features.
- 10.7.7 As detailed in **Table 10.8**, the Study Area contains ten WFD surface watercourses. An assessment of compliance with the WFD, including consideration of potential deterioration or future improvement in WFD watercourses within the Study Area as a result of chemical pollution from Proposed Development Activities, is presented in **ES Volume 3, Appendix 10.3: Water Framework Directive Compliance Assessment [EN0110020/APP/6.20.1]**. The outcomes of the WFD Assessment in conjunction with this Chapter have been used to inform the determination of effect significance.
- 10.7.8 With the implementation of embedded mitigation measures set out in Section 10.6.5 – Section 10.6.15, the magnitude of impact in relation to chemical pollution, to surface water features of high sensitivity, is assessed as Negligible. Therefore, the overall effect on surface water features is **Negligible (Not Significant)** in accordance with EIA Regulations⁷⁵.

Impacts to Surface Water Quality and Watercourse Geomorphology as a Result of Erosion and Sedimentation Associated with Excavations and Stockpiling

- 10.7.9 Construction phase activities have the potential to expose fine sediment which is mobilised via runoff leading to elevated sediment loads in surface water runoff and receiving onsite waterbodies, WFD watercourses, EA Main Rivers, surface water NVZs (listed in **Table 10.11**) and / or Canal & River Trust maintained canals and reservoirs.
- 10.7.10 This can be the result of soil compaction from vehicle movements and site establishment which can reduce infiltration capacity, increasing overland flow and therefore erosion and sediment transportation. It can be from earthworks, excavations, grading, levelling and vegetation removal which exposes soils making them highly susceptible to erosion and thus sediment transport. Additionally, stockpiled material is a source of sediment which can erode and be mobilised towards surface water features. Vehicle and equipment washing can also result in runoff that carries substantial quantities of fine sediment. These risks are most pronounced during major earthworks, including the construction of the onsite substations and BESS, where ground disturbance and temporary overburden stockpiling will be greatest.

- 10.7.11 Runoff from these sources could be conveyed to nearby watercourses and waterbodies. Excessive fine sediment, although typically chemically inert, can degrade water quality through increased turbidity and nitrate leaching from soils. It can alter geomorphological processes through riverbed aggradation, modifying channel morphology and in turn reducing channel capacity thus increasing flood risk.
- 10.7.12 Where works occur close to waterbodies and watercourses, existing land drains or on sloping terrain draining towards a surface water feature, there is an increased risk of direct water quality and channel morphology impacts from the deposition or mobilisation of soils and silts.
- 10.7.13 As detailed above in Section 10.7.4, surface water features are assessed as being of high sensitivity.
- 10.7.14 As set out in the **Outline Design Parameters [EN0110020/APP/7.3]** and Section 10.6.16 a 10m buffer will be maintained from all surface water features. The only exceptions are works that must be undertaken directly within or immediately adjacent to surface water features such as the installation of new access track crossings (Section 10.7.18, or the use of trenchless or trenching techniques to install cabling across watercourses (Section 10.7.26). These are areas where there is a greater risk of direct sedimentation of surface water features.
- 10.7.15 In addition, as set out in Section 10.6.16 - Section 10.6.20 appropriate sediment control measures will be implemented to ensure activities do not adversely affect the water quality and geomorphology of surface water features.
- 10.7.16 As detailed in **Table 10.8**, the Study Area contains ten WFD surface watercourses. Thus, a WFD assessment is presented in **ES Volume 3, Appendix 10.4: Water Framework Directive Compliance Assessment [EN0110020/APP/6.20]**. The outcomes of the WFD Assessment in conjunction with this Chapter have been used to inform the determination of effect significance.
- 10.7.17 With the implementation of embedded mitigation measures the magnitude of impact in relation to sedimentation to surface water features of high sensitivity, is assessed as Negligible. Therefore, the overall effect on surface water features is **Negligible (Not Significant)**.

Impacts to Surface Water Quality, Quantity and Watercourse Geomorphology as a Result of Watercourse Crossing Construction for Access Tracks (Site)

- 10.7.18 A total of 11 access track crossings of ordinary watercourses will be required across the Site. This includes seven new crossings proposed as part of the Proposed Development and four existing crossings that are to be upgraded. The proposed new crossings are detailed in **Table 10.15** and the existing crossings identified for upgrade are presented in **Table 10.10**.
- 10.7.19 Watercourse crossing locations are shown in **ES Volume 3, Figure 10.15: Watercourse Crossings [EN0110020/APP/6.19]**.
- 10.7.20 Construction of new watercourse crossings and the upgrade of existing crossings will require works directly within and on the banks of watercourses as well as disturbance of the watercourse bed, and / or works on the bank top e.g. where single span open structures are installed that are set back from bank top such that the banks of the watercourse are not directly impacted. Construction of new open

span bridges are likely to include excavation of foundations, installation of abutments, and associated groundworks. Culvert installation may involve bed and bank excavation to place the culvert.

- 10.7.21 These activities inherently increase sediment mobilisation due to disturbance of bed and / or bank material. In addition, the use of heavy plant, construction materials, and earthworks at watercourses increases the risk of sediment transport to watercourses and the accidental release of hydrocarbons or other construction related contaminants. This will adversely affect surface water quality, but can also alter geomorphological processes with sedimentation reducing channel capacity thus increasing flood risk.
- 10.7.22 Water quantity can also be impacted if there is a need to create a temporary cofferdam or use over pumping to allow construction of the crossing. A cofferdam can block water from being conveyed downstream and failure of pumps can also prevent downstream conveyance of water impacting all downstream receptors.
- 10.7.23 Four culverts are proposed to be constructed as set out in **Table 10.15**, where the installation of bridges would be disproportionate. Culverts can restrict flow, interfere with sediment transport pathways, negatively impact channel morphology, damage channel bedforms, and incur scour which leads to subsequent armouring of the channel bed and banks both upstream and downstream of the crossing location, and can increase flood risk if they reduce channel capacity.
- 10.7.24 Impacts related to watercourse crossings in relation to WFD watercourses are considered further in **ES Volume 3, Appendix 10.3: Water Framework Directive Compliance Assessment [EN0110020/APP/6.20.1]**.
- 10.7.25 However, with the watercourse crossing mitigation set out in Section 10.6.22 - **Error! Reference source not found.**), as well as the chemical pollution prevention measures (Section 10.6.5 – 10.6.15) and erosion and sediment control measures (Section 10.6.16 - 10.6.20), the magnitude of change is assessed as Negligible to surface water features of high sensitivity, which is **Negligible (Not Significant)**.

Table 10.15: Proposed New Access Track (Site) Watercourse Crossings

Crossing ID (Figure Ref.)	Easting, Northing	Watercourse Name	Watercourse Type (Main / Ordinary / WFD)	Proposed Crossing Type
1	451016, 395685	The Brook	Ordinary	Culvert
2	450871, 396044	The Brook	Ordinary	Bridge
3	450548, 384749	Anston Brook	Ordinary & WFD	Bridge
4	446917, 387167	Unnamed Watercourse	Ordinary	Culvert
5	448765, 387567	Unnamed Watercourse	Ordinary	Culvert
6	448916, 390688	Kingsforth Brook	Ordinary	Culvert
7	448897, 381523	Broadbridge Dyke	Ordinary & WFD	Bridge

Impacts to Surface Water Quality, Quantity and Watercourse Geomorphology as a Result of Cable Corridor Crossings

- 10.7.26 A total of 13 cable crossings of ordinary watercourses will be required along the Cable Corridors. This includes 11 trenchless crossings, delivered using HDD or Tunnel Boring Machine (TBM) techniques, such as micro tunnelling, pipe jacking or the Conventional Tunnelling Method (CTM). Up to six crossings may be made using open - cut trenching given the existing conditions of the watercourse at these locations. The locations of the proposed cable crossings of watercourses along the Cable Corridors are provided in **Table 10-16** and are shown in **ES Volume 3, Figure 10.15: Watercourse Crossings [EN0110020/APP/6.19]**.
- 10.7.27 In addition, within the Site, a number of other cable crossings of small watercourses are proposed. The exact crossing locations will be determined post consent during detailed design. For assessment purposes, a conservative reasonable worst-case approach has been adopted, recognising uncertainty in final locations and construction methods and it has been assumed these could entail a combination of both trenchless and trenched crossing techniques as detailed in the **Outline Design Parameters [EN0110020/APP/7.3]**. Open-cut (trenched) crossings will only be undertaken where appropriate on solar sites where the feature is a dry ditch or drain of no ecological value and following consultation with the LLFA. Each crossing technique has the potential for different effects, which are assessed below.
- 10.7.28 Open - cut trenching and cable installation have the potential to generate short term adverse impacts on surface water quality, water quantity, and geomorphology.
- 10.7.29 Water quality and geomorphology impacts arise from works directly within the channel such as excavation to lay the cable through the bed and banks. This increases sediment mobilisation due to disturbance of bed and / or bank material which increases turbidity thus reducing water quality, but the increase in sediment can also alter geomorphological processes with sedimentation reducing channel capacity thus increasing flood risk.
- 10.7.30 Water quality can also be impacted by the use of heavy plant and construction materials within the watercourse with a risk of accidental release of hydrocarbons or other construction related contaminants.
- 10.7.31 Water quantity can be impacted if there is a need to create a temporary cofferdam or if over pumping is used to allow the laying of the cable through the watercourse. A cofferdam can block water or failure of a pump can prevent water being conveyed downstream impacting all downstream receptors.
- 10.7.32 Trenchless crossing techniques avoid direct disturbance of the watercourse bed and banks. However, trenchless methods require the construction of launch and reception pits. Construction plant movements in these areas still present a risk of sediment mobilisation through surface runoff, and the accidental release of hydrocarbons or other contaminants. There is also a chance of fluid break out from drilling and tunnelling that could enter surface watercourses and waterbodies if not managed accordingly.
- 10.7.33 Five watercourses will also require haul road crossings to facilitate construction along the Cable Corridors; these are highlighted in **Table 10-16**. The impacts associated with the haul road crossings are the same as those of the access track crossings for the Site and as discussed in the previous section of this Chapter.

The haul road crossings will be temporary however and removed upon installation of the cable.

10.7.34 Impacts related to cable crossings in relation to WFD watercourses are considered further in **ES Volume 3, Appendix 10.3: Water Framework Directive Compliance Assessment [EN0110020/APP/6.20.1]**.

10.7.35 However, with cable crossing management measures set out in Section 10.6.33 - 10.6.40, as well as the chemical pollution prevention measures (Section 10.6.5 – 10.6.15), erosion and sediment control measures (Section 10.6.16 - 10.6.20), and watercourse crossings mitigation for the haul road crossings (Section 10.6.22 - 10.6.32) the magnitude of change is assessed as Negligible to surface water features of high sensitivity, which is **Negligible (Not Significant)**. As such, any subsequent refinement in crossing locations or adoption of trenched or trenchless techniques would result in effects equal to or less than those assessed and the conclusions of the assessment are therefore considered robust with the respective mitigation in place.

ENVIRONMENTAL STATEMENT

Table 10-16: Proposed Cable Corridor Watercourse Crossings

Crossing ID (Figure Ref.)	Easting, Northing	Watercourse Name	Watercourse Type (Main / Ordinary / WFD)	Method of Cable Crossing	Haul Road Crossing Type
12	450354, 395254	Firsby Brook	Ordinary	Trenchless	N/A
13	450689, 394976	Firsby Brook	Ordinary	Trenchless	N/A
14	450341, 393729	Hellaby Brook	Ordinary	Trenchless crossing, but if field drain is dry, then trenched	N/A
15	449880, 392557	Unnamed Brook	Ordinary	Trenched	TBC
16	448475, 390112	Pinch Mill Brook	Ordinary	Trenched	TBC
17	447868, 390022	Pinch Mill Brook	Ordinary	Trenchless	N/A
18	446824, 389574	Unnamed Brook (tree/shrub lined)	Ordinary	Trenchless	TBC
19	445688, 389776	Unnamed (field ditch with potential hedgerow)	Ordinary	Trenchless crossing, but if field drain is dry, then trenched	TBC
20	445041, 389702	Unnamed	Ordinary	Trenchless crossing, but if field drain is dry, then trenched	TBC
21	444666, 388488	Ulley Brook	Ordinary & WFD	Trenchless	N/A
22	450413, 385105	Anston Brook	Ordinary & WFD	Trenchless	N/A
23	451683, 382219	Chesterfield Canal	Ordinary & WFD	Trenchless	N/A
24	449851, 381822	Unnamed	Ordinary	Trenchless crossing, but if field drain is dry, then trenched	N/A

Increases in Run Off Due to Greater Areas of Hardstanding and Soil Compaction and Flood Risk

- 10.7.36 The construction phase of the Proposed Development has the potential to temporarily increase surface water runoff rates and volumes within the Study Area. This is primarily associated with the introduction of hardstanding at construction compounds, laydown areas, and access tracks, as well as soil compaction from construction traffic and plant. These activities reduce the infiltration capacity of the underlying soils relative to baseline conditions and may modify existing drainage pathways increasing the rate at which surface water is discharged from the Site during rainfall events. Areas of exposed ground and temporary impermeable surfaces additionally increase the potential for localised ponding as well as erosion.
- 10.7.37 The increase in runoff presents a flood risk due to the greater inflows to watercourses and thus in-stream water quantity, but also sedimentation of the watercourse as a result of silt laden runoff and erosion further reduces channel capacity. Additionally, increased runoff results in increased risk of sediment and chemical pollution mobilisation to surface water features, in turn impacting water quality.
- 10.7.38 Any construction within the flood extents shown in the EA Flood Maps are also at risk of flooding during construction. Flooding of works areas endangers on-site work personnel but can also mobilise stockpiled material, construction machinery, and stored chemicals and fuels leading to potential contamination events and reduction in water quality.
- 10.7.39 As set out in the **oSWDS [EN0110020/APP/5.17]**, the Site's access roads will not lead to a substantive increase in impermeable area. Surface water falling on the access roads will runoff to the adjacent ground.
- 10.7.40 However, with implementation of suitable runoff control and flood risk management measures outlined in Section 10.6.41 - 10.6.46, the magnitude of change is assessed as Negligible to surface water features of high sensitivity and flood risk of medium sensitivity which is **Negligible (Not Significant)** in accordance with EIA Regulations⁷⁵.

Impacts to Designated Sites

- 10.7.41 As detailed in Section 10.5.48 - 10.5.51, within the Study Area, there is one designated site identified as the Anston Stones Wood SSSI, which is hydrologically connected to the Proposed Development via the local surface water drainage network and Anston Brook. Consequently, any deterioration in water quality arising from sediment mobilisation and / or chemical pollution during construction has the potential to be conveyed downstream to the SSSI. Potential risks to water quality and quantity also arise from the construction of access track crossing ID 3 and cable crossing ID 22 of the Anston Brook.
- 10.7.42 The impacts associated with these have been assessed fully in the preceding sections, with the impacts to water quality and quantity assessed as being Negligible with implementation of the mitigation set out in Section 10.6 of this Chapter. Designated sites are assessed as being of high sensitivity owing to their national importance and statutory protection. Therefore, the effect to designated sites is assessed as **Negligible (Not Significant)**.

- 10.7.43 Ecological impacts as a result of the Proposed Development on designated sites is covered in **ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]**.

Impacts to Water Resources

Quality and / or Quantity of Surface Water

- 10.7.44 Construction activities have the potential to alter the quality of surface water through sedimentation or accidental chemical release, and quantity for example as a result of in-stream works such as to install watercourse crossings and cables. Additionally, groundwater quality can be impacted through encountering contaminated soils, physical intrusion to the aquifer, accidental chemical pollution, and quantity through dewatering activities, soil compaction, and physical intrusion to the aquifer.
- 10.7.45 Impacts to both surface water and groundwater within the Study Area will have consequent impacts to private water supplies and licenced abstractions, as well as the groundwater SPZ, due to the change in water quality and quantity.
- 10.7.46 As summarised in **Table 10.12** and **Table 10.13**, there are six licenced abstractions (A1 – A6) within the Study Area: four groundwater and two surface water. There is also one groundwater fed PWS (P1) located within Cable Corridor CRG-1. One SPZ (SPZ 3) is also present, as detailed in Section 10.5.61.
- 10.7.47 An assessment of the impacts to surface water quality and quantity has been provided in the preceding sections and concluded there will be **Negligible (Not Significant)** effects with the implementation of embedded mitigation.
- 10.7.48 Impacts to groundwater quality and quantity are assessed in detail in Section 9.7 of **ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]**. This also concluded no significant effects on groundwater.
- 10.7.49 Licenced abstractions A2, A4, and A6 are groundwater boreholes which are located more than 50m⁴⁹ from the Order Limits which is the buffer distance applied by the EA and are not within a groundwater SPZ. Abstraction A3 is within 50m of the Order Limits but is more than 90m from proposed infrastructure. As such there is considered to be a low risk of potential impact to these supplies.
- 10.7.50 Abstraction A1 is located along the unnamed river traversing Cable Corridor CRB, and abstraction A5 is located to the north of Cable Corridor CRL both of which have a higher potential to be impacted by cable installation works.
- 10.7.51 The groundwater private water supply (P1) is within 50m of the Proposed Development and also therefore has potential to be impacted.
- 10.7.52 Public water supplies, SPZs, and private water supplies are considered receptors of high sensitivity as they are of local but high importance to water users. SPZs are designated specifically to safeguard groundwater used for potable supply, meaning even minor increases in pollutant or sediment loading can undermine source integrity and increase treatment requirements. Any deterioration in water quality or alteration in available yield has the potential to affect drinking water treatment processes, public health protection and regulatory compliance.
- 10.7.53 Based on the assessment of effects to surface water quality and quantity being Not Significant with the implementation of the embedded mitigation, that effects on groundwater are also Not Significant with implementation of embedded mitigation, and with the implementation of the specific water resources mitigation

set out in Section 10.6.47 - 10.6.49, the magnitude of impact to water resources of high sensitivity is assessed as Negligible which is **Negligible (Not Significant)**.

Direct Impact to Public and Private Water Assets

- 10.7.54 Additional risks to public and private water supplies during construction include the potential for accidental direct strikes on YW supply pipelines, any supply pipelines associated with the PWS and licenced abstractions, or storage tanks during ground disturbance activities. Damage to these assets could disrupt local water supply, cause uncontrolled water release, and require emergency repair.
- 10.7.55 As detailed in Section 10.5.39 - 10.5.41, there is an extensive YW pipeline network throughout the Order Limits and one private pipeline that connects to the YW mains network at parcel 1 – 1 to the east of W1 in close proximity to Parks Farm in Conisbrough.
- 10.7.56 However, with the implementation of the specific water resources embedded mitigation set out in Section 10.6.47 to Section 10.6.49, the magnitude of impact to water resources of high sensitivity is assessed as Negligible which is **Negligible (Not Significant)**.

Springs

- 10.7.57 As set out above, groundwater quality can be impacted through encountering contaminated soils, physical intrusion to the aquifer, and accidental chemical pollution. Groundwater quantity can be impacted through dewatering activities, soil compaction, and physical intrusion to the aquifer. These in turn can impact springs.
- 10.7.58 Springs are considered of High sensitivity as they are of local importance.
- 10.7.59 Impacts to groundwater quality and quantity are assessed in detail in Section 9.7 of **ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]**). This concluded there will be no Significant effects on groundwater.
- 10.7.60 Additionally, all springs are located more than 10m from proposed infrastructure. As such, based on the conclusions of the ground conditions chapter and distance from springs, the magnitude of impact to springs of high sensitivity is assessed as Negligible which is of **Negligible (Not Significant)** effect in accordance with the EIA Regulations⁷⁵.

Impacts to Canal and Rivers Trust Assets

- 10.7.61 As detailed in Section 10.5.15, Harthill Reservoir is located east of W3 and Broadbridge Dyke feeder and the Chesterfield Canal are hydraulically connected to the reservoir. The Proposed Development has the potential to directly impact these CRT assets through cabling / access track works which could cause structural damage, but also through impacts to water quantity and / or quality as detailed in Section 10.7.18 - 10.7.25 and Section 10.7.26 - 10.7.35. Indirect effects on water quantity and / or quality could arise from short-term construction activities, for example through sediment mobilisation or accidental spillages as detailed in Sections 10.7.1 - 10.7.17; however, such effects would be temporary and controlled through standard pollution prevention measures and compliance with CRT requirements as detailed below.

- 10.7.62 As set out in **ES Volume 1, Chapter 4: Alternatives and Design Evolution [EN0110020/APP/6.4]**, the Proposed Development has and will in the detailed design adhere to appropriate stand-off distances to avoid direct impacts to CRT assets. This includes a commitment to comply with CRT 'Code of Practice for Works affecting the Canal & River Trust' and consult with CRT to agree the specific mitigation and depth cables should be buried to so as to avoid impacts to their assets. Furthermore, protection for statutory undertakers' assets is included within the protective provisions in the **Draft DCO [EN0110020/APP/3.1.1]**, Section 10.6.33 and Section 10.6.60.
- 10.7.63 Broadridge Dyke feeder passes between parcels 1-3A. One proposed permanent new access track will cross the dyke. The implications of access track watercourse crossings are set out in Section 10.7.18 - 10.7.25 of this Chapter, which also concludes with the embedded mitigation in place, there will be no Significant impacts to water quantity or quality as a result of watercourse. Access rights for the maintenance of the feeder will also be agreed with CRT (Section 10.6.60).
- 10.7.64 The CRT infrastructure are assessed as receptors of high sensitivity as they are of high local and regional importance.
- 10.7.65 Overall, with embedded mitigation in place and based on the conclusions of the preceding sections covering water quality and quantity which would affect CRT assets, the magnitude of impact is assessed as Negligible which is of **Negligible (Not Significant)**.

Water Consumption and Wastewater

- 10.7.66 During the construction phase, water will be required for a range of activities including dust suppression, equipment and vehicle cleaning, welfare facilities and general site preparation. Water abstracted from either surface watercourses, surface waterbodies, or from public supply networks, can reduce the quantity of water available for other water users / water resources. Additionally, a reduction in water quantity in rivers can have associated river continuity and aquatic biology impacts.
- 10.7.67 Construction of the Proposed Development will also generate wastewater from welfare facilities through for example vehicle cleaning. Disposal of wastewater has the potential to affect surface water quality if not managed appropriately. Inadequate containment, storage, or disposal will result in accidental releases of untreated foul water, leading to localised contamination, increased nutrient and organic loading, and deterioration of downstream water quality.
- 10.7.68 Embedded Mitigation set out in Section 10.6.50 commits to a Water Consumption Plan being developed prior to the commencement of construction. The plan will identify the appropriate sources of water and volume of water that can be abstracted, as well as the need to obtain the appropriate approvals and permits for water abstraction during construction (and operation). This will ensure water demand is appropriately managed and there are no reductions in water quantity for other hydrological receptors / no adverse effects to surface water features and water resources.
- 10.7.69 Secured through the **oCEMP [EN0110020/APP/5.9]**; foul water from welfare facilities will not be discharged onsite and will be removed by a licensed carrier. Wash water from cleaning activities will either be removed by a licensed carrier or discharged to vegetated areas where the water quality meets EA standards.

- 10.7.70 With embedded mitigation in place, the magnitude of impact on surface water features (waterbodies, watercourses, reservoirs, canals), surface water resources, and hydrologically connected designated sites all of high sensitivity, is assessed as Negligible. Therefore, the effect on these receptors is **Negligible (Not Significant)**.

Operation and Maintenance

Impacts to Surface Water Quality as a Result of Chemical Pollution from Accidental Spills and Leaks during Maintenance Activities

- 10.7.71 During the operation and maintenance phase of the Proposed Development, there is potential for surface water quality to be affected by accidental releases of fuels or chemicals assumed to be stored within the substation compound or associated with the BESS. Additionally, in the very unlikely event of thermal runaway, contaminated runoff may be generated. Such pollutants could enter watercourses via overland flow, accidental direct release into surface water features, or via the SuDS. This could have effects on surface water features (watercourses, waterbodies, drains, canals, reservoirs), designated sites, PWS and abstractions.
- 10.7.72 Routine maintenance activities also present a low probability risk of small fuel spills from plant vehicles or accidental release of chemicals transported to Site.
- 10.7.73 However, overall the potential for chemical pollution during operation is significantly lower than during the construction phase due to the reduced scale of activities on Site and the limited need for chemical use and handling.
- 10.7.74 In addition, as set out in Section 10.6.56 the SuDS to be developed for the Proposed Development will incorporate the appropriate treatment trains, and there will be an Operational Environmental Management Plan and suitable management of chemical pollution as set out in Section 10.6.64 - 10.6.66.
- 10.7.75 As such, the magnitude of impact when accounting for the implementation of the embedded mitigation measures set out above is assessed to be Negligible. Accounting for the high sensitivity of receptors (surface water features, designated sites, PWS and abstractions) the effects will be **Negligible (Not Significant)**.

Impacts to Surface Water Quality and Watercourse Geomorphology as a Result of Erosion and Sedimentation

- 10.7.76 Sediment transport to watercourses can reduce water quality, impact channel morphology, and increase flood risk in surface water features. The impacts to water quality can in turn also impact licenced abstractions, PWS, and designated sites.
- 10.7.77 However, the potential release of sediments during the operational phase of the Proposed Development is substantially lower than during the construction phase because there will be minimal ground disturbance, reduced erosion, and no stockpiling. Additionally, the reinstatement of vegetation, particularly under solar panels, will prevent runoff concentrating under solar panels and creating preferential flowpaths and route for erosion.
- 10.7.78 Through the implementation of the mitigation set out in Section 10.6.53, Section 10.6.56, Section 10.6.57, and Section 10.6.63 the magnitude of impact to the

hydrological receptors of high sensitivity will be Negligible in magnitude. This is a **Negligible (Not Significant)**.

Increase in Flood Risk and Runoff due to the Increase in Area of Permanent Hardstanding

- 10.7.79 The introduction of large areas of hardstanding across the Study Area has the potential to increase flood risk.
- 10.7.80 Solar panels will form the greatest areas of development across the Study Area. However, the panels will be mounted on a rack system comprising galvanised or bare metal frames pile driven into the ground. This allows the ground beneath to remain uncompacted and vegetated and thus maintain infiltration. As a result, the panels do not form extensive impermeable surfaces and do not materially increase runoff rates, as rainfall can infiltrate directly into the underlying soil.
- 10.7.81 Research by Cook and McCuen⁷⁶ demonstrates that the installation of solar PV arrays does not result in a significant increase in runoff volumes or peak flows where ground beneath panels remains vegetated. Where ground is left bare, studies indicate potential increases in peak discharge of between approximately 1.5% and 8.6%, depending on site specific conditions. Land under the PV Arrays will be planted with a wildflower mix, in turn increasing infiltration and surface roughness, thereby reducing surface water runoff. Vegetative cover also provides a natural attenuation mechanism for sediment. The Proposed Development (as set out in Section 10.6.57 and the **oSWDS [EN0110020/APP/5.17]**) will retain vegetation beneath and between panels.
- 10.7.82 There is also potential for rainfall to flow along the face of solar panels and concentrate at drip lines, which could lead to channelisation, erosion, and preferential flow paths when it rains. Solar panels will incorporate regular gaps to promote distributed dripping rather than concentrated discharge. Subsequently, combined with the retention of vegetated, uncompacted ground beneath and between panels, this will allow rainfall to disperse naturally, preventing the formation of concentrated runoff pathways and ensuring effective surface water management across the Site.
- 10.7.83 Strategic SuDS features, such as filter drains, swales, and basins / scrapes will also be designed into the solar array areas.
- 10.7.84 The onsite substations and BESS will introduce areas of permanent hardstanding with the potential to increase runoff rates and volumes, and in turn flood risk. However, a SuDS will be in place to manage runoff from these areas of the Site to ensure runoff is controlled and attenuated to greenfield rates. Further details are provided in the **oSWDS [EN0110020/APP/5.17]**.
- 10.7.85 Whilst the Proposed Development is located in areas identified to be at risk of surface water and fluvial flooding, the base of PV arrays will be designed to be located above modelled flood levels for a 1 in 100-year (plus climate change) event. This will enable panels to remain operational without increasing flood risk elsewhere or altering floodplain storage capacity. Other infrastructure (BESS/substations), will be either located outside mapped climate change pluvial extents or where this is not possible, will only be within areas of pluvial ponding (i.e. not surface water flow) that can be managed through the **oSWDS [EN0110020/APP/5.17]**.
- 10.7.86 With the embedded mitigation in place, the Proposed Development is not anticipated to result in an increase in flood risk onsite or elsewhere. As such, the

magnitude of impact to flood risk of medium sensitivity is assessed to be Negligible. Therefore, the effect on flood risk is **Negligible (Not Significant)**.

Impacts to Flood risk and Watercourse Geomorphology as a Result of Watercourse Crossings for Access Tracks

- 10.7.87 A total of 11 watercourse crossings associated with permanent access tracks across the Site during operation of the Proposed Development are shown in **ES Volume 3, Figure 10.15: Watercourse Crossings [EN0110020/APP/6.19]**.
- 10.7.88 Poorly designed watercourse crossings have the potential to adversely affect in-channel flows and velocities, resulting in erosion of the watercourse bed and banks, scour, changes to channel morphology, increase sediment mobilisation and in turn increase flood risk.
- 10.7.89 However, with the embedded mitigation detailed in Section 10.6 in place, the magnitude of change to surface watercourses, designated sites, and flood risk of high to medium sensitivity is assessed as Negligible and thus of **Negligible (Not Significant)** effect in accordance with EIA Regulations⁷⁵.

Impacts related to the maintenance of cables

- 10.7.90 A total of 13 cable crossings of ordinary watercourses will be required along the Cable Corridors primarily via trenchless methods but with two potential locations for trenched installation. In addition, within the Site, a number of other cable crossings of small watercourses, drains and ditches are proposed. The exact crossing locations are unknown at the time of writing and will be determined during detailed design post consent.
- 10.7.91 Should there need to be maintenance of buried cables during operation, the impacts associated with this will be very similar to those during construction (discussed in detail in Section 10.7.28 - 10.7.32). It is assumed open - cut trenching is likely to be needed to expose and repair cables. However, it is assumed only small areas directly needed to make the repairs will be excavated and as such the scale of impact will be much less than during the initial cable installation during construction. As such there is the potential for short term, small scale, adverse impacts on surface water quality, water quantity, and geomorphology where cable repairs are needed in the vicinity of surface water features.
- 10.7.92 However, with embedded mitigation in place as set out in Section 10.6.71, the magnitude of impact to surface water features, water resources, and designated sites of high sensitivity are assessed as Negligible which is of **Negligible (Not Significant)**.

Impacts to Designated Sites

- 10.7.93 As detailed in Section 10.5.48 - 10.5.51, within the Study Area, there is one designated site identified as the Anston Stones Wood SSSI, which is hydrologically connected to the Site via the local surface water drainage network and Anston Brook. Consequently, any deterioration in water quality arising from sediment mobilisation and / or chemical pollution and / or watercourse crossings which can also impact water quantity during operation, has the potential to be conveyed downstream to the SSSI.

- 10.7.94 The impacts associated with these have been assessed fully in the preceding sections, with the impacts to water quality and quantity assessed as being Negligible with implementation of the embedded mitigation set out in Section 10.6 of this Chapter. Designated sites are assessed as being of high sensitivity owing to their national importance and statutory protection. Therefore, the effect to designated sites is assessed as **Negligible (Not Significant)**.
- 10.7.95 Ecological impacts as a result of the Proposed Development on designated sites is covered in **ES Volume 2, Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6.1]**.

Impacts to Water Resources

Quality and / or Quantity of Water

- 10.7.96 During the operational phase of the Proposed Development, the potential for impacts on water quality and / or quantity for private water supplies and licenced abstractions is considered to be minimal owing to the absence of ground disturbing activities and the limited presence of potential pollutants on Site.
- 10.7.97 The potential for impacts to water quality during operation have been assessed in the preceding sections. Groundwater impacts during operation have been assessed in **ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]**.
- 10.7.98 Based on the conclusions of the above and with the embedded mitigation set out in Section 10.6.72 in place, the magnitude of change to water abstractions and PWS of high sensitivity is Negligible and thus **Negligible (Not Significant)**.

Direct Impact to Public and Private Water Assets

- 10.7.99 During the operational phase of the Proposed Development, the risk of direct strikes on YW pipelines or the private pipeline associated with a PWS, is substantially reduced compared to the construction phase due to the minimisation of intrusive ground disturbing activities. The primary potential for ground disturbance is if excavations are needed to repair the cable as assessed in Section 10.7.91- 10.7.92.
- 10.7.100 As such, the magnitude of impact to public water assets of high sensitivity is Negligible and thus **Negligible (Not Significant)** in accordance with EIA Regulations⁷⁵.

Springs

- 10.7.101 Impacts to groundwater quality and quantity are assessed in detail in **ES Volume 2, Chapter 9: Ground Conditions and Land Quality [EN0110020/APP/6.9]**. This concluded there will be no Significant effects on groundwater during operation.
- 10.7.102 As such, the magnitude of impact to springs of High sensitivity is assessed as Negligible which is a **Negligible (Not Significant)** effect.

Impacts to Canal and Rivers Trust Assets

- 10.7.103 As detailed in Section 10.5.15, Harthill Reservoir is located east of W3 and Broadbridge Dyke feeder and the Chesterfield Canal are hydraulically connected to the reservoir.
- 10.7.104 During operation (including maintenance) there will be no impacts to CRT assets as there will be no works which are likely to cause structural damage, and Negligible impacts in relation to water quantity, quality, or in relation to access track crossings with mitigation in place. As such, the magnitude of impact is assessed as Negligible which is a **Negligible (Not Significant)**.

Water Consumption and Wastewater

- 10.7.105 During operation, water demand will be far less than during construction as water needs will be limited to the provision of potable water for welfare facilities and solar panel cleaning. Water abstracted from either surface watercourses, surface waterbodies, or from public supply networks, can reduce the quantity of water available for other water users / water resources. Additionally, a reduction in water quantity in rivers can have associated river continuity and aquatic biology impacts.
- 10.7.106 Operation of the Proposed Development will generate wastewater from welfare facilities and solar panel cleaning. Disposal of wastewater has the potential to affect surface water quality if not managed appropriately. Inadequate containment, storage, or disposal will result in accidental releases of untreated foul water, leading to localised contamination, increased nutrient and organic loading, and deterioration of downstream water quality.
- 10.7.107 Embedded Mitigation set out in Section 10.6.50 commits to a Water Consumption Plan being developed. The plan will identify the appropriate sources of water and volume of water that can be abstracted, as well as the need to obtain the appropriate approvals and permits for water abstraction during operation. This will ensure water demand is appropriately managed and there are no reductions in water quantity for other hydrological receptors / no adverse effects to surface water features and water resources.
- 10.7.108 Secured through the **oCEMP [EN0110020/APP/5.9]**; foul water from welfare facilities will not be discharged onsite and will be removed by a licensed waste carrier and wash water from cleaning activities will either be removed by a licensed carrier or discharged to vegetated areas where the water quality meets EA standards.
- 10.7.109 With this embedded mitigation in place, the magnitude of impact on surface water features (waterbodies, watercourses, reservoirs, canals), surface water resources, and hydrologically connected designated sites all of high sensitivity, is assessed as Negligible. Therefore, the effect on these receptors is **Negligible (Not Significant)**.

Impacts Associated with Fire Suppression

- 10.7.110 In the very unlikely event of a fire within the BESS compound or thermal runaway, there is potential for surface water quality to be affected by the accidental releases of chemicals which can enter the SuDS, directly enter surface water features, or be washed to them via overland runoff. This will have water

quality effects on surface water features (watercourses, waterbodies, drains, canals, reservoirs), designated sites, PWS and abstractions.

- 10.7.111 In addition, the use of water to suppress the fire can exacerbate the above effects by greatly increasing the volume of water on-Site which may overwhelm the SuDS and thus increase the probability of contaminated water entering surface water features and impacting the associated water receptors.
- 10.7.112 A source of clean water will also be needed to fight the fire. At the time of writing this will either be sourced either from an authorised mains connection or, if required, from dedicated onsite fire water tanks.
- 10.7.113 However, with the embedded mitigation set out in Section 10.6.67 - 10.7.66 the magnitude of impact to surface water features (watercourses, waterbodies, reservoirs, canals), water resources, and designated sites of high sensitivity are assessed as Negligible. This is of **Negligible (Not Significant)** effect.

Decommissioning

- 10.7.114 Potential effects and mitigation associated with decommissioning the Proposed Development has been assessed on the basis a DEMP will be in place during this phase to ensure the safe dismantling of the Proposed Development and restoration of the Site at the end of its operational life. Removal of BESS and substation foundations to 1.2m BGL would be completed subject to landowner agreement. Components of the Proposed Development such as mitigation planting, Site accesses, and ducts for cabling buried beneath plough-depth would be left in place subject to landowner agreement. The DEMP will include appropriate mitigation measures to manage potential impacts on water resources and flood risk, informed by best practice and in line with all legislation, policy, and guidance available at the time of decommissioning. The nature of works and mitigation measures during decommissioning are anticipated to be similar to those required during construction, and, on this basis, the assessment conservatively assumes that mitigation equivalent to that described for the construction phase will be implemented. An **oDEMP [EN0110020/APP/5.11]** has been developed and submitted alongside this Application.
- 10.7.115 As such, the significance of effect is assessed as being the same as for construction and as set out earlier in this Chapter, which is of Negligible magnitude to receptors of high to medium sensitivity, which is of **Negligible (Not Significant)** effect.

10.8 Additional Mitigation Measures and Residual Effects

Additional Mitigation

- 10.8.1 No additional mitigation measures have been identified for the Proposed Development.

Residual Effects

- 10.8.2 A summary of the potential water resources and flood risk effects is presented in **Table 10.17**.

Table 10.17: Summary of Residual Effects

Activity and Impact	Embedded Mitigation	Receptor	Sensitivity	Magnitude of Impact	Significance of Effect	Additional Mitigation	Significance of Residual Effect
Construction							
Impacts to surface water quality as a result of chemical pollution from mobilisation of pollutants through surface water runoff, or from accidental spills and leaks.	oCEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), designated sites, springs	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Impacts to surface water quality and watercourse geomorphology as a result of erosion and sedimentation associated with excavations and stockpiling.	oCEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)

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Impacts to surface water quality, quantity and watercourse geomorphology as a result of watercourse crossing construction for access tracks.	oCEMP, Suitable design of watercourse crossings.	Surface watercourses, waterbodies, CRT assets, and designated sites.	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Impacts to surface water quality, quantity, and watercourse geomorphology as a result of cable crossings.	oCEMP	Surface water features (watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), springs, and designated sites.	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Increases in run-off due to greater areas of hardstanding.	oCEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)

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Impacts to water abstractions as a result of changes to water quality and / or quantity, and direct strikes to supply lines	oCEMP; Water supplies risk assessment	PWS, licenced abstractions, and public water assets (YWS)	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Water consumption needs e.g. water needed for construction activities and potable water for welfare facilities	Water Consumption Plan; oCEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Impacts associated with the disposal of wastewater	oCEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Operation							
Impacts to surface water quality as a result of chemical	Operational management plan.	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)

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pollution from accidental spills and leaks and during maintenance activities.		abstractions and PWS), springs, and designated sites					
Impacts to surface water quality and watercourse geomorphology as a result of erosion and sedimentation.	oOEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Increase in flood risk and runoff due to the increase in area of permanent hardstanding. Flood risk to the Proposed Development.	Solar panels to be raised and infrastructure sited per the conclusions of the FRA; oSWDS; oOEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Impacts to flood risk and watercourse geomorphology as a result of watercourse	Suitable design of watercourse crossings.	Surface watercourses, waterbodies, CRT assets, and designated sites.	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood Risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)

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crossings for access tracks							
Impacts to water abstractions as a result of changes to water quality and / or quantity, and direct strikes to supply lines	oOEMP; Water supplies risk assessment	PWS, licenced abstractions, and public water assets (YWS)	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Impacts related to the maintenance of cables	oOEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), springs, and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Water consumption needs e.g. water needed for solar panel cleaning and potable water for welfare facilities	Water Consumption Strategy; oOEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), springs, and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Impacts associated with	oOEMP	Surface water features (waterbodies, watercourses, reservoirs),	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)

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the disposal of wastewater.		CRT assets, water resources (licenced abstractions and PWS), and designated sites					
Impacts associated with fire suppression.	oSWDS; oOEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
Decommissioning							
Potential effects are similar to those during construction. Embedded mitigation needed is also anticipated to be similar to that needed during construction.	oDEMP	Surface water features (waterbodies, watercourses, reservoirs), CRT assets, water resources (licenced abstractions and PWS), springs, and designated sites	High	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)
		Flood risk	Medium	Negligible	Negligible (Not Significant)	N/A	Negligible (Not Significant)

10.9 Cumulative Effects

- 10.9.1 This section assesses the potential cumulative on water resources and flood risk effects of the Proposed Development. The methodology of this assessment is presented in **ES Volume 1, Chapter 2: EIA Methodology [EN0110020/APP/6.2.1]**.

Intra-Cumulative Effects

- 10.9.2 Intra- cumulative impacts can be defined as those that occur where a single receptor is affected by more than one source of effect arising from different aspects of the Proposed Development. With the implementation of the proposed embedded mitigation, no intra-cumulative effects are anticipated in relation to water resources and flood risk during any phase of the Proposed Development. Intra-cumulative effects are presented in **ES Volume 2, Chapter 17: Cumulative Effects Assessment [EN0110020/APP/6.17]**.

Inter-Cumulative Effects

- 10.9.3 Inter-cumulative effects refer to the impacts that arise from other existing and, or approved developments within reasonable proximity of the Proposed Development, which individually might not be significant, but when considered together could create a significant cumulative effect on a shared receptor.
- 10.9.4 The cumulative Study Area is the same as the Proposed Development Study Area i.e. a 1km buffer of the Order Development Limits.
- 10.9.5 The greatest potential for cumulative effects arises when the construction phase of another development overlaps with the construction phase of the Proposed Development and as such there is a greater risk of combined effects on water quality and quantity effecting all water receptors. The risk is also considered higher when there is direct hydrological connectivity between developments.
- 10.9.6 During operation, the risks to the water environment are greatly reduced due to there being no to very limited ground excavation work, as well as storage and use of chemicals or other pollutants on Site. The likelihood of erosion, spills, or a fire are considered very low. As such, the primary cumulative effect considered is flood risk.
- 10.9.7 Where information is available on planning portals for hydrologically connected developments, this has informed the cumulative assessment. However, in many cases the CEMP, EIA, or other planning documentation was not available. An assumption has been made in these instances that cumulative developments will adhere to standard good practice and mitigation, including the implementation of their own CEMP, such that impacts to surface water features are minimised / avoided. It is also assumed all developments will develop the appropriate flood risk management measures including a SuDS to control runoff rates therefore minimising flood risk effects.
- 10.9.8 The cumulative long list has been prepared to consider relevant other developments within 10km of the Proposed Development. This is set out in **ES Volume 3, Appendix 17.2: Cumulative Effects Long List [EN0110020/APP/6.20]**. In line with the Study Area detailed in Section 10.4, the Zone of Influence (Zol) for this Chapter is considered to be 1km. Following the methodology set out in **ES Volume 1, Chapter 2: EIA Methodology**

[EN0110020/APP/6.2.1], a short list of other developments has been prepared for assessment of inter-cumulative effects relating to this Chapter. **Table 10.18** summarises the cumulative developments within the Zol and the potential for cumulative effects.

Table 10.18: Cumulative Developments

Address	Planning Reference	Development Description	Status	Distance to Proposed Development	Assessment of Effect
Land off Moat Lane Wickersley	RB2024/0063 (Appeal ref. APP/P4415/W/25/3363 208)	Erection of battery storage facility and associated works.	Approved at Appeal	Within the Order Limits – Cable Corridor CRC.	This development overlaps with the Cable Corridor CRC. However, the development site is approximately 160m east of the unnamed Ordinary watercourse that the Proposed Development will cross. There are no other mapped watercourses shown to link this development and the Proposed Development. Therefore, there is no direct hydrological connectivity between this development and the Proposed Development. It is assumed this development will adhere to standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors, this includes a CEMP to manage risks to the water environment. A flood risk assessment was submitted as part of the Application for this development and did not identify significant effects in relation to flood risk. A drainage strategy was also submitted for this development which will avoid impacts to off-site flood risk⁷⁷. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land off Moat Lane Wickersley	RB2024/0321 (Appeal ref. APP/P4415/W/25/3365 059)	Erection of battery storage facility and associated works.	Approved at Appeal	Within the Site – Cable Corridor CRC.	This development overlaps with Cable Corridor CRC However, the development site is approximately 160m east of the unnamed Ordinary watercourse that the Proposed Development will cross. There are no other mapped watercourses shown to link this development and the Proposed Development. Therefore, there is no direct hydrological connectivity between this development and the Proposed Development. It is assumed this development will adhere to standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors, this includes a CEMP to manage risks to the water environment. A flood risk and drainage strategy report was submitted as part of the Application for this development and did not identify significant effects associated with flood risk⁷⁸. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a significant cumulative effect.
Land off Carr Lane Ulley	RB2025/0029	Proposed ground-mounted solar PV arrays, supporting energy infrastructure (including battery	Awaiting Decision	Adjacent to Order Limits - Whitestone 1-2D.	This development is immediately adjacent to the Order Limits and as such will affect the same hydrological receptors including the Ulley Brook.

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		storage (BESS), access improvements and ancillary development including, landscaping and biodiversity enhancements and continued shared agricultural use			This development is also a solar energy park and therefore the impacts associated with construction and operation will be similar to the Proposed Development. It is assumed this development will adhere to standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors, this includes a CEMP to manage risks to the water environment. A flood risk assessment and outline drainage strategy was submitted as part of the Application for this development and did not identify significant flood risk associated with the development and laid out the design principals to be followed with regards to flood risk and drainage⁷⁹. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a significant cumulative effect.
Land at Hard Lane Kiveton Park	RB2025/0240	Proposed Battery Energy Storage Scheme (BESS)	Awaiting Decision	Adjacent to Order Limits - Whitestone 1-3A.	This development is immediately adjacent to the Order Limits and as such will affect the same hydrological receptors including Broad Ridge Dike. The Application documents for this development include a CEMP and flood risk and drainage assessment report. Therefore, it is assumed the development will adhere to the pollution prevention plan set out in the CEMP as well as other standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors. It was concluded in the FRA for this development that was also submitted, that there will be no Significant flood risk effects with implementation of a suitable drainage system⁸⁰. As such, because the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land at Cumwell Lane Hellaby	RB2025/0599	Outline Application for residential development including details of appearance, landscaping, layout and scale	Awaiting Decision	0.35km east of Cable Corridor CRB.	This development is to the east of Cable Corridor CRB and there is no direct hydrological connectivity between this development and the Proposed Development as there are no mapped watercourses that link CRB and this development. It is assumed this development will adhere to standard best practice guidance during construction including the implementation of a CEMP to manage risks to the water environment such that there are no Significant impacts on hydrological receptors. An FRA was submitted as part of the Application for this development and identifies that flood risk to and from the Site can be managed such that there is no Significant effect⁸¹. As such, because the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and

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					flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land to north west of Worry Goose Lane Whiston	RB2024/0104	Reserved matters application (details of internal access, landscaping, layout, scale, & appearance) for the erection of 450 dwellinghouses (reserved by outline permission RB2019/0552)	Awaiting Decision	0.76km north of Cable Corridor CRD-1	This development only just overlaps with the Study Area for the Proposed Development and is north of Cable Corridor CRD-1. There is no direct hydrological connectivity between this development and the Proposed Development. A draft CEMP and drainage strategy has been submitted for this development⁸². It is assumed that with these in place there will be no impacts to surface water resources and flood risk during construction and operation. As such, because the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land off Morthen Lane Morthen	RB2025/0714	Construction, operation, and subsequent decommissioning of a renewable energy park, comprising ground mounted solar photovoltaic (PV) together with associated infrastructure including inverters, substation compound, cabling, access tracks, fencing, and landscaping	Awaiting Decision	Within the Site – Cable Corridor CRC	This development overlaps with the Cable Corridor CRC and the cable crossing over the Pinch Mill Brook. Therefore, there is direct hydrological connectivity between this development and the Proposed Development. It is assumed this development will adhere to standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors, this includes a CEMP to manage risks to the water environment. A flood risk assessment and drainage strategy was submitted as part of the Application for this development and did not identify a Significant flood risk and the drainage strategy will manage runoff and off site flood risk⁸³. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land east of Moor Lane South Bramley	RB2025/0979	Outline application for residential development of up to 349 dwellings including details of the access	Awaiting Decision	0.4km West of Cable Corridor CRB	This development is located to the west of Cable Corridor CRB where there is potential direct hydrological connectivity via a small unnamed watercourse. A planning condition is in place for this development which requires suitable drainage to be in place including SuDS. A flood risk assessment was also submitted for this development which does not indicate Significant flood risk effects with suitable drainage in place⁸⁴. It is assumed this development will adhere to standard best practice guidance during construction including the implementation of a CEMP to manage risks to the water environment such that there are no Significant impacts on hydrological receptors. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not

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					Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land south of West Bawtry Road Whiston	RB2025/1420	Outline planning application for the construction of up to 170 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Long Lane)	Awaiting Decision	Adjacent to Cable Corridor CRE	This development is located to the north of Cable Corridor CRE with both this development and the Proposed Development located on the banks of an EA main river (Whiston Brook) such that there is direct hydrological connectivity to the same receptor. An outline drainage strategy has been submitted for this development which details how runoff will be managed. A flood risk assessment has also been submitted which concludes no Significant risk of increase in flood risk to others⁸⁵. It is assumed this development will adhere to standard best practice guidance during construction including the implementation of a CEMP to manage risks to the water environment such that there are no Significant impacts on hydrological receptors. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land at Long Lane Whiston	RB2025/1468	Erection of a new 400kV Gas Insulated Switchgear (GIS) substation including gantries, internal access roads, a GIS building, parking, drainage, emergency diesel generator, lighting and CCTV, permanent access road from Long Lane, earthworks, landscaping and biodiversity enhancement, and fencing and the permanent realignment of Whiston Footpath 10	Awaiting Decision	Within the Site - Whitestone 2/Brinsworth Substation Extension, Cable Corridor CRE	This development will directly overlap with the Proposed Development with the Cable Corridor CRE connecting in through the substation. Both this development and the Proposed Development are on the banks of an EA main river (Whiston Brook) and there is a smaller unnamed watercourse to the south of this development such that there is direct hydrological connectivity to the same receptors. An environmental appraisal report has been submitted as part of the Application for this development. It concluded there will be no low to Negligible impacts to the water environment during construction, and low impacts during operation⁸⁶. The supporting CEMP, SMP, drainage plans, surface water drainage strategy, and FRA have also been submitted. Therefore, as the EIA for the Proposed Development concluded there will be no Significant impacts during construction or operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Best Meats UK Ltd Houghton Road North Anston Trading Estate North Anston	RB2025/1648	Erection of new sub station	Granted conditionally	0.12km north of the Site -Whitestone 2 (reference 1-2G).	This development is located to the north of parcel 1-2G and is directly hydrologically connected to the Proposed Development via a small unnamed watercourse. The officer report for this development states it will conform with pollution control principals. Substantial groundworks are also not assumed to form part of this development as such the potential for Significant effects on the water environment is considered low. The substation is within Flood Zone 1 and it is not considered it will increase flood risk as the Site is already development / an area of hardstanding⁸⁷.

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					Therefore, as the EIA for the Proposed Development concluded there will be no Significant impacts during construction or operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land east of Cumwell Lane Hellaby	RB2025/1223	Outline application for residential development with main points of access, all other matters reserved	Awaiting Decision	0.26km east of Cable Corridor CRB.	This development is to the east of the Cable Corridor CRB and there is no direct hydrological connectivity between this development and the Proposed Development as there are no mapped watercourses that link the Cable Corridor and this development. A flood risk and drainage strategy has been submitted for this development which outlines the flood risk and that suitable mitigation will be in place so as not to increase flood risk⁸⁸. It is assumed this development will adhere to standard best practice guidance during construction including the implementation of a CEMP to manage risks to the water environment such that there are no Significant impacts on hydrological receptors. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
land at Long Lane Whiston	RB2025/1674	Installation of 2 replacement terminal single poles (application under Overhead Lines (Exemption) (England and Wales) Regulations 2009)	No objections	Within the Site - Whitestone 2.	The installation of OHL poles will have minimal impacts to the water environment as groundworks associated with this will be minimal, and there will be no flood risk during operation as there will be minimal permanent hardstanding and any flood waters will disperse around the poles. As such there will be no cumulative effects between this development and the Proposed Development.
Land Off Moor Lane Micklebring Rotherham S66 7RN	22/00840/SCRE	Request for an EIA screening opinion for the Proposed Mere Flats Solar Energy Supply Project	Decided - Not EIA	Adjacent to Cable Corridor CRB.	This development is immediately south of the Order Limits, but is approximately 120m east of the Cable Corridor and on the east of the M18 with no mapped watercourses indicating direct hydrological connectivity to the Proposed Development. This development was screened out of EIA as the development is not considered to give rise to 'Significant' environmental impacts. The screening letter for the development also noted flood risk can be mitigated through suitable design⁸⁹. It is assumed the development will adhere to standard best practice guidance during construction including implementation of a CEMP to manage risks to the water environment. As such because the EIA for the Proposed Development also concluded there will be no Significant impacts during construction and operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Land South East Of Old Road Conisbrough	24/01404/FULM	Proposed residential development with public open space, access,	Decided - Granted conditionally subject to Section 106 Agreement	Adjacent to the Site - Whitestone 1 –	This development is to the north of works area 1-1 and there is no direct hydrological connectivity as there are no mapped

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Doncaster DN12 3LR		landscaping and associated infrastructure.		approximately 300m north of works area 1-1.	watercourses that link this development to the Proposed Development. It is assumed this development will adhere to standard best practice guidance during construction including the implantation of a CEMP to manage risks to the water environment such that there are no Significant impacts on hydrological receptors. A flood risk and drainage assessment was submitted as part of the Application for this development and identifies flood risk to the Site is low to Negligible and runoff from the Site can be managed through a suitable drainage system⁹⁰. As such, because the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Norwood Cottage Farm Cinder Lane Killamarsh Sheffield S21 2AT	25/00377/EIA	Environmental Impact Assessment Screening Opinion Request for a proposed Enercon E82 (3MW) Wind Turbine	Decided - Not EIA	0.2km from the Site - Whitestone 3.	This development is approximately 200m north of work area 1-3B and is not in direct hydrological connectivity with the Proposed Development. This development was screened out of EIA as the development is not considered to give rise to 'Significant' environmental impacts⁹¹. It is assumed the development will adhere to standard best practice guidance during construction including implementation of a CEMP to manage risks to the water environment. As such because the EIA for the Proposed Development also concluded there will be no Significant impacts it is concluded that cumulatively there will be no Significant cumulative effect.
Common Farm, Bookers Lane, Dinnington	RB2022/1203	Installation and operation of a solar energy park and associated infrastructure.	Approved	Adjacent to Site - Whitestone 2.	This project is immediately adjacent to the works area 1-2E with direct hydrological connectivity through a number of unnamed watercourses / drains. The development is also a solar energy park and therefore the impacts associated with construction and operation will be similar to the Proposed Development. Planning conditions imposed on the development include the submission of a CEMP and Construction Method Statement to protect the environment. A draft environmental management plan has also been submitted as part of the Application. Therefore, it is assumed the development will adhere to standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors. A flood risk assessment was also submitted as part of the Application and did not identify Significant flood risk associated with the development and laid out the mitigation to be in place with regards to flood risk⁹². As this EIA concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that in combination this development and

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					the Proposed Development will not result in a Significant cumulative effect.
Sites at Worrygoose Lane, Moorhouse Lane, Little Common Lane, Royds Moor Hill, Alma Row, Whiston	RB2025/0534	Proposed Flood Alleviation Scheme	Granted conditionally	0.4km north of Cable Corridor CRD-1.	This development is located to the north of Cable Corridor CRD-1 and both this development and the Proposed Development are within the Whiston Book catchment. This development will make various improvement to drainage and culvert assets, as well as construction of a reservoir, so as to reduce flood risk in the Whiston Brook catchment⁹³. The cable to be laid for the Proposed Development will be underground and thus not contribute to an increase in hardstanding and therefore flood risk. As such there will be no cumulative effects between this development and the Proposed Development.
Unit 1, Hellaby Industrial Estate Sandbeck Way Hellaby	RB2026/0041	Change of use from storage/warehouse use (Use Class B8) to Padel courts with ancillary café/bar, gym, studio and sauna/steam and ice bath room (Use Class E(d)) with external storage containers to side elevation to form toilets and changing facilities	Awaiting Decision	0.34km east of Cable Corridor CRB	It is not considered that a change of use will entail significant groundworks that would result in impacts to local hydrology. In addition, there is a planning condition from the council that this development cannot progress until a surface water and foul drainage strategy has been submitted. As such there will be no cumulative effects with the Proposed Development.
Rowena House Old Road Conisbrough Doncaster DN12 3LX	25/02346/FULM	Redevelopment of Rowena House to provide a new 65 bedroom two storey care home.	Awaiting Decision	0.75km north of W1.	This development is located 1.2km north of works parcel 1-1 and is not directly hydrologically connected to the Proposed Development. As such there will be no cumulative effects with the Proposed Development.
land north of Woodhall Services Killamarsh Lane Woodall	RB2026/0228	Erection of new substation, associated infrastructure including access, parking, landscaping and temporary construction access	Proposed to be delegated	Adjacent to W3	This development is located adjacent to works parcel 1-3B and adjacent to the same unnamed watercourse as the Proposed Development and as such is in direct hydrological connectivity. A flood risk and drainage strategy has been supplied as part of the Application for this development which concludes with suitable drainage in place there will be no flood risk impacts. A drainage strategy for this development has also been submitted. It is assumed this development will adhere to standard best practice guidance during construction including the implementation of a CEMP to manage risks to the water environment such that there are no Significant impacts on hydrological receptors. As the EIA for the Proposed Development concluded there will be no Significant impacts during construction and operation it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.

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Land at Green Lane, Thurcroft	RB2022/1767	Battery energy storage facility and associated works	Granted conditionally	0.2km south of Cable Corridor CRC	This development within 0.2km to the Order Limits. The Application documents for this development include a flood risk and drainage assessment report. The decision includes planning conditions for surface water drainage and production of a Construction Management Plan, Therefore, it is assumed the development will adhere to a pollution prevention plan as well as other standard best practice guidance during construction such that there are no Significant impacts on hydrological receptors. It was concluded in the FRA for this development that was also submitted, that there will be no Significant flood risk effects with implementation of a suitable drainage system. As such, because the EIA for the Proposed Development concluded there will be no Significant impacts during construction with implementation of best practice mitigation including a CEMP, and flood risk will be Not Significant during operation, it is concluded that cumulatively this development and the Proposed Development will not result in a Significant cumulative effect.
Brampton Stables, Penny Hill Lane, Ulley	RB2025/1478	Conversion of existing stable block to form 2 No. dwellings with demolition of walls to entrance and erection of bin store and 2.4m high fencing adjacent to highway	Awaiting decision	Adjacent to W2	It is not considered that a change of use will entail significant groundworks that would result in impacts to local hydrology. In addition. As such there will be no cumulative effects with the Proposed Development.

10.10 Summary

Statement of Significance

- 10.10.1 Baseline information on Water Resources and Flood Risk within the Study Area was collected through a desktop study using opensource hydrological datasets, consultation with the EA, RMBC, CDC, YW, and questionnaires issued to local residents regarding private water supplies. This was supplemented by field survey data collected by the ERM ecology team.
- 10.10.2 The assessment has considered potential impacts on surface water features (watercourses, waterbodies, canals, and reservoirs), flood risk, water resources (public and private water supplies as well as drinking water or source water protected zones), and designated sites.
- 10.10.3 With the implementation of the embedded mitigation set out in this Chapter, the significance of adverse effects during the construction phase are all assessed as **Negligible (Not Significant)**.
- 10.10.4 With the implementation of the embedded mitigation set out in this Chapter, the significance of adverse effects during the operational phase are all assessed as **Negligible (Not Significant)**.
- 10.10.5 With the implementation of embedded mitigation as set out in this Chapter for construction and which will comply with all relevant guidance, policy, and legislation at the time of decommissioning, and with a DEMP in place, the significance of adverse effects during the decommissioning phase are assessed as **Negligible (Not Significant)**.
- 10.10.6 It is concluded that there will be no Significant cumulative effects from the Proposed Development alongside other projects in the Study Area.

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