Proposed Solar PV Development

Byers Gill Solar
EN010139

6.4.10.2 Environmental Statement Appendix 10.2 Water Framework Directive Assessment

Planning Act 2008

APFP Regulation 5(2)(a)

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

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1. Introduction

1.1. Introduction

1.1.1. Wallingford HydroSolutions Ltd (WHS) has been commissioned on behalf of RWE (the Applicant) to produce a Water Framework Directive (WFD) assessment for Byers Gill Solar (the Proposed Development).

1.1.2. The aim of this report is to identify the relevant WFD water bodies located within the vicinity of the Order Limits and to assess if the Proposed Development is compliant with the objectives of the WFD.

1.2. The Proposed Development

1.2.1. The Proposed Development consists of a solar farm capable of generating over 50MW Alternating Current (AC) of electricity with co-located Battery Energy Storage Systems (BESS), located between Darlington and Stockton-on-Tees in north-east England. The Proposed Development is approximately 490ha and comprises six solar photovoltaic (PV) panel areas (Panel Areas A-F). The solar PV panels would be mounted on a metal frame in groups, fixed in position. An on-site substation would be located within Panel Area C.

1.2.2. The Proposed Development includes up to 32.5km of 33kilovolt (kV) underground cabling between the Panel Areas and the on-site substation, as well as approximately 10km of 132kV underground cable to connect the Proposed Development to the grid connection at the existing Norton substation (located to the north-west of Stockton-on-Tees) with both on-road and off-road options. A range of supporting infrastructure is required for the Proposed Development, comprising BESS; transformers and inverters for managing the electricity produced; storage containers to hold this equipment; and security measures such as fencing, CCTV and lighting. The Proposed Development includes environmental mitigation and enhancement measures to avoid or reduce adverse impacts on the surrounding environment and nearby communities.

1.2.3. The majority of the area comprising the Proposed Development (the Order Limits) is located within the administrative boundary of Darlington Borough Council, with a section of the cable route situated within the administrative boundary of Stockton-on-Tees Borough Council. A very small section of the Order Limits is within the administrative boundary of Durham County Council.

1.3. Legislation, Policy and Guidance

1.3.1. The relevant legislation and guidelines which underpin the assessment methodology for the WFD assessment and inform the scope of the assessment are outlined in this section.

Legislation

1.3.2. The legislative framework for the WFD comprises the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The regulations seek to protect and enhance the ecological and chemical health of rivers, lakes, estuaries and coastal and groundwaters. The aim of the WFD is for all water bodies to achieve "good status" by 2027. Water bodies are assessed within River Basin Management Plans which allows the water body to be managed as a natural geographical and hydrological unit.

1.3.3. Each river basin has a River Basin Management Plan (RBMP) which sets out the current status and objectives for the water body required to achieve good status by 2027 in terms of ecological, chemical and protected area objectives. The status of each water body is reassessed under 6 year cycles with interim updates every 3 years as part of WFD cycles. The first cycle ended in 2015 and for those water bodies which did not achieve 'good' status the target date was extended to either 2021 (cycle 2) or 2027 (cycle 3). At the time of writing the 2022 cycle 3 update is the latest for the relevant surface water bodies and 2019 cycle 3 for the groundwater body.

1.3.4. To achieve good ecological status or potential, good chemical status or good groundwater status each element must be assessed as good status or better. If a single element is below the threshold for good status, then the water body's status cannot be classed as good.

Surface water criteria

1.3.5. Surface water bodies can have an overall status classed as high, good, moderate, poor or bad status. The ecological status of surface waters is assessed based on the following and is also classified as high, good, moderate, poor and bad.

- biological quality – fish, benthic invertebrates, aquatic flora;
- hydromorphological quality – riverbank structure, continuity of channel or substrate of the river bed; and
- physico-chemical quality – temperature, oxygenation and nutrient conditions.

1.3.6. The chemical status is classed as either good or fail and refers to the Environmental Quality Standards Directive [1].

Groundwater criteria

1.3.7. The groundwater bodies are assessed according to their "quantitative" or "chemical" status. The chemical status is assessed based on different elements than for surface water bodies. Quantitative status is related to the availability of the groundwater resource and ensuring that it is not reduced by the long-term annual average rate of abstraction.

Policy

1.3.8. Under Section 104 of the Planning Act 2008 (the Act), the Secretary of State (SoS) is directed to determine a DCO application with regard to the relevant National Policy Statement (NPS), the local impact report, matters prescribed in relation to the Proposed Development, and any other matters regarded by the SoS as important and relevant. Following their designation on 17 January 2024, there are three NPSs which are considered to be 'relevant NPS' under Section 104 of the Act:

- Overarching NPS for energy (NPS EN-1)
- NPS for renewable energy infrastructure (NPS EN-3)
- NPS for electricity networks infrastructure (NPS EN-5)

1.3.9. It is considered that other national and local planning policy will be regarded by the SoS as 'important and relevant' to the Proposed Development. A detailed account of the planning policy framework relevant to the Proposed Development is provided in the Planning Statement (Document Reference 7.1). The Policy Compliance Document (Document Reference 7.1.1) evidences how this assessment has been informed by and is in compliance with the NPSs and relevant national and local planning policies. It provides specific reference to relevant sections of the ES which address requirements set out in policy.

Guidance

1.3.10. The following guidance has been used to produce the WFD assessment. There is no formal guidance for producing WFD Assessments for surface water bodies in England and Wales. The Government however do provide guidance from the Environment Agency (EA) on completing WFD assessments for estuarine and coastal waters [2], this guidance has been taken into consideration for the completion of this assessment. The following approach has been taken for this assessment.

- **Screening:** Identify and record current water body status, future objectives and any activities within the vicinity of the water body which may influence the status of the water body;
- **Scoping:** For each WFD element, identify where the Proposed Development may affect the current or achievable status; and
- **Assessment and mitigation:** Identify the extent to which the Proposed Development will influence (positively or negatively) the WFD elements. Identify where actions can be incorporated into the development to mitigate any negative effects of the development.

1.4. Study area

1.4.1. The Proposed Development is located to the north east of Darlington, surrounding Little Stainton (E: 433197, N: 521107). The Proposed Development is located within an area of undulating mixed farmland that is mainly arable. The Order Limits drain to the

River Tees through two main river systems; via the River Skerne to the west of the site and the Billingham Beck to the east.

2. Screening

2.1.1. The Proposed Development lies within the Northumbria River Basin District. This section identifies the WFD surface water and groundwater bodies located within the draining catchments of the site as determined by the surrounding topography. The land use of the study area and surrounding area is predominantly for agriculture. This land use has the potential to contribute to a reduction in water quality of the water bodies through leaching of pesticides and herbicides into the water.

2.2. Surface water body catchments

2.2.1. The Order Limits drains to three separate WFD water bodies. These water bodies include the:

- Skerne from Demons Beck to Tees (GB103025072596);
- Bishopton Beck from Source to Billingham Beck (GB103025072280); and
- Billingham Beck from Bishopton Beck to Brierle (GB103025072360).

2.2.2. Newton Ketton Meadow Site of Special Scientific Interest (SSSI) is located within the Newton Beck Sub-Catchment which drains the central eastern extent of the Order Limits and drains into Teesmouth and Cleveland Coast SSSI, Special Protection Areas (SPA) and Ramsar sites.

2.2.3. Environmental Statement (ES) Figure 10.5 (Document Reference 6.3.10.5) shows the location of the water bodies relative to the Order Limits and the catchments for these water bodies. Table 2-1 shows the WFD details of the three surface water bodies indicating their status and objectives.

Table 2-1 WFD water body characteristics [3]

WFD Indicator	River Skerne	Bishopton Beck	Billingham Beck
Water body ID	▪ GB103025072596	▪ GB103025072360	▪ GB103025072360
Ecological Status	▪ Poor	▪ Poor	▪ Poor
Chemical Status	▪ Fail	▪ Fail	▪ Fail
Ecological Objective	▪ Good by 2027	▪ Good by 2027	▪ Good by 2027
Chemical Objective	▪ Good by 2063*	▪ Good by 2063**	▪ Good by 2063**

* Reasons: Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
** Reasons: Natural conditions: Chemical status recovery time

2.3. Groundwater body

2.3.1. The Proposed Development lies within the Skerne Magnesian Limestone groundwater body which covers a total area of approximately 483km^2. As highlighted in Table 2-2, the water body currently has an overall status of poor due to saline intrusion impacts

at the coast. It is also at risk from nitrate contamination and sulphate rich mine water. Measures are being developed to reduce saline intrusion, it is expected to take 20-30 years for the aquifer to recover form historic saline impacts.

2.3.2. The groundwater is designated as a drinking water protected area and used for a strategic drinking water supply by Anglian Water Services, as well as for local private water supplies. It has been identified that Panel Areas B, C and D of the Proposed Development lies within Source Protection Zone 2 (SPZ) – Outer Protection Zone and Panel Area A lies within SPZ 3. A small area at (E: 433752, N: 521596) lies within SPZ 1.

2.3.3. The EA monitor a number of groundwater level monitoring stations in the vicinity of the Proposed Development. The available level and contour data associated with these have been reviewed in more detail in ES Appendix 10.1 Flood Risk Assessment (FRA) and Drainage Strategy (Document Reference 6.4.10.1) to understand how the Proposed Development subsurface structures may interact with the groundwater table.

Table 2-2 WFD groundwater body characteristics [3]

WFD Indicator	Current Status/Information
Water Body Name	▪ Skerne Magnesian Limestone
Water Body ID	▪ GB40301G704000
Overall Status	▪ Poor
Chemical Status	▪ Poor
Quantitative Status	▪ Poor
Reason for failure	▪ Saline intrusion
Chemical Objective	▪ Good by 2040

2.4. Northumbria River Basin Management Plan

2.4.1. The Proposed Development lies within the Northumbria River Basin Management Plan (RBMP), which covers an area of approximately 9,000km^2 from the Scottish Border to just south of Guisborough, and from the Pennines east to the North Sea. The River Basin District is made up of 4 management catchments and around 67% of the land area is farmed or used for forestry.

2.4.2. The RBMP outlines water management issues and objectives with the aim of protecting and enhancing the water environment.

2.4.3. The environmental objectives and measures must:

- prevent deterioration in the status of surface waters and groundwater;

- achieve 'Protected Area' objectives and standards;
- aim to achieve good status for all water bodies;
- aim to achieve good ecological potential and good surface water chemical status for;
  - artificial and heavily modified water bodies; and
  - additional measures for protected areas.

2.5. SSSI objectives

2.5.1. Identified SSSI sites with hydrological connectivity to the Proposed Development have been identified, these are:

- Newton Ketton Meadow SSSI; and
- Teesmouth and Cleveland Coast SPA, Ramsar and SSSI.

2.5.2. Newton Ketton Meadow SSSI has an area of 1.8ha and is located approximately 150m south of the Proposed Development. It has been designated an SSSI as the site is one of the few remaining traditional hay meadows on the coastal plain between the River Tees and the River Tyne.

2.5.3. Bishopton Beck drains into the river Tees which flows thorough the Teesmouth and Cleveland Coast SPA, Ramsar site and SSSI, which is located 20km east from the Proposed Development. The Teesmouth and Cleveland Coast SPA covers 1247ha and is home to a variety of rare species of invertebrates and birds. As the Teesmouth and Cleveland Coast site is a tidal habitat being fed from rivers which drain the Proposed Development then it can, despite the distance, be considered to be hydrologically linked. Multiple other tributaries also drain into the River Tees.

2.5.4. Natural England's objective is to achieve 'favourable condition' status for all SSSIs, meaning that habitats and features are being conserved by appropriate management.

3. Scoping and assessment

3.1.1. This section presents the scoping and impact assessment of the Proposed Development upon the WFD surface water bodies and groundwater catchment.

3.1.2. The assessment takes into consideration the development area of the Proposed Development and the watercourses along with the wider draining catchment. Additionally, mitigation measures are taken into consideration. Mitigation measures relevant to the WFD water bodies and designated sites include the provision of spill kits to ensure fuel spills during construction and operation do not run off into watercourses. Additionally, construction management measures are detailed which are incorporated into ES Appendix 2.6 Outline Construction Environmental Management Plan (CEMP) (Document Reference 6.4.2.6).

3.1.3. ES Figure 10.4 (Document Reference 6.3.10.5) shows the WFD catchments and surface water bodies in relation to the Proposed Development. The WFD assessment for each WFD component is presented in Table 3-1 to Table 3-6.

Table 3-1 River Skerne WFD water body impact assessment. GB40301G704000

WFD Element and Current Status	Objective	WFD Assessment
Ecological Status **Poor**	▪ Good by 2027	▪ Ecological status of surface water bodies is based upon the biological quality, chemical and physico-chemical quality, water quality and hydromorphological quality. The ecological status of the water body is poor with the reason of failure being fish as a result of poor soil management from agricultural and rural land management. ▪ It is unlikely that the Proposed Development will directly impact upon the current ecological status of the water body as there are no direct works proposed within the watercourse. The River Skerne is not within the Order Limits therefore no underground cable routes will pass within 10m of it. ▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of reduced water quality from increased sediment loads and acidification with runoff from disturbed ground, soil heaps and excavations and as a result of accidental spillage/loss of chemicals and other construction materials will be controlled through mitigation measures implemented through the Outline CEMP (Document Reference 6.4.2.6). The nature of this type of development is such that no extensive earthworks or polluting operation activities are required. Effects on water quality have been assessed as not significant. ▪ As described in Section 10.8 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) there is a potential risk of increased pollution to designated sites draining the sites (Newton Meadows SSSI and Teesmouth and Cleveland Coast SPA, Ramsar site and SSSI). Fuel or oil spills from construction and maintenance vehicles have the potential to run-off into the designated sites draining the site. ▪ Taking into consideration the embedded mitigation measures presented in ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and the additional mitigation measures presented in Section 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10), the impact magnitude of increased pollution to designated sites has been assessed as small. Further, due to the lands change of use away from agriculture, there is likely to be a reduction in the chemical loading of waterways due to converting the land use from agriculture to a solar farm. ▪ All designated sites have been assessed to be of high sensitivity. Therefore, the significance of effect on the designated sites draining the site from an increase of pollution is moderate.
Chemical Status **Fail**	▪ Good by 2063	▪ The residual effects assessed within the ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of reduced water quality are not significant as a result of the mitigation measures implemented within the Outline CEMP (Document Reference 6.4.2.6).

WFD Element and Current Status	Objective	WFD Assessment
Hydrology	▪ N/A	▪ The residual effects assessed within the ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of changes to runoff and peak flow through increased impervious surfaces across catchments are not significant as a result of the mitigation measures implemented within the Outline CEMP (Document Reference 6.4.2.6). There are no direct works proposed within the watercourse and surface water will be managed through the use of SuDS as outlined in ES Appendix 10.1 FRA and Drainage Strategy (Document Reference 6.4.10.1).
Other	▪ N/A	▪ No additional classifications are distinguished for this water body.

Table 3-2 Bishopton Beck WFD water body assessment. GB103025072280

WFD Element and Current Status	Objective	WFD Assessment
Ecological Status **Poor**	▪ Good by 2027	▪ Ecological status of surface water bodies is based upon the biological quality, chemical and physico-chemical quality, water quality and hydromorphological quality. The ecological status of the water body is poor with the reason of failure being fish as a result of poor soil management from agricultural and rural land management. ▪ It is unlikely that the Proposed Development will directly impact upon the current ecological status of the water body as there are no direct works proposed within the watercourse. ▪ The final construction solution for the cable routes has not been fully defined at this stage and requires both the selection of a preferred cable corridor, as well as the appointment of a contractor who would wish to review the construction methods. It is however known that the cable will be off road around Bishopton and will therefore cross underneath the Bishopton Beck. At this stage, it is not considered that horizonal directional drilling (HDD) works would take place within 10m of the watercourse. If drilling is required within 10m of the watercourse an impact assessment of the HDD on fish alongside identification of appropriate mitigation will be addressed within the CEMP. The assessment would include the distance from the watercourse that the drilling will take place, the depth and width of the drilling and the vibration and noise impact assessment on potential fish species residing in the watercourse. The Outline CEMP [REP5-012/013] contains a commitment for further engagement with the Environment Agency for the final design of watercourse crossings including any further survey or management requirements. ▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of the ES chapter of reduced water quality from increased sediment loads and acidification with runoff from disturbed ground, soil heaps and excavations and as a result of accidental spillage/loss of chemicals

WFD Element and Current Status	Objective	WFD Assessment
		and other construction materials will be controlled through mitigation measures implemented through the Outline CEMP (Document Reference 6.4.2.6). The nature of this type of development is such that no extensive earthworks or polluting operation activities are required. Effects on water quality have been assessed as not significant. ▪ As described in Section 10.8 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) there is a potential risk of increased pollution to designated sites draining the sites (Newton Meadows SSSI and Teesmouth and Cleveland Coast Special Protection Area (SPA), Ramsar site and SSSI). Fuel or oil spills from construction and maintenance vehicles have the potential to run-off into the designated sites draining the site. ▪ Taking into consideration the embedded mitigation measures presented in ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and the additional mitigation measures presented in Section 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10), assessment of effects identified that there will be no significant effects on designated sites.
Chemical Status **Fail**	▪ Good by 2063	▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of reduced water quality are not significant as a result of the mitigation measures implemented within the Outline CEMP (Document Reference 6.4.2.6).
Hydrology	▪ N/A	▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of changes to runoff and peak flow through increased impervious surfaces across catchments are not significant as a result of the mitigation measures implemented within the Outline CEMP (Document Reference 6.4.2.6). ▪ There are no direct works proposed within the watercourse.
Other	▪ N/A	▪ No additional classifications are distinguished for this water body.

Table 3-3 Billingham Beck WFD water body assessment. GB103025072360

WFD Element and Current Status	Objective	WFD Assessment
Ecological Status **Moderate**	▪ Good by 2027	▪ Ecological status of surface water bodies is based upon the biological quality, chemical and physico-chemical quality, water quality and hydromorphological quality. The ecological status of the water body is poor with the reason of failure being diffuse sources of phosphate and Macrophytes and Phytobenthos Combined, as a result of poor nutrient management, invertebrates due to poor soil management and phosphate from sewage discharges from the Water Industry.

WFD Element and Current Status	Objective	WFD Assessment
		▪ It is unlikely that the Proposed Development will directly impact upon the current ecological status of the water body as there are no direct works proposed within the watercourse. ▪ The final construction solution for the cable routes has not been fully defined at this stage and requires both the selection of a preferred cable corridor, as well as the appointment of a contractor who would wish to review the construction methods. At this stage, it is not considered that HDD works would take place within 10m of a watercourse. If drilling is required within 10m of a watercourse an impact assessment of the HDD on fish alongside identification of appropriate mitigation will be addressed within the CEMP. The assessment would include the distance from the watercourse that the drilling will take place, the depth and width of the drilling and the vibration and noise impact assessment on potential fish species residing in the watercourse. The Outline CEMP [REP5-012/013] contains a commitment for further engagement with the Environment Agency for the final design of watercourse crossings including any further survey or management requirements. ▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of the ES of reduced water quality from increased sediment loads and acidification with runoff from disturbed ground, soil heaps and excavations and as a result of accidental spillage/loss of chemicals and other construction materials will be controlled through mitigation measures implemented through the Outline CEMP). The nature of this type of development is such that no extensive earthworks or polluting operation activities are required. Effects on water quality have been assessed as not significant. ▪ As described in Section 10.8 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) there is a potential risk of increased pollution to designated sites draining the sites (Newton Meadows SSSI and Teesmouth and Cleveland Coast Special Protection Area (SPA), Ramsar site and SSSI). Fuel or oil spills from construction and maintenance vehicles have the potential to run-off into the designated sites draining the Order Limits. ▪ Taking into consideration the embedded mitigation measures presented in ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and the additional mitigation measures presented in Section 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10), the impact magnitude of increased pollution to designated site has been assessed as small. Further, due to the land change of use away from agriculture, there is likely to be a reduction in the chemical loading of waterways due to cessation of nitrate.
Chemical Status **Fail**	▪ Good by 2063	▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of reduced water quality are not significant as a result of the mitigation measures

WFD Element and Current Status	Objective	WFD Assessment
		implemented within the Outline EMP (Document Reference 6.4.2.6).
Hydrology	▪ N/A	▪ The residual effects assessed within ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of changes to runoff and peak flow through increased impervious surfaces across catchments are not significant as a result of the mitigation measures implemented within the Outline CEMP (Document Reference 6.4.2.6). There are no direct works proposed within the watercourse and surface water will be managed through the use of SuDS as outlined in ES Appendix 10.1 FRA and Drainage Strategy (Document Reference 6.4.10.1).
Other	▪ N/A	▪ No additional classifications are distinguished for this water body.

3.2. Summary of surface water body WFD assessment

Table 3-4 Summary of surface water body WFD assessment

Water body ID	Does the Development Comply with the WFD objectives?	Justification and Mitigation
All Water bodies	▪ N/A	▪ The Proposed Development will not discharge hazardous substances into the watercourse. ▪ The embedded mitigation measures proposed within ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and ES Appendix 10.1 FRA and Drainage Strategy (Document Reference 6.4.10.1) are appropriate to ensure there are no significant impacts to the water bodies. ▪ Commitments have been made to assess the impact of any HDD required within 10m of a watercourse if considered necessary in the CEMP following the appointment of a contractor and finalisation of the cable corridor. This would include the design of appropriate mitigation however it is currently considered that HDD would not occur within 10m of a watercourse. The requirement for an impact assessment will be secured via a requirement of the Development Consent Order (DCO).
GB40301G704000 (4.1.1. River Skerne from Demons Beck to Tees)	▪ Yes	▪ The Proposed Development is not expected to impact upon the Chemical or Ecological Status of the River Skerne WFD water body. Therefore, no deterioration of the overall status of the water body is expected. The Proposed Development will not be

Water body ID	Does the Development Comply with the WFD objectives?	Justification and Mitigation
		detrimental to the water body or the potential to achieve good status.
GB103025072410 **(4.1.2. Bishopton Beck from Source to Billingham beck Water Body)**	▪ Yes	▪ The Proposed Development is not expected to impact upon the Chemical or Ecological Status of the Bishopton Beck WFD water body. Therefore, no deterioration of the overall status of the water body is expected. The Proposed Development will not be detrimental to the water body or the potential to achieve good status
GB103025072360 **(4.1.3 Billingham Beck from Bishopton Beck to Brierle Water Body)**	▪ Yes	▪ The Proposed Development is not expected to impact upon the Chemical or Ecological Status of the Billingham Beck WFD water body. Therefore, no deterioration of the overall status of the water body is expected. The Proposed Development will not be detrimental to the water body or the potential to achieve good status

3.3. WFD groundwater catchment impact assessment

Table 3-5 Skerne magnesian limestone groundwater body impact assessment

WFD Element and Current Status	Objective	WFD Assessment
Quantitative Status **Poor**	▪ Good by 2040	▪ Quantitative status is defined by the quantity of groundwater available as baseflow to watercourses and groundwater dependant terrestrial ecosystems (GWDTE), and as a drinking water resource. ▪ The residual effects assessed within Chapter 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) of reduced water quality from increased sediment loads and acidification with runoff from disturbed ground, soil heaps and excavations and as a result of accidental spillage/loss of chemicals and other construction materials are not significant with the implementation of the mitigation measures presented within the Outline CEMP (Document Reference 6.4.2.6). ▪ The impermeable area covered by the Proposed Development makes up a very small portion of the groundwater catchment, therefore the effect of the development on groundwater supply is expected to be negligible. ▪ ES Appendix 10.1 FRA and Drainage Strategy (Document Reference 6.4.10.1) concludes that the subsurface infrastructure depth will be too shallow to interact with the groundwater table and will therefore not impact flows to public supply boreholes.

WFD Element and Current Status	Objective	WFD Assessment
		▪ ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) concludes that through the implementation of mitigation and following of best practice construction guidelines and pollution prevention guidelines the effect of the Proposed Development can be managed to an appropriate level that will not cause deterioration to the wider catchment. ▪ The final construction solution for the cable routes has not been fully defined at this stage and requires both the selection of a preferred cable corridor, as well as the appointment of a contractor who would wish to review the construction methods. Further assessments of the impact of HDD on groundwater and surface water interaction including control measures will be secured via a requirement in the DCO. The assessment will include the depth of drilling, the ground conditions and superficial geology where drilling is to occur and the likelihood for groundwater to be intersected. watercourse. The Outline CEMP (Document Reference 6.4.2.6) contains a commitment for further engagement with the Environment Agency on this assessment.
Chemical Status **Fail**	▪ Good by 2040	▪ This is defined by the concentrations of a range of key pollutants within the groundwater which may feed into watercourses. ▪ The water body failed due to the Chemical Dependant Surface Water Body Status, which failed due to saline intrusion. The outline drainage system for the site has been designed to trap sediment laden runoff from entering the watercourses. The impact upon groundwater has been assessed in section 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10), the assessment concluded that with the proposed embedded mitigation measures the effect to groundwater is considered not significant. ▪ As outlined in ES Appendix 10.1 FRA and Drainage Strategy (Document Reference 6.4.10.1), the proposed drainage strategy will mimic baseline conditions and does not propose formal infiltration SuDS. Foundations associated with the electrical infrastructure will have a minimal depth, solar PV modules will have pile depths of approximately 1.0m. The assessment of groundwater concludes that the subsurface infrastructure depth will be too shallow to interact with the groundwater table therefore mitigating the possibility of groundwater deterioration through the mobilisation of nitrate, sulphate or pesticides/herbicides within the ground due to increased infiltration or alteration of flow paths. ▪ Due to the local interaction between surface water and groundwater, nitrates and sulphates are also factor in groundwater quality. Taking into consideration the embedded mitigation measures presented in ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and the additional mitigation measures presented in Section 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10), the impact magnitude of increased pollution to designated sites has been assessed as small. Further, due to the lands change of use away from agriculture, there overall will be a reduction in the pollutant loading of waterways from pre to post development due to converting

WFD Element and Current Status	Objective	WFD Assessment
		the land use from agriculture to a solar farm and the aforementioned lack of below ground pollutant mobilisation. ▪ The Proposed Development will not introduce any additional pathways for saline water to enter the groundwater body, and therefore the Proposed Development will not alter the ability of the groundwater body to achieve its objective. ▪ The final construction solution for the cable routes has not been fully defined at this stage and requires both the selection of a preferred cable corridor, as well as the appointment of a contractor who would wish to review the construction methods. The Outline CEMP [REP5-012/013] contains a commitment, to be secured via the DCO, to prepare a Bentonite Breakout Plan as part of the CEMP. This will assess the impacts of using HDD and bentonite and specify the appropriate mitigation.
Other	▪ N/A	▪ No known technical solution, apart from giving the aquifer appropriate time to recover from historic saline impacts, is available to achieve good status of the groundwater body.

Table 3-6 Summary of the WFD groundwater body WFD assessment

Does the development comply with the WFD objectives?	Justification and Mitigation
Yes	▪ Due to the failure of the groundwater body the WFD objective is for no deterioration of the WFD area. The Proposed Development is unlikely to impact upon the status of the groundwater body within the catchment. ▪ Commitments have been made to assess the impact of any HDD on groundwater and surface water interaction as well as the use of bentonite in the CEMP. This would include the design of appropriate mitigation. The requirement for an impact assessment will be secured via a requirement of the Development Consent Order (DCO).

4. Conclusion

4.1.1. The WFD assessment has concluded that the Proposed Development will not be detrimental to the objectives of the WFD water bodies. The Proposed Development complies with the WFD objectives and is not expected to increase pollution to the water bodies draining the Order Limits.

4.1.2. Mitigation measures have been detailed in ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) and provide a comprehensive assessment of all potential effects and the proposed plan for the reduction of impacts upon the WFD water bodies.

4.1.3. Mitigation measures outlined in ES Chapter 2 The Proposed Development (Document Reference 6.2.2) and Section 10.10 of ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10) have been deemed effective at ensuring that the WFD status of the water bodies are not affected. No significant effects have been identified in ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10).

References

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