Light Valley Solar

Environmental Statement Volume 3

Appendix 15.2: Water Environment Regulations Assessment

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DCO Submission

Appendix 15.2: Water Environment Regulations Assessment

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1 Introduction

1.1.1 This Appendix presents the findings of the Water Environment Regulations (WER) compliance assessment (also referred to as a Water Framework Directive (WFD) compliance assessment) of the likely compliance of Light Valley Solar (the Proposed Development) in respect of the requirements of the WER (see Annex A). The WER requires that new developments demonstrate that no deterioration of the status of water bodies will occur. This report forms an Appendix to Chapter 15: Water Resources and Flood Risk (Environmental Statement (ES) Volume 1) [**EN0110012/APP/LVS/06.01.15**].

1.1.2 This Appendix presents an assessment of the potential impact of the Proposed Development on WER objectives. The report provides a summary of the Proposed Development, the assessment methodology and preliminary results of the assessment. It has been undertaken in accordance with relevant WER legislative context and guidance (Annex A.1) and has involved a desk-based study using readily available Environment Agency (EA) WER baseline information and internal datasets held by the EA. The assessment is based on the design of the Proposed Development as presented within the Development Consent Order (DCO) Application.

1.1.3 The assessment is a final assessment, provided as part of the ES submitted with the DCO Application.

2 Assessment Methodology

2.1 Scope of the assessment

2.1.1 WER compliance assessments comprise a stepped process undertaken in parallel with the design development for a Proposed Development. This includes the following key steps, described in detail in Annex A of this report:

1) Screening assessment;
2) Scoping assessment; and
3) Detailed impact assessment (where deemed required).

2.1.2 This report comprises the screening and scoping assessment elements of the process. Site walkovers have been undertaken on a number of watercourses and results have been reported within this document. A detailed impact assessment has not been deemed as required, as the Proposed Development is not expected to result in a risk of deteriorating current WER status, or prevention of achieving a Good Status in the future for the WER water bodies.

2.1.3 The spatial scope of the assessment includes all WER designated surface water and groundwater bodies potentially affected by the Proposed Development, as outlined in Figure 15.5: WER - Surface Water Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.05**] and Figure 15.6: Groundwater Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.06**]. The Study Area for the WER Assessment comprises the footprint of the Order Limits and a 1 km buffer which is considered to cover the zone of influence for the Proposed Development. This considers the potential impacts of the Proposed Development on all the relevant quality elements associated with the surface water and groundwater bodies affected, at the water body scale.

The assessment focuses on the long-term impacts of the Proposed Development. Temporary impacts are not considered to result in deterioration in WER status and so have not been considered within the assessment in accordance with current guidance (Ref 1) (note that typically impacts would only be considered temporary if works do not extend beyond 3 years in duration, which is the case for the construction and decommissioning phases of the Proposed Development). To be conservative and based on engagement with the Environment Agency, temporary has been considered to be works lasting no more than 6 months. Any temporary works with a duration above 6 months have been considered.

2.1.4 Following this, impacts are not considered to result in a deterioration of the water body status if the water body:

1) is only impacted for a short time period;
2) is likely to recover within a short time period; and
3) is likely to recover without the need for any restoration (beyond reinstatement).

2.2 Data sources

2.2.1 The following EA WER datasets and resources are available online and have been collated to support this assessment:

1) EA "Cycle 3 River Basin Management Plan (RBMP), Humber River Basin Management Plan" (2022) (Ref 2)
2) Humber River Basin Cycle 3 RBMP 2022 and 2019 water body status classification and status objectives data (EA Catchment Data Explorer) (Ref 3)
3) WER Protected Area data (EA Catchment Data Explorer) (Ref 3)
4) Freshwater biological survey datasets for invertebrates, macrophytes and diatoms, including monitoring site locations, dates and results (EA's BIOSYS dataset on the EA's Ecology & Fish Data Explorer) (Ref 4)
5) Freshwater fish survey data collated from fisheries monitoring work, including monitoring site locations, dates and fish species count results (EA's National Fish Populations Database (NFPD) on the EA's Ecology and Fish Data Explorer) (Ref 4)
6) Water quality monitoring datasets, including monitoring site locations, dates and results (EA's water quality data archive) (Ref 5).

2.2.2 A data request was submitted to the EA on 24 June 2024 to request relevant information which is not publicly available. An additional request was submitted for additional water bodies identified along the Cable Route Corridor in February 2025. Where provided, this data is detailed in Annex E and includes:

1) Extended Waterbody Summary Reports for the relevant water bodies (where available)
2) RBMP "Reasons for Not Achieving Good" (RNAG) investigation reporting for the relevant water bodies (where available)
3) Waterbody Level Measure Actions and Heavily Modified Water Body (HMWB) Mitigation Measure Assessments (where available / applicable).

2.2.3 The following additional key sources of data have also been used to inform this WER Assessment:

1) MAGIC Map (Ref 6)
2) British Geological Society (BGS) Geo Index viewer (Ref 7).

2.3 Other relevant environmental reports

2.3.1 This assessment should be read in conjunction with the following ES documents available at statutory consultation which have been used to inform this assessment:

1) Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**];

2) Chapter 6: Biodiversity (ES Volume 1) [**EN0110012/APP/LVS/06.01.06**];

3) Chapter 15: Water Resources and Flood Risk (ES Volume 1) [**EN0110012/APP/LVS/06.01.15**];

4) Appendix 15.1: Flood Risk Assessment (ES Volume 3) **[EN0110012/APP/LVS/06.03.15.01];**

5) Appendix 15.4: Outline Drainage Strategy (ES Volume 3) **[EN0110012/APP/LVS/06.03.15.04]; and**

6) Water Resource Assessment **[EN0110012/APP/LVS/07.16]**

2.4 Watercourse receptor valuation

2.4.1 Activities associated with the Proposed Development have the potential to affect a number of watercourse receptors. The watercourses present within each WER water body catchment that have the potential to be affected by the Proposed Development have therefore been identified, assessed and assigned a receptor value using desktop information and professional judgement. The receptor value was then verified with site visits. The criteria used to classify watercourse receptor value is summarised in Table 2-1. This criteria has been established based upon available guidance, legislation, statutory designation and / or professional judgement.

Table 2-1 Watercourse receptor values and criteria

Receptor value	Criteria
Very High	▪ Within or in close hydraulic connectivity with a statutory designated site (e.g. Site of Special Scientific Interest (SSSI) or Special Area of Conservation (SAC)). ▪ Main River, not an Ordinary watercourse. ▪ Part of main WER river water body extent. ▪ Permanent baseflow. Definable flow types. ▪ Evidence of active fluvial geomorphological processes and features (e.g. fluvial bank erosion and bars). ▪ Supports freshwater fish, macroinvertebrate and/or macrophyte communities. Subject to EA freshwater monitoring regime ▪ Channel may be subject to physical modifications (e.g. historically straightened or reprofiled). ▪ Riparian zone typically exhibits some structural diversity. May be impacted or heavily modified by adjacent land uses (e.g. agricultural) and/or vegetation maintenance.
High	▪ Main River or significant Ordinary watercourse ▪ Part of main WER water body extent ▪ Permanent baseflow. Definable flow types ▪ Evidence of active fluvial geomorphological processes and features (e.g. fluvial bank erosion and bars) ▪ Supports freshwater fish, macroinvertebrate and/or macrophyte communities. Typically to EA freshwater monitoring regime

Receptor value	Criteria
	▪ Channel may be subject to physical modifications (e.g. historically straightened or reprofiled) ▪ Riparian zone may be impacted or heavily modified by adjacent land uses (e.g. agricultural) and/or regular vegetation maintenance.
Moderate	▪ Ordinary watercourse ▪ Tributary of main WER water body ▪ Some limited baseflow. Generally shallow flows with limited hydraulic diversity ▪ Some limited evidence of active fluvial geomorphological processes and features (e.g. fluvial bank erosion and bars) ▪ Potential to support some freshwater fish, macroinvertebrate and/or macrophyte communities (but typically low diversity and/or abundance). Generally, not subject to EA freshwater monitoring regime ▪ Channel may be subject to physical modifications (e.g. historically straightened or reprofiled) ▪ Riparian zone may be impacted or heavily modified by adjacent land uses (e.g. agricultural) and/or regular vegetation maintenance.
Low	▪ Ordinary watercourse ▪ Minor tributary (within WER water body catchment). Typically comprising artificially created drainage ditch or small and/or ephemeral channel ▪ Little or no baseflow. Largely very shallow and/or ponded flows under normal conditions, with potential to dry-out during periods of dry weather ▪ Little evidence of active fluvial geomorphological processes and features (e.g. fluvial bank erosion and bars) ▪ Little or no potential to support freshwater fish, macroinvertebrate and/or macrophyte communities. Not subject to EA freshwater monitoring ▪ Riparian zone typically impacted or heavily modified by adjacent land uses (e.g. agricultural).

3 Stakeholder engagement and consultation

3.1.1 Chapter 15: Water Resources and Flood Risk (ES Volume 1) [**EN0110012/APP/LVS/06.01.15**] summarises the engagement and consultation that has taken place with the Environment Agency, who are the consultation body for WER.

3.1.2 The Environment Agency have responded to preliminary environmental information set out within the Preliminary Environmental Information Report (PEIR) which included the preliminary screening and scoping assessment for WER compliance.

3.1.3 Several stakeholder meetings have taken place with the Environment Agency to discuss Environment Agency comments and Applicant responses on the statutory consultation, including matters which affect this WER. This is set out further in table 15-6 of Chapter 15: Water Resources and Flood Risk (ES Volume 1) [**EN0110012/APP/LVS/06.01.15**].

4 Existing site

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

4.1.2 The 1 km Study Area was selected based on professional judgement of the potential impacts and pathways related to the Proposed Development, and alignment on approach with other solar developments. The final Study Area has been reviewed to ensure that all receptors that are potentially in hydraulic continuity with the Proposed Development are included (such as downstream receptors and wider flood risk areas).

4.2 Site location

4.2.1 The Order Limits (refer to Figure 1.1: Site Location Plan and Order Limits (ES Volume 2) [**EN0110012/APP/LVS/06.02.01.01**]) comprises seven 'Solar Development Sites' (herein referred to as 'Solar Development Sites'/'Solar Development Sites 1-4 and 6-8' or individually) which cover a combined area of approximately 900 hectares (ha). Including the Cable Route Corridor, the Solar Development Site 8 Access and Highways Improvement Areas the total area of the Order Limits is approximately 1,270 ha.

4.3 Site description

4.3.1 A significant number of watercourses are found within the Study Area, including main rivers, ordinary watercourses and Internal Drainage Board (IDB) watercourses. A number of unnamed drains are also found within the Study Area. All watercourses identified within the Order Limits can be found within Section 6.5 (see also Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**] and Chapter 15: Water Resources and Flood Risk (ES Volume 1) [**EN0110012/APP/LVS/06.01.15**]).

4.3.2 For the purposes of the WER assessment, only watercourses located within the Order Limits have been assessed. Watercourses outside of the Order Limits but within 1 km have been considered for assessment, however have been screened out as upstream or downstream impacts are not deemed likely due to the nature of the Proposed Development. These watercourses are documented in Annex B. Further detail on the screening in or out of water bodies can be found within Section 6 (Screening and baseline assessment).

Geology

4.3.3 The British Geological Survey (BGS) 1:50,000 scale mapping (Ref 7) indicates that the bedrock geology across all the Solar Development Sites and the Cable Route Corridor is from the Sherwood Sandstone Group, with the exception of Solar Development Site 3, from the Roxby Formation which is mostly made up of mudstone and siltstone.

4.3.4 Superficial deposits vary across the site as follows:

1) Solar Development Site 1 - Escrick Moraine Member - Clay, Sandy, Gravelly, Skipwith Sand Member - Sand, Clayey, Gravelly and Skipwith Sand Member - Sand, Clayey, Gravelly
2) Solar Development Site 2, Solar Development Site 6, Solar Development Site 7 - Hemingbrough Glaciolacustrine Formation - Clay, Silty
3) Solar Development Site 3, Solar Development Site 4, Solar Development Site 8 - Hemingbrough Glaciolacustrine Formation - Clay, Silty and Breighton Sand Formation – Sand
4) Cable Route Corridor – In addition to the above, the following superficial units are crossed by the Cable Route Corridor: Thornganby Clay Member, as well as Alluvium composed of clay, peat and silt found along the Ouse Valley, and its tributary Selby Dam.

4.3.5 Annex D shows the bedrock and superficial geology within the Study Area.

4.3.6 Further details on the geological setting of the Study Area can be found in Section 15.7 of Chapter 15: Water Resources and Flood Risk (Environmental Statement (ES) Volume 1) [**EN0110012/APP/LVS/06.01.15**].

Topography

4.3.7 The area within the Study Area is relatively flat or very gently sloping, dominated by the River Ouse valley and its wide floodplain and with an elevation between 0 and 10 m AOD.

Land use

4.3.8 The land use within the Study Area is predominantly agricultural. According to the 2018 Corine Land Cover map (Ref 8) the Study Area is dominated by pastures and non-irrigated arable land.

4.3.9 A small number of dispersed residential properties are present across the Study Area as well as some larger population centres and main roads being crossed and/or within the buffer of the Cable Route Corridor. Bands of narrow woodland strips are located along watercourses.

5 Proposed Development

5.1 Overview

5.1.1 Details about the Proposed Development are provided in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**]. The Outline Drainage Strategy is included in Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]. Key assumptions are discussed in Section 5.2 below.

5.2 Design mitigation and assumptions

Embedded mitigation

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

5.2.2 In addition, specific mitigation and good practice will be implemented during construction to prevent permanent effects on water bodies from construction, operation and decommissioning. The Proposed Development would be managed during its construction, operation and decommissioning in accordance with the detailed Construction Environmental Management Plan (CEMP)(s), Operational Environmental Management Plan (OEMP) and Decommissioning Environmental Management Plan (DEMP) respectively and associated other management plans relevant to this assessment which will be developed which are outlined below:

1) Materials and Waste Management Plan (MWMP);
2) Soil Resources Management Plan (SRMP);
3) Pollution and Spillage Response Plan (PSRP); and
4) Battery Safety Management Plan (BSMP).

5.2.3 An outline CEMP (oCEMP) [**EN0110012/APP/LVS/07.02**], outline OEMP (oOEMP) [**EN0110012/APP/LVS/07.03**], outline DEMP (oDEMP) [**EN0110012/APP/LVS/07.04**], outline MWMP (oMWMP) [**EN0110012/APP/LVS/07.07**], outline SRMP (oSRMP) [**EN0110012/APP/LVS/07.14**], outline PSRP (oPRSP) [**EN0110012/APP/LVS/07.08**] and outline BSMP (oBSMP) [**EN0110012/APP/LVS/07.06**] have been submitted with the DCO Application to secure the commitments set out below. Final versions of these plans will be required as a requirement of the DCO and must be prepared in substantial accordance with the outlines and approved by North Yorkshire Council prior to the commencement of each relevant phase of the development.

5.2.4 The Proposed Development has evolved through an iterative design process. Measures for the Proposed Development relevant to water resources and flood

risk already committed to and secured within the oCEMP [**EN0110012/APP/LVS/07.02**] or Design Parameters and Commitments Document (as relevant) [**EN0110012/APP/LVS/05.06**] include:

1) A minimum offset of 10 m from bank top for all WER surface water bodies from all infrastructure (including fencing) and construction works, except where watercourse crossings are required (access tracks / cable routing / fencing will be located to pass across existing watercourse crossings where feasible).
2) The sequential location of flood-sensitive infrastructure, including substations and the BESS Compound, in areas of lowest flood risk, in the locations shown on the Works Plans [**EN0110012/APP/LVS/02.03**]. This includes locating these assets within Flood Zone 1 and Flood Zone 2 only, thereby avoiding Flood Zone 3 and minimising potential flood risk and the loss of functional floodplain.
3) The use of site-specific flood modelling to inform the spatial distribution of infrastructure, ensuring that substations and the BESS Compound are located outside the flood envelope associated with the 1 in 100-year plus climate change design flood event.
4) Solar panels will be mounted on metal frames, which are compatible with being placed in a floodplain.
5) Sustainable drainage solutions (SuDS) will be provided at source, and be considered in the drainage strategy, ensuring that surface water run-off is managed appropriately.
6) Internal Solar PV access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates as per the existing condition.
7) Existing watercourse crossings are to be used wherever practicable.
8) Where watercourse crossing structures are required, the design will maintain a natural watercourse bed where reasonably practicable.
9) Culverts will be sized appropriately to the flow in the watercourse.
10) Temporary watercourse crossing structures should be removed once they are no longer required for the purposes of construction.
11) When a temporary watercourse crossing structure is removed, the watercourse should be reinstated to the baseline condition or to a better condition than baseline.
12) Suitable stand offs from springs, spring catchments or boreholes.
13) Use of underground cabling methodology that minimises disruption to the ground.
14) Use of piling methodology that minimises likelihood of creating pollution pathway to groundwater.

15) Trenchless solutions, for example horizontal directional drilling (HDD), are proposed for the crossing of the River Ouse, main rivers, IDB watercourses, and WER water body line watercourses. Trenchless solutions will also be utilised when/if crossing ditches that lead to the following designated sites: Common Wood SINC, Nightingale Wood SINC, Burr Closes SSSI, and Barber Rain SINC. Trenchless solutions will also be employed to pass beneath Ouse Bank-Westfield-Riccall Ings SINC that flanks the River Ouse, which will avoid direct impacts to the designated site. For some minor watercourse crossings (unnamed watercourses) trenchless techniques such as HDD will also be utilised. For some unnamed watercourse crossings, open cut crossing techniques will be utilised in some instances and only where the watercourse receptor value is low. This is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

16) A number of 'Avoidance Areas' have been identified for HDD (refer to Figure 2.5: Avoidance Areas (ES Volume 2) [**EN0110012/APP/LVS/06.02.02.05**] and Appendix 2.1: Cable Route Method Statement (ES Volume 3) [**EN0110012/APP/LVS/06.03.02.01**]) where non-intrusive installation methods will be used to avoid impact to sensitive features such as the watercourses set out above, hedgerows and mature vegetation. No open cut trenches or launch/exit pits will be located within Avoidance Areas.

17) Where practicable, cabling within the Solar Development Sites will be routed to follow access tracks and where these access tracks cross drains/watercourses vias existing culverts cables would be routed over these culverts/new culverts constructed to the dimensions of the existing culverts. In cases where this is not practicable the impact of open cut trenching will be short term (less than 6 months in duration). This is secured within the oCEMP [**EN0110012/APP/LVS/07.02**].

18) Within each of the BESS enclosures, either an internal water-based fire suppression system will be provided or, if not provided, the BESS system will be designed to safely burn out to remove the risk of stranded energy in the battery systems. If an internal water-based fire suppression system is provided, this will include a separate water supply, internal drainage system, and segregated fire water containment system which will be isolated from the site drainage network. Segregation of the internal drainage systems will reduce the risk of contaminated fire water entering the wider drainage network in the event of a fire. Testing of any water contained within the containment tanks following a fire would be carried out prior to the water being removed via tanker and treated off-site, ensuring it is handled in accordance with the relevant environmental legislation and best practice. This is detailed within Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**] and the oBMSP [**EN0110012/APP/LVS/07.06**].

19) Design principles set out in the oBSMP [**EN0110012/APP/LVS/07.06**] indicate that a defensive firefighting strategy will be employed for the BESS,

consisting of boundary cooling to minimise pollution risk. There is a risk that the water used for boundary cooling may become contaminated, in the event of any leaks from the BESS enclosures. A secondary containment system will be provided on the external surface water drainage system, allowing isolation of the system and sufficient storage to contain any water used in the boundary cooling process. Secondary containment systems may take the form of impermeable lagoons or tanks that are fitted with automated shut-off valves that are linked to the BESS fire alarm system. The BESS drainage system will be fully sealed. During standard operation, the self-actuating valves will be open to allow surface water runoff to discharge to the downstream network under normal operation. A manual back-up shut-off valve system allowing for redundancy will also be integrated. Regular checking and maintenance of drainage isolation devices associated with fire water containment will be undertaken to ensure they are operational when needed and not seized. This is detailed within Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**].

20) In the event of a fire within the BESS, the automated shut-off valves would be triggered by the fire alarm system to prevent any potentially contaminated runoff entering the downstream drainage network or wider water environment. Following a fire event, when safe to do so, samples of the contained firewater runoff will be taken by a suitably competent person and submitted to a UKAS accredited laboratory for analysis using UK Accreditation Service (UKAS) and Monitoring Certification Scheme (MCERTS) accredited methods, where applicable. The contained runoff will not be removed or discharged until the results have been reviewed and the appropriate disposal route is confirmed. In the event of contamination, the drainage isolation device will not be reopened until appropriate cleaning of the drainage system has been undertaken. The retained firewater will be disposed of by a licensed tanker off-site where contamination is confirmed, prior to the valve being manually re-opened to resume normal operation. As the discharge of contaminated firewater to the environment is not permitted without an Environmental Permit, only water confirmed as uncontaminated and safe for release would be discharged in a controlled manner to the local drainage network. This approach ensures that environmental protection is maintained under both normal and emergency conditions. This is detailed within Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**] and the oBMSP [**EN0110012/APP/LVS/07.06**].

Construction mitigation

5.2.5 Relevant construction mitigation secured via the oCEMP [**EN0110012/APP/LVS/07.02**] includes:

1) Internal Solar PV access tracks will be of permeable construction to allow water to filtrate through and maintain greenfield runoff rates.

2) A 50 m stand off will be applied from all groundwater and surface water abstractions, both licensed and private water supplies.

3) Use of underground cabling methodology that minimises disruption to the ground (e.g. where practicable cable plough which cuts, installs and backfills in one operation). The use of underground cabling will consider the risk of groundwater flooding and be appropriately waterproofed.

4) Use of piling methodology that minimises likelihood of creating pollution pathway to groundwater. This will be assessed in a foundation works risk assessment.

5) Minimising area of hardstanding required for laydown and construction compounds.

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

7) Where land drainage from agriculture is encountered during construction, actions will be taken to divert the flow to an appropriate location, such as the construction drainage network. Prior to completion of the Proposed Development, these field drains will be reinstated to the original locations, where practicable, or to a suitable alternative discharge point determined before the end of construction.

8) During construction appropriate welfare facilities will be provided. Foul water generation will be limited to welfare facilities. In the absence of mains sewer connections, temporary foul flows will be managed via a sealed non-mains drainage solution, comprising either a cesspool or package treatment plant subject to detailed design. Where required, off-site disposal will be undertaken by a licensed contractor, or treated effluent will be discharged in accordance with the Environment Agency's General Binding Rules or an environmental permit. Systems will be designed to avoid impacts on water resources and located outside areas of flood risk, as confirmed by the Flood Risk Assessment.

9) The Proposed Development would be managed during its construction in accordance with the CEMP and other management plans indicated in Section 5.2.2 above to provide biosecurity, manage contamination risk and minimise disturbance, and manage pollution and spillage incidents on site.

5.3 Assumption and limitations

5.3.1 This assessment is based on baseline and design information available at the time of writing. Walkover surveys were conducted in May 2025 and August 2025 and information gathered has been used as part of this assessment.

5.3.2 The findings presented in this assessment are subject to change as and when the detailed design is developed following the DCO Application / appointment of a contractor. At this stage, the Cable Route Corridor typically covers a 50 m width,

however it is noted that the typical construction working width is approximately 25 m. Potential effects associated with the Cable Route Corridor have been assessed based on the larger width as a 'worst case scenario'.

5.3.3 Where design details are still under development or flexibility is sought, assumptions have been made based on professional judgment and the assessment has been based on the parameters set.

5.3.4 At this stage the water supply for the development is not confirmed, however it is understood that there is no requirement for a new licensed water abstraction from surface water or groundwater to provide water during construction. This is considered in further detail in the Water Resource Assessment [**EN0110012/APP/LVS/07.16**]. Water is expected to be either transported to the Site by road tankers from mains water where available, subject to agreement from Yorkshire Water, or from another water tanker supplier. Alternatives being considered are repurposing existing nearby licenced water abstractions or private water supplies source, where viable; abstracting from one or more small scale surface water abstractions (<20 m^3/d) which do not require licensing; or surface water sourced and stored on site.

5.3.5 At this stage, access tracks within the Solar Development Sites are only indicative for the purposes of assessment. The locations and alignments of the internal access tracks within the Solar Development Sites are likely to change depending on the final layout design and the construction methodology.

5.3.6 A possible access route for Solar Development Site 8, as a worst case scenario, may require removal of an existing crossing structure over Selby Dam and replacement of this structure with a new crossing structure to maintain access to nearby properties. It is assumed that the construction period for replacement would not exceed 2 months.

5.3.7 As set out in the Cable Route Corridor Construction Method Statement [**EN110012/APP/LVS/06.03.02.01**], haul roads required for the cable routing have been designed to avoid drainage ditches and watercourses based on the surface water flood map for the region. Where watercourses cannot be avoided, it is assumed as a worst case that a temporary culvert will be used as the crossing structure. The culverts required for the haul roads are assumed to be in place for a maximum of two years as a worst case.

5.3.8 The oCEMP [**EN0110012/APP/LVS/07.02]** includes measures to reinstate watercourses impacted by temporary cross structures to baseline condition or better.

5.3.9 If footpath diversions, which are part of the ancillary works, cross watercourses, it has been assumed, for the purposes of this assessment, that any crossings needed will take the form of footbridges.

5.3.10 As set out in the oBSMP [**EN0110012/APP/LVS/07.06**], if the BESS system does not incorporate an automatic fire suppression system, it will be designed to safely burn out to remove the risk of stranded energy in the battery systems.

5.3.11 During the operational phase welfare facilities are to be limited to the substation compounds only. Given the remote nature of the Proposed Development and the fact that no readily accessible public sewers are understood to be available, wastewater generated by these welfare facilities will be managed by a sealed, non-mains drainage solution. This will comprise either a sealed cesspool or a small package treatment plant, subject to site-specific constraints and environmental considerations. Where a cesspool is implemented, periodic off-site disposal will be undertaken by a licensed waste contractor in accordance with relevant regulatory requirements. Should a package treatment plant be adopted as the preferred option, any discharge of treated effluent to ground or surface waters shall be required to comply with the Environment Agency's General Binding Rules or else be subject to an environmental permit.

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

5.3.13 The decommissioning phase is anticipated to include less but similar works to the construction phase and therefore to have similar potential impacts.

6 Screening and baseline assessment

6.1 Overview

6.1.1 The screening and baseline assessment stage has identified the relevant WER water bodies that will potentially be affected by the Proposed Development. The information relating to these water bodies, alongside the relevant EA WER data, is summarised in the sections below.

6.2 River Basin Management Plan

6.2.1 The Proposed Development is located within the Ouse Lower and Aire Lower operational catchments, within the Humber River Basin District (RBD). The groundwater bodies are located within the Wharfe & Lower Ouse Sherwood Sandstone, Aire & Don Sherwood Sandstone, Wharfe Magnesian Limestone and Aire & Don Magnesian Limestone Operational Catchments. The WER status objectives and programme of measures derived by the EA for water bodies located within this RBD are outlined within the recently published Cycle 3 Humber River Basin Management Plan (RBMP).

6.2.2 Readily available baseline information has been collated to identify the relevant WER surface water and groundwater bodies potentially affected by the Proposed Development. Additional information has been provided by the EA following relevant requests and is summarised below.

6.3 Relevant water bodies

6.3.1 Twelve WER surface water bodies and five WER groundwater bodies are present within the study area and are summarised in Table 6-1. The catchment locations are also shown in B.1 of Annex B.

6.3.2 Six of the surface water bodies contain watercourses within the Order Limits:

1) Aire from Fryston Beck to River Ouse;
2) Ouse from R Wharfe to Upper Humber;
3) Selby Dam from Conf. Fox Dike and Carr Dike to Ouse;
4) Riccall Dam Catchment (trib of Ouse);
5) The Fleet from Source to River Aire; and
6) Holmes Dike Catchment (trib of Ouse).

6.3.3 Given the nature and location of the Proposed Development, these six water bodies have been screened in for assessment.

6.3.4 Given the nature and location of the Proposed Development, it is not anticipated to affect the other six surface water bodies in the Study Area. Four of these water bodies are located outside of the Order Limits, these are Mill Dike from Source Bishop Dike, Fox Dike / Carr Dike from Source to Selby Dam, Upper Fox Drain Catchment ds of Sherburn STW and Derwent from Elvington Beck to River Ouse.

These water bodies have no direct hydrological connection to the Solar Development Sites. The Proposed Development will have no direct physical impact on these sites and no changes to surface processes are expected to these water bodies as a result of the Proposed Development. Therefore, these surface water bodies have been screened out of the WER scoping assessment, as summarised in Table 6-1. In addition, the Order Limits extend in a very limited way into two WER water body catchments; Stillingfleet Beck Source to Ouse Catchment and Bishop Dike (trib of Ouse). Given that there are no watercourses within this small area and the surface water drainage management proposals for the Solar Development Sites, it is not anticipated that these water bodies would be affected and have therefore been screened out.

6.3.5 Four of the groundwater bodies are within the footprint of the Order Limits:

1) Wharfe & Lower Ouse Sherwood Sandstone;
2) Aire & Don Sherwood Sandstone;
3) Wharfe Magnesian Limestone; and
4) Aire & Don Magnesian Limestone.

6.3.6 Given the nature and location of the Proposed Development, these four groundwater bodies have been screened in for assessment.

6.3.7 One further groundwater body, Derwent Sherwood Sandstone, is located outside of the Order Limits. This water body has no direct hydrological connection to the Solar Development Sites. The Proposed Development will have no direct physical impact on these water bodies and no changes to sub-surface processes are expected to this water body as a result of the Proposed Development. Therefore, the groundwater body has been screened out of the WER scoping assessment, as summarised in Table 6-1.

Table 6-1 WER water bodies present within and adjacent to the Proposed Development

Water Body Name	Water Body ID	Water Body Type	Hydromorphological Designation	Catchment Area / Length	Screened in or out?
Aire from Fryston Beck to River Ouse	GB104027063037	River	Designated heavily modified	92.15 km^2 / 48.9 km	Screened in
Ouse from R Wharfe to Upper Humber	GB104027064270	River	Designated heavily modified	87.78 km^2 / 34.241 km	Screened in
Selby Dam from Conf. Fox Dike and Carr Dike to Ouse	GB104027063620	River	Designated heavily modified	39.593 km^2 / 8.857 km	Screened in

Water Body Name	Water Body ID	Water Body Type	Hydromorphological Designation	Catchment Area / Length	Screened in or out?
Riccall Dam Catchment (trib of Ouse)	GB104027063690	River	Not designated artificial or heavily modified	41.932 km^2 / 19.91 km	Screened in
The Fleet from Source to River Aire	GB104027062740	River	Designated artificial	13.397 km^2 / 8.838 km	Screened in
Holmes Dike Catchment (trib of Ouse)	GB104027063650	River	Not designated artificial or heavily modified	17.433 km^2 / 4.808 km	Screened in
Wharfe & Lower Ouse Sherwood Sandstone	GB40401G702400	Groundwater	Not applicable	397.205 km^2 / not applicable	Screened in
Aire & Don Sherwood Sandstone	GB40401G701000	Groundwater	Not applicable	303.169 km^2 / not applicable	Screened in
Wharfe Magnesian Limestone	GB40401G701100	Groundwater	Not applicable	176.217 km^2 / not applicable	Screened in
Aire & Don Magnesian Limestone	GB40401G700900	Groundwater	Not applicable	221.765 km^2 / not applicable	Screened in
Bishop Dike (trib of Ouse)	GB104027063660	River	Not designated artificial or heavily modified	25.346 km^2 / 16.968 km	Screened out
Fox Dike / Carr Dike from Source to Selby Dam	GB104027063680	River	Not designated artificial or heavily modified	11.296 km^2 / 6.693 km	Screened out
Mill Dike from Source Bishop Dike	GB104027063640	River	Not designated artificial or heavily modified	21.604 km^2 / 14.958 km	Screened out
Stillingfleet Beck Source to Ouse	GB104027063710	River	Designated heavily modified	53.695 km^2 / 26.629 km	Screened out

Water Body Name	Water Body ID	Water Body Type	Hydromorphological Designation	Catchment Area / Length	Screened in or out?
Upper Fox Drain Catchment ds of Sherburn STW	GB104027063610	River	Designated heavily modified	10.104 km^2 / 11.357 km	Screened out
Derwent from Elvington Beck to River Ouse	GB104027068311	River	Designated heavily modified	64.294 km^2 / 24.292 km	Screened out
Derwent Sherwood Sandstone	GB40401G700600	Groundwater	Not applicable	184.743 km^2 / not applicable	Screened out

6.3.8 Annex E of this report also contains more detail about information discussed in the following sections pertaining to Reasons for Not Achieving Good (RNAG), Protected Areas and EA monitoring locations.

6.4 WER water body baseline

Aire from Fryston Beck to River Ouse (GB104027063037)

Status and objectives

6.4.1 The Aire from Fryston Beck to River Ouse water body is designated as a HMWB, in recognition of physical modifications by human activity and a resultant substantial change in character. It is currently assessed (as of 2022) as having an Overall Status of Moderate, Ecological Status of Moderate and a Chemical Status of Fail. The water body is therefore failing its Good Overall Status objective under the WER at present.

6.4.2 A breakdown of the current status and status objectives of the water body is provided in Table 6-2. The quality elements currently limiting the Ecological Status of the water body are Invertebrates (Moderate), Macrophytes Sub Element (Poor), Phosphate (Poor), the Mitigation Measures Assessment (Moderate or less) and Diazinon (Moderate). The quality elements limiting the Chemical Status of the water body are Mercury and its Compounds (Fail), Perfluorooctane sulphonate (PFOS) (Fail) and Polybrominated diphenyl ethers (PBDE) (Fail).

Table 6-2 Aire from Fryston Beck to River Ouse (GB104027063037) water body

Quality Element	Cycle 3 RBMP		
	2019 status	**Current status (2022)**	**Objective**
ECOLOGICAL	**Moderate**	**Moderate**	**Good (2027) - Low confidence**

Quality Element	Cycle 3 RBMP		
	2019 status	**Current status (2022)**	**Objective**
Biological quality elements	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Invertebrates	Moderate	Moderate	Good (2027) - Low confidence
Macrophytes and Phytobenthos Combined	Not assessed	Not assessed	Not assessed (2015)
Macrophytes Sub Element	Poor	Poor	-
Physico-chemical quality elements	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Acid Neutralising Capacity	High	High	Good (2015)
Ammonia (Phys-Chem)	Good	Good	Good (2015)
Dissolved oxygen	High	High	Good (2015)
Phosphate	Poor	Poor	Good (2027) - Low confidence
Temperature	Good	Good	Good (2015)
pH	High	High	Good (2015)
Hydromorphological Supporting Elements	**Not high**	**Not high**	**Not high (2015)**
Hydrological Regime	Supports good	Supports good	Supports good (2015)
Supporting elements (Surface Water)	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Mitigation Measures Assessment	Moderate or less	Moderate or less	Good (2027) - Low confidence
Specific pollutants	**Moderate**	**Moderate**	**High (2027) - Low confidence**
2,4-dichlorophenol	High	High	High (2015)
2,4-dichlorophenoxyacetic acid	High	High	High (2015)
Arsenic	High	High	High (2015)
Chlorothalonil	High	High	High (2015)
Copper	High	High	High (2015)
Diazinon	Moderate	Moderate	High (2027) - Low confidence
Dimethoate	High	High	High (2015)
Iron	High	High	High (2015)
Manganese	High	High	High (2015)
Mecoprop	High	High	High (2015)
Pendimethalin	High	High	High (2015)
Permethrin	High	High	High (2015)
Phenol	High	High	High (2015)
Zinc	High	High	High (2015)

Quality Element	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
CHEMICAL	**Fail**	**Does not require assessment[1]**	**Good (2063)**
Priority hazardous substances	**Fail**	**Does not require assessment**	**Good (2063)**
Benzo(a)pyrene	Good		Good (2015)
Benzo(b)fluoranthene	Good		Good (2015)
Benzo(g-h-i)perylene	Good		Good (2015)
Benzo(k)fluoranthene	Good		Good (2015)
Cadmium and Its Compounds	Good		Good (2015)
Di(2-ethylhexyl)phthalate (Priority hazardous)	Good		Good (2015)
Dioxins and dioxin-like compounds	Good		Good (2015)
Endosulfan	Good		Good (2015)
Heptachlor and cis-Heptachlor epoxide	Good		Good (2015)
Hexabromocyclododecane (HBCDD)	Good		Good (2015)
Hexachlorobenzene	Good		Good (2015)
Hexachlorobutadiene	Good		Good (2015)
Hexachlorocyclohexane	Good		Good (2015)
Mercury and Its Compounds	Fail		Good (2040)
Nonylphenol	Good		Good (2015)
Pentachlorobenzene	Good		Good (2015)
Perfluorooctane sulphonate (PFOS)	Fail		Good (2039)
Polybrominated diphenyl ethers (PBDE)	Fail		Good (2063)
Quinoxyfen	Good		Good (2015)
Tributyltin Compounds	Good		Good (2015)
Priority substances	**Good**	**Does not require assessment**	**Good (2015)**
1,2-dichloroethane	Good		Good (2015)
Aclonifen	Good		Good (2015)
Alachlor	Good		Good (2015)
Atrazine	Good		Good (2015)
Bifenox	Good		Good (2015)
Chlorfenvinphos	Good		Good (2015)
Cybutryne	Good		Good (2015)
Cypermethrin (Priority)	Good		Good (2015)
Dichlorvos (Priority)	Good		Good (2015)

[1] Chemical status is only measured once per RBMP cycle, therefore the 2019 status still remains applicable.

Quality Element	Cycle 3 RBMP		
	2019 status	**Current status (2022)**	**Objective**
Fluoranthene	Good		Good (2015)
Lead and Its Compounds	Good		Good (2015)
Nickel and Its Compounds	Good		Good (2015)
Pentachlorophenol	Good		Good (2015)
Simazine	Good		Good (2015)
Terbutryn	Good		Good (2015)
Trichlorobenzenes	Good		Good (2015)
Trichloromethane	Good		Good (2015)
Other Pollutants	**Good**	**Does not require assessment**	**Does not require assessment (2015)**
Aldrin, Dieldrin, Endrin & Isodrin	Good		Good (2015)
Carbon Tetrachloride	Good		Good (2015)
Tetrachloroethylene	Good		Good (2015)
Trichloroethylene	Good		Good (2015)
para - para DDT	Good		Good (2015)

Protected areas

6.4.3 The water body is not reported as falling within any protected areas on the EA Catchment Data Explorer (Ref 3). However it should be noted that the Aire from Fryston Beck to River Ouse (GB104027063037) is a new water body for the Cycle 3 RBMP, created by splitting the Cycle 2 Aire from River Calder to River Ouse (GB104027062760) water body into two separate water bodies (Aire from Fryston Beck to River Ouse (GB104027063037) and Aire from Wyke Beck to Fryston Beck (GB104027063036). Consequently, the EA Catchment Data Explorer (Ref 3) may not be showing protected areas accurately for this water body.

EA monitoring locations

6.4.4 There are eight EA monitoring sites in this water body in Cycle 3 (Ref 3). These include one for diatoms, two for macrophytes, one for fish and four for water quality, including physico-chemical elements.

RNAG status

6.4.5 The EA have identified eight RNAG status for this water body (Annex E.2). These include Phosphate from agriculture diffuse sources and water industry point sources, Diazinon from water industry point sources, point source intermittent and continuous sewage discharge impacting invertebrates, and presence of PBDE which is currently being investigated. Measures are being delivered to address Mercury and its Compounds and PFOS and these are awaiting recovery.

Measures and actions

6.4.6 Additional information on RBMP measures/actions (including HMWB mitigation measures assessment) identified for the water body to support achievement of its status objectives was requested from the EA.

6.4.7 As noted in Section 6.4.3, this water body is a new water body for the RBMP Cycle 3. The new status of the water body means that it currently does not have a suite of measures and actions, and HMWB Mitigation Measures assigned to it. As such no further information from the EA was received on this water body.

6.4.8 Data received for Cycle 2 Aire from River Calder to River Ouse (GB104027062760) has been used as a proxy catchment. However, it is noted that the data covers a wider area than this catchment alone and therefore does not perfectly represent the Cycle 3 catchment.

6.4.9 HMWB Mitigation Measures assessment information for Cycle 2 Aire from River Calder to River Ouse (GB104027062760) was received, relating to modifications concerning Flood Protection and Navigation, including measures to remove/soften engineering modifications and improve sediment management practices. Nineteen measures/actions were subsequently defined for the water body (Annex E.3). This includes one to manage rural diffuse pollution, five to manage point source discharges and 13 to mitigate the impacts on ecology from physical modifications. The measures and actions to mitigate physical modification comprise improving eel passage, improving operational and maintenance regimes and potentially removing or altering assets. Amending permit limits at Sewage Treatment Works is also outlined as the main mitigation to manage point source inputs.

Ouse from R Wharfe to Upper Humber (GB104027064270)

Status and objectives

6.4.10 The Ouse from R Wharfe to Upper Humber water body is designated as a HMWB, in recognition of physical modifications by human activity and a resultant substantial change in character. It is currently assessed (as of 2022) as having an Overall Status of Moderate, Ecological Status of Moderate and a Chemical Status of Fail. The water body is therefore failing its Good Overall Status objective under the WER at present.

6.4.11 A breakdown of the current status and status objectives of the water body is provided in Table 6-3. The quality elements currently limiting the Ecological Status of the water body are Phosphate (Moderate) and the Mitigation Measures Assessment (Moderate or less) and the quality elements limiting the Chemical status of the water body are Mercury and its Compounds (Fail), PFOS (Fail), PBDE (Fail) and para – para Dichlorodiphenyltrichloroethane (DDT) (Fail).

Table 6-3 Ouse from R Wharfe to Upper Humber (GB104027064270) water body

Quality Element	Cycle 3 RBMP		
	2019 status	**Current status (2022)**	**Objective**
ECOLOGICAL	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Physico-chemical quality elements	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Acid Neutralising Capacity	High	High	Good (2015)
Ammonia (Phys-Chem)	High	High	Good (2015)
Dissolved oxygen	Good	High	Good (2015)
Phosphate	Moderate	Moderate	Good (2027) - Low confidence
Temperature	High	High	Good (2015)
pH	High	High	Good (2015)
Hydromorphological Supporting Elements	**Not high**	**Not high**	**Not high (2015)**
Hydrological Regime	Supports good	Supports good	Supports good (2015)
Supporting elements (Surface Water)	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Mitigation Measures Assessment	Moderate or less	Moderate or less	Good (2027) - Low confidence
Specific pollutants	**High**	**High**	**High (2015)**
Arsenic	High	High	High (2015)
Chlorothalonil	High	High	High (2015)
Chromium (VI)	High	High	High (2015)
Copper	High	High	High (2015)
Diazinon	High	High	High (2015)
Dimethoate	High	High	High (2015)
Iron	High	High	High (2015)
Manganese	High	High	High (2015)
Pendimethalin	High	High	High (2015)
Zinc	High	High	High (2015)
CHEMICAL	**Fail**	**Does not require assessment**[1]	**Good (2063)**
Priority hazardous substances	**Fail**	**Does not require assessment**	**Good (2063)**
Benzo(a)pyrene	Good		Good (2015)
Cadmium and Its Compounds	Good		Good (2015)
Dioxins and dioxin-like compounds	Good		Good (2015)
Heptachlor and cis-Heptachlor epoxide	Good		Good (2015)
Hexabromocyclododecane (HBCDD)	Good		Good (2015)
Hexachlorobenzene	Good		Good (2015)

Quality Element	Cycle 3 RBMP		
Hexachlorobutadiene	Good		Good (2015)
Hexachlorocyclohexane	Good		Good (2015)
Mercury and Its Compounds	Fail		Good (2040)
Pentachlorobenzene	Good		Good (2015)
Perfluorooctane sulphonate (PFOS)	Fail		Good (2039)
Polybrominated diphenyl ethers (PBDE)	Fail		Good (2063)
Quinoxyfen	Good		Good (2015)
Priority substances	**Good**	**Does not require assessment**	**Good (2015)**
Aclonifen	Good		Good (2015)
Alachlor	Good		Good (2015)
Bifenox	Good		Good (2015)
Cybutryne	Good		Good (2015)
Cypermethrin (Priority)	Good		Good (2015)
Dichlorvos (Priority)	Good		Good (2015)
Fluoranthene	Good		Good (2015)
Lead and Its Compounds	Good		Good (2015)
Nickel and Its Compounds	Good		Good (2015)
Terbutryn	Good		Good (2015)
Other Pollutants	**Fail**	**Does not require assessment**	**Good (2027) - Low confidence**
para - para DDT	Fail		Good (2027) - Low confidence

Protected areas

6.4.12 The water body falls within three Protected Areas (Annex E.1). These comprise of the River Derwent SAC and two Nitrate Vulnerable Zones (NVZs): Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ and Aire from River Calder to River Ouse NVZ.

EA monitoring locations

6.4.13 No ecological monitoring locations are found within the water body. Three water quality monitoring sites have been used to inform the classification of the water body (Ref 3).

RNAG status

6.4.14 The EA have identified nine RNAG status for this water body (Annex E.2). These include Phosphate from agriculture diffuse sources and water industry point sources, and Mitigation Measures Assessment due to physical modification, diffuse source *para DDT* pollution from industry and agriculture, and presence of PFOS which is currently being investigated. Measures are being delivered to

address Mercury and its Compounds and PBDE, and these are awaiting recovery.

Measures and actions

6.4.15 Additional information on RBMP measures/actions (including HMWB mitigation measures assessment) identified for the water body to support achievement of its status objectives was requested from the EA. HMWB Mitigation Measures assessment information was received, relating to modifications associated with Flood Protection and Navigation, including measures to remove/soften engineering modifications and improve sediment management practices (Annex A.1).

6.4.16 No additional data was available from the EA regarding programme of measures or water body actions.

Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620)

Status and objectives

6.4.17 The Selby Dam from Conf. Fox Dike and Carr Dike to Ouse water body is designated as a HMWB, in recognition of physical modifications by human activity and a resultant substantial change in character. It is currently assessed (as of 2022) as having an Overall Status of Moderate, Ecological Status of Moderate and a Chemical Status of Fail. The water body is therefore failing its Good Overall Status objective under the WER at present.

6.4.18 A breakdown of the current status and status objectives of the water body is provided in Table 6-4. The quality elements currently limiting the Ecological Status of the water body are Fish (Moderate), Macrophytes Sub Element (Moderate), Ammonia (Phys-Chem) (Moderate), Dissolved oxygen (Bad), Phosphate (Poor) and the Mitigation Measures Assessment (Moderate or less). The quality elements limiting the Chemical status of the water body are Mercury and its Compounds (Fail), PFOS (Fail), PBDE (Fail) and Cypermethrin (Priority) (Fail).

Table 6-4 Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620) water body

Quality Element	Cycle 3 RBMP		
	2019 status	**Current status (2022)**	**Objective**
ECOLOGICAL	**Moderate**	**Moderate**	**Moderate (2015)**
Biological quality elements	**Moderate**	**Moderate**	**Moderate (2021)**
Fish	Moderate	Moderate	Moderate (2021)
Invertebrates	Good	Good	Good (2015)
Macrophytes and Phytobenthos Combined	Not assessed	Not assessed	Not assessed (2015)

Quality Element	Cycle 3 RBMP		
Macrophytes Sub Element	Moderate	Moderate	
Physico-chemical quality elements	**Moderate**	**Moderate**	**Moderate (2015)**
Acid Neutralising Capacity	High	High	Good (2015)
Ammonia (Phys-Chem)	Moderate	Moderate	Moderate (2015)
Dissolved oxygen	Bad	Bad	Poor (2027) – Low confidence
Phosphate	Poor	Poor	Poor (2015)
Temperature	High	High	Good (2015)
pH	High	High	Good (2015)
Hydromorphological Supporting Elements	**Not high**	**Not high**	**Not high (2015)**
Hydrological Regime	Supports good	Supports good	Supports good (2015)
Supporting elements (Surface Water)	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Mitigation Measures Assessment	Moderate or less	Moderate or less	Good (2027) - Low confidence
Specific pollutants	**High**	**High**	**High (2015)**
Copper	High	High	High (2015)
Iron	High	High	High (2015)
Manganese	High	High	High (2015)
Mecoprop	High	High	High (2015)
Zinc	High	High	High (2015)
CHEMICAL	**Fail**	**Does not require assessment**[1]	**Good (2063)**
Priority hazardous substances	**Fail**	**Does not require assessment**	**Good (2063)**
Benzo(a)pyrene	Good		Good (2015)
Benzo(b)fluoranthene	Good		Good (2015)
Benzo(g-h-i)perylene	Good		Good (2015)
Benzo(k)fluoranthene	Good		Good (2015)
Cadmium and Its Compounds	Good		Good (2015)
Dioxins and dioxin-like compounds	Good		Good (2015)
Heptachlor and cis-Heptachlor epoxide	Good		Good (2015)
Hexabromocyclododecane (HBCDD)	Good		Good (2015)
Hexachlorobenzene	Good		Good (2015)
Hexachlorobutadiene	Good		Good (2015)
Mercury and Its Compounds	Fail		Good (2040)
Perfluorooctane sulphonate (PFOS)	Fail		Good (2039)
Polybrominated diphenyl ethers (PBDE)	Fail		Good (2063)

Quality Element	Cycle 3 RBMP		
Priority substances	**Fail**	**Does not require assessment**	**Good (2027) - Low confidence**
Cypermethrin (Priority)	Fail		Good (2027) - Low confidence
Fluoranthene	Good		Good (2015)
Lead and Its Compounds	Good		Good (2015)
Nickel and Its Compounds	Good		Good (2015)
Other Pollutants	**Does not require assessment**	**Does not require assessment**	**Does not require assessment (2015)**

Protected areas

6.4.19 The water body falls within one Protected Areas (Annex E.1), the Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ.

EA monitoring locations

6.4.20 Six monitoring locations have been used to inform water body classifications in Cycle 3 (Ref 3). These include two invertebrate sites, one macrophyte monitoring site and three water quality sites.

RNAG status

6.4.21 The EA have identified 15 RNAG status for this water body (Annex E.2). These include point source pollution from industry and sewage discharge which is impacting phosphate, ammonia, and dissolved oxygen, as well as diffuse source phosphate pollution from agriculture. Other reasons include sewage discharge impacting fish, failing the Mitigation Measures Assessment due to physical modification, and presence of PFOS which is currently being investigated. Measures have been delivered to address Mercury and Its Compounds and PBDE and these are awaiting recovery.

Measures and actions

6.4.22 The HMWB Mitigation Measures assessment for the water body includes measures relating to modifications for Flood Protection, Land Drainage and Urbanisation. Fourteen measures/actions were subsequently defined for the water body (Annex E.3). This includes two to manage rural diffuse pollution, five to manage point source discharges and seven to mitigate the impacts on ecology from physical modifications. The measures and actions to mitigate physical modification comprise of installing a fish pass on Selby Dam Pumping Station, developing a bankside planting project, improving in channel and marginal diversity and potentially removing or altering assets.

Riccall Dam Catchment (trib of Ouse) (GB104027063690)

Status and objectives

6.4.23 The Riccall Dam Catchment (trib of Ouse) water body is not designated as artificial or heavily modified, in recognition of the fact there has been limited anthropogenic change to the river character. It is currently assessed (as of 2022) as having an Overall Status of Moderate, Ecological Status of Moderate and a Chemical Status of Fail. The water body is therefore failing its Good Overall Status objective under the WER at present.

6.4.24 A breakdown of the current status and status objectives of the water body is provided in Table 6-5. The quality element currently limiting the Ecological Status of the water body is Macrophytes and Phytobenthos Combined (Moderate), Macrophytes Sub Element (Moderate) and Phosphate (Moderate). The quality elements limiting the Chemical status of the water body are PBDE (Fail), and Mercury and its Compounds (Fail).

Table 6-5 Riccall Dam Catchment (trib of Ouse) (GB104027063690) water body

Quality Element	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
ECOLOGICAL	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Biological quality elements	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Invertebrates	Good	Good	Good (2015)
Macrophytes and Phytobenthos Combined	Moderate	Moderate	Good (2027) - Low confidence
Macrophytes Sub Element	Moderate	Moderate	
Physico-chemical quality elements	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Ammonia (Phys-Chem)	Good	Good	Good (2015)
Dissolved oxygen	Moderate	High	Good (2015)
Phosphate	Moderate	Moderate	Good (2027) - Low confidence
Temperature	High	High	Good (2015)
pH	High	High	Good (2015)
Hydromorphological Supporting Elements	**Not high**	**Not high**	**Not high (2015)**
Hydrological Regime	Supports good	Supports good	Supports good (2021)
Morphology	Not high	Not high	

Quality Element	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
Supporting elements (Surface Water)	**Not assessed**	**Not assessed**	**Not assessed (2015)**
Specific pollutants	**Not assessed**	**Not assessed**	**Not assessed (2015)**
CHEMICAL	**Fail**	**Does not require assessment**[1]	**Good (2063)**
Priority hazardous substances	**Fail**	**Does not require assessment**	**Good (2063)**
Benzo(a)pyrene	Good		Good (2015)
Dioxins and dioxin-like compounds	Good		Good (2015)
Heptachlor and cis-Heptachlor epoxide	Good		Good (2015)
Hexabromocyclododecane (HBCDD)	Good		Good (2015)
Hexachlorobenzene	Good		Good (2015)
Hexachlorobutadiene	Good		Good (2015)
Mercury and Its Compounds	Fail		Good (2040)
Perfluorooctane sulphonate (PFOS)	Good		Good (2015)
Polybrominated diphenyl ethers (PBDE)	Fail		Good (2063)
Priority substances	**Good**	**Does not require assessment**	**Good (2015)**
Cypermethrin (Priority)	Good		Good (2015)
Fluoranthene	Good		Good (2015)
Other Pollutants	**Does not require assessment**	**Does not require assessment**	**Does not require assessment (2015)**

Protected areas

6.4.25 The water body falls within three Protected Areas (Annex E.1). These comprise of the Skipwith Common SAC and two NVZs: Lowmoor Drain Catch (trib of Derwent) NVZ and Riccall Dam Catchment (trib of Ouse) NVZ.

EA monitoring locations

6.4.26 There is one EA water quality monitoring site for Cycle 3 for this water body (Ref 3).

RNAG status

6.4.27 The EA have identified ten RNAGs for this water body (Annex E.2). These include diffuse and point source impacts on phosphate from sewage treatment and agriculture respectively. Dissolved oxygen levels are being impacted by point and diffuse sources, as well as by physical modification for land drainage. Sewage treatment point source discharge is also impacting Macrophytes and

Phytobenthos Combined. Measures have been delivered to address Mercury and Its Compounds and PBDE and these are awaiting recovery.

Measures and actions

6.4.28 No HMWB Mitigation Measure assessment has been undertaken for this water body, as it is not designated as heavily modified. The EA have defined five measures/actions relevant to the water body (Annex E.3). This includes three to manage rural diffuse pollution, one to manage point source discharges and two to manage modified habitats. These measures/actions are required to address existing pressures on current status and to support the achievement of the water body's status objectives going forward.

The Fleet from Source to River Aire (GB104027062740)

Status and objectives

6.4.29 The Fleet from Source to River Aire water body is designated as an Artificial Water Body, in recognition of physical modifications by human activity. It is currently assessed (as of 2022) as having an Overall Status of Moderate, Ecological Status of Moderate and a Chemical Status of Fail. The water body is therefore failing its Good Overall Status objective under the WER at present.

6.4.30 A breakdown of the current status and status objectives of the water body is provided in Table 6-6. The quality elements currently limiting the Ecological Status of the water body are Invertebrates (Moderate), Macrophytes Sub Element (Poor), Dissolved oxygen (Bad) and the Mitigation Measures Assessment (Moderate or less). The quality elements limiting the Chemical status of the water body are Mercury and its Compounds (Fail), PBDE (Fail) and Cypermethrin (Priority) (Fail).

Table 6-6 The Fleet from Source to River Aire (GB104027062740) water body

Quality Elements	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
ECOLOGICAL	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Biological quality elements	**Bad**	**Moderate**	**Moderate (2027) - Low confidence**
Invertebrates	Bad	Moderate	Moderate (2027) - Low confidence
Macrophytes and Phytobenthos Combined	Not assessed	Not assessed	Not assessed (2015)
Macrophytes Sub Element	Moderate	Poor	
Physico-chemical quality elements	**Moderate**	**Moderate**	**Good (2027) - Low confidence**

Quality Elements	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
Ammonia (Phys-Chem)	Good	High	Good (2021)
Dissolved oxygen	Bad	Bad	Good (2027) - Low confidence
Phosphate	Poor	Good	Good (2015)
Temperature	High	High	Good (2015)
pH	High	High	Good (2015)
Hydromorphological Supporting Elements	**Not high**	**Not high**	**Not high (2015)**
Hydrological Regime	Supports good	Supports good	Supports good (2015)
Supporting elements (Surface Water)	**Moderate**	**Moderate**	**Good (2027) - Low confidence**
Mitigation Measures Assessment	Moderate or less	Moderate or less	Good (2027) - Low confidence
Specific pollutants	**Not assessed**	**Not assessed**	**Not assessed (2015)**
CHEMICAL	**Fail**	**Does not require assessment**[1]	**Good (2063)**
Priority hazardous substances	**Fail**	**Does not require assessment**	**Good (2063)**
Benzo(a)pyrene	Good		Good (2015)
Dioxins and dioxin-like compounds	Good		Good (2015)
Heptachlor and cis-Heptachlor epoxide	Good		Good (2015)
Hexabromocyclododecane (HBCDD)	Good		Good (2015)
Hexachlorobenzene	Good		Good (2015)
Hexachlorobutadiene	Good		Good (2015)
Mercury and Its Compounds	Fail		Good (2040)
Perfluorooctane sulphonate (PFOS)	Good		Good (2015)
Polybrominated diphenyl ethers (PBDE)	Fail		Good (2063)
Priority substances	**Fail**	**Does not require assessment**	**Good (2027) - Low confidence**
Cypermethrin (Priority)	Fail		Good (2027) - Low confidence
Fluoranthene	Good		Good (2015)
Other Pollutants	**Does not require assessment**	**Does not require assessment**	**Does not require assessment (2015)**

Protected areas

6.4.31 The water body falls within three Protected Areas (Annex E.1). These comprise of three NVZs: The Fleet from Source to River Aire NVZ, Aire from River Calder to River Ouse NVZ and Yorkshire Mag Limestone.

EA monitoring locations

6.4.32 There are three EA monitoring sites in this water body in Cycle 3 (Ref 3). These include one for invertebrates and macrophytes and two for water quality, including physico-chemical elements.

RNAG status

6.4.33 The EA have identified eight RNAG status for this water body (Annex E.2). These include a mix of Physical modification related to Agriculture and rural land management, point source related to Water Industry sewage discharge, flow impacts related to agricultural land drainage, and four measures delivered to address Mercury and its compounds, Dissolved oxygen, Phosphate and PBDE with no sector responsible assigned.

Measures and actions

6.4.34 All HMWB Mitigation Measures assessed for this water body are related to land drainage. The EA have subsequently defined four measures/actions relevant to the water body (Annex E.3). This includes one to manage point source discharges, one to manage modified habitats and two to mitigate the impacts on ecology from physical modifications. The actions to mitigate physical modification comprise of reviewing external compliance and improving habitats.

Holmes Dike Catchment (trib of Ouse) (GB104027063650)

Status and objectives

6.4.35 The Holmes Dike Catchment (trib of Ouse) water body is not designated as artificial or heavily modified, in recognition of the fact there has been limited anthropogenic change to the river character. It is currently assessed (as of 2022) as having an Overall Status of Moderate, Ecological Status of Moderate and a Chemical Status of Fail. The water body is therefore failing its Good Overall Status objective under the WER at present.

6.4.36 A breakdown of the current status and status objectives of the water body is provided in Table 6-7. The quality elements currently limiting the Ecological Status of the water body are Invertebrates (Moderate), Dissolved Oxygen (Bad) and Phosphate (Moderate). The quality elements limiting the Chemical status of the water body are PBDE (Fail), and Mercury and its Compounds (Fail).

Table 6-7 Holmes Dike Catchment (trib of Ouse) (GB104027063650) water body

Quality Element	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
ECOLOGICAL	**Moderate**	**Moderate**	**Moderate (2021)**
Biological quality elements	**Moderate**	**Moderate**	**Moderate (2021)**
Invertebrates	Moderate	Moderate	Moderate (2021)
Macrophytes and Phytobenthos Combined	Good	Good	Good (2015)
Macrophytes Sub Element	Good	Good	
Physico-chemical quality elements	**Moderate**	**Moderate**	**Good (2015)**
Ammonia (Phys-Chem)	Good	High	Good (2015)
Dissolved oxygen	Bad	Bad	Good (2015)
Phosphate	Moderate	Moderate	Good (2015)
Temperature	High	High	Good (2015)
pH	High	High	Good (2015)
Hydromorphological Supporting Elements	**Not high**	**Not high**	**Not high (2015)**
Hydrological Regime	Supports good	Supports good	Supports good (2015)
Morphology	Not high	Not high	
Supporting elements (Surface Water)	**Moderate**		**Good (2027) - Low confidence**
Mitigation Measures Assessment	Moderate or less		Good (2027) - Low confidence
CHEMICAL	**Fail**	**Does not require assessment**[1]	**Good (2063)**
Priority hazardous substances	**Fail**	**Does not require assessment**	**Good (2063)**
Benzo(a)pyrene	Good		Good (2015)
Dioxins and dioxin-like compounds	Good		Good (2015)
Heptachlor and cis-Heptachlor epoxide	Good		Good (2015)
Hexabromocyclododecane (HBCDD)	Good		Good (2015)
Hexachlorobenzene	Good		Good (2015)
Hexachlorobutadiene	Good		Good (2015)
Mercury and Its Compounds	Fail		Good (2040)
Perfluorooctane sulphonate (PFOS)	Good		Good (2015)
Polybrominated diphenyl ethers (PBDE)	Fail		Good (2063)
Priority substances	**Good**	**Does not require assessment**	**Good (2015)**
Cypermethrin (Priority)	Good		Good (2015)
Fluoranthene	Good		Good (2015)

Quality Element	Cycle 3 RBMP 2019 status	Current status (2022)	Objective
Other Pollutants	Does not require assessment	Does not require assessment	Does not require assessment (2015)

Protected areas

6.4.37 The water body is not reported as falling within any protected areas.

EA monitoring locations

6.4.38 There is one EA water quality monitoring site for Cycle 3 for this water body (Ref 3).

RNAG status

6.4.39 The EA have identified 12 RNAG status for this water body (Annex E.2). These include a mix of Diffuse and Point source RNAG related to the Water Industry and Agriculture and rural land management, as well as Physical modification related to Agriculture and rural land management, and measures delivered to address Mercury and its compounds, and PBDE with no sector responsible assigned.

Measures and actions

6.4.40 The EA have defined two actions relevant to the water body (Annex E.3). This includes one to manage rural diffuse pollution and one to manage modified habitats. These actions are required to address existing pressures on current status and to support the achievement of the water body's status objectives going forward.

Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400)

Status and objectives

6.4.41 The groundwater body is currently assessed (as of 2019) as having a Poor Overall Status, with a Good Quantitative Status but Poor Chemical Status. The groundwater body is therefore failing its Good Overall Status objective under the WER at present.

6.4.42 A breakdown of the current status and status objectives for the groundwater body are provided in Table 6-8. The quality elements limiting the Chemical (GW) status are the Chemical Status Elements and the Chemical Drinking Water Protected Area. Investigations into the Trend Assessment Classification status were undertaken in Cycle 2 (2015) which found no trend, however in 2019 an upward trend was observed.

Table 6-8 Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400) groundwater body

Quality Element	Cycle 3 RBMP 2019 status	Objective
Overall Water Body	**Poor**	**Good (2021)**
Quantitative	**Good**	**Good (2021)**
Quantitative Status Element	**Good**	**Good (2021)**
Quantitative Dependent Surface Water Body Status	Good	Good (2015)
Quantitative GWDTEs test	Good	Good (2015)
Quantitative Saline Intrusion	Good	Good (2021)
Quantitative Water Balance	Good	Good (2015)
Chemical (GW)	**Poor**	**Good (2021)**
Chemical Status Element	**Poor**	**Good (2021)**
Chemical Dependent Surface Water Body Status	Good	Good (2015)
Chemical Drinking Water Protected Area	Poor	Good (2015)
Chemical GWDTEs test	Good	Good (2015)
Chemical Saline Intrusion	Good	Good (2021)
General Chemical Test	Good	Good (2015)
Supporting Elements (Groundwater)	-	-
Prevent and Limit Objective	Active	-
Trend Assessment	Upward trend	-

Protected areas

6.4.43 The groundwater body falls within 19 Protected Areas (Annex E.1). These comprise of 15 NVZs, two Special Areas of Conservation (River Derwent and Skipwith Common), the Wharfe & Lower Ouse Sherwood Sandstone Drinking Water Protected Area and the Carlton East Safeguard Zone.

RNAG status

6.4.44 RNAG status for this groundwater body are reported as pending investigation.

Measures and actions

6.4.45 The EA have identified one measure/action relevant to the groundwater body, which is to ban future abstraction from the aquifer to prevent further saline intrusion (Annex E.3). This RBMP measure/action is required to address existing pressures on current status and to support the achievement of the groundwater body's status objectives going forward.

Aire & Don Sherwood Sandstone (GB40401G701000)

Status and objectives

6.4.46 The groundwater body is currently assessed (as of 2019) as having a Poor Overall Status, with a Poor Quantitative Status and a Poor Chemical Status. The groundwater body is therefore failing its Good Overall Status objective under the WER at present.

6.4.47 A breakdown of the current status and status objectives for the groundwater body are provided in Table 6-9. The quality elements limiting Quantitative status are the Quantitative Status Elements and the Quantitative Water Balance. The quality elements limiting the Chemical (GW) status are the Chemical Status Elements, the Chemical Drinking Water Protected Area and the General Chemical Test. Investigations into the Trend Assessment Classification status were undertaken in Cycle 2 (2015) which confirmed an upward trend, which was continued in 2019.

Table 6-9 Aire & Don Sherwood Sandstone (GB40401G701000) groundwater body

Quality Element	Cycle 3 RBMP	
	2019 status	Objective
Overall Water Body	**Poor**	**Poor (2015)**
Quantitative	**Poor**	**Poor (2015)**
Quantitative Status Element	**Poor**	**Poor (2015)**
Quantitative Dependent Surface Water Body Status	Good	Good (2015)
Quantitative GWDTEs test	Good	Good (2015)
Quantitative Saline Intrusion	Good	Good (2015)
Quantitative Water Balance	Poor	Poor (2021)
Chemical (GW)	**Poor**	**Good (2027) - Low confidence**
Chemical Status Element	**Poor**	**Good (2027) - Low confidence**
Chemical Dependent Surface Water Body Status	Good	Good (2015)
Chemical Drinking Water Protected Area	Poor	Good (2027) - Low confidence
Chemical GWDTEs test	Good	Good (2015)
Chemical Saline Intrusion	Good	Good (2015)
General Chemical Test	Poor	Good (2027) - Low confidence
Supporting Elements (Groundwater)	-	-
Prevent and Limit Objective	Active	-
Trend Assessment	Upward trend	-

Protected areas

6.4.48 The groundwater body falls within 20 Protected Areas (Annex E.1). These comprise of 13 NVZs, the Humber Estuary SAC, SPA and Ramsar site, Thorne Moor SAC, the Aire & Don Sherwood Sandstone Drinking Water Protected Area and Carlton East and Great Heck and Pollington Safeguard Zones.

RNAG status

6.4.49 The EA have identified 16 RNAG status for this water body (Annex E.2). The identified RNAGs are mainly related to the Water Industry and Agriculture and rural land management and include both diffuse and point sources as significant water management issues.

Measures and actions

6.4.50 The EA have identified 12 actions relevant to the water body (Annex E.3). This includes three to manage rural diffuse pollution, nine to manage diffuse pollution and one to manage point source discharges. These actions are required to address existing pressures on current status and to support the achievement of the groundwater body's status objectives going forward.

Wharfe Magnesian Limestone (GB40401G701100)

Status objectives

6.4.51 The groundwater body is currently assessed (as of 2019) as having a Poor Overall Status, with a Good Quantitative Status but Poor Chemical Status. The groundwater body is therefore failing its Good Overall Status objective under the WER at present.

6.4.52 A breakdown of the current status and status objectives for the groundwater body are provided in Table 6-10. The quality elements limiting the Chemical (GW) status are the Chemical Status Elements and the Chemical Drinking Water Protected Area. Investigations into the Trend Assessment Classification status were undertaken in Cycle 2 (2015) which found no trend, however in 2019 an upward trend was observed.

Table 6-10 Wharfe Magnesian Limestone (GB40401G701100) groundwater body

Quality Element	Cycle 3 RBMP	
	2019 status	Objective
Overall Water Body	**Poor**	**Good (2021)**
Quantitative	**Good**	**Good (2015)**
Quantitative Status Element	**Good**	**Good (2015)**
Quantitative Dependent Surface Water Body Status	Good	Good (2015)
Quantitative GWDTEs test	Good	Good (2015)
Quantitative Saline Intrusion	Good	Good (2015)

Quality Element	Cycle 3 RBMP 2019 status	Objective
Quantitative Water Balance	Good	Good (2015)
Chemical (GW)	**Poor**	**Good (2021)**
Chemical Status Element	**Poor**	**Good (2021)**
Chemical Dependent Surface Water Body Status	Good	Good (2015)
Chemical Drinking Water Protected Area	Poor	Good (2015)
Chemical GWDTEs test	Good	Good (2015)
Chemical Saline Intrusion	Good	Good (2015)
General Chemical Test	Good	Good (2021)
Supporting Elements (Groundwater)	-	-
Prevent and Limit Objective	Active	-
Trend Assessment	Upward trend	-

Protected areas

6.4.53 The groundwater body falls within 12 Protected Areas (Annex E.1). These comprise of 13 NVZs and the Aire & Don Magnesian Limestone Drinking Water Protected Area.

RNAG status

6.4.54 RNAG status for this groundwater body are reported as pending investigation.

Measures and actions

6.4.55 The EA have identified one action relevant to the groundwater body, which is to implement farm manure and slurry management plans and promote fertiliser best practices (Annex E.3). This action is required to address existing pressures on current status and to support the achievement of the groundwater body's status objectives going forward.

Aire & Don Magnesian Limestone (GB40401G700900)

Status and objectives

6.4.56 The groundwater body is currently assessed (as of 2019) as having a Poor Overall Status, with a Good Quantitative Status but Poor Chemical Status. The groundwater body is therefore failing its Good Overall Status objective under the WER at present.

6.4.57 A breakdown of the current status and status objectives for the groundwater body are provided in Table 6-11. The quality elements limiting the Chemical (GW) status are the Chemical Status Elements, the Chemical Drinking Water Protected Area and the General Chemical Test. Investigations into the Trend Assessment Classification status were undertaken in Cycle 2 (2015) which found no trend, however in 2019 an upward trend was observed.

Table 6-11 Aire & Don Magnesian Limestone (GB40401G700900) groundwater body.

Quality Element	Cycle 3 RBMP 2019 status	Cycle 3 RBMP Objective
Overall Water Body	**Poor**	**Good (2027) - Low confidence**
Quantitative	**Good**	**Good (2015)**
Quantitative Status Element	**Good**	**Good (2015)**
Quantitative Dependent Surface Water Body Status	Good	Good (2015)
Quantitative GWDTEs test	Good	Good (2015)
Quantitative Saline Intrusion	Good	Good (2015)
Quantitative Water Balance	Good	Good (2015)
Chemical (GW)	**Poor**	**Good (2027) - Low confidence**
Chemical Status Element	**Poor**	**Good (2027) - Low confidence**
Chemical Dependent Surface Water Body Status	Good	Good (2015)
Chemical Drinking Water Protected Area	Poor	Good (2015)
Chemical GWDTEs test	Good	Good (2015)
Chemical Saline Intrusion	Good	Good (2015)
General Chemical Test	Poor	Good (2027) - Low confidence
Supporting Elements (Groundwater)	-	-
Prevent and Limit Objective	Active	-
Trend Assessment	Upward trend	-

Protected areas

6.4.58 The groundwater body falls within 15 Protected Areas (Annex E.1). These comprise of 11 NVZs and the Wharfe Magnesian Limestone Drinking Water Protected Area.

RNAG status

6.4.59 The EA have identified six RNAG status for this water body (Annex E.2). The identified RNAGs include Agriculture and rural land management, and Private Sewage Treatment related to General Chemical Test classification element.

Measures and actions

6.4.60 The EA have identified six actions relevant to the groundwater body (Annex E.3). This includes four to manage rural diffuse pollution and two to manage point source discharges. These actions are required to address existing pressures on

current status and to support the achievement of the groundwater body's status objectives going forward.

6.5 Watercourse baseline and receptor valuation

6.5.1 Activities associated with the Proposed Development have been reviewed against the watercourses present within or in the vicinity of the Order Limits. A receptor value has been assigned to each of the relevant watercourses which have the potential to be impacted by the Proposed Development, based on the available desktop information and expert judgement. Reconnaissance surveys were then undertaken on a number of watercourses to verify the receptor values. Annex F.2 shows the reconnaissance survey information collected.

6.5.2 For very high, high and moderate value watercourses where reconnaissance surveys have not been undertaken expert judgement has been used to assign a receptor value (as described in Section 2.4).

6.5.3 For low value watercourses, a small number have been visited to verify the principal of categorisation as low value. Low value watercourses will not require any further survey now the principal has been verified.

6.5.4 The relevant watercourses and their receptor valuations are summarised in the sections below.

Aire from Fryston Beck to River Ouse (GB104027063037)

6.5.5 A total of three watercourses in the Aire from Fryston Beck to River Ouse water body catchment are within the Study Area of the Proposed Development. These are listed in Table 6-12 below and shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

6.5.6 All watercourses are assessed as low value.

Table 6-12 Water bodies in the Aire from Fryston Beck to River Ouse WER water body within the Study Area

Watercourse name	Designation	Location	Receptor value
Unnamed Drain 1	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 2	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 3	Ordinary watercourse	Cable Route Corridor	Low

Ouse from R Wharfe to Upper Humber (GB104027064270)

6.5.7 A total of five watercourses in Ouse water body catchment are within the Study Area of the Proposed Development. These are listed in Table 6-13 below and shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

6.5.8 The River Ouse, crossed by the Cable Route Corridor, is a Main River and WER river water body, is high value and can support Biological quality elements and

exhibit some evidence of active fluvial geomorphological processes and sediment dynamics. The remaining watercourses are assessed as low value.

Table 6-13 Water bodies in the Ouse from R Wharfe to Upper Humber WER water body within the Study Area

Watercourse name	Designation	Location	Receptor value
Old Ings Dyke	Ordinary watercourse	Cable Route Corridor	Low
West Field Dyke	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 32	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 33	Ordinary watercourse	Cable Route Corridor	Low
River Ouse	Main River (WER water body)	Cable Route Corridor	High

Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620)

6.5.9 A total of 24 watercourses in Selby Dam water body catchment are within the Study Area of the Proposed Development. These are listed in Table 6-14 below and shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

6.5.10 One high value watercourse, Selby Dam, is a designated Main River and part of the WER water body extent. It is anticipated that this watercourse has the potential to support Biological quality elements and exhibit some evidence of active fluvial geomorphological processes and sediment dynamics. The watercourse is crossed by the Cable Route Corridor. Two watercourses are assessed to be moderate value as they are tributaries of the main channel and have a relatively large catchment area. It is anticipated these watercourses will have some limited baseflow and will exhibit some minor evidence of active fluvial geomorphological processes and sediment transport. The remaining watercourses are considered to be low value.

Table 6-14 Water bodies in the Selby Dam from Conf. Fox Dike and Carr Dike to Ouse WER water body within the Study Area.

Watercourse name	Designation	Site Location	Receptor value
Breckswood Drain	Ordinary watercourse	Cable Route Corridor	Low
Causeway Dike	Ordinary watercourse	Cable Route Corridor	Low
Common Drain 2	Ordinary watercourse	Cable Route Corridor	Low
Fleet Dike	Ordinary watercourse	Solar Development Site 2, Cable Route Corridor	Low
Low Common Drain	Ordinary watercourse	Solar Development Site 6	Low
Lumby Common Drain	Ordinary watercourse	Solar Development Site 6	Low
Morton Drain	Ordinary watercourse	Cable Route Corridor	Low

Watercourse name	Designation	Site Location	Receptor value
Outwoods Drain	Ordinary watercourse	Cable Route Corridor	Low
Town Dike	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 18	Ordinary watercourse	Solar Development Site 2	Low
Unnamed Drain 19	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 20	Ordinary watercourse	Solar Development Site 2, Cable Route Corridor	Low
Unnamed Drain 21	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 22	Ordinary watercourse	Solar Development Site 8	Low
Unnamed Drain 24	Ordinary watercourse	Solar Development Site 8	Low
Unnamed Drain 29	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 74	Ordinary watercourse	Solar Development Site 6	Low
Unnamed Drain 76	Ordinary watercourse	Cable Route Corridor	Low
Unnamed trib of Low Common Drain 1	Ordinary watercourse	Solar Development Site 6	Low
Unnamed trib of Low Common Drain 2	Ordinary watercourse	Solar Development Sites 6 and 7	Low
Habholme Dike	Ordinary watercourse	Solar Development Sites 2 and 8, Cable Route Corridor	Moderate
Main Drain 1	Ordinary watercourse	Solar Development Site 8	Moderate
Selby Dam	Main River (WER water body)	Cable Route Corridor	High

Riccall Dam Catchment (trib of Ouse) (GB104027063690)

6.5.11 A total of 16 watercourses in Riccall Dam water body catchment are within the Study Area of the Proposed Development. These are listed below in Table 6-15 and shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

6.5.12 One high value watercourse, Riccall Dam, is a part of the WER water body extent. It is anticipated that this watercourse has the potential to support Biological quality elements and exhibit some evidence of active fluvial geomorphological processes and sediment dynamics. The watercourse is crossed by the Cable Route Corridor. Five watercourses are assessed to be moderate value as they are tributaries of the main channel and have a relatively large catchment area. It is anticipated these watercourses will have some limited baseflow and will exhibit some minor evidence of active fluvial geomorphological processes and sediment transport. The remaining watercourses are considered to be low value.

Table 6-15 Water bodies in the Riccall Dam Catchment (trib of Ouse) WER water body within the Study Area.

Watercourse name	Designation	Site Location	Receptor value
Common Drain 1	Ordinary watercourse	Solar Development Site 1	Low
Unnamed Drain 34	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 35	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 36	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 37	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 38	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 39	Ordinary watercourse	Solar Development Site 1	Low
Unnamed Drain 40	Ordinary watercourse	Solar Development Site 1	Low
Unnamed Drain 41	Ordinary watercourse	Solar Development Site 1	Low
Unnamed Drain 42	Ordinary watercourse	Solar Development Site 1	Low
Chatterton Dyke	Ordinary watercourse	Solar Development Site 1	Moderate
Hopney Stable Dyke	Ordinary watercourse	Cable Route Corridor	Moderate
Pallion Dyke	Ordinary watercourse	Solar Development Site 1	Moderate
Swinbank Dike	Ordinary watercourse	Cable Route Corridor	Moderate
Whinchat Dyke	Ordinary watercourse	Solar Development Site 1	Moderate
Riccall Dam (Gosling Marsh Clough)	Ordinary watercourse (WER water body)	Cable Route Corridor	High

The Fleet from Source to River Aire (GB104027062740)

6.5.13 A total of 21 watercourses in The Fleet water body catchment are within the Study Area of the Proposed Development. These are listed below in Table 6-16 and shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

6.5.14 The Fleet and Hagg Lane Drain are assessed as Moderate value and are anticipated to have the potential to support Biological quality elements and exhibit

some evidence of active fluvial geomorphological processes and sediment dynamics. The remaining watercourses are assessed as low value.

Table 6-16 Water bodies in The Fleet from Source to River Aire WER water body within the Study Area

Watercourse name	Designation	Site location	Receptor value
Hillam Common Drain	Ordinary watercourse	Cable Route Corridor	Low
Roe Lane Drain	Ordinary watercourse	Solar Development Site 4	Low
Unnamed Drain 4	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 5	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 6	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 7	Ordinary watercourse	Solar Development Site 4	Low
Unnamed Drain 8	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 9	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 10	Ordinary watercourse	Solar Development Site 3	Low
Unnamed Drain 11	Ordinary watercourse	Solar Development Site 4	Low
Unnamed Drain 12	Ordinary watercourse	Solar Development Site 4	Low
Unnamed Drain 13	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 14	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 15	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 16	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 17	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 25	Ordinary watercourse	Solar Development Site 4	Low
Unnamed Drain 26	Ordinary watercourse	Solar Development Site 4	Low
Unnamed Drain 43	Ordinary watercourse	Solar Development Site 4	Low

Watercourse name	Designation	Site location	Receptor value
Hagg Lane Drain	Ordinary watercourse	Solar Development Site 4	Moderate
The Fleet	Ordinary watercourse (WER water body)	Solar Development Site 3 and 4	Moderate

Holmes Dike Catchment (trib of Ouse) (GB104027063650)

6.5.15 A total of seven watercourses in Holmes Dike water body catchment are within the Study Area of the Proposed Development. These are listed in Table 6-17 below and shown in Figure 15.1: Surface Water Features (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.01**].

6.5.16 One watercourse, Ings Drain, is considered to be of moderate value and the remaining watercourses are considered to be low value.

Table 6-17 Water bodies in the Holmes Dike Catchment (trib of Ouse) WER water body within the Study Area

Watercourse name	Designation	Site Location	Receptor value
Black Fen Drain	Ordinary watercourse	Cable Route Corridor	Low
Ings Drain	Ordinary watercourse	Cable Route Corridor	Moderate
Lordship Lane Drain	Ordinary watercourse	Cable Route Corridor	Low
Gibbet Lane Drain	Ordinary watercourse	Cable Route Corridor	Low
Trib of Black Fen Drain 2	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 30	Ordinary watercourse	Cable Route Corridor	Low
Unnamed Drain 31	Ordinary watercourse	Cable Route Corridor	Low

7 Scoping assessment

7.1 Overview

7.1.1 A scoping assessment has been undertaken to establish the likely effects of the Proposed Development on the WER status elements of the water bodies screened in for assessment.

7.1.2 Effects have been considered with regard to the risk of the Proposed Development:

1) causing a deterioration in current status of the water body, whether individual quality elements or for the water body as a whole; and/or
2) preventing the future achievement of water body status objectives.

7.1.3 The assessment process for determining the potential risk of status deterioration uses the following coloured rating system to assign the magnitude of the likely effect anticipated on each of the quality elements of the affected water bodies:

1) **Dark Blue**: beneficial effect of a scale sufficient to increase status class for the quality element at water body scale.
2) **Light Blue**: minor/localised beneficial effect resulting in a localised improvement but insufficient to increase status class for the quality element at water body scale.
3) **Green**: negligible effect on (or no measurable change to) status class for the quality element at water body scale.
4) **Yellow**: minor localised adverse effect when balanced against mitigation included in the design – insufficient to affect status class for the quality element at water body scale.
5) **Amber**: an adverse effect is possible when balanced against mitigation included in the design – the extent of effect is uncertain, and there remains a potential to affect status class for the quality element at water body scale. Additional mitigation and residual effects need to be considered.
6) **Red**: adverse effect of sufficient scale to impact on status class for the quality element at a water body scale (certain). Additional mitigation or re-design required to avoid non-compliance.

7.1.4 The outcome of the assessment identifies the overall effect of all of the relevant components of the Proposed Development on each quality element at a water body scale. As part of this process, the assessment also considers the in-combination effects on quality elements associated with the impacts of relevant components located within other, adjacent water bodies, and cumulative effects that have the potential to arise from other, nearby proposed developments.

7.2 Relevant components

Construction phase

7.2.1 The indicative construction methodology and outline activities for the Proposed Development are described in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06/01/02**]. Activities will be required during construction to install the Proposed Development, such as:

1) preparation of land for construction, including localised levelling;
2) establishment of construction laydown areas;
3) provision of welfare facilities;
4) construction of internal access roads;
5) upgrade, modification or improvement of highways where required;
6) installation of solar PV panels including piling and erection of mounting structures;
7) trenching and installation of electric cabling;
8) installation of transformers, conversion units, switchgears, control systems;
9) pouring of concrete foundations and plinths for the electrical equipment;
10) construction of Battery Energy Storage System (BESS), including foundations, installation of electric cabling, transformers and electrical equipment; and
11) Cable Route Corridor construction, including excavation.

7.2.2 The oCEMP [**EN0110012/APP/LVS/07.02**] and oPSRP [**EN0110012/APP/LVS/07.08**] include pollution prevention practices, details of appropriate construction drainage and a groundwater management plan.

7.2.3 An overview of key construction mitigation measures relevant to the water environment included within the oCEMP [**EN0110012/APP/LVS/07.02**] is provided in Section 5.2.

7.2.4 Assuming embedded and statutory construction mitigation methods are implemented during the construction phase through the detailed CEMP which must be produced in substantial accordance with the oCEMP [**EN0110012/APP/LVS/07.02**] (and associated groundwater management plan) to manage and reduce potential impacts, and considering that construction programme is not expected to extend in time over two years, potential impacts arising from construction are anticipated to be temporary in nature with no significant effects on the WER status or objectives of the relevant water bodies.

7.2.5 The decommissioning phase is anticipated to include less but similar works to the construction phase and therefore has the potential for similar impacts. The decommissioning phase impacts have therefore been considered alongside construction phase impacts. The oDEMP [**EN0110012/APP/LVS/07.04**] contains measures similar to the oCEMP.

Permanent components of the Proposed Development

7.2.6 The relevant components of the Proposed Development that have the potential to impact upon water bodies screened in are:

1) Solar PV modules and mounting structures;
2) Conversion Units and 33kV Switchrooms;
3) Transformers;
4) Extra high voltage (EHV) switchgear and control equipment (housed inside a building);
5) On-site electrical compounds comprising Substations, control buildings and associated equipment;
6) A BESS;
7) On-site and Interconnecting Cables: underground electrical cable routes within the Solar Development Sites, and underground electrical cable routes (located within Cable Route Corridors) to connect the solar infrastructure (located within the Solar Development Sites 1-4 and 6-8) to each other;
8) Grid Connection Cables: underground electrical cable routes to connect the Proposed Development to the National Grid at Monk Fryston Substation, routing from Solar Development Site 4 to Monk Fryston Substation and with an option to extend to Solar Development Site 2;
9) 275 kV cable connection within the existing Monk Fryston Substation and associated works to connect into the substation;
10) Spare parts storage buildings or enclosures and back-up generators;
11) Fencing and security measures;
12) Access tracks;
13) Footpath diversions[2];
14) Environmental mitigation / BNG; and
15) As described in Section 4.3.9, temporary works will also be required to facilitate construction.

7.3 Potential effects on water environment

7.3.1 Embedded mitigation for the Proposed Development is outlined in Section 5.2. The potential effects from permanent components (identified in Section 7.2) on surface water and groundwater WER water bodies, factoring in consideration of the embedded mitigation measures, are summarised below:

[2] Footpath diversions are part of ancillary works and have been included indicatively. Specific locations where these may be required are not yet known.

1) The physical footprint of the Proposed Development is not anticipated to affect watercourses directly, due to the 10 m offset of development to watercourse bank tops.
2) Installation of hardstanding (required for infrastructure such as substations and BESS facilities) and Solar PV modules and mounting structures required for the Proposed Development have the potential to alter surface water runoff to watercourses due to changes in permeability, existing ground elevations and land drainage systems.
3) Infrastructure associated with the Proposed Development (such as BESS facilities and drainage infrastructure) could provide a source and pathway for potential contaminants to enter the water environment, whether through routine use or through response to a potential incident.
4) Construction of infrastructure may result in the loss of small drainage ditches with a potential impact on water received by larger watercourses, and a resulting impact of flow and morphology.
5) Cables will need to cross watercourses. HDD methods (or other trenchless methods) will be used to pass cables beneath Main Rivers, IDB and WER water body line watercourses. Open cut methods are expected to be used to pass cables beneath all other watercourses not located in an Avoidance Area. Cables buried beneath watercourses may have the potential to affect fish behaviours and migration due to the electromagnetic fields (EMF) generated by currents passing through the cables. Potential impacts on fish from cable crossing will be mitigated through embedded mitigation. The detailed CEMP will set out the EMF mitigation measures that are proposed to be deployed (including the depth of cabling) across the Proposed Development and explain how that has taken account of the latest research and practice, and consultation with Environment Agency and Natural England on this matter. The starting point will be that the depth of the cabling will be a minimum of 5 metres, unless otherwise agreed by the Environment Agency and Natural England.
6) Access tracks will need to cross watercourses in places, which may require the construction of new crossing structures. This has the potential to effect local in-channel habitats as well as flow and sediment continuity and/or fish passage.
7) Footpaths may need to cross watercourses in places[2], which may require the construction of new footbridges. This has the potential to effect local in-channel and riparian habitats.
8) Below ground infrastructure, such as foundations for infrastructure and cables installed below ground levels, have the potential to effect local groundwater flows and/or levels, which may in turn have indirect effects on dependent surface water bodies and/or habitats. It is assumed that any below ground works will be shallow and only enter the superficial deposits, therefore not impacting bedrock groundwater/aquifers.

9) In addition, proposed environmental mitigation / BNG proposals could potentially provide beneficial effects to the water environment and WER quality elements. Assessment of any beneficial elements has been included within this assessment and report.

7.3.2 A summary of permanent components of the Proposed Development and their potential effects on surface water bodies and groundwater bodies is provided in Table 7-1 and Table 7-2, respectively.

Table 7-1 Permanent components of the Proposed Development and their potential effects on surface water bodies. A tick (✓) indicates a potential effect may arise and a dash (-) indicates no effect

Proposed Development component		Solar PV modules and mounting structures	Substations, Conversion Units and Switchrooms			BESS and transformers			Permanent access tracks / replacement of existing access track crossings			Footbridges	Underground cabling	
Potential effect		**Infrastructure /hardstanding causing alteration of surface water flow permeability, flow paths and runoff to watercourses**	**Infrastructure /hardstanding causing alteration of surface water permeability, flow paths and runoff to watercourses**	**Source and pathway for potential contaminants runoff to watercourses**	**Below ground infrastructure causing alteration of shallow groundwater flows/levels potentially affecting watercourse flows**	**Infrastructure /hardstanding causing alteration of surface water permeability, flow paths and runoff to watercourses**	**Source and pathway for potential contaminants runoff to watercourses**	**Below ground infrastructure causing alteration of shallow groundwater flows/levels potentially affecting watercourse flows**	**Infrastructure /hardstanding causing alteration of surface water permeability, flow paths and runoff to watercourses**	**Source and pathway for potential contaminants runoff to watercourses**	**New watercourse crossings structures affecting local hydromorphology and river continuity**	**New watercourse crossings structures affecting local hydromorphology and river continuity**	**Buried cable crossings beneath watercourses (production of electromagnetic fields)**	**Below ground infrastructure causing alteration of shallow groundwater flows/levels potentially affecting watercourse flows**
WER surface water quality elements	Biological quality elements	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
	Hydromorphological Supporting Elements	✓	✓	-	✓	✓	-	✓	✓	-	✓	✓	✓	✓
	Physicochemical quality elements	-	-	✓	-	-	✓	-	-	✓	-	-	-	-
	Specific pollutants	-	-	✓	-	-	✓	-	-	✓	-	-	-	-
	Chemical Status	-	-	✓	-	-	✓	-	-	✓	-	-	-	-

Table 7-2 Permanent components of the Proposed Development and their potential effects on groundwater bodies. A tick (✓) indicates a potential effect may arise and a dash (-) indicates no effect

Proposed Development component		Solar PV modules and mounting structures	Substations, Conversion Units and Switchrooms			BESS and transformers			Underground cabling	
Potential effect		**Infrastructure /hardstanding causing alteration of surface permeability and infiltration to groundwater**	**Infrastructure /hardstanding causing alteration of surface permeability and infiltration to groundwater**	**Source and pathway for potential contaminants to groundwater**	**Below ground infrastructure /foundations causing alteration of shallow groundwater flows/levels**	**Infrastructure /hardstanding causing alteration of surface permeability and infiltration to groundwater**	**Source and pathway for potential contaminants to groundwater**	**Below ground infrastructure /foundations causing alteration of shallow groundwater flows/levels**	**Source and pathway for potential contaminants to groundwater**	**Below ground infrastructure causing alteration of shallow groundwater flows/levels**
WER groundwater quality elements	Quantitative status elements	✓	✓	-	✓	✓	-	✓	-	✓
	Chemical status elements	-	-	✓	-	-	✓	-	✓	-
	Supporting elements (groundwater)	-	-	-	-	-	-	-	-	-

7.4 Potential effects on current status

7.4.1 The scoping assessment has considered the potential effects of the key permanent components of the Proposed Development on the current status of the surface and groundwater bodies screened in. These are described in the sections below.

7.4.2 The assessment is based on the currently available desk study and outline design information.

Potential effects on surface water bodies

Changes to surface water runoff to watercourses

7.4.3 The proposed Solar PV modules and mounting structures, Substations, Conversion Units, Switchrooms, BESS and transformers, and permanent access tracks have the potential to reduce infiltration and alter existing surface water runoff and land drainage pathways. The proposed Solar PV modules and mounting structures could alter the spatial distribution of infiltration, whilst the Substations, BESS and transformers, and permanent access tracks could reduce surface permeability by increasing hardstanding areas and result in the physical loss of existing land drains within their footprint.

7.4.4 These changes have the potential to impact watercourse flows, in turn affecting fluvial geomorphological processes and aquatic habitats. Such impacts therefore have the potential to affect the hydromorphological and biological status of the relevant surface water bodies.

7.4.5 As summarised in Section 5.2, embedded mitigation is incorporated into the design for the Proposed Development to minimise potential impacts of surface water runoff on the adjacent watercourses. This includes:

1) The Solar PV modules and mounting structures, Substations, Conversion Units, Switch Rooms, BESS and transformers will all be set back 10 m from the bank top of watercourses.
2) The drainage strategy outlined in Appendix 15.4: Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**] promotes the discharge of surface water runoff following the established order of priority (infiltration to ground, surface water body, surface water sewer or other surface water systems, combined sewer).
3) The permanent Solar PV access tracks will be designed to be permeable.

7.4.6 Drainage ditches located in Solar Development Sites, Substations, Conversion Units, Switch Rooms, BESS and access tracks are predominantly of low value. As summarised in Section 6.5, these low value drainage ditches are anticipated to have limited baseflow, minimal geomorphological processes and low aquatic habitat potential for Biological quality elements. As such any localised changes in surface water runoff within the catchment areas of these low value

watercourses are anticipated to have negligible effects on Hydromorphological and Biological status at the water body scale.

7.4.7 However, there are some moderate and high value watercourses which have Solar PV modules and mounting structures, Substations, Conversion Units, Switch Rooms, BESS and access tracks in close proximity to them. These watercourses are likely to have some baseflow, active geomorphological processes and high aquatic potential for Biological quality elements. Embedded mitigation, such as a 10 m distance from any watercourse, will ensure any localised changes in surface water runoff will result in negligible effects on Hydromorphological and Biological status.

7.4.8 There is one high value watercourse within the vicinity of components with the potential to affect surface water runoff. Selby Dam is located within the vicinity of Solar Development Site 8 and will potentially be crossed by an access road as part of the Proposed Development. There are several moderate value watercourses within Solar Development Sites 1, 2, 3, 4, and 8 with the potential to affect surface water runoff. Given the embedded mitigation measures and drainage design, the baseline receptor value and sensitivity of the nearby watercourses, and the magnitude of change in the context of scale of the relevant water body catchments, the proposed Solar PV modules and mounting structures, Substations, Conversion Units, Switch Rooms, BESS facilities, and permanent access tracks are anticipated to have a negligible effect on the Hydromorphological and Biological quality elements of the relevant surface water bodies.

Potential sources of contaminant runoff to watercourses

7.4.9 The proposed Substations, BESS infrastructure, and permanent access tracks for the Proposed Development could, without embedded mitigation measures, provide a source and pathway for potential contaminants (oil, fire waters and hydrocarbons respectively) to enter the water environment. This could have the potential to impact on the water quality of watercourses downstream, which in turn could adversely affect the Biological, Physico-chemical, Specific Pollutants and Chemical Status of the relevant surface water bodies.

7.4.10 As summarised in Section 4.3.9, embedded mitigation is incorporated into the design for the Proposed Development to minimise potential impacts of potential contaminant releases to nearby watercourses. Surface water emanating from the substation and associated infrastructure will be managed by the implementation of an appropriate surface water drainage system. The drainage system will be comprised of SuDS features and feature pollution prevention measures as described within the Outline Drainage Strategy (Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.01**]) to safeguard the surrounding water environment.

7.4.11 Contamination and water suppression as a result of the potential release of firewater and other chemicals from BESS and the Substations shall be avoided with embedded mitigation implemented as outlined within the Outline Drainage

Strategy (Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]) and included within the Outline Battery Safety Management Plan (oBSMP) [**EN0110012/APP/LVS/07.06**] that is included within the DCO Application. The oBSMP also includes information on automated fire suppression systems and shut-off valves in the event of an incident.

7.4.12 During normal site usage under operation, it is anticipated the site will have low traffic numbers resulting in a low potential for new contaminants to enter the water environment via access tracks.

7.4.13 Decommissioning of the Proposed Development could, without embedded mitigation measures, provide a source and pathway for potential contaminants to enter the watercourses and groundwater body within the Order Limits. As outlined within the Outline Drainage Strategy (Appendix 15.4: Outline Drainage Strategy (ES Volume 3) [**EN0110012/APP/LVS/06.03.15.04**]) and the Outline Decommissioning Environmental Management Plan (oDEMP) [**EN0110012/APP/LVS/07.04**] embedded mitigation measures have been included within the design to minimise the potential impacts of potential contaminant releases to nearby water receptors.

7.4.14 Given the embedded mitigation and the Proposed Development operating regime, the baseline receptor value and sensitivity of the nearby watercourses, and the location and scale of the proposed infrastructure in the context of scale of the relevant water body catchments, it is anticipated that the potential for the introduction of source and pathways is low and so the Proposed Development will have a negligible effect on Biological and Physico-chemical quality elements, Specific Pollutants and Chemical Status.

Watercourse crossings

7.4.15 A small number of permanent watercourse crossing structures are likely to be required for new access roads associated with the Proposed Development. These are listed within the Crossings Schedule [**EN0110012/APP/LVS/07.01**] The crossing structures have the potential to impact on river continuity (flow, sediment and fish passage), which could affect the Hydromorphological Supporting Elements and Biological status of the relevant surface water bodies.

7.4.16 To prevent adverse impacts on WER quality elements watercourse crossings would ensure impact to channel banks and bed is minimised, where practicable, and that the design limits any impacts to longitudinal and lateral continuity. Where practicable access tracks have sought to utilise existing crossing structures, it is assumed at this stage that these will be suitable for continued use as part of the Proposed Development and will not interfere with river continuity, and therefore no effects are anticipated.

7.4.17 Where a new crossing structure is needed, it is assumed at this stage that a natural watercourse bed will be maintained wherever reasonably practicable and use of a culvert as a crossing structure will be a worst case scenario.

7.4.18 As part of a possible access route to the north of Solar Development Site 8, a new permanent access road culvert may be needed on one moderate value watercourse, Habholme Dike. Additionally, the potential access road to the north of Solar Development Site 8 will cross over Selby Dam, a high value watercourse. There is currently an existing culvert crossing across Selby Dam, however the condition of the culvert is not known at present. As a worst case scenario, the existing culvert may need to be removed and replaced with a new permanent crossing structure. During the replacement of the culvert (if required) a temporary crossing structure would be installed to maintain current access provision if access could not be maintained over the current structure during the replacement works. If a temporary crossing structure is required the structure would be in place for less than 6 months. Both watercourses are part of the Selby Dam From Conf. Fox Dike and Carr Dike to Ouse water body. The addition of a culvert is likely to impact on river continuity which may result in minor, localised adverse effects on Hydromorphological Supporting Elements and Biological status. The replacement of the existing culvert on Selby Dam with a new crossing structure may result in a minor, localised adverse impact. This is due to a potential minor, temporary biological and hydromorphological impact caused by the disturbance of in-channel and riparian habitats associated with the replacement. The new crossing structure is not anticipated to be any wider than the existing crossing structure and therefore the length of channel impacted by this modification is expected to remain the same as in the baseline condition. Whilst the components of the Proposed Development are likely to cause a minor localised adverse impact on the Habholme Dike, this is not expected to result in a change to current status at the scale of the water body.

7.4.19 Two further new access road culverts are likely to be needed on two low value drains, Unnamed Drain 18 which is part of the Selby Dam from Conf. Fox Dike and Carr Dike to Ouse water body within Solar Development Site 2 and Unnamed Drain 40, which is part of the Riccall Dam Catchment water body within Solar Development Site 1. The new access road culvert on Unnamed Drain 18 is likely to be permanent and the access road culvert on Unnamed Drain 40 is temporary. Given low value watercourses are anticipated to have limited baseflow, minimal geomorphological processes and low aquatic habitat potential for Biological quality elements, impacts at the water body scale on Hydromorphological and Biological status are anticipated to be negligible.

7.4.20 Footpath diversions may be necessary as part of the Proposed Development[2], whilst specific locations are not yet known. For the purposes of the assessment it is assumed two new footbridge crossings over watercourses may be required across Lumby Common Drain and Unnamed Drain 11, which are both low value watercourses. The footbridges are expected to result in negligible impacts to Hydromorphological and Biological status at the water body scales, given their limited baseflow and the low aquatic habitat potential, and the limited impact of a clear span small footbridge.

Cable crossings

7.4.21 Cables will pass beneath watercourses. HDD or other trenchless methods would be used for any crossings of moderate and high value watercourses (comprising Main Rivers, IDB watercourses and/or main WER river water bodies), and some low value watercourses, in order to prevent any impacts to Hydromorphological Supporting Elements.

7.4.22 For some low value watercourses, the cable will be laid through an open cut method. Additionally, as a worst case assumption, there will be an associated temporary haul road and culvert over these watercourses for a duration of up to two years to allow access for cable laying during the construction phase. The haul road and culverts will be removed following construction. As the impacts are expected to be short lived and temporary in nature, there is not expected to be a permanent impact on watercourses.

7.4.23 EMF can be generated when electricity passes through cables, however, which could induce both a behavioural response in migratory fish swimming over the cable as well as negatively impact individual organisms during the embryonic and larval life stages. This therefore has the potential to affect the Biological status of the water bodies. A potential minor localised adverse effect on the Biological status of these water bodies is therefore anticipated. However, following the implementation of mitigation set out in Section 7.3.1, impacts are considered to cause no measurable change on status class for the quality element at water body scale. The impacts of EMF, vibration and noise disturbance to watercourses within the Cable Route Corridor have been fully assessed within Chapter 15: Water Resources and Flood Risk (Volume 1) [**EN0110012/APP/LVS/06.01.15**] following further assessment and/or survey of aquatic habitat and faunal receptors.

7.4.24 For all watercourses, cable crossings are anticipated to have no permanent effects on Physico-chemical quality elements, Specific Pollutants and Chemical status.

Watercourse enhancement zones

7.4.25 Enhancement areas to existing watercourses have been proposed as part of environmental mitigation / BNG proposals. These areas are shown on the Outline Environmental Masterplan (OEM) [**EN0110012/APP/LVS/02.12**], which also shows the biodiversity mitigation and enhancement across the Proposed Development. These areas could potentially provide beneficial effects to the water environment and WER quality elements.

7.4.26 At this stage, two watercourses, totalling approximately 1.8 km in length, have been identified for enhancement within the southern part of Solar Development Site 1. These are Chatterton Dyke and Whinchat Dyke within the Riccall Dam Catchment (trib of Ouse) WER water body. As per the outline Landscape Environmental Management Plan [**EN0110012/APP/LVS/07.05**], habitats adjacent to watercourses will be managed to enhance the structural and species diversity of marginal vegetation. This may be achieved through a combination of

seeding, rotational cutting and targeted scrub removal where encroachment is detrimental the watercourse. The planting of trees may also be undertaken adjacent to ditches and rivers, with sufficient distance from the ditch to prevent damage and on the northern side where practicable to prevent shading.

7.4.27 Whilst the specific details of the watercourse enhancements are not fully known, these have the potential to result in minor, localised beneficial effects on biological and hydromorphological status.

Potential effects on groundwater bodies

7.4.28 The solar PV modules and mounting structures within the Solar Development Sites could alter the spatial distribution of infiltration, whilst the Substations and BESS and transformers could reduce surface permeability by increasing hardstanding areas. This in turn could lead to some local changes in the rate of recharge to the underlying aquifers, which has the potential to affect Groundwater Quantitative Status. At the scale of the WER groundwater bodies, the area of impermeable hardstanding is negligible, and ground beneath Solar PV modules and mounting structures will still be permeable. Therefore, the Proposed Development is anticipated to have a negligible effect on groundwater Quantitative Status.

7.4.29 The BESS and substations could provide a risk of pollutants entering the water environment in the case of an incident and therefore present a risk to groundwater Chemical Status. While detail of the drainage design is to be finalised, the drainage strategy notes that drainage at BESS facilities would be designed to contain/separate fire water from surface water runoff and ground infiltration if an incident were to arise, and drainage waters should be contained in an impermeable bund. Following a fire event, when safe to do so, samples of the contained firewater runoff will be taken by a suitably competent person and submitted to a UKAS accredited laboratory for analysis using UKAS and MCERTS accredited methods, where applicable. The samples will be analysed to determine the presence and concentration of contaminants and checked against the hazardous substances listed in the ‘surface water pollution risk assessment for your environmental permit’ guidance (Ref 17). The contained runoff will not be removed or discharged until the results have been reviewed and the appropriate disposal route is confirmed. In the event of contamination, the drainage isolation device will not be reopened until appropriate cleaning of the drainage system has been undertaken. The retained firewater will be disposed of by a licensed tanker off-site where contamination is confirmed, prior to the valve being manually re-opened to resume normal operation. As the discharge of contaminated firewater to the environment is not permitted without an Environmental Permit, only water confirmed as uncontaminated and safe for release would be discharged in a controlled manner to the local drainage network. This approach ensures that environmental protection is maintained under both normal and emergency conditions. These embedded mitigation measures are set out in Section 5.2.4. The surface water embedded mitigation measures associated with incidents from substations has also been included within Section

7.4.10 and 7.4.11. This approach therefore minimises the potential for pollutants to enter the water environment. Therefore, taking into account the embedded mitigation in the drainage strategy and the scale of the water body, the BESS units and substations, are anticipated to have no measurable change on groundwater Chemical Status.

7.4.30 New permanent access tracks may result in the introduction of new pollutants to the water environment, such as hydrocarbons, which has the potential to affect groundwater Chemical Status. However, during normal usage it is anticipated site access requirements will be limited, meaning the site will have a low traffic volume. Therefore, there will be a low potential for new contaminants to enter the water body meaning at the scale of the groundwater body permanent access tracks are anticipated to have a negligible effect on overall Chemical Status, and no impact on groundwater Quantitative Status and Supporting Elements (groundwater). Where large scale replacement activities are taking place, measures in the oOEMP [**EN0110012/APP/LVS/07.03**] similar to the CEMP for construction, would be utilised.

7.4.31 Below ground infrastructure for operation of the Proposed Development is likely to encompass shallow building foundations and cable installations. As these components will be located in the shallow superficial aquifer, it is anticipated that these would have no effect on the Quantitative Status and Chemical Status of the groundwater bodies present at the site.

Summary of effects on current status

7.4.32 Summaries of the anticipated effects of the Proposed Development on WER surface water bodies is provided in Table 7-3. The effects are reported at the watercourse level and also at the WER water body level.

7.4.33 A summary of the anticipated effects of the Proposed Development on the WER groundwater bodies is provided in Table 7-4, combined for all groundwater bodies.

7.4.34 In addition, proposed environmental mitigation / BNG proposals could potentially provide beneficial effects to the water environment and WER quality elements. Any proposal that may have a beneficial effect has been assessed within this report.

Table 7-3 Summary of anticipated effects of the Proposed Development on WER status elements of relevant watercourses in the Aire from Fryston Beck to River Ouse (GB104027063037), the Ouse from R Wharfe to Upper Humber (GB104027064270), Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620), Riccall Dam Catchment (trib of Ouse) (GB104027063690), The Fleet from Source to River Aire (GB104027062740) and Holmes Dike Catchment (trib of Ouse) (GB104027063650)

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
Aire from Fryston Beck to River Ouse	Unnamed Drain 1	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	**Negligible – no measurable change at the water body scale**
	Unnamed Drain 2	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 3	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
Ouse from R Wharfe to Upper Humber	Old Ings Dyke	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	**Negligible – no measurable change at the water body scale**
	West Field Dyke	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 32	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 33	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	River Ouse	High	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
Selby Dam from Conf. Fox Dike and Carr Dike to Ouse	Breckswood Drain	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	**Minor localised adverse effect - no change in status class at the water body scale**
	Causeway Dike	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Common Drain 2	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Fleet Dike	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units,	Negligible	Negligible	Negligible	Negligible	Negligible		

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
			switch rooms and transformers							
	Low Common Drain	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
	Lumby Common Drain	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
			Indicative footpath crossing – new footbridge	Negligible	Negligible	-	-	-		
	Morton Drain	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Outwoods Drain	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Town Dike	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 18	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Minor localised adverse effect	
			Substation, conversion units, switch rooms, transformers and BESS	Negligible	Negligible	Negligible	Negligible	Negligible		
			New access road culvert	Minor localised adverse	Minor localised adverse	Negligible	Negligible	Negligible		
	Unnamed Drain 19	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 20	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
			Substation, conversion units, switch rooms, transformers and BESS	Negligible	Negligible	Negligible	Negligible	Negligible		
			Cable crossing (HDD)	Negligible	-	-	-	-		
	Unnamed Drain 21	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 22	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
	Unnamed Drain 24	Low	Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible	Negligible – no measurable change	
	Unnamed Drain 29	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 74	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
	Unnamed trib of Low Common Drain 1	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
	Unnamed trib of Low Common Drain 2	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
	Habholme Dike	Moderate	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Minor localised adverse effect	
			Substation, conversion units, switch rooms, transformers and BESS	Negligible	Negligible	Negligible	Negligible	Negligible		
			Cable crossing (HDD)	Negligible	-	-	-	-		

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
			New access road culvert	Minor localised adverse	Minor localised adverse	Negligible	Negligible	Negligible		
	Main Drain 1	Moderate	Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible	Negligible – no measurable change	
	Selby Dam	High	Cable crossing (HDD)	Negligible	-	-	-	-	Minor localised adverse effect	
			Replacement of existing culvert with new crossing structure	Minor localised adverse	Minor localised adverse	Negligible	Negligible	Negligible		
Riccall Dam Catchment (trib of Ouse)	Common Drain 1	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	**Negligible – no measurable change at the water body scale**
			Substation	Negligible	Negligible	Negligible	Negligible	Negligible		
	Unnamed Drain 34	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 35	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 36	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 37	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 38	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 39	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
	Unnamed Drain 40	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Minor localised adverse effect	

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			New temporary access road culvert	Minor localised adverse	Minor localised adverse	Negligible	Negligible	Negligible		
	Unnamed Drain 41	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
	Unnamed Drain 42	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
	Chatterton Dyke	Moderate	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Minor localised beneficial effect	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			Watercourse enhancement zone	Minor localised beneficial	Minor localised beneficial	Negligible	-	-		
	Hopney Stable Dyke	Moderate	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Pallion Dyke	Moderate	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
	Swinbank Dike	Moderate	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Whinchat Dyke	Moderate	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Minor localised beneficial effect	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
			Watercourse enhancement zone	Minor localised beneficial	Minor localised beneficial	Negligible	-	-		
	Riccall Dam (Gosling Marsh Clough)	High	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
The Fleet from Source to River Aire WER	Hillam Common Drain	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	**Negligible – no measurable change at the water body scale**
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
	Roe Lane Drain	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			Cable crossing (HDD)	Negligible	-	-	-	-		
	Unnamed Drain 4	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 5	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 6	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
	Unnamed Drain 7	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 8	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 9	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 10	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 11	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
			Indicative footpath crossing – new footbridge	Negligible	Negligible	-	-	-		
	Unnamed Drain 12	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 13	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 14	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 15	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 16	Low	Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible	Negligible – no measurable change	
	Unnamed Drain 17	Low	Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
	Unnamed Drain 25	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
			Indicative footpath crossing (assumed existing crossing)	-	-	-	-	-		
			Indicative footpath crossing (assumed existing crossing)	-	-	-	-	-		
	Unnamed Drain 26	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
	Unnamed Drain 43	Low	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
	Hagg Lane Drain	Moderate	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
	The Fleet	Moderate	Solar PV modules and mounting structures	Negligible	Negligible	-	-	-	Negligible – no measurable change	

WER water body	Watercourses	Receptor value	Relevant component	Biological Status	Hydromorphological Supporting Elements	Physico-chemical quality elements	Specific Pollutants	Chemical Status	Overall effect at watercourse level	Overall effect at WER water body level
			Substation, conversion units, switch rooms and transformers	Negligible	Negligible	Negligible	Negligible	Negligible		
			Cable crossing (HDD)	Negligible	-	-	-	-		
			Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible		
Holmes Dike Catchment (trib of Ouse)	Black Fen Drain	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	**Negligible – no measurable change at the water body scale**
	Ings Drain	Low	Cable crossing (assumed utilising existing culvert crossing)	Negligible	-	-	-	-	Negligible – no measurable change	
	Lordship Lane Drain	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Gibbet Lane Drain	Low	Access track (assumed existing crossing)	Negligible	-	Negligible	Negligible	Negligible	Negligible – no measurable change	
	Trib of Black Fen Drain 2	Low	Cable crossing (assumed open cut)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 30	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	
	Unnamed Drain 31	Low	Cable crossing (HDD)	Negligible	-	-	-	-	Negligible – no measurable change	

Table 7-4 Summary of the anticipated effects of relevant Proposed Development components on the status elements of WER groundwater bodies, including Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400), Aire & Don Sherwood Sandstone (GB40401G701000), Wharfe Magnesian Limestone (GB40401G701100) and Aire & Don Magnesian Limestone (GB40401G7009000)

Relevant Proposed Development components	Quantitative Status	Chemical Status	Supporting Elements (Groundwater)	Overall effect	Overall effect at the WER water body level
Hardstanding, Solar PV modules and mounting structures	Negligible	-	-	Negligible – no measurable change	**Negligible – no measurable change at the water body scale**
Associated infrastructure, including BESS units	-	Negligible	-	Negligible – no measurable change	
Access Tracks	-	Negligible	-	Negligible – no measurable change	
Below ground infrastructure	Negligible	-	-	Negligible – no measurable change	
Cumulative effect on quality elements / water body status	Negligible	Negligible	-	Negligible – no measurable change	

7.5 Potential effects on future status objectives

Effects on existing pressures on status

7.5.1 The Proposed Development is not anticipated to adversely impact on or exacerbate any existing RNAGs for the Aire from Fryston Beck to River Ouse (GB104027063037), Ouse from R Wharfe to Upper Humber (GB104027064270), Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620), Riccall Dam Catchment (trib of Ouse) (GB104027063690), The Fleet from Source to River Aire (GB104027062740) and Holmes Dike Catchment (trib of Ouse) (GB104027063650). The RNAGs for these WER surface water bodies are described in Section 6.4. These RNAGs relate mostly to point and diffuse sources for Biological, Physico-chemical and Chemical quality elements from agriculture, industry and water industry and physical modification. As highlighted in Section 7.3, the Proposed Development is not anticipated to cause significant physical modification to watercourses or create pollutant pathways. Therefore, the Proposed Development will not exacerbate the RNAGs.

7.5.2 The Proposed Development will also not adversely impact on or exacerbate the existing RNAGs identified for the Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400), Aire & Don Sherwood Sandstone (GB40401G701000), Wharfe Magnesian Limestone (GB40401G701100) and Aire & Don Magnesian Limestone (GB40401G7009000) groundwater bodies. The RNAGs for these groundwater bodies are described in Section 6.4. These RNAGs relate to diffuse and point source pollution from water industry and agriculture. As highlighted in Section 7.3, some components of the Proposed Development that involve hard standings and below ground infrastructure may cause some very minor, localised changes in shallow groundwater flows/levels. However, this will be negligible at the water body scale and not affect the underlying bedrock aquifer or any sensitive dependent surface water receptors. Therefore, the Proposed Development is not expected to exacerbate existing flow RNAGs.

7.5.3 In addition, proposed environmental mitigation / BNG proposals could potentially provide beneficial effects to the water environment and WER quality elements. Any such proposals will be assessed as design progresses and details become available.

Effects on water body measures and actions

7.5.4 The latest available water body level measures and actions provided by the EA have been reviewed for the relevant WER water bodies. These measures are summarised in Section 6.4. Whilst the Proposed Development will not contribute towards the achievement of these water body level measures and actions, it will not affect or prevent the implementation of these measures in the future.

7.5.5 Note that the Proposed Development also includes environmental mitigation / BNG. Based on the current design information, watercourse enhancement is

proposed on two watercourses. Whilst there are limited details available at the time of writing it is possible that these activities can support measures to improve the status of the water body, Riccall Dam Catchment (trib of Ouse). More details on the watercourse enhancement and further opportunities will be explored as the design develops.

7.6 In-combination and cumulative effects

Surface water bodies

7.6.1 No in-combination effects associated with the impacts of relevant components of the Proposed Development located within other, adjacent water bodies (upstream or downstream) have been identified for any of the surface water bodies affected by the Proposed Development.

7.6.2 Whilst a number of water bodies are located either upstream or downstream of other water bodies that are affected by the Proposed Development, no widespread adverse effects have been identified within any of the water bodies that have the potential to propagate upstream and/or downstream.

7.6.3 Despite there being other, nearby proposed developments that could have an impact on the same water bodies as this Proposed Development, the embedded mitigation included within this Proposed Development ensures impacts are mitigated and therefore prevents any cumulative effects arising as a result of this development. It is also assumed that the other developments would put in place mitigation measures similar to those proposed for the Proposed Development to ensure that they do not cause a deterioration/prevention of improvement in WFD waterbodies.

Groundwater bodies

7.6.4 No in-combination and/or cumulative effects associated within the impacts of the Proposed Development located within other, adjacent water bodies have been identified for any of the groundwater bodies affected by the Proposed Development.

7.7 Mitigation requirements and compliance

7.7.1 Based on the latest design information available at this stage, there is the potential for the Proposed Development to have minor, localised adverse effects on the Biological status of the surface water bodies. This relates to the proposed possible new access road culvert on a moderate value watercourse, Habholme Dike, and a replacement of an existing crossing structure on a high value watercourse, Selby Dam. At the scale of the water body these effects are deemed unlikely to result in a deterioration in the current status of the Selby Dam from Conf. Fox Dike and Carr Dike to Ouse water body.

7.7.2 The potential for the Proposed Development to have minor, localised adverse effects on the Biological status of the surface water bodies also relates to the

proposed trenchless cable crossings of some moderate and high value watercourses and the associated potential impact of EMF from buried cables beneath the watercourses on the behaviour and movement of fish. At the scale of the water bodies, these effects are deemed unlikely to result in a deterioration in the current status of the water bodies. However, embedded mitigation will be implemented which includes as a starting point that the depth of the cabling will be a minimum of 5 metres, unless otherwise agreed by the Environment Agency and Natural England. With this mitigation implemented, the effect of EMF on Biological quality elements (fish) is anticipated to be negligible with no change in the status of the quality element or water body as a whole.

7.7.3 The remaining components of the Proposed Development are anticipated to have negligible or minor localised beneficial effects on the surface and groundwater bodies present at the site.

7.7.4 As such, the Proposed Development is considered to be compliant with the WER and no additional mitigation beyond the above is expected to be required at this stage to avoid the risk of a deterioration in the current status of the water bodies, or the prevention of the future achievement of status objectives.

7.7.5 Whilst the Proposed Development is not deemed to pose a risk of non-compliance at this stage, opportunities for environmental enhancements should continue to be developed over subsequent design stages, in conjunction with the BNG assessment.

8 Conclusions

8.1.1 An assessment of the compliance of the Proposed Development with the objectives of the WER has been undertaken.

8.1.2 This has included a baseline and screening assessment to identify the relevant WER water bodies potentially affected and collate available data regarding water body baseline condition and WER status and objectives. This has also included identification of the relevant permanent Proposed Development components with the potential to affect the water bodies, together with the relevant embedded design and construction mitigation developed at this stage.

8.1.3 The screening assessment has concluded that the Proposed Development has the potential to affect the following WER water bodies:

1) Surface water

   a) Aire from Fryston Beck to River Ouse (GB104027063037);
   b) Ouse from R Wharfe to Upper Humber (GB104027064270);
   c) Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620);
   d) Riccall Dam Catchment (trib of Ouse) (GB104027063690);
   e) The Fleet from Source to River Aire (GB104027062740); and
   f) Holmes Dike Catchment (trib of Ouse) (GB104027063650);

2) Groundwater

   a) Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400);
   b) Aire & Don Sherwood Sandstone (GB40401G701000);
   c) Wharfe Magnesian Limestone (GB40401G701100); and
   d) Aire & Don Magnesian Limestone (GB40401G7009000).

8.1.4 A scoping assessment has been undertaken to identify the potential effects of the Proposed Development on the current status and status objectives of these water bodies. This assessment has been based on the currently available site and design information, and assumptions regarding best practice and mitigation included within the oCEMP [**EN0110012/APP/LVS/07.02**] and the Design Parameters and Commitments document [**EN0110012/APP/LVS/05.06**] for the Proposed Development.

8.1.5 For the WER river water bodies a desk-based study and reconnaissance walkovers have been undertaken at this stage to identify and determine receptor values for all watercourses within the water body catchments within the vicinity of the Proposed Development.

8.1.6 Based on the currently available design information, the Proposed Development has the potential to have some minor, localised adverse effects on the Ouse, Selby Dam, Riccall Dam and The Fleet water bodies associated with the HDD cable crossings of moderate and high value watercourses which have the potential to impact on fish populations. However, it is expected that with the appropriate embedded mitigation, this impact will become negligible. At the scale

of the water body, these effects are not anticipated to result in a deterioration in the current status of the water body or prevent the future achievement of status objectives.

8.1.7 The Proposed Development also has the potential to have some minor, localised adverse effects on the Selby Dam from Conf. Fox Dike and Carr Dike to Ouse water body associated with two new permanent access road culverts and replacement of an existing crossing structure. At the scale of the water body, these effects are not anticipated to result in a deterioration in the current status of the water body or prevent the future achievement of status objectives.

8.1.8 The Proposed Development is anticipated to have only negligible effects on the quality elements of the Aire water body and the Holmes Dike water body, and on the Wharfe & Lower Ouse Sherwood Sandstone, Aire & Don Sherwood Sandstone, Wharfe Magnesian Limestone and Aire & Don Magnesian Limestone groundwater bodies.

8.1.9 No in-combination effects as a result of the Proposed Development or cumulative effects related to nearby other Proposed Developments have been identified.

8.1.10 The Proposed Development is therefore not anticipated to pose a risk of causing a deterioration in status or preventing the future attainment of status objectives for the relevant water bodies screened in for assessment. As such, the Proposed Development is deemed to be compliant with the requirements and objectives of the WER.

8.1.11 This WER compliance assessment provides an indication of the likely compliance of the Proposed Development at the time the assessment was prepared. This assessment would be reviewed to consider if there have been any substantial changes to the Proposed Development as part of seeking any approvals from the Environment Agency or the Local Lead Flood Authority pursuant to their protective provisions in the draft DCO. Such reviews would consider:

1) new baseline information that becomes available for the site, including from any further walkover surveys, and/or the relevant WER water bodies present at the site; and
2) developing updates to the design details and construction methodology for the Proposed Development.

References

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Ref 11 Environment Agency (2022) Humber Basin District Management Plan, updated 2022.

Ref 12 Statutory Instruments (2017) No.407, The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

Ref 13 Environment Agency (2015) Rules for assessing Surface Water Body Status and Potential, V2.0.

Ref 14 European Commission (2013) Directive 2013/39/EU of the European Parliament and of Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy Text with EEA relevance.

Ref 15 UKTAG (2012) Paper 11b(ii): Groundwater Quantitative Classification for purposes of the Water Framework Direction, V3.1.

Ref 16 The Water Framework Directive (Standards and Classification) Directions (England and Wales 2015).

Ref 17 Environment Agency and Department for Food and Rural Affairs (2026). Surface water pollution risk assessment for your environmental permit Guidance. Available at: https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit

Ref 18 Environment Agency (2010) Assessing new modifications for compliance with WFD: detailed supplementary guidance.

Ref 19 Scoping Report, Vol 3, Appendix 1.1

Ref 20 Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy Text with EEA relevance. Available at: [redacted] (Accessed December 2025).

Ref 21 Case 461/13 Bund für – Umwelt Und Naturschutz Deutschland v Bundesrepublik Deutschland ('the Bund case') concerning the interpretation of Article 4(1)(a)(i) to (iii) of the Water Framework Directive 2000/60/EC (WFD)

Ref 22 Environment Agency (2010) Assessing new modifications for compliance with WFD: detailed supplementary guidance.

Ref 23 The Planning Inspectorate (2025) Nationally significant infrastructure projects: advice on the Water Framework Directive.

Ref 24 UK Technical Advisory Group on the Water Framework Directive (2009) Recommendations on Surface Water Classification Schemes for the purposes of the Water Framework Directive.

Annex A Background information - WER status determination and compliance assessment process

A.1. WER background

Legislative context

A.1.1. The EU WFD has been in force since 2000 and is currently one of the most important pieces of EU legislation relating to the water environment. The Directive was transposed into UK law by The Water Environment (Water Framework Directive) (England and Wales) Regulations (amended 2017 (Ref 12) (the "WER"). The Environment Agency is the competent authority responsible for delivering the Directive in England. The WER aims to protect and enhance the quality of the water environment across all EU Member States. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems. Under the WER, 'water bodies' are the basic management units and are defined as all or part of a river system or aquifer. These water bodies form part of a larger RBD, for which RBMPs are developed by EU Member States and environmental objectives are set. These RBMPs are produced every six years, in accordance with the river basin management planning cycle. The statutory objective of the WER is to prevent deterioration of all designated water bodies at good or high status or potential and to prevent water bodies at less than good status or potential from deteriorating further. A series of objectives for maintaining or improving conditions so that water bodies reach and/or maintain 'good status or potential' have also been set out in the WER. These overall Environmental Objectives are to:

1) Prevent the deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters;
2) Aim to achieve at least 'Good' ecological status or potential and 'Good' surface water chemical status for all water bodies by 22 December 2021. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve Good status or potential by 2027;
3) Meet the requirements of Water Framework Directive Protected Areas;
4) Promote sustainable use of water as a natural resource;
5) Conserve habitats and species that depend directly on water;
6) Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
7) Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and

8) Contribute to mitigating the effects of floods and droughts.

A.1.2. All activities with the potential to impact upon the water environment now need to be guided by the requirements of the WER. This includes ensuring that no changes occur that causes a deterioration of current status of a water body or prevents the achievement of the future status objectives of a water body. This principle is now integrated into the planning permission application process for proposed schemes/developments.

Determination of WER status

Introduction

A.1.3. Surface water bodies and groundwater bodies are defined within WER legislation. There are three types of surface water body, as follows:

1) natural water bodies;
2) HMWBs; and
3) artificial water bodies (AWBs).

A.1.4. The Overall Status of natural surface water bodies is determined on the basis of their Ecological Status and Chemical Status. The overall status of heavily modified and artificial water bodies is classified based on their ecological potential and chemical status. The overall status of groundwater bodies is determined on the basis of their Quantitative Status and Chemical Status.

A.1.5. Groundwater bodies are defined within WER legislation as Groundwater Management Units (GWMU) and Water Resource Management Units (WRMU), and their status is determined on the basis of quantitative and chemical sub-elements.

A.1.6. The means by which these determinations are made for both surface water and ground water bodies is described in below.

Surface water bodies

Ecological status

A.1.7. Ecological Status is categorised by the overall quality of the structure and functioning of aquatic ecosystems associated with surface waters, i.e. the condition of the watercourse. This is assigned on a scale of high, good, moderate, poor or bad, and on the basis of four classification elements or ‘tests’, as follows:

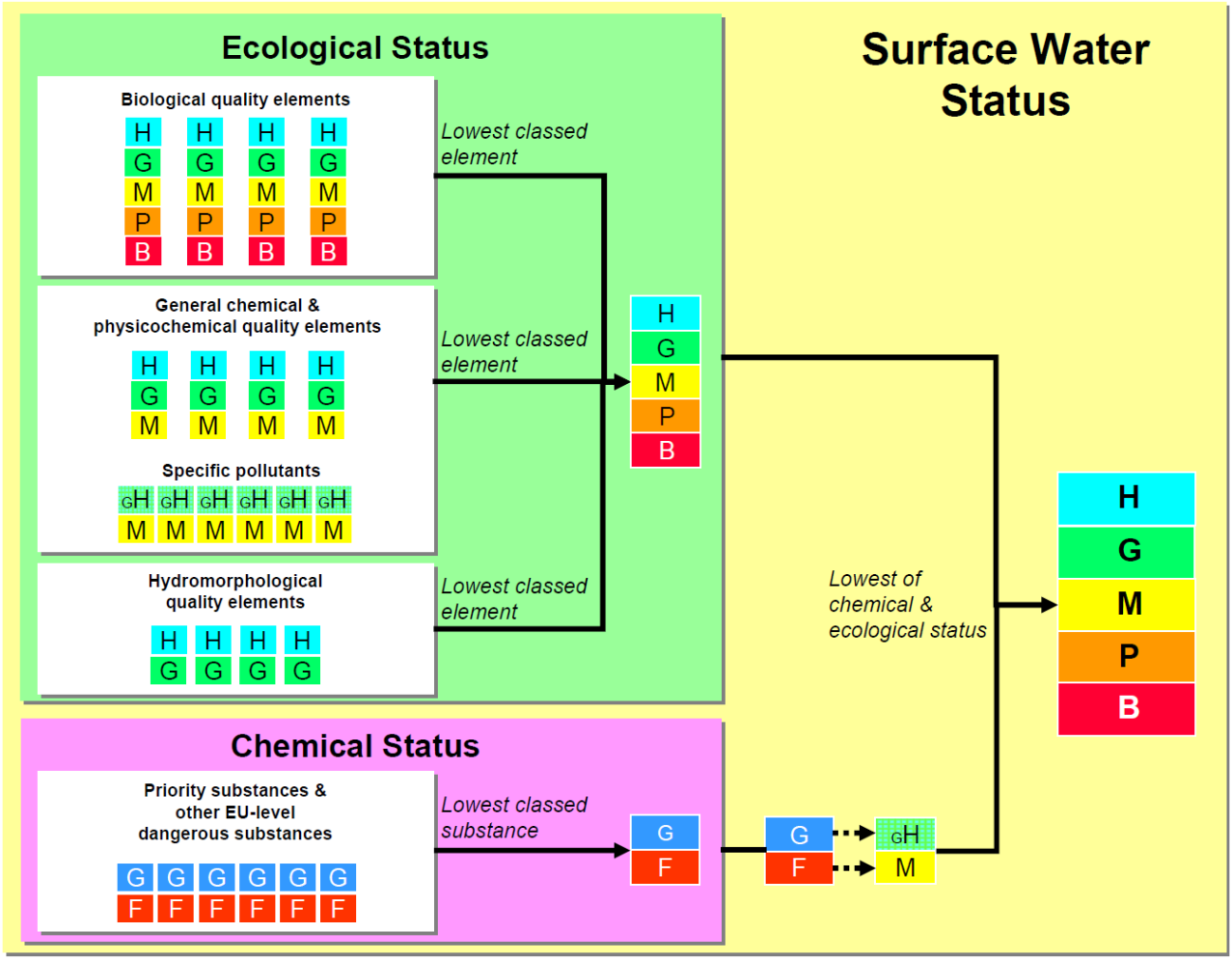
1) Biological - this test is designed to assess the status indicated by Biological quality elements such as fish, invertebrates, macrophytes or phytobenthos (diatoms). The Biological quality elements can influence an overall water body status from bad through to high. It is also important to note that the presence of invasive species prevents a water body from achieving high status when all other elements attain high;

2) Physicochemical - this test is designed to assess the status indicated by physicochemical quality elements such as dissolved oxygen, phosphorus and ammonia, against environmental standards. The physicochemical quality elements can only influence an overall water body status from moderate through to high; and

3) Hydromorphology - for natural surface water bodies this test is undertaken by the EA during classification when the biological and physicochemical tests indicate that a water body may be of high Overall Status. It specifically assesses hydromorphological quality elements such as water flow, sediment composition and movement, continuity, and structure of the habitat against reference or 'largely undisturbed' conditions. If the hydromorphological quality elements do not support high Ecological Status, then the status of the water body is limited to good Overall Status. Hydromorphological assessments are used to determine 'high' Overall Status only and are not used to drive a water body status class below good. The 'does not support good' classification should be reported for the purposes of identifying water bodies which fail the flow test.

A.1.8. The worst-case classification is assigned as the overall surface water body status, in a 'one-out all-out' system. This system is summarised in Plate A-1.

Plate A-1 Ecological status classification process (Source: UK Technical Advisory Group on the Water Framework Directive (2009)) (Ref 24). Key: "H" means high; "G" means good; "GH" means good or better and is normally treated as high for calculating, as relevant, ecological status and surface water status10; "M" means moderate; "P" means poor; "B" means bad; and "F" means failing to achieve good surface water chemical status.



Chemical status

A.1.9. Chemical Status is defined by compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances, in accordance with the Environmental Quality Standards Directive (2013/39/EU) (Ref 20). This is assigned on a scale of good or fail.

A.1.10. Surface water bodies are only monitored for priority substances where there are known discharges of these pollutants; otherwise, surface water bodies are reported as being of good Chemical Status.

Ecological potential for heavily modified (and artificial) water bodies

A.1.11. Ecological Potential is assigned to AWB (such as reservoirs and canals), or natural water bodies which, as a result of physical alterations by human activity,

are substantially changed in character. The latter are termed HMWB. The term 'ecological potential' is used to classify AWBs and HMWBs as it may be impossible for these water bodies to achieve good Ecological Status (GES) because of their creation or modification for a specific use, such as navigation, water supply or flood protection. The Ecological Potential of an AWB or HMWB represents the degree to which the quality of the water body approaches the optimum condition it could achieve given its artificial or heavily modified state

A.1.12. AWB and HMWB are subject to an additional set of rules that need to be implemented prior to running the one-out-all-out process. These rules determine which Biological quality elements should be used in the water body Ecological Potential classification. Under normal circumstances, AWB and HMWB are classified according to an assessment of Mitigation Measures, which defines good Ecological Potential (GEP) in waterbodies where all applicable mitigation is in place, and moderate ecological potential in water bodies where some or all relevant mitigation is missing.

A.1.13. However, to prevent AWB and HMWB being incorrectly classified as good potential in situations where all mitigation is in place, but other pressures are causing an impact (e.g. nutrient enrichment or pollution from toxic substances), the methodology adopted in the UK additionally considers biological indicators providing they are not sensitive to the heavily modified nature of the water body. AWB and HMWB hydromorphological elements are assessed using a three-stage process, firstly looking at flow, then Mitigation Measures Assessment and Biological quality elements. Flow conditions are assessed initially on a fail or pass basis to determine which of the biological and physicochemical quality elements should be used in the classification of Ecological Potential. Where the flow conditions are unaffected by the physical modification (flow conditions pass), the water body Ecological Potential is determined by the worst of either the Mitigation Measures Assessment, or any element that is not sensitive to the modified nature of the water body. Where the flow conditions are significantly impacted by the physical modification (flow conditions fail), the water body Ecological Potential is determined by the worst of any of the Mitigation Measures Assessments or the assessment of Biological quality elements, physicochemical quality elements or specific pollutants.

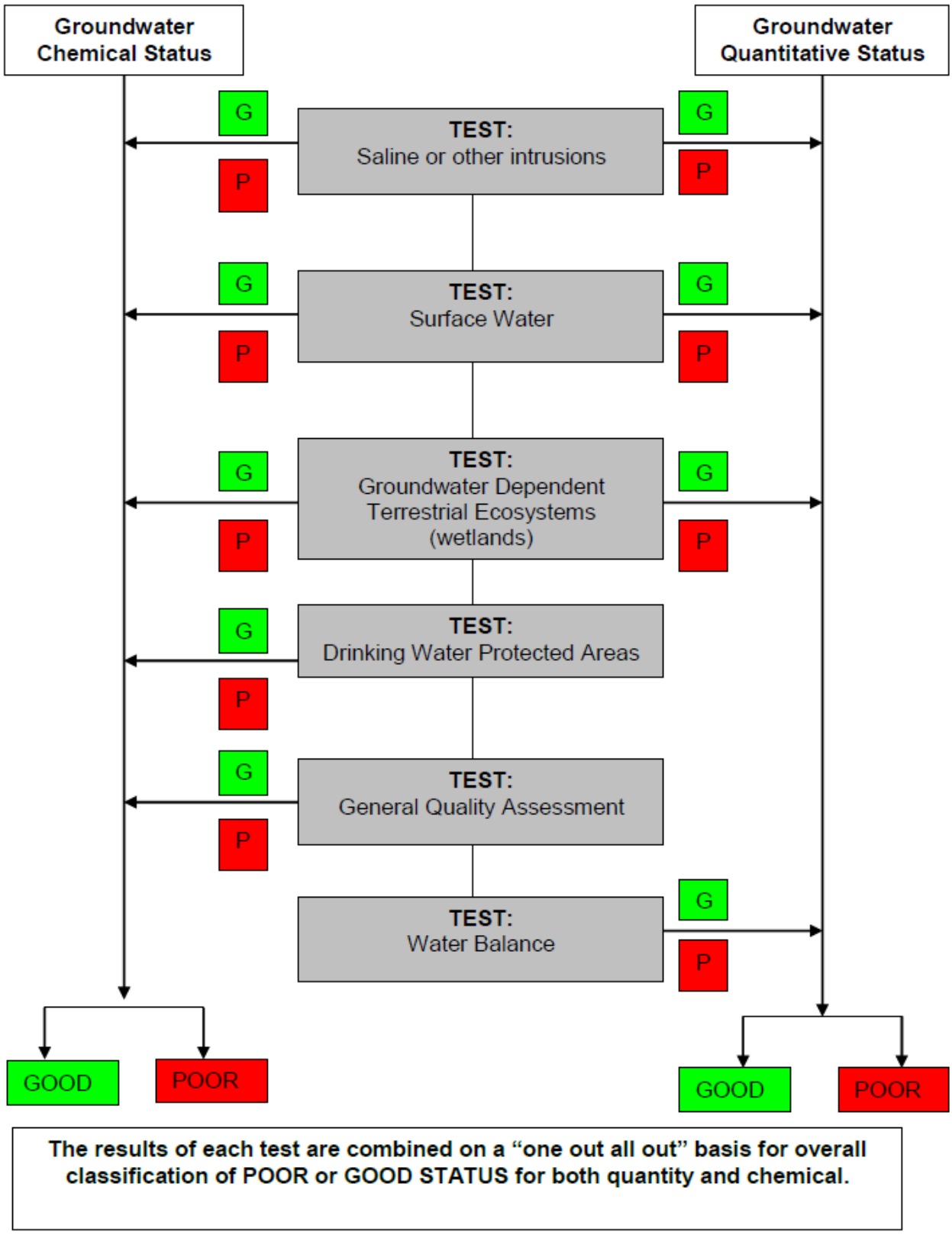
A.1.14. Where a water body is designated as artificial or heavily modified for water resources usage, either solely or jointly with other uses, the flow condition is assumed to be good (pass).

Groundwater bodies

A.1.15. Under the WER, groundwater body Overall Status is classified on the basis of Quantitative Status and Chemical Status. The groundwater bodies are separated into GWMU and WRMU. GWMU are sub-divisions of the groundwater to aid the resource assessment process. WRMU are sub-divisions according to the water resource availability and the management of water.

A.1.16. The worst-case classification dictates the Overall Status, via a 'one-out all-out' system. This system is summarised in Plate A-2.

Plate A-2 Groundwater body status classification (Source: UKTAG (2012) (Ref 15))



Quantitative status

A.1.17. Quantitative Status is defined by the quantity of groundwater available as base flow to watercourses and water-dependent ecosystems and as 'resource' available for use as drinking water and other consumptive purposes. It is assigned on a scale of good or poor, and on the basis of four classification elements or 'tests' as follows:

1) *saline or other intrusions* - this test is designed to identify groundwater bodies where the intrusion of poor quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions;
2) *surface water* - this test is designed to identify groundwater bodies where groundwater abstraction is leading to a significant diminution of the Ecological Status of associated surface water bodies;
3) *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - this test is designed to identify groundwater bodies where groundwater abstraction is leading to significant damage to associated GWDTE; and
4) *water balance* - this test is designed to identify groundwater bodies where groundwater abstraction exceeds the 'available groundwater resource', defined as the rate of overall recharge to the groundwater body itself less the rate of flow required to meet the ecological needs of associated surface water bodies and GWDTE.

Chemical status

A.1.18. Chemical Status is defined by the concentrations of a range of key pollutants, by the quality of groundwater feeding into watercourses and water-dependent ecosystems and by the quality of groundwater available for drinking water purposes. This is assigned on a scale of good or poor, and on the basis of five classifications elements or 'tests', as follows:

1) *saline or other intrusions* - this test is designed to identify groundwater bodies where the intrusion of poor quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions;
2) *surface water* - this test is designed to identify groundwater bodies where groundwater is leading to a significant diminution of the Chemical Status of associated surface water bodies;
3) *GWDTE* - this test is designed to identify groundwater bodies where groundwater is leading to significant damage to associated GWDTE;

4) *Drinking Water Protected Areas (DrWPA)* - this test is designed to identify groundwater bodies failing to meet the DrWPA objectives defined in Article 7 of the WER or at risk of failing in the future. The aim is no deterioration in quality of waters for human consumption, and

5) *general quality assessment* - this test is designed to identify groundwater bodies where widespread deterioration in quality has, or will, compromise the strategic use of groundwater. The aim is no significant impairment of human use of groundwater and no significant environmental risk from pollutants across a groundwater body. Status is assessed primarily using data collected from the EA monitoring network; therefore, the scale of assessment means that groundwater status is mainly influenced by larger scale effects such as significant abstraction or widespread diffuse pollution.

Environmental standards

A.1.19. Under the WER, a range of environmental standards and condition limits are applied in order to help the classification of water body status and the setting of status objectives via the RBMP process. These environmental standards define the range of environmental conditions that support “healthy” aquatic life. For instance, standards are set for the composition of biological communities, the physicochemical water quality parameters, the concentration of pollutants, and the level of flows in rivers (as described above).

A.1.20. These standards (Ref 16) inform the EA on the implementation of the RBMP process, including the identification of measures required to support the achievement of the GES / GEP objectives, as well as underpinning efforts to protect the water environment by helping to regulate activities that could cause adverse impacts.

A.1.21. WER Assessment requirements for new developments to ensure compliance with the WER, decision makers must consider whether proposals for new developments have the potential to:

1) cause a deterioration of a water body from its current status or potential;

2) prevent future attainment of good status or potential where not already achieved;

3) impact on protected or priority species and habitats; and/or

4) provide opportunities to improve the water environment.

A.1.22. A ruling by the European Union Court of Justice on 1 July 2015 (Ref 21) has significant implications for projects that may impact water bodies, namely:

1) consent for development must not be granted by an authorising authority – unless a derogation is granted - where the project may cause a deterioration in the status of a body of surface water or where it jeopardises the attainment of good Ecological Status or of good Ecological Potential and good Chemical Status by the date laid down in the Directive;

2) that deterioration of the status of the relevant body of surface water includes a fall by one class of any element of the quality elements within the meaning of Annex V of the WER even if the fall does not result in a fall of the classification of the body of surface water as a whole; and

3) if the quality element is already in the lowest class, any deterioration of that element represents deterioration of status within the meaning of Article 4(1)(a)(i)[3].

Guidance

A.1.23. Whilst there is no established methodology for assessing compliance with WER legislation, the WER Compliance Assessment is based upon expert judgement, established best practice and consultation with the EA and is undertaken in accordance with relevant EA guidance (Ref 22) and the guidance provided by The Planning Inspectorate (Ref 23).

A.2. WER assessment process

A.2.1. The assessment process described has been followed pursuant to the PINS Advice Note (Ref 23) on WFD assessments.

Overview

A.2.2. WER Compliance Assessment is undertaken as an iterative, stepped process, which typically includes the following:

1) Step 1: Screening assessment (baseline);

2) Step 2: Scoping assessment;

3) Step 3: Detailed impact assessment (where required); and

4) Step 4: Application of Regulation 19 (where applicable).

A.2.3. These key process steps are described in further detail in the following sections. Consultation with regulatory authority should be undertaken to share the findings of each step, where necessary/applicable.

Screening Assessment (baseline)[4]

A.2.4. The key objective of the screening (baseline) assessment is to identify the zone or zones of influence (Study Area) based on specific activities and/or characteristics of the Proposed Development that could affect water bodies. Relevant WER surface water and groundwater bodies (including any undesignated tributary watercourses) potentially affected by the Proposed Development can then be identified and their baseline condition established.

[3] Article 4(1)(a)(i) states 'In making operational the programmes of measures specified in the river basin management plans for surface waters Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8.'
[4] Aligns to Stage 1 Screening of the PINS guidance (Ref 23).

A.2.5. The water body baseline condition of relevant water bodies has been identified via desk-top assessment, utilising readily available information and environmental, asset and operations data obtained from relevant stakeholders, including the EA, Yorkshire Wildlife Trust and the Colne and Calder Rivers Trust.

A.2.6. WER baseline datasets have been obtained from the EA's Catchment Data Explorer website (Ref 3) and through internal data request to the EA. This includes:

1) RBMP Cycle 2 current status and status objectives data;
2) WER Protected Areas data;
3) Reasons for to achieving good status (RNAG) data;
4) Measures / actions data; and
5) Mitigation Measures Assessment data (if applicable).

A.2.7. The 2019 EA WER water body status data has been used to inform the assessment. These data are considered to provide the current best estimate of status and the formal baseline against which the EA will assess compliance with the 'no deterioration' objective. Where baseline data is limited, professional judgement has been used in the assessment and a precautionary approach taken with regard to screening.

A.2.8. The relevant WER water bodies present within the potential zone of influence of the Proposed Development are taken through to the subsequent preliminary assessment (scoping) stage.

Scoping assessment[5]

A.2.9. The objective of the preliminary (scoping) assessment is to establish the relevant likely effects of the Proposed Development on the WER status elements of the relevant WER surface water and groundwater bodies. This includes identification of potential impact types, and any relevant mitigation embedded within the design of the Proposed Development at this stage.

A.2.10. The scoping assessment considers both the beneficial and adverse effects of the relevant elements of the Proposed Development and applies a risk-based method in line with existing EA and Natural Resources Wales (although the Proposed Development is not in Wales, the principles within the guidance are of general relevance) guidance [Ref 16].

A.2.11. Effects are considered with regard to the risk of the Proposed Development causing a deterioration in current status and/or a failure to achieve status objectives. The assessment identifies those scheme components /impacts that pose a risk to current status or status objectives and thus may require more detailed impact assessment. The scoping assessment therefore comprises two parts, as follows:

[5] Aligns to Stage 2 Scoping of the PINS guidance (Ref 23).

1) likely effects on current status or potential, involving:
   a) identification of relevant scheme components with potential to impact upon water body status;
   b) identification of likely potential impact and magnitude of effects of the relevant scheme components on the current status of the water body (taking account of any 'embedded' mitigation; and
   c) identification of potential risks of deterioration in current status and associated requirements for additional mitigation and/or further detailed assessment.
2) likely effects on status objectives, involving:
   a) scoping of the relevant scheme components to identify where the Proposed Development may pose a risk of worsening existing pressures responsible for current status failures (RNAGs) and/or prevent the implementation of measures identified by the EA to address existing status failures; and
   b) scoping of relevant scheme components against any available EA HMWB / AWB 'mitigation measure assessment' outputs, in order to identify where the Proposed Development may pose a potential risk of inhibiting the implementation of measures derived to mitigate the impacts of existing physical modifications and operational regimes to support the achievement of good Ecological Potential objectives.

Detailed impact assessment[6]

A.2.12. Where required, the objective of the detailed impact assessment is to establish the nature and anticipated magnitude of the effects of relevant elements of the Proposed Development on the WER quality elements of the surface water and groundwater bodies affected. These effects are considered in terms of the potential for deterioration of current status and/or the prevention of status objectives. This detailed assessment may be based on targeted baseline surveys, monitoring or modelling assessments completed at the impact sites.

A.2.13. As with the scoping assessment stage, the detailed impact assessment is therefore comprised of two key parts, as follows:

1) assessment of effects on current status of quality element; and
2) assessment of effects on status objectives, with regards to any water body RNAG or measures/actions identified as potentially being at risk from the Proposed Development under the preceding preliminary (scoping) assessment. This is done via expert judgement and consultation with the EA, based on the currently available information.

A.2.14. Where significant effects are identified with regard to the risk of status deterioration and/or the prevention of status objectives, the assessment should

[6] Aligns to Stage 3 Impact Assessment of the PINS guidance (Ref 23).

identify ‘further mitigation’ required in order to avoid and/or minimise risks and the residual effects on quality elements at the water body scale.

A.2.15. The detailed impact assessment will also identify if Regulation 19 tests need to be prepared for affected water bodies, where a residual risk to status deterioration and/or prevention of future status objectives has been identified.

A.2.16. A detailed impact assessment has not been deemed required for the Proposed Development, based on the information available at this stage, as there is not expected to be any risk of deterioration in current WER status or prevention of achieving a Good WER status in the future for relevant water bodies identified.

Regulation 19 tests

A.2.17. Regulation 19 of the WER states that the appropriate agency will not be in breach of the Directive when failure to meet its environmental objectives is the result of either new modifications to the physical characteristics of a water body or as a result of new human sustainable development, on the proviso that the modifications or new development proposed are compliant with the four key conditions listed below. In doing so, Regulation 19 provides a means whereby a derogation for a proposed modification or sustainable development may be granted where it meets these four conditions.

1) all practicable steps have been taken to mitigate the adverse impact on the status of the water body;
2) the reasons for the modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development;
3) the beneficial objectives served by the modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option; and
4) the reasons for the modifications or alterations are clearly identified to the Environment Agency, so that they can be specifically set out and explained in the relevant RBMP, and the environmental objectives must be reviewed every six years.

Regulation 19 tests are not deemed required for the Proposed Development, based on the information available at this stage, as the Proposed Development is deemed compliant with the WER.

Annex B Watercourses outside of the Order Limits located within the Study Area

B.1. List of watercourses

Table B-1 List of watercourses

Watercourse name	Site location	Designation	Parent catchment
Common Drain 3	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Trib of Pallion Dyke	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Unnamed Drain 44	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Stillingfleet Beck	Within Study Area	Ordinary watercourse	Stillingfleet Beck Source to Ouse
Halfpenny Dike	Within Study Area	Ordinary watercourse	Stillingfleet Beck Source to Ouse
Trib of Pallion Dyke	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Holmes Dike	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Unnamed Drain 45	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Unnamed Drain 46	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Unnamed Drain 47	Within Study Area	Ordinary watercourse	Riccall Dam Catchment (trib of Ouse)
Angram Clough	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Trib of Angram Clough 1	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Trib of Angram Clough 2	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
River Aire	Within Study Area	Main River	Aire from Fryston Beck to R Ouse
Watergate Lane Drain	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Ings Lane Drain	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 48	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)

Watercourse name	Site location	Designation	Parent catchment
Unnamed Drain 49	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 50	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 51	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Dickey Lane Drain	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Marsh Lane Drain	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Lordship Lane Drain 2	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Unnamed Drain 52	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Holmes Dike	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Cockret Dike	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 53	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 54	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 55	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 56	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Trib of Cockret Dike	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 57	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 58	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 59	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 60	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 61	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Trib of Black Fen Drain	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 62	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 63	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 64	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)

Watercourse name	Site location	Designation	Parent catchment
Main Drain 2	Within Study Area	Ordinary watercourse	Bishop Dike (Trib of Ouse)
Bayle Dike	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Dutchman's Dike	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 23	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Fox Drain	Within Study Area	Main River (in part)	Fox Dike/Carr Dike from Source to Selby Dam
Upper Fox Drain	Within Study Area	Main River (in part)	Upper Fox Drain Catchment ds of Sherburn STW
Long Dike	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Briggs River	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Hammersike Dike	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Trib of Main Drain	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 65	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Hillam Road Drain	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Unnamed Drain 66	Within Study Area	Ordinary watercourse	Ouse from R Wharfe to Upper Humber
Unnamed Drain 67	Within Study Area	Ordinary watercourse	The Fleet from Source to River Aire
Unnamed Drain 68	Within Study Area	Ordinary watercourse	The Fleet from Source to River Aire
Unnamed Drain 69	Within Study Area	Ordinary watercourse	The Fleet from Source to River Aire
Unnamed Drain 70	Within Study Area	Ordinary watercourse	The Fleet from Source to River Aire
Old Eye	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Fleet Drain	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Trib of Fleet Drain 1	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Trib of Fleet Drain 2	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Trib of Fleet Drain 3	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Trib of Old Eye 1	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse

Watercourse name	Site location	Designation	Parent catchment
Trib of Old Eye 2	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Trib of Old Eye 3	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Unnamed Drain 71	Within Study Area	Ordinary watercourse	Aire from Fryston Beck to R Ouse
Unnamed Drain 72	Within Study Area	Ordinary watercourse	The Fleet from Source to River Aire
Unnamed Drain 73	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 87	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 75	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Mill Dike	Within Study Area	Main River (in part)	Mill Dike from Source to Bishop Dike
Trib of Mill Dike	Within Study Area	Ordinary watercourse	Mill Dike from Source to Bishop Dike
Trib of Upper Fox Drain	Within Study Area	Ordinary watercourse	Upper Fox Drain Catchment ds of Sherburn STW
Unnamed Drain 77	Within Study Area	Ordinary watercourse	The Fleet from Source to River Aire
Unnamed Drain 78	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 79	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Bishop Dike	Within Study Area	Main River	Bishop Dike (Trib of Ouse)
Trib of Bishop Dike 1	Within Study Area	Ordinary watercourse	Bishop Dike (Trib of Ouse)
Trib of Bishop Dike 2	Within Study Area	Ordinary watercourse	Bishop Dike (Trib of Ouse)
Unnamed Drain 80	Within Study Area	Ordinary watercourse	Bishop Dike (Trib of Ouse)
Trib of Bishop Dike 3	Within Study Area	Ordinary watercourse	Bishop Dike (Trib of Ouse)
Unnamed Drain 81	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 82	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse
Unnamed Drain 83	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 84	Within Study Area	Ordinary watercourse	Holmes Dike catchment (trib of Ouse)
Unnamed Drain 85	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse

Watercourse name	Site location	Designation	Parent catchment
Unnamed Drain 86	Within Study Area	Ordinary watercourse	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse

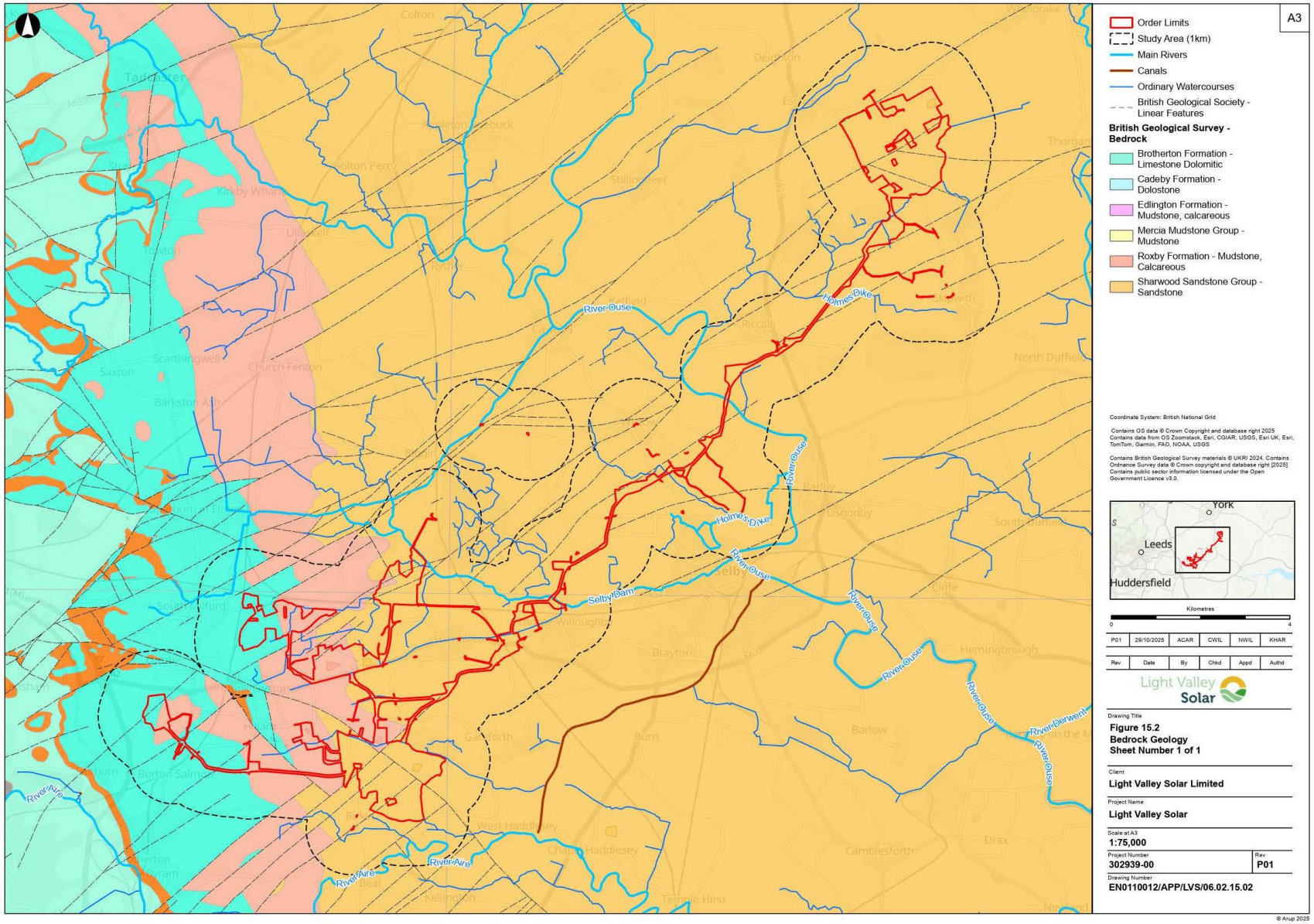
Annex C WER water body locations

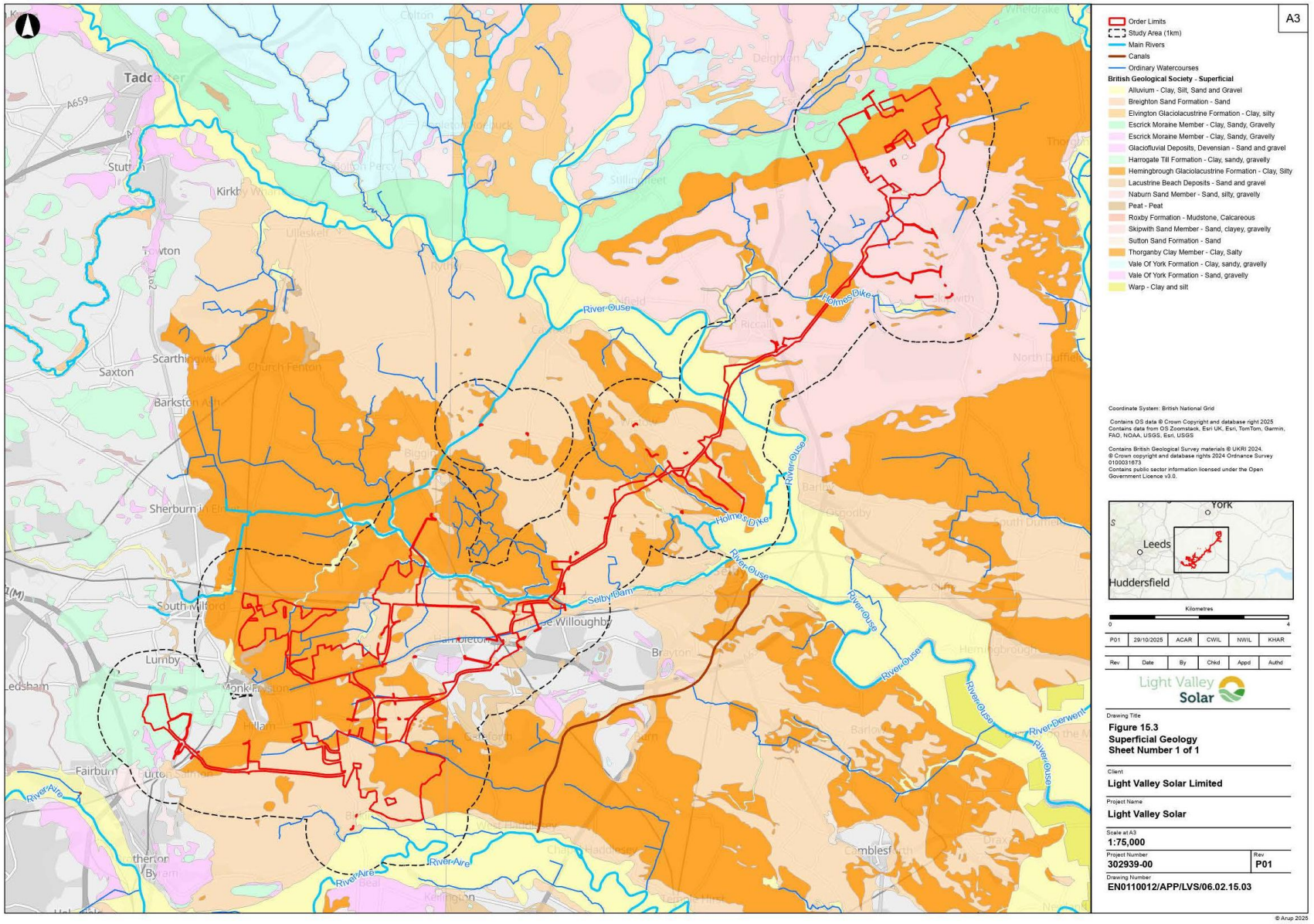
C.1.1. Figure 15.5: WER - Surface Water Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.05**] and Figure 15.6: Groundwater Bodies (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.06**] show surface and groundwater WER water bodies in the Study Area.

Annex D Additional desk study information

D.1. Geology and topography mapping

D.1.1. The section below shows maps from ES Volume 2 that have informed the baseline/desk study. See also Figure 15.2: Bedrock Geology (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.02**] and Figure 15.3: Superficial Geology (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.03**].


A3
Order Limits
Study Area (1km)
Main Rivers
Canals
Ordinary Watercourses
British Geological Society - Linear Features
British Geological Survey - Bedrock
Brotherton Formation - Limestone Dolomitic
Cadeby Formation - Dolostone
Edlington Formation - Mudstone, calcareous
Mercia Mudstone Group - Mudstone
Roxby Formation - Mudstone, Calcareous
Sharwood Sandstone Group - Sandstone
River Ouse
Holmes Dike
Selby Dam
River Aire
River Derwent
Coordinate System: British National Grid
Contains OS data © Crown Copyright and database right 2025
Contains data from OS Zoomstack, Esri, CGIAR, USGS, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
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York
Leeds
Huddersfield
Kilometres
0
4
P01 | 29/10/2025 | ACAR | CWIL | NWIL | KHAR
Rev | Date | By | Chkd | Appd | Authd
Light Valley Solar
Drawing Title
Figure 15.2
Bedrock Geology
Sheet Number 1 of 1
Client
Light Valley Solar Limited
Project Name
Light Valley Solar
Scale at A3
1:75,000
Project Number
302939-00
Rev
P01
Drawing Number
EN0110012/APP/LVS/06.02.15.02
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A3
Order Limits
Study Area (1km)
Main Rivers
Canals
Ordinary Watercourses
British Geological Society - Superficial
Alluvium - Clay, Silt, Sand and Gravel
Breighton Sand Formation - Sand
Elvington Glaciolacustrine Formation - Clay, silty
Escrick Moraine Member - Clay, Sandy, Gravelly
Escrick Moraine Member - Clay, Sandy, Gravelly
Glaciofluvial Deposits, Devensian - Sand and gravel
Harrogate Till Formation - Clay, sandy, gravelly
Hemingbrough Glaciolacustrine Formation - Clay, Silty
Lacustrine Beach Deposits - Sand and gravel
Naburn Sand Member - Sand, silty, gravelly
Peat - Peat
Roxby Formation - Mudstone, Calcareous
Skipwith Sand Member - Sand, clayey, gravelly
Sutton Sand Formation - Sand
Thorganby Clay Member - Clay, Salty
Vale Of York Formation - Clay, sandy, gravelly
Vale Of York Formation - Sand, gravelly
Warp - Clay and silt
Coordinate System: British National Grid
Contains OS data © Crown Copyright and database right 2025
Contains data from OS Zoomstack, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, USGS
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York
Leeds
Huddersfield
Kilometres
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4
P01 29/10/2025 ACAR CWIL NWIL KHAR
Rev Date By Chkd Appd Authd
Light Valley Solar
Drawing Title
Figure 15.3
Superficial Geology
Sheet Number 1 of 1
Client
Light Valley Solar Limited
Project Name
Light Valley Solar
Scale at A3
1:75,000
Project Number
302939-00
Rev
P01
Drawing Number
EN0110012/APP/LVS/06.02.15.03
© Arup 2025
River Ouse
Holmes Dike
Selby Dam
River Aire
River Derwent
Saxton
Sherburn
South Milford
Lumby
Fairburn

Annex E Additional WER water body data

E.1. Protected areas

Table E-1 Protected areas for the Ouse from R Wharfe to Upper Humber (GB104027064270) water body

Protected area name	Protected area code	Protected area type
River Derwent	UK0030253	Special Area of Conservation
Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ	S287	Nitrates Directive
Aire from River Calder to River Ouse NVZ	S274	Nitrates Directive

Table E-2 Protected areas for the Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620) water body

Protected area name	Protected Area Code	Protected Area Type
Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ	S287	Nitrates Directive

Table E-3 Protected areas for the Riccall Dam Catchment (trib of Ouse) (GB104027063690) water body

Protected area name	Protected area code	Protected area type
Skipwith Common	UK0030276	Special Area of Conservation
Lowmoor Drain Catch (trib of Derwent) NVZ	S282	Nitrates Directive
Riccall Dam Catchment (trib of Ouse) NVZ	S288	Nitrates Directive

Table E-4 Protected areas for The Fleet from Source to River Aire (GB104027062740) water body

Protected area name	Protected area code	Protected area type
The Fleet from Source to River Aire NVZ	S272	Nitrates Directive
Yorkshire Mag Limestone	G101	Nitrates Directive
Aire from River Calder to River Ouse NVZ	S274	Nitrates Directive

Table E-5 Protected areas for the Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400) groundwater body

Protected area name	Protected area code	Protected area type
Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ	S287	Nitrates Directive
River Derwent	UK0030253	Special Area of Conservation
River Derwent from Kirkham to Elvington Beck NVZ	S303	Nitrates Directive
River Foss from the Syke to the River Ouse NVZ	S284	Nitrates Directive
The Fleet from Source to River Aire NVZ	S272	Nitrates Directive
Yorkshire Mag Limestone	G101	Nitrates Directive
Vale of York	G103	Nitrates Directive
Brayton	G107	Nitrates Directive
Aire from River Calder to River Ouse NVZ	S274	Nitrates Directive
The Foss/Moor Drain from Foss Dike to River Ouse NVZ	S291	Nitrates Directive
Carlton East	GWSGZ0029	Safeguard Zone

Protected area name	Protected area code	Protected area type
The Foss Catchment (trib of Wharfe) NVZ	S296	Nitrates Directive
The Fleet/The Foss from Source to River Wharfe NVZ	S297	Nitrates Directive
Ouse from Naburn to Sillingfleet NVZ	S289	Nitrates Directive
Skipwith Common	UK0030276	Special Area of Conservation
Lowmoor Drain Catch (trib of Derwent) NVZ	S282	Nitrates Directive
Nidd from Crimple Beck to River Ouse NVZ	S801	Nitrates Directive
Wharfe & Lower Ouse Sherwood Sandstone	UKGB40401G702400	Drinking Water Protected Area
Riccall Dam Catchment (trib of Ouse) NVZ	S288	Nitrates Directive

Table E-6 Protected areas for the Aire & Don Sherwood Sandstone (GB40401G701000) groundwater body

Protected area name	Protected area code	Protected area type
Ea Beck from the Skell to Goosepool Drain NVZ	S277	Nitrates Directive
Humber Estuary	UK9006111	Special Protection Area
Humber Estuary	UK11031	Ramsar Site
Humber Estuary	UK0030170	Special Area of Conservation
The Fleet from Source to River Aire NVZ	S272	Nitrates Directive
Nottinghamshire	G40	Nitrates Directive
Yorkshire Mag Limestone	G101	Nitrates Directive
Brayton	G107	Nitrates Directive

Protected area name	Protected area code	Protected area type
Aire from River Calder to River Ouse NVZ	S274	Nitrates Directive
Went from Blowell Drain to the River Don NVZ	S299	Nitrates Directive
LOWER DON NVZ	S298	Nitrates Directive
Bramwith Drain from Source to River Don NVZ	S280	Nitrates Directive
Bentley Mill Stream Lower to River Don NVZ	S263	Nitrates Directive
Swinefleet Warping Drain Source to River Ouse NVZ	S281	Nitrates Directive
Thorne Moor	UK0012915	Special Area of Conservation
Carlton East	GWSGZ0029	Safeguard Zone
Aire & Don Sherwood Sandstone.	UKGB40401G701000	Drinking Water Protected Area
Ea Beck from Abbess Dyke to River Don NVZ	S279	Nitrates Directive
Selby	G108	Nitrates Directive
Great Heck and Pollington	GWSGZ0267	Safeguard Zone

Table E-7 Protected areas for the Wharfe Magnesian Limestone (GB40401G701100) groundwater body

Protected area name	Protected area code	Protected area type
Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ	S287	Nitrates Directive
The Fleet from Source to River Aire NVZ	S272	Nitrates Directive
Yorkshire Mag Limestone	G101	Nitrates Directive
Cock Beck Catchment (trib of Wharfe) NVZ	S293	Nitrates Directive

Protected area name	Protected area code	Protected area type
Thorner Beck Catchment (trib of Wharfe) NVZ	S294	Nitrates Directive
Collingham Bk Catchment (trib of Wharfe) NVZ	S295	Nitrates Directive
Crimple Beck from Source to River Nidd NVZ	S290	Nitrates Directive
Lin Dike for Source to River Aire NVZ	S275	Nitrates Directive
Vale of York	G103	Nitrates Directive
The Foss Catchment (trib of Wharfe) NVZ	S296	Nitrates Directive
Nidd from Crimple Beck to River Ouse NVZ	S801	Nitrates Directive
Wharfe Magnesian Limestone	UKGB40401G701100	Drinking Water Protected Area

Table E-8 Protected areas for the Aire & Don Magnesian Limestone (GB40401G700900) groundwater body

Protected area name	Protected area code	Protected area type
Selby Dam from Conf. Fox Dike & Carr Dike to Ouse NVZ	S287	Nitrates Directive
R Torne / Three Rivers from Mother Dr to R Trent NVZ	S351	Nitrates Directive
Ea Beck from the Skell to Goosepool Drain NVZ	S277	Nitrates Directive
The Fleet from Source to River Aire NVZ	S272	Nitrates Directive
Nottinghamshire	G40	Nitrates Directive
Yorkshire Mag Limestone	G101	Nitrates Directive
Lin Dike for Source to River Aire NVZ	S275	Nitrates Directive
Aire from River Calder to River Ouse NVZ	S274	Nitrates Directive
Went from Blowell Drain to the River Don NVZ	S299	Nitrates Directive
LOWER DON NVZ	S298	Nitrates Directive
River Dearne NVZ	S278	Nitrates Directive
Bentley Mill Stream Lower to River Don NVZ	S263	Nitrates Directive
Ea Beck from Abbess Dyke to River Don NVZ	S279	Nitrates Directive
Selby	G108	Nitrates Directive
Aire & Don Magnesian Limestone.	UKGB40401G700900	Drinking Water Protected Area

E.2. Reasons for Not Achieving Good (RNAG)

Table E-9 RNAGs for the Aire from Fryston Beck to River Ouse (GB104027063037) water body

Failing element	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Polybrominated diphenyl ethers (PBDE)	590659	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Perfluorooctane sulphonate (PFOS)	590661	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)
Phosphate	589219	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Mercury and Its Compounds	590660	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Diazinon	589218	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Invertebrates	589222	Water Industry	Waste water treatment	Point source	Sewage discharge (intermittent)
Invertebrates	589221	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Phosphate	589220	Water Industry	Waste water treatment	Point source	Sewage discharge (intermittent)

Table E-10 RNAGs for the Ouse from R Wharfe to Upper Humber (GB104027064270) water body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
para - para DDT	572749	Industry	Not applicable	Diffuse source	Contaminated water body bed sediments
para - para DDT	572748	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Contaminated water body bed sediments
Mercury and Its Compounds	564106	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Phosphate	572751	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management
Mitigation Measures Assessment	576038	Sector under investigation	Not applicable	Physical modification	Other (not in list, must add details in comments)
Polybrominated diphenyl ethers (PBDE)	564159	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Phosphate	572750	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Mitigation Measures Assessment	576039	Sector under investigation	Not applicable	Physical modification	Other (not in list, must add details in comments)
Perfluorooctane sulphonate (PFOS)	564170	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)

Table E-11 RNAGs for the Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620) water body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Phosphate	57607	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor soil management
Phosphate	57606	Domestic General Public	Not applicable	Point source	Sewage discharge (continuous)
Mitigation Measures Assessment	574627	Urban and transport	Not applicable	Physical modification	Other (not in list, must add details in comments)
Phosphate	57605	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Phosphate	57604	Industry	Not applicable	Point source	Trade/Industry discharge
Mitigation Measures Assessment	574626	Local and Central Government	Not applicable	Physical modification	Other (not in list, must add details in comments)
Ammonia (Phys-Chem)	574566	Industry	Not applicable	Point source	Trade / Industry discharge
Ammonia (Phys-Chem)	574565	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Mitigation Measures Assessment	588357	Agriculture and rural land management	Not applicable	Physical modification	Other (not in list, must add details in comments)
Fish	576257	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Dissolved oxygen	574583	Industry	Not applicable	Point source	Trade / Industry discharge
Dissolved oxygen	574582	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Perfluorooctane sulphonate (PFOS)	555294	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)
Polybrominated diphenyl ethers (PBDE)	555283	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Mercury and Its Compounds	555272	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable

Table E-12 RNAGs for the Riccall Dam Catchment (trib of Ouse) (GB104027063690) water body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Polybrominated diphenyl ethers (PBDE)	555669	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Dissolved oxygen	555625	Agriculture and rural land management	Not applicable	Physical modification	Land drainage - operational management
Dissolved oxygen	555614	Industry	Food and drink	Point source	Trade / Industry discharge
Dissolved oxygen	555603	Industry	Not applicable	Point source	Private Sewage Treatment
Ammonia (Phys-Chem)	555569	No sector responsible	Not applicable	High to Good deterioration, no action required (RFD only)	Not applicable
Macrophytes and Phytobenthos Combined	576268	Domestic General Public	Domestic / General public	Point source	Private Sewage Treatment
Mercury and Its Compounds	553002	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Phosphate	576267	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management
Phosphate	576265	Domestic General Public	Domestic / General public	Point source	Private Sewage Treatment
Dissolved oxygen	555591	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management

Failing element	Challenges ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Dissolved oxygen	555580	Domestic General Public	Domestic / General public	Point source	Private Sewage Treatment

Table E-13 RNAGs for The Fleet from Source to River Aire (GB104027062740) water body

Failing element	Challenges ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Mitigation Measures Assessment	588315	Agriculture and rural land management	Not applicable	Physical modification	Other (not in list, must add details in comments)
Mercury and Its Compounds	549638	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Dissolved oxygen	549712	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Dissolved oxygen	549701	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Phosphate	549734	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Dissolved oxygen	549678	Agriculture and rural land management	Other rural (not agriculture)	Flow	Land drainage - operational management

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Invertebrates	549656	Agriculture and rural land management	Not applicable	Physical modification	Land drainage - operational management
Polybrominated diphenyl ethers (PBDE)	549741	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable

Table E-14 RNAGs for the Holmes Dike Catchment (trib of Ouse) (GB104027063650) water body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Polybrominated diphenyl ethers (PBDE)	552902	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Invertebrates	574657	Water Industry	Waste water treatment	Point source	Sewage discharge (intermittent)
Invertebrates	574656	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor soil management
Invertebrates	574655	Agriculture and rural land management	Not applicable	Physical modification	Land drainage - operational management
Phosphate	555510	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor soil management

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Dissolved oxygen	555487	Water Industry	Waste water treatment	Point source	Sewage discharge (intermittent)
Dissolved oxygen	555476	Domestic General Public	Domestic/General public	Diffuse source	Septic Tanks
Dissolved oxygen	555465	Agriculture and rural land management	Not applicable	Physical modification	Land drainage - operational management
Dissolved oxygen	555454	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor soil management
Mercury and Its Compounds	555421	No sector responsible	Not applicable	Measures delivered to address reason, awaiting recovery	Not applicable
Phosphate	555531	Domestic General Public	Domestic/General public	Diffuse source	Septic Tanks
Phosphate	555520	Water Industry	Waste water treatment	Point source	Sewage discharge (intermittent)

Table E-15 RNAGs for the Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400) groundwater body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Trend Assessment	559464	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)
Chemical Drinking Water Protected Area	559462	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)

Table E-16 RNAGs for the Aire & Don Sherwood Sandstone (GB40401G701000) groundwater body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Trend Assessment	574669	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
General Chemical Test	574668	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
General Chemical Test	574667	Agriculture and rural land management	Agriculture - Livestock	Point source	Farm/site infrastructure
General Chemical Test	574665	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management
Chemical Drinking Water Protected Area	559442	Agriculture and rural land management	Agriculture - Livestock	Diffuse source	Poor nutrient management
General Chemical Test	574663	Industry	Not applicable	Point source	Contaminated land
Chemical Drinking Water Protected Area	559438	Water Industry	Waste water treatment	Point source	Sewage discharge (continuous)
Trend Assessment	574672	Domestic General Public	Not applicable	Point source	Private Sewage Treatment
General Chemical Test	574661	Domestic General Public	Domestic/General public	Point source	Private Sewage Treatment
Trend Assessment	574671	Other	Not applicable	Diffuse source	Atmospheric deposition
General Chemical Test	574660	Agriculture and rural land management	Agriculture - Livestock	Diffuse source	Poor nutrient management

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Trend Assessment	574670	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management
Quantitative Water Balance	559443	No sector responsible	Not applicable	Suspect data	Not applicable
Chemical Drinking Water Protected Area	559439	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management
Chemical Drinking Water Protected Area	559441	Domestic General Public	Not applicable	Point source	Private Sewage Treatment
Chemical Drinking Water Protected Area	559440	Other	Not applicable	Diffuse source	Atmospheric deposition

Table E-17 RNAGs for the Wharfe Magnesian Limestone (GB40401G701100) groundwater body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Trend Assessment	559445	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)
Chemical Drinking Water Protected Area	559444	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)

Table E-18 RNAGs for the Aire & Don Magnesian Limestone (GB40401G700900) groundwater body

Failing element	Challenges				
	ID	Category	Business sector	Surface Water Management Issue (SWMI)	Activity
Chemical Drinking Water Protected Area	559428	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)
Trend Assessment	559437	Sector under investigation	Not applicable	Unknown (pending investigation)	Unknown (pending investigation)
General Chemical Test	559436	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor pesticide management
General Chemical Test	559434	Domestic General Public	Not applicable	Point source	Private Sewage Treatment
General Chemical Test	559433	Agriculture and rural land management	Agriculture - Livestock	Point source	Farm/site infrastructure
General Chemical Test	559432	Agriculture and rural land management	Agriculture - Arable	Diffuse source	Poor nutrient management

E.3. Measures and actions

Table E-19 Measures and actions for Aire from Fryston Beck to River Ouse (GB104027063037) water body

Action measure unique ID (UID)	Title	Category Tier 1	Category Tier 2
19533	Reduction at source	To control or manage point source inputs	Reduce point source pollution at source
19534	Influence wool scourers to improve on site treatment	To control or manage point source inputs	Reduce point source pollution at source
31836	Action to manage alter or remove 3 weirs (GB104027062760)	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures / Improve the physical form and function of a water body
31837	Action to manage alter or remove 2 weirs (GB104027062760)	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures
31960	Evaluate locations/options from Lower Aire FCRM strategy to give potential option (GB104027062760).	To mitigate the impacts on ecology from physical modifications in modified waters	Improve the physical form and function of a water body
31961	Review EA Compliance (GB104027062760).	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures / Improve operational and maintenance regimes / Improve the physical form and function of a water body
31963	Action to improve eel passage and eel screening.	To mitigate the impacts on ecology from physical modifications in modified waters	Improve water resources management
31964	Review EA Compliance (GB104027062760).	To mitigate the impacts on ecology from physical modifications in modified waters	Improve education

Action measure unique ID (UID)	Title	Category Tier 1	Category Tier 2
31965	Action to develop a project to improve in-channel habitats.	To mitigate the impacts on ecology from physical modifications in modified waters	Improve the physical form and function of a water body
31966	Evaluate locations/options from Lower Aire FCRM strategy to give potential option (GB104027062760).	To mitigate the impacts on ecology from physical modifications in modified waters	Improve the physical form and function of a water body
31967	Develop project delivery options for bankside enhancements	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures / Improve operational and maintenance regimes / Improve the physical form and function of a water body
31972	Action to develop a project to improve marginal and riparian habitats.	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures / Improve operational and maintenance regimes / Improve the physical form and function of a water body
31973	Investigate re-opening length of Wash Dyke	To mitigate the impacts on ecology from physical modifications in modified waters	Improve the physical form and function of a water body
31974	Investigate inclusion of in-culvert structures	To mitigate the impacts on ecology from physical modifications in modified waters	Improve the physical form and function of a water body
40108	Yorkshire Area Fish Pass Programme feasibility study	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures
40474	AMP7 Castleford STW Phosphorus scheme 3mg/l	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works

Action measure unique ID (UID)	Title	Category Tier 1	Category Tier 2
40584	AMP7 Sutton WWTW Phosphorus scheme 1mg/l	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40585	Phosphate reductions at 21 works in upstream waterbodies	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40622	Farm manure and slurry management plans and promotion of fertiliser best practice (GB104027062760)	To control or manage rural diffuse pollution	Store and contain farm chemicals, wastes and pollutants / Apply fertilisers, chemicals and land-spread materials to meet crop needs

Table E-20 Measures and actions for Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620) water body

Action measure UID	Title	Category Tier 1	Category Tier 2
19479	Best practice land management to reduce soil and sediment loss to rivers.	To control or manage rural diffuse pollution	Manage, contain and treat runoff / Improve land management practices
19482	Improve drainage on Sherburn Industrial Estate.	To control or manage rural diffuse pollution	Manage, contain and treat runoff
32380	Install a fish pass on Selby Dam Pumping Station.	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures / Improve the physical form and function of a water body
32381	Review EA Compliance	To mitigate the impacts on ecology from physical modifications in modified waters	Improve operational and maintenance regimes / Improve education
32385	Determine the feasibility of altering maintenance, setting back or removing assets.	To mitigate the impacts on ecology from physical modifications in modified waters	Improve the physical form and function of a water body
32386	Install a fish pass on Selby Dam Pumping Station.	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures
32387	Develop a bankside planting project	To mitigate the impacts on ecology from physical modifications in modified waters	Improve operational and maintenance regimes / Improve the physical form and function of a water body
32390	Liaise with IDBs to improve maintenance and in channel and marginal diversity.	To mitigate the impacts on ecology from physical modifications in modified waters	Remove or enhance existing structures / Improve operational and maintenance regimes / Improve the physical form and function of a water body

Action measure UID	Title	Category Tier 1	Category Tier 2
40446	AMP7 Sherburn In Elmet STW Phosphorus scheme 0.5mg/l	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40447	AMP7 Sherburn In Elmet STW Ammonia scheme 1.3mg/l	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40535	Sherburn In Elmet St 6mg/l BOD AMP scheme	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40536	Hambleton Wpc Works 0.2mg/l Phosphate AMP7 scheme	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40537	Hambleton Wpc Works 3mg/l Ammonia AMP7 scheme	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40538	Hambleton Wpc Works 30mg/l BOD AMP scheme	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works

Table E-21 Measures and actions for Riccall Dam Catchment (trib of Ouse) (GB104027063690) water body

Action measure UID	Title	Category Tier 1	Category Tier 2
19502	Reduce amount of sediment entering watercourse.	To control or manage rural diffuse pollution	Manage, contain and treat runoff
19503	Improve non mains sewage treatment.	To control or manage point source discharges	Improve sewerage drainage systems (including intermittent discharges)
19504	Improve land management practices.	To manage modified habitats	Improve operations and maintenance
40657	Farm manure and slurry management plans and promotion of fertiliser best practice.	To control or manage rural diffuse pollution	Store and contain farm chemicals, wastes and pollutants / Apply fertilisers, chemicals and land-spread materials to meet crop needs
40658	More sympathetic land drainage operational management regime.	To manage modified habitats	Improve operations and maintenance

Table E-22 Measures and actions for The Fleet from Source to River Aire (GB104027062740) water body

Action measure UID	Title	Category Tier 1	Category Tier 2
31830	Review External Compliance	To mitigate the impacts on ecology from physical modifications in modified waters	Improve operational and maintenance regimes
31831	Action to improve habitats through both altered maintenance practise and one-off work.	To mitigate the impacts on ecology from physical modifications in modified waters	Improve water resources management
39941	Potential measure: Phosphorus removal at Hillam WwTW	To control or manage point source discharges	Amend permit limits at Sewage Treatment Works
40621	More sympathetic land drainage operational management regime.	To manage modified habitats	Improve operations and maintenance

Table E-23 Measures/actions for the Holmes Dike catchment (trib of Ouse) (GB104027063650) water body

Action measure UID	Title	Category Tier 1	Category Tier 2
40644	Best practice land management to reduce soil and sediment loss to watercourses (GB104027063650)	To control or manage rural diffuse pollution	Improve land management practices
40695	More sympathetic land drainage operational management regime (GB104027063650)	To manage modified habitats	Improve operations and maintenance

Table E-24 Measures and actions for the Wharfe & Lower Ouse Sherwood Sandstone (GB40401G702400) groundwater body

Action measure UID	Title	Category Tier 1	Category Tier 2
39335	Embargo on future abstraction in this aquifer to prevent further saline intrusion.	To control or manage diffuse source inputs	Mitigate/Remediate diffuse pollution impacts on receptor

Table E-25 Measures and actions for the Aire & Don Sherwood Sandstone (GB40401G701000) groundwater body

Action measure UID	Title	Category Tier 1	Category Tier 2
19578	Catchment-based implementation of best practice (ammonia)	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19579	Best practice land management techniques to reduce soil and sediment loss to rivers.	To control or manage rural diffuse pollution	Improve land management practices
19580	Completion and implementation of actions from a farm infrastructure audit.	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19581	Catchment-based implementation of NVZ best practice	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19583	Liaison with planning authorities - potential land contamination	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19584	Catchment-based implementation of best practice (nitrate)(manure & fertiliser)	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19585	Catchment-based implementation of best practice (nitrate)(livestock).	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19586	Catchment-based implementation of best practice (nitrate)(nutrients).	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19587	Non-mains drainage pollution prevention.	To control or manage point source discharges	Improve private sewage treatment works
39913	Drinking Water Protected Areas_Yorkshire Project	To control or manage diffuse source inputs	Reduce diffuse pollution at source
40131	AMP6 Nitrate Projects	To control or manage diffuse source inputs	Reduce diffuse pollution at source

Action measure UID	Title	Category Tier 1	Category Tier 2
40647	Farm manure and slurry management plans and promotion of fertiliser best practice.	To control or manage rural diffuse pollution	Store and contain farm chemicals, wastes and pollutants / Apply fertilisers, chemicals and land-spread materials to meet crop needs

Table E-26 Measures and actions for the Wharfe Magnesian Limestone (GB40401G701100) groundwater body

Action measure UID	Title	Category Tier 1	Category Tier 2
40637	Farm manure and slurry management plans and promotion of fertiliser best practice.	To control or manage rural diffuse pollution	Apply fertilisers, chemicals and land-spread materials to meet crop needs / Store and contain farm chemicals, wastes and pollutants

Table E-27 Measures and actions for the Aire & Don Magnesian Limestone (GB40401G700900) groundwater body

Action measure UID	Title	Category Tier 1	Category Tier 2
19573	Catchment-based implementation of best practice (nitrate)	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19574	Completion and implementation of actions from a farm infrastructure audit.	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19575	Catchment-based implementation of best practice (bentazone)	To control or manage diffuse source inputs	Reduce diffuse pollution at source
19576	Oaklands Hill	To control or manage point source discharges	Improve private sewage treatment works
19577	Barnsdale Bar Services	To control or manage point source discharges	Improve private sewage treatment works
40648	Use of best practice for the storage and handling of pesticides.	To control or manage diffuse source inputs	Reduce diffuse pollution at source

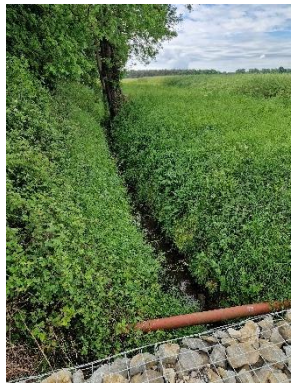
Annex F Walkover survey information

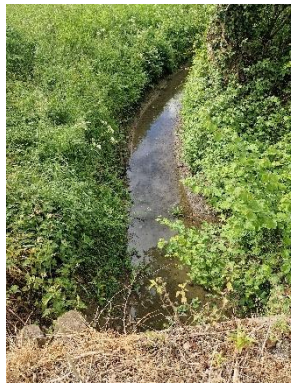
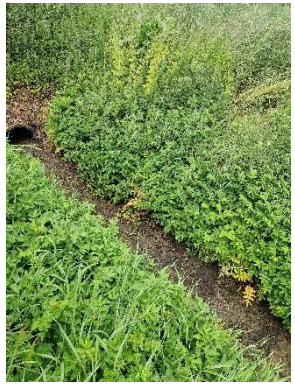
F.1. Watercourse survey status

F.1.1. The survey status of all water features within the Study Area, including watercourses can be found in Figure 15.13: Surveyed Sites (ES Volume 2) [**EN0110012/APP/LVS/06.02.15.1**

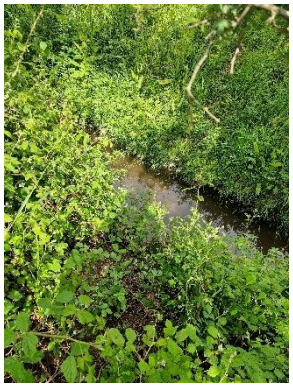
F.2. Walkover findings

Table F-1 Watercourses surveyed in May and August 2025

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Whinchat Dyke (Moderate)	Solar Development Site 1	Riccall Dam Catchment (trib of Ouse)	▪ Incised, uniform channel. ▪ Some perceptible flow. Not fully straight, but low sinuosity. Substrate dominated by silt, with a little gravel. ▪ Steep banks, 1.80m bankfull depth, wetted channel width 1m, bankfull width 3.5m probably realigned to field boundary. ▪ Low diversity, no noticeable geomorphological features or active processes.	
Chatterton Dyke (Moderate)			▪ Fairly straight, very incised trapezoidal drainage channel with steep banks. ▪ Very low gradient, no perceptible flow. ▪ Wetted channel 0.5m wide. ▪ No diversity and no evidence of active processes.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Pallion Dyke (Moderate)			▪ Sinuous planform, although historically incised and fixed in place. Little perceptible flow at time of survey Silt substrate. ▪ Bed 1.5m wide. ▪ Some evidence of limited diversity, silt berm inside meander bend and some undercutting under tree roots outside of bend.	
Common Drain 1 (Low)			▪ Straight drainage ditch, mostly dry at location near pipe, some water further along but no perceptible flow.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Riccall Dam (Gosling Marsh Clough) (High)	Cable Route Corridor		▪ Very incised, steep banks, almost symmetrical steep banks. ▪ Fairly straight, some low sinuosity ▪ Almost no perceptible flow. ▪ Water depth at time of visit 0.4 m (eDNA sample taken) ▪ Silty substrate, no gravel visible or noted by ranging pole. ▪ Wetted channel width 1-1.5 m. ▪ Very uniform riparian vegetation cover.	
Hopney Stable Dyke (Moderate)	Cable Route Corridor		▪ Although full channel is relatively straight, it appeared to have some low-flow variability, particularly upstream of crossing. ▪ Little perceptible flow at time of survey. ▪ Aquatic macrophytes visible, fairly clear water.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Swinbank Dyke (Moderate)			▪ Straight channel. ▪ No perceptible flow, water depth 0.35 m. ▪ eDNA survey completed at site. ▪ Silt substrate, but some hard material underneath. ▪ Shaded riparian area. Bank not visible.	
Holmes Dyke (Southfield Drain) (Moderate)			▪ Channel with some sinuosity (low) and perceptible flow, although low energy. ▪ Silted bed, no gravel visible from distance. ▪ Wetted channel with 1-1.2 m. ▪ Right bank steeper that left bank. Bankfull depth approx. 1.3-1.5 m. ▪ Uniform riparian vegetation cover, no trees.	
River Ouse (High)	Cable Route Corridor	Ouse from R Wharfe to Upper Humber	▪ Fast flowing section (tide suspected to be going out) ▪ Turbid ▪ Intertidal mud/mudflat habitat on banks ▪ Sporadic trees on both banks. Agricultural land use on both banks. Steep banks. Embankment set back on right bank by	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
			1m, set back on left bank by 15m. Himalayan balsam. ▪ Large river, unable to observed substrate.	
Angram Clough (Marsh Dike)			▪ Fairly straight channel, incised but not as much as others (approx. 1.2 m bankfull depth). ▪ Little perceptible flow. ▪ Terrestrial vegetation chocking up channel upstream of culvert. ▪ Downstream of culvert water very clear. ▪ No diversity or features. ▪ Gas pipeline present at site.	
Angram Clough (Low)	Within Study Area		▪ Suspected dry but vegetation clogging channel - floating pennywort. Observed ponded water further upstream. ▪ Banks are 3m high, very straight channel. ▪ Left bank, grass and arable land use. ▪ Right bank, scrub and line of trees. ▪ Pumping station at downstream extent.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Black Fen Drain (Low)	Cable Route Corridor	Holmes Dike catchment (trib of Ouse)	▪ Ponded. ▪ Audible trickle through culvert underneath bridge. 1.5m high banks. 0.5m wide. Straight agricultural watercourse. Suspected managed by IDB. Grass both banks. Arable land use both sides. Aquatic vegetation in channel. ▪ No riparian buffer.	
Cockret Dike (Low)	Within Study Area		▪ Dredged watercourse. Dry at time of survey. Clogged with terrestrial vegetation downstream. ▪ Arable land use. ▪ 2.5m height banks. 0.5m wide.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Outwoods Drain (Low)	Cable Route Corridor	Selby Dam from Conf. Fox Dike and Carr Dike to Ouse	▪ Ponded drain. Straight agricultural ditch. Evidence of dredging activities. ▪ Left bank hedgerow. Right bank grass with no buffer. Arable land use. ▪ Pond vegetation on surface of water. 0.7m wide. 2m bank height.	
Selby Dam (High)	Solar Development Site 8		▪ Macrophytes in channel. ▪ Slow flowing but water depth approx. 0.4m. ▪ Vegetation mixed on both banks. ▪ Channel width approx. 1.2m. ▪ Silty substrate but may have some cobbles.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
Town Dike (Low)	Cable Route Corridor		▪ Reconfigured by the railway. ▪ Very artificial planform and banks. ▪ Recently constructed so vegetation not established. ▪ Culvert under railway and under access track. ▪ Silty substrate with cobbles. 2.5m high banks. ▪ Dry with ponded places in channel.	
Habholme Dike (Moderate)	Solar Development Site 2 and 8 and Cable Route Corridor		▪ Ponded watercourse. 2m high bank. 0.75m width. ▪ Left bank long grasses, right bank grasses and arable land use. ▪ Some aquatic vegetation present. Suspected silty substrate but difficult to see due to duck weed.	
Roe Lane Drain (Low)	Solar Development Site 4	The Fleet from Source to River Aire	▪ Suspected dry ditch, clogged with terrestrial vegetation. ▪ Straight ditch along field boundaries. ▪ No sight of substrate. ▪ Arable land use. ▪ Christmas tree farm in the vicinity. ▪ Grasses along both banks.	

Watercourse name (Watercourse value)	Site Location	Parent catchment / WER Water Body	Description	Photograph
The Fleet (downstream) (Moderate)	Solar Development Site 4		▪ Aquatic vegetation. ▪ Some ponded water either side of culvert underneath Roe Lane. ▪ Arable land use. ▪ Grasses along both banks.	
The Fleet (upstream) (Moderate)	Solar Development Site 3		▪ Dry agricultural drainage ditch. Trapezoidal channel. ▪ 3m high banks, both banks. ▪ Grassed on both banks. ▪ Arable land use. ▪ Bridge over watercourse for road. Sporadic trees. ▪ Mostly terrestrial vegetation in the channel. ▪ Bare slopes for some of banks.	

Light Valley
Solar

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