



Galileo 03 Ltd.

Mynydd Ty-talwyn Energy Park - Environmental Statement Volume II

Main Written Statement – Chapter 6: Water

Project Reference: 663870

This chapter is summarised within the Non-Technical Summary of this Environmental Statement. A Welsh translation of the Non-Technical Summary is also available as part of the application.

Crynoir y bennod hon yng Nghrynodeb Annhechnegol y Datganiad Amgylcheddol hwn. Mae cyfieithiad Cymraeg o'r Crynodeb Annhechnegol hefyd ar gael fel rhan o'r cais.

JUNE 2026

RSK

RSK Environment Ltd (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of RSK and the party for whom it was prepared.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

CONTENTS

6	WATER.....	6-1
6.1	Introduction	6-1
6.2	Consultation and Scope.....	6-1
6.3	Methodology	6-11
6.4	Baseline Conditions	6-18
6.5	Mitigation Embedded into the Design	6-23
6.6	Assessment of Likely Effects (Without Additional Mitigation).....	6-24
6.7	Additional Mitigation Measures	6-33
6.8	Assessment of Residual Effects (with Additional Mitigation).....	6-36
6.9	Opportunities for environmental enhancement	6-50
6.10	Difficulties and uncertainties	6-50
6.11	Inter-Project Cumulative Effects	6-51
6.12	References	6-52

TABLES

Table 6.1	Summary of Scoping Direction Comments Relevant to this Assessment	6-2
Table 6.2	Summary of Additional Consultation Undertaken.....	6-5
Table 6.3	PAC Comments and Responses	6-6
Table 6.4	Summary of Additional Consultation/ Information Requests (PEDW)	6-9
Table 6.5	Receptor Importance for Surface Water	6-16
Table 6.6	Magnitude of Impact Criteria for Surface Water	6-17
Table 6.7	Significance of effect criteria for surface water	6-18
Table 6.8	WFD Watercourse Baseline Information (Cycle 3 - 2021)	6-20
Table 6.9	Sensitive receptors	6-21
Table 6.10	Embedded mitigation	6-23
Table 6.11	Assessment of Likely Effects (without Additional Mitigation) during the Construction Phase	6-25

Table 6.12 Assessment of Likely Effects (without Additional Mitigation) during the Operational Phase.....	6-27
Table 6.13 Assessment of Likely Effects (without Additional Mitigation) during the Decommissioning Phase.....	6-31
Table 6.14 Additional Mitigation.....	6-33
Table 6.15 Assessment of Likely Effects (with Additional Mitigation) during The Construction Phase.....	6-36
Table 6.16 Assessment of Likely Effects (with Additional Mitigation) during the Operational Phase.....	6-40
Table 6.17 Assessment of Likely Effects (with Additional Mitigation) during the Decommissioning Phase.....	6-47
Table 6.18 Inter-Project Cumulative Effects: Screening	6-52

Volume III: Supporting Technical Appendices

Appendix 6.1: Watercourse Crossing Baseline Assessment

Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement

Appendix 6.3: Water Framework Directive Assessment

Volume IV: Supporting Figures and Plans

Figure 6.1: Cwm Risca Meadows SSSI Catchments

Figure 6.2: Designation mapping and local topography comparison

Figure 6.3: Study area for surface water

Figure 6.4: Location of sensitive receptors relating to surface water (watercourse location map)

Figure 6.5: Cefn Cribwr (Bryn bach), Caeau Cefn Cribwr and Waun Cimla SSSI Hydrological Catchments

6 WATER

6.1 Introduction

- 6.1.1 This chapter presents an assessment of likely significant effects arising from the construction, operation and decommissioning of the Proposed Development upon water receptors.
- 6.1.2 This chapter is supported by the following appendices presented in **ES Volume III**:
- **Appendix 6.1: Watercourse Crossing Baseline Assessment (October 2025);**
 - **Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement (October 2025); and**
 - **Appendix 6.3: Water Framework Directive Assessment (October 2025).**
- 6.1.3 This chapter is supported by the following figures presented in **ES Volume IV**:
- **Figure 6.1: Cwm Risca Meadows SSSI Catchments;**
 - **Figure 6.2: Designation mapping and local topography comparison;**
 - **Figure 6.3: Study area for surface water;**
 - **Figure 6.4: Location of sensitive receptors relating to surface water (watercourse location map); and**
 - **Figure 6.5: Cefn Cribwr (Bryn bach), Caeau Cefn Cribwr and Waun Cimla SSSI Hydrological Catchments.**

6.2 Consultation and Scope

Scoping Direction

- 6.2.1 The scope of this assessment has been established through an ongoing scoping process. This has involved the production of an EIA Scoping Report (provided in **ES Volume III, Appendix 1.1: EIA Scoping Report**), which was submitted to Planning and Environment Decisions Wales (PEDW) on the 27 November 2023. Further information on the scoping process can be found in **ES Volume II, Chapter 4: Approach to the EIA**.
- 6.2.2 The Scoping Direction, a copy of which is included in **ES Volume III, Appendix 1.2: Scoping Direction**, was received on 11 April 2024. **Table 6.1** summarises the key Scoping Direction comments related to this assessment and sets out how these have been addressed by the Applicant.

Table 6.1 Summary of Scoping Direction Comments Relevant to this Assessment

ID no.	Issue	Comment raised	Applicant response
18	Water - Cwm Risca Site of Special Scientific Interest (SSSI) and Cefn Cribwr Grasslands Special Area of Conservation (SAC)	The Scoping Report (SR) proposes to consider the impacts on the above protected sites under the Biodiversity chapter of the ES, and to scope out a water chapter. Natural Resources Wales (NRW) highlight that marshy grassland within the Cwm Risca SSSI is dependent on the existing hydrological regime. Therefore, any alterations to hydrology, and the impact on the SSSI should be fully assessed in a hydrology study, and should be scoped into the ES. NRW note the potential hydrological linkages with other designated sites Cefn Cribwr SAC, Bryn Bach SSSI and Caeau Cefn Cribwr SSSI. The proposed pollution prevention and mitigation measures, to be contained within a Construction Environmental Management Plan (CEMP), should take the potential impact on these sites into account. The CEMP should be a technical appendix to the ES. NRW also note that there may be impacts to the Cwm Risca SSSI from access routes, the details of which have not yet been provided. Potential pollution impacts from the access roads will also need to be assessed for the watercourses that run between the Site, and Cefn Cribwr SAC and Cwm Risca SSSI. Due to the limited information provided and the above concerns, PEDW advises that the hydrological impact on designated sites is scoped in.	A catchment analysis has been undertaken to determine the hydrological catchments which link to the SSSI and SAC sites. The catchment mapping produced from this exercise has been included in ES Volume IV, Figure 6.1: Cwm Risca Meadows SSSI Catchments and ES Volume IV, Figure 6.2: Designation mapping and local topography comparison. The likely effects of the Proposed Development on these sites is reported in ES Volume II, Chapter 10: Terrestrial Ecology (and supporting appendices), and has been informed by the assessment reported in this chapter. Appropriate pollution prevention measures, as informed by this assessment and other chapters of the ES, have been captured in the outline CEMP (OCEMP) provided within ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan.

ID no.	Issue	Comment raised	Applicant response
19	Water - Watercourses	The applicant's attention is drawn to detailed comments from NRW regarding information to be included a CEMP, and the design of watercourse crossings including protection measures. NRW have also highlighted the necessary consents which may be required for works on or near the watercourses and for the treatment of site water with flocculant. In the NRW Scoping response, it is stated that where any watercourse crossings are proposed, a clear-span bridge would be the preferred option, failing that a bottomless arch culvert.	Two watercourse crossing points would be required to facilitate the proposed Site access. These proposed crossing points and the nearby existing crossings along the same length of watercourse have been surveyed and photographed. The results of this survey included within a full Watercourse Crossing Baseline Assessment report (ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment) and have informed the design for the proposed watercourse crossings.
20	Groundwater	The SR proposes to consider groundwater within the land and soils chapter. NRW have recommended that groundwater is considered a receptor in its own right, in accordance with The Environment Agency's approach to groundwater protection (publishing.service.gov.uk) and that groundwater is scoped in to the water chapter. PEDW concur with this approach.	An assessment of the likely effects on groundwater as a receptor in its own right has been undertaken. This assessment considered the information provided within the Environment Agency's Approach to Groundwater Protection document. The findings of this assessment are presented in in ES Volume II, Chapter 5: Land, Soils and Groundwater, rather than this chapter, as the Applicant considers that the appropriate methodology more closely aligns to the assessments reported in that chapter.

ID no.	Issue	Comment raised	Applicant response
21	Water	NRW have noted that the mitigation measures in the SR lack detail and do not appear to be tailored to specific impacts. Further information is needed to determine the potential impacts from all aspects of the development (i.e. borrow pits, deep foundations, underground cables, placement of solar panels) which should then be used to inform the proposed mitigation measures. NRW advise a Water Feature Survey should be undertaken to inform the impact assessment upon both quantity and quality of surface water and groundwater. The applicant should refer to NRW's full comments on the content and timeliness of the Water Feature Survey. There is inadequate information available to scope out water at this stage. Therefore, PEDW advise that water is scoped in to the ES. The applicant should liaise with the Local Planning Authorities (LPAs) and NRW on the methodologies and results of the assessments detailed above.	The potential impacts from the relevant aspects of the Proposed Development have been assessed, and site-specific mitigation has been proposed where required. A proportionate Water Feature Survey has been undertaken to inform the assessment. A full survey of the watercourses has not been completed as it is not considered necessary due to the Proposed Development buffer from the mapped watercourses. The watercourses which are proposed to be crossed for access purposes have been assessed within the Watercourse Crossing Survey (ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment).

Additional Consultation

6.2.3 **Table 6.2** provides a summary of the additional consultation activities undertaken in support of the preparation of this assessment outside of the EIA Scoping process.

Table 6.2 Summary of Additional Consultation Undertaken

Consultee	Date of engagement	Summary of matters discussed	Applicant response
NRW	23 January 2025 - Email correspondence	A Water Features Survey was requested by NRW to include the following: • Identification of all water features both surface water and ground within a 300 m radius of the Site and access roads; • Use made of these water features • An indication of the flow regime; • Accessibility to the spring/well; • Presentation on a suitably scaled map. Further consultation to define the scope of the survey determined that for surface water, given the possibility of hydrological linkages between Cwm Risca SSSI and the Site, any alteration to the hydrology and its impacts on the SSSI should be investigated, modelled, and assessed as part of any hydrological study for the Proposed Development.	The detailed scope of a Water Features Survey was provided by NRW in a response dated 23 January 2025 stating groundwater should be considered a receptor in its own right. Site-specific data has been collected where changes in baseline conditions are possible because of Proposed Development. The watercourses which are proposed to be crossed for access purposes have been assessed within the Watercourse Crossing Survey (ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment) and appropriate crossing designs determined. It is to note that the proposed watercourse crossings do not cross the Ordinary Watercourses which are hydrologically linked to Cwm Risca SSSI and no discharges are proposed to this Protected Area. As such, the hydrological regime of the SSSI will remain unchanged.

Consultee	Date of engagement	Summary of matters discussed	Applicant response
		Study areas The study area requested by NRW within the scope of the Water Features Survey defined as a 300 m buffer radius of the Site and access roads. This study area could be altered according to sensitivity.	The Zone of Influence for surface water has been defined as 300 m throughout the assessment in accordance with the recommendation by NRW. Within the Water Framework Directive (WFD) assessment (ES Volume III, Appendix 6.3: Water Framework Directive Assessment), the study area has been increased to a 2 km buffer radius of the Site in order to define the hydrological linkages between the watercourses and surface water pathways on-site and the nearby WFD water bodies.

Statutory Pre-application Consultation (PAC)

- 6.2.4 **Table 6.3** provides a summary of the responses received, in relation to Water, following the statutory PAC process, and the necessary action taken to update the assessment, where relevant. Where appropriate the PAC responses have been summarised. The full consultee comments are set out in the standalone **Pre-application Consultation Report**, which is submitted to accompany the DNS application.

Table 6.3 PAC Comments and Responses

Consultee	Summary of matters discussed	Applicant response
Neath Port Talbot Council	In accordance with TAN 15: Development, Flooding and Coastal Erosion (2025) [now 2026], unless the application has secured SAB Approval, it would need to be supported by a Drainage Statement produced in accordance with the guidance as set out within section 7 of TAN 15.	Section 8 of ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement has been updated. This now includes context and further details on surface water drainage as required by TAN 15.

Consultee	Summary of matters discussed	Applicant response
Natural Resources Wales	Flood risk Our Flood Risk Map confirms the Site includes a small area of Zone C2 of the Development Advice Map (DAM) contained in Technical Advice Note (TAN) 15: Development and Flood Risk (2004). The Flood Map for Planning identifies the application Site to be at risk of flooding and falls into Flood Zone 2 and 3 Rivers. Given the limited extent of flood risk/location of flood risk shown to be affecting the application Site (and in the absence of a flood consequences assessment) we consider the proposals could be acceptable, subject to the developer being made aware of the potential flood risks to these areas.	ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement includes the Flood Consequence Assessment which sets out clearly the areas of flood risk within the Site. The Proposed Development has been proven to be acceptable in regard to flood risk and safe for its lifetime.
	Flood Risk – Flood Risk Activity Permit Nant y Gadlys is to the north of the Site and considered a main river, therefore, any work in or around the river should consider the need for a Flood Risk Activity Permit (FRAP).	The Proposed Development is set a minimum of 0.9 km from Nant y Gadlys and therefore a FRAP is not considered to be required.
Natural Resources Wales	We have concerns that the Cwm Risca SSSI could be indirectly impacted by the proposed access road to the east and north of the Site altering the hydrological connections to the SSSI and thus altering the current hydrology, which could adversely impact the protected features In addition, the position of the solar panel arrays ('J-N') <i>[now panel arrays H to O]</i> in fields directly to the north of the SSSI may have an impact on how rainwater is directed and focussed uphill of the	ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement details a gravel back-filled drainage trench on the downslope edge of the access track to manage surface water runoff up to and including the 1 in 100 year plus climate change event as a result of the hard standing material contributed by the track. The trench captures the runoff close to source and permits natural infiltration and evaporation, whilst the gravel will help capture any potential pollutants resulting from the use of the access track. The trenches will be suitably designed at the detailed design stage to be sized to accommodate the flows from the

Consultee	Summary of matters discussed	Applicant response
	SSSI, which may have some impacts on the hydrology supporting the SSSI. The presence of solar panel arrays can disrupt the rainfall patterns across the field, capturing more on the panels that drip into distinct zones and because of their alignment, could affect infiltration and how rainfall passively drains from the fields. This has a potential to impact the hydrology supporting Cwm Risca SSSI and we request further assurance that these aspects are assessed and adjusted for in the design of this development where these concerns are substantiated. The proposals for the use of swales within the solar panel array fields are welcomed but need to be carefully designed and monitored to ensure their effectiveness in preventing damage to the SSSI and its protected features.	design event, with a management plan to be provided at the detailed design stage to ensure that the efficiency of the gravel is maintained and any pollutants are removed. The access track would not ‘cut off’ the hydrological connection from the SSSI catchments upstream of the access track, as overland flows are able to pass freely southward across the road. Any flows in excess of the design event will spill over the trench and runoff towards the SSSI, as per the existing scenario. The specifications of the solar array supports are to be designed to be widely spaced and are driven vertically into the ground with no additional foundations. The arrays are in rows with spaces of several metres in between the leading edge of one row and the trailing edge of the row behind, allowing a “rainwater gap”. As such, the orientation of the panels will not have a significant impact on the rainfall runoff regime of the Site as rainwater will be able to move freely beneath the panels, as per the existing scenario. In line with the research paper by Cook and McCuen (2013) titled ‘<i>Hydrologic Response of Solar Farms</i>’, the research concluded that there was a negligible increase in the volume of runoff from the panels in comparison to the agricultural baseline. Following the Proposed Development, management of the grazing meadow grassland will be implemented with the full details of the improvements included in ES Volume III, Appendix 10.4: Net Benefit for Biodiversity Report. The grassland will mean erosion from runoff beneath the panels is unlikely to occur, and any potential channelisation of flows is slowed. At detailed design, a suitable management regime will be designed to ensure the efficiency of the grassland in helping prevent channelisation.

Consultee	Summary of matters discussed	Applicant response
		The swales are placed on the downslope perimeter of the solar panel arrays to capture any overland exceedance flows which would not naturally infiltrate to ground. The swales do not have a formal outfall and instead capture the exceedance runoff, allowing any flows in excess of the swale volumes to overspill at a slower rate to ensure runoff rate is not exacerbated as a result of the development. This should therefore not impact the SSSI, as the regime would be as existing and any channelisation of flows beneath the panels would be suitably managed by the land use.

Additional Consultation / Information Request

6.2.5 **Table 6.4** provides a summary of the factor specific comments and information requests received by PEDW following a review of the ES.

Table 6.4 Summary of Additional Consultation/ Information Requests (PEDW)

Consultee	Summary of matters	Applicant response
PEDW	Having regard to the proximity of some elements of the Proposed Development to identified watercourses within Figures 6.1-6.5 (inclusive) and the presence of environmental designations such as the Sites of Special Scientific Interest identified within the area, the estimated number and location of smaller watercourse crossings and a full assessment of the significance of environmental effects of these works should be provided. Alternatively, an explanation of why the current level of information is considered to provide a robust evidence base for the consideration of environmental effects is required.	All of the mapped watercourses across the Site are defined as Ordinary Watercourses with drain catchments smaller than 3 km ² . NRW's 'flooding from surface water and small watercourses' map also gives an indication to the location of the smaller, unmapped watercourse channels and simulates the overland flow drainage regime for varying events with the inclusion of climate change. From the combination of this mapping, online mapping sources, and site surveys it has been determined that the Proposed Development has two distinct proposed crossing points. These two watercourse crossings are discussed in ES Volume II, Chapter 2: Proposed Development Description and ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment with the potential effects of these

Consultee	Summary of matters	Applicant response
		crossings assessed and reported within the ES, specifically within this chapter (ES Volume II, Chapter 6: Water). The centre of the Site comprises a plateau, with significant areas of steep topography. The topography determines the watercourse regime, as shown by the Ordinary Watercourses originating on-site and the mapped watercourses origins denoted as 'springs' on OS mapping. This further defines the small size of the on-site Ordinary Watercourse's upstream catchments. As set out in ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment, should the Proposed Development need to cross any of these small Ordinary Watercourses, circular culverts are proposed. The size of any circular pipe culverts for any proposed smaller crossings will consider the upstream flows for the design flood event and will be sized accordingly; however, for the reasons outlined above, it is not anticipated these ditches will serve larger upstream catchments. Based on the low hydraulic and ecological value of these smaller Ordinary Watercourses that aren't included within mapping, it is considered that any crossings would result in negligible effects. Therefore, given the anticipated limited value and sensitivity of the watercourses, the level of information provided within the ES is considered appropriate and sufficient to reach a reasoned conclusion on the likely significant effects of the Proposed Development on on-site watercourses. Additionally, it should be noted that no crossings are anticipated to be required for the Ordinary Watercourses identified to the north of the Cwm Risca Meadows SSSI, as shown on ES Volume IV, Figure 6.1: Cwm Risca Meadows SSSI Catchments. The final design of any watercourse crossings will be agreed with NRW and the SAB authority, and applications for a Land Drainage Consent will be made to the relevant Lead Local Flood Authority (LLFA), likely to be Bridgend County Borough Council, prior to construction.

Scope of the Assessment

- 6.2.6 The technical scope of this assessment has been established through an ongoing scoping process. As a result of this process, the technical scope of the assessment reported in this chapter comprises surface water (quantity and quality) for construction, operational and decommissioning phases.
- 6.2.7 Flood risk from all sources is considered unlikely to result in likely significant effects, and therefore have been scoped out of the assessment for all phases. However a Flood Consequence Assessment (FCA) has been prepared to accompany the application to demonstrate how the requirements of TAN-15 have been satisfied, to establish the flood risk associated with the Proposed Development and to propose suitable mitigation, if required, to reduce the risk to a more acceptable level. The report is provided in **ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement**. Correspondence from Bridgend County Borough Council (BCBC) (Lead Local Flood Authority (LLFA)) is included within this Appendix which states that they do not hold historic records of flooding for the Site.
- 6.2.8 There are no private water supplies within the Site boundary. As set out in **Section 6.4**, NRW provided record of two nearby discharges to ground (sewage). These would remain unaffected by the Proposed Development as they are not potable water supplies. As no effects are anticipated in relation to private water supplies, this receptor group has been scoped out of further assessment within this chapter.

6.3 Methodology

- 6.3.1 This assessment has been undertaken in accordance with the following legislation, and with regard to the following planning policy and guidance. It should be noted that this chapter does not assess the compliance of the Proposed Development against relevant planning policy. Such an assessment is presented in the **Planning, Design and Access Statement** which accompanies the application.

Legislation

- The Water Resources Act 1991 covers the management and protection of water resources. It includes requirements to ensure sustainable use of water, prevent pollution and regulate activities that could affect availability or quality of water (Water Resources Act, 1991);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 establishes a framework for action relating to water policy in England and Wales (The Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017);
 - The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 implemented the Water Framework Directive 2000/60/EC. The Regulations were retained in UK law after EU Exit via the EU Withdrawal Act 2018. They aim to achieve good qualitative and quantitative health for water bodies by reducing and removing pollution and by ensuring that there is enough water to support wildlife at the

same time as human needs. The WFD requires a 6-yearly cycle of river basin management, with the next comprehensive update of classifications for all water bodies due in 2027.

- The Flood and Water Management Act aims to reduce the flood risk associated with extreme weather, compounded by climate change with the aim of implementing the findings of the 2007 Pitt Review and co-ordinating control of drainage and flood issues. Schedule 3 to the Act establishes SuDS Approving Bodies (SABs) in local authorities (Wales). The legislation gives those bodies statutory responsibility for approving and in specified circumstances, adopting the approved drainage systems (Flood and Water Management Act, 2010);
- The Land Drainage Act consolidates the enactments relating to internal drainage boards, and to functions of such boards and of local authorities in relation to land drainage, with amendments to give effect to recommendations of the Law Commission (Land Drainage Act, 1991);
- The Water Act makes provision about the water industry; about compensation for modification of licences to abstract water; about main river maps; about records of waterworks; for the regulation of the water environment; about the provision of flood insurance for household premises; about internal drainage boards; about Regional Flood and Coastal Committees; and for connected purposes (Water Act, 2014);
- The purpose of the Water Supply (Water Quality) Regulations 2018 is to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring it is wholesome and clean;
- The Private Water Supplies (Wales) Regulations 2017 applies to private water supplies intended for human consumption to protect human health from the adverse effects of any contamination of water.

National Planning Policy

- The National Development Framework: Future Wales – the National Plan 2040 sets out the Welsh Government’s land use priorities and provides a national land use framework for Strategic Development Plans (SDPs) and Local Development Plans (LDPs) (Welsh Government, 2021).
- Planning Policy Wales 12 (Welsh Government Llywodraeth Cymru, 2024). This includes policies and guidance on managing new development, the key planning principles, sustainable management of natural resources, planning in relation to previously developed land and supporting infrastructure;
- Planning Policy Wales Technical Advice Note 15: Development, flooding and coastal erosion sets out the criteria for development and flood risk by stating that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere (Welsh Assembly Government (2004)).
- Planning Policy Wales Technical Advice Note 15: Development, flooding and coastal erosion (Planning Policy Wales, July 2004, Updated March 2026)

- The Interim Code of Practice for Sustainable Drainage Systems (SuDS) aims to facilitate the implementation of sustainable drainage in developments in England and Wales by providing model maintenance agreements and advice on their use (National SUDS Working Group, Defra, 2004).
- The Statutory standards for sustainable drainage systems (Wales) are for the design, construction, operation and maintenance of SuDS serving new developments in urban or rural areas of more than one dwelling or where the area covered by construction work equals or exceeds 100 metres squared. They provide information for designers, property developers, local authorities and other interested parties, such as sewerage undertakers and Natural Resources Wales (NRW) (Welsh Assembly Government (2016)).

Local Planning Policy

- 6.3.2 Bridgend County Borough Local Development Plan (LDP) 2018-2033 (Bridgend County Borough Council, 2024) was adopted in March 2024 and Neath Port Talbot Adopted LDP (2011-2026) (Neath Port Talbot County Borough Council, 2016) was adopted in January 2016.
- 6.3.3 Policies of relevance for the Proposed Development from the BCBC document include:
- SP4: Mitigating the Impact of Climate Change;
 - SP14: Sustainable Development of Mineral Resources; and
 - SP17: Conservation and Enhancement of the Natural Environment.
- 6.3.4 Policies of relevance from the Neath Port Talbot Council (NPTC) LDP include:
- SP1: Climate Change;
 - SP15: Biodiversity and Geodiversity; and
 - BE1: Design.

Guidance

- Design Manual for Roads and Bridges LA 113: Road Drainage and the Water Environment, Revision 1 (DMRB, 2020);
- Design Manual for Roads and Bridges LA 104: Environmental Assessment and Monitoring, Revision 1 (DMRB, 2020);
- SoBRA Guidance on Assessing Risk to Controlled Waters from UK Land Contamination Under Conditions of Future Climate Change, (SoBRA, 2022);
- Bridgend County Borough Council Strategic Flood Consequence Assessment (2020) v2 (JBA Consulting , October 2020);
- South East Wales - – Stage 1 Strategic Flood Consequence Assessment (JBA Consulting, 2022);
- South West Wales – Stage 1 Strategic Flood Consequence Assessment (JBA Consulting, 2022);
- Flood Consequence Assessments: Climate Change Allowances (Welsh Assembly Government, 2021);
- The SuDS Manual – C753 (CIRIA, 2015);

- BS 8533-2011 Assessing and managing flood risk in development Code of practice (BSI, 2011).

Baseline Characterisation

Extent of the Study Area

- 6.3.5 The Zone of Influence (Zoi) for the assessment of surface water impacts is the land within the Site and up to 300 m from the Site boundary, as shown on **ES Volume IV, Figure 6.3: Study area for surface water**. The Zoi has been acknowledged by NRW (See **Table 6.2**), however, the study area has been increased to include a 2 km buffer radius of the Site in order to define the hydrological linkages between the watercourses and surface water pathways on-site and the nearby WFD water bodies.

Desk Study

- 6.3.6 In order to establish the baseline conditions within the study area, data has been obtained from the following sources:
- Ordnance Survey (OS) mapping;
 - DataMapWales (Welsh Government, 2025) to obtain LiDAR mapping, Flood Map for Planning, Main River locations, WFD Regulations Cycle 3 Classifications and SSSI designations; and
 - A freedom of Information request to both BCBC and NPTC for information on Private Water Supplies.
- 6.3.7 As there are watercourses within the study area classified under Cycle 3 (2021) of the Water Environment (Water Framework Directive) (WFD) (England and Wales) Regulations 2017, a WFD Screening report has been prepared, presented as **ES Volume III, Appendix 6.3: Water Framework Directive Assessment**. The report considers proposed activities that could cause or contribute to deterioration of status and/or jeopardise the water body achieving good status.

Field Studies

- 6.3.8 A Watercourse Features Survey has been undertaken to record channel and bank morphology and features, riparian zone structure, and to obtain a photographic record at the locations of the proposed crossing points. The results of this survey, and full watercourse crossing assessment can be found in **ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment**.

Assessment Methodology

- 6.3.9 The assessment criteria for water adopted for this assessment are detailed below.

Surface water

- 6.3.10 A desk-based assessment of surface water management for the Site was completed in accordance with PPW, TAN 15 and relevant technical guidance. The results of this assessment can be found in **ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement**. The scope of works included:

- Review of the local hydrology within the Site and its surroundings;
- Assessment of local geology, hydrogeology and hydrology;
- Review of relevant information held by appropriate statutory authorities;
- Assessment of the impact on the Site from climate change effects and anticipated increases in rainfall; and
- Production of an outline surface water management design for the Proposed Development.

6.3.11 Information on the existing baseline of the water features both within the Site and the ZOI has been obtained through a desk-based assessment and a water features survey, as set out above. The desk-based assessment included the identification of the on-site watercourses, using OS maps and Google Satellite mapping. A map of the local watercourses is presented in **ES Volume IV, Figure 6.4: Location of sensitive receptors relating to surface water (watercourse location map)**. The site survey was then undertaken for those watercourses within the Site, focusing on the proposed crossing points to determine the dimensions and characteristics of the watercourses. The scope of works included:

- Review of local hydrology in relation to the Proposed Development;
- Completion of a watercourse survey (27 February 2025) to assess the visual condition and environmental features surrounding the watercourses, dimensional measurements and photographs of each proposed crossing point and existing crossing points observed at the time of the survey; and
- Watercourse crossing recommendations for each proposed crossing point, based on the findings of the surveys.

6.3.12 Information on the existing baseline of the Water Framework Directive (WFD) water bodies within the Site, and including a further 2 km study area buffer and a 300 m ZOI buffer from the Site, has been obtained through a desk-based assessment. A full assessment was undertaken to identify the activities related to the Proposed Development that may cause deterioration or prevent a water body from meeting its objectives, in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 implemented the Water Framework Directive 2000/60/EC. The results of this assessment can be found in **ES Volume III, Appendix 6.3: Water Framework Directive Assessment**. The scope of works included:

- Review of local hydrology and the nearby WFD water bodies within the study area to create a baseline;
- Review of nearby Protected Areas (SSSI's) within the study area;
- Screening of watercourses, Protected Areas and proposed activities to determine whether they are considered to be hydrologically linked to the site; and
- Scoping for project activities against the receptors and Significant Water Management Issues for the watercourses, Protected Areas and proposed activities screened in.

Assessment criteria

Surface Water

Receptor Importance

- 6.3.13 The preliminary assessment of likely significant effects has taken into account the sensitivity of the receptor and the magnitude of the impact on that receptor. Importance criteria for determining the sensitivity of the receptor, based on professional judgement is presented in **Table 6.5**.

Table 6.5 Receptor Importance for Surface Water

Importance	Typical Criteria	Typical Examples
High	Receptor with a high quality and a low ability to absorb change without fundamentally altering its present character.	WFD recorded watercourse achieving 'Good' or targeted as 'Good' status (including immediately downstream watercourses); protected or designated areas, e.g., SSSI, Ramsar sites, Special Protected Areas (SPAs), SACs, which are highly sensitive to disruption. NRW designated 'Main River'.
Medium	Receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value.	WFD recorded watercourse achieving 'Moderate' or targeted as 'Moderate' status (including immediately downstream watercourses).
Low	Receptor is tolerant of change without detriment to its character, is of low environmental value, or local importance.	WFD recorded watercourse achieving 'Poor' or targeted as 'Poor' status (including immediately downstream watercourses). Local Ordinary Watercourses and small ditches/channels.

Magnitude of Impact (Change)

- 6.3.14 The magnitude of impact presented in **Table 6.6** has been identified through the consideration, and application, of professional judgement and the assessment of the supporting evidence.

Table 6.6 Magnitude of Impact Criteria for Surface Water

Magnitude of Impact	Criteria
High	Total loss or major alteration to key elements or features of the baseline conditions to the extent that post-development character or composition of baseline conditions will be fundamentally changed (e.g. large increase or decrease in peak flood level, significant deterioration or improvement of water quality).
Medium	Loss or alteration to one or more key elements or features of the baseline conditions to the extent that post-development character or composition of the baseline conditions will be materially changed (e.g. moderate increase or decrease in peak flood level, moderate deterioration or improvement of water quality).
Low	Minor shift away from baseline conditions. Changes arising will be detectable but not material; the underlying character or composition of the baseline conditions will be similar to the pre-development situation (e.g. slight increase or decrease in peak flood level, slight deterioration or improvement of water quality).
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a 'no change' situation (e.g. no discernible effects on hydrological elements (neither beneficial nor adverse)).

Significance of Effect for Surface Water

- 6.3.15 The determination of the significance of effect is achieved using the matrix presented in **Table 6.7**
- 6.3.16 For the purposes of this assessment, moderate or major beneficial/adverse effects are deemed to be significant. Minor beneficial/adverse or negligible effects are deemed to be not significant.

Table 6.7 Significance of effect criteria for surface water

Magnitude of Impact	Importance		
	High	Medium	Low
High	Major beneficial or adverse effect	Major or Moderate beneficial or adverse effect	Moderate or Minor beneficial or adverse effect
Medium	Major or Moderate beneficial or adverse effect	Moderate beneficial or adverse effect	Minor beneficial or adverse effect
Low	Moderate or Minor beneficial or adverse effect	Minor beneficial or adverse effect	Minor beneficial or adverse effect or negligible effect
Negligible	Negligible effect	Negligible effect	Negligible effect

6.4 Baseline Conditions

Existing baseline

Surface Water

- 6.4.1 A watercourse plan indicating the sensitive surface water receptors based upon available online mapping can be found in **ES Volume IV, Figure 6.4: Location of sensitive receptors relating to surface water (watercourse location map)**.
- 6.4.2 There are two tributary watercourses of Nant Craigraber on-site, the most substantial being Nant Fadog which discharges to Nant Craigraber's downstream extent. Nant Craigraber is an ordinary watercourse located off-site, situated between the eastern and western land parcels of the Site, within an area of ancient woodland. This watercourse conveys flow south for 4.2 km, beneath New Road and through the disused Margam Opencast Coal Mine to then join Nant Iorweth-goch which flows west for approximately 1.2 km, converging with Afon Cynffig 2.0 km south-west of the Site.
- 6.4.3 In the north-east of the Site are multiple unnamed watercourses and Nant Gwyn which are tributaries of Afon Llynfi and convey flow north-west/west. Afon Llynfi is a designated Main River and conveys flow south, roughly following the route of the A4063 on its eastern side.
- 6.4.4 Off-site, to the north, are tributary watercourses of Nant y Gadlys, named Nant Bryncynan and Nant y Castell. Nant y Gadlys conveys flow east, and is a designated Main River, converging with Afon Llynfi approximately 0.65 km north-east of the Site.

- 6.4.5 There are three small Ordinary Watercourses on-site in the south: Nant-y-gedd, Nant Cwm-bach and an unnamed watercourse, which all convey flow south. There is an extensive watercourse network located off-site to the south of the Site and south of New Road, associated with Parc Slip Nature Reserve. This network has hydrological links to the small watercourses emerging from south of the Site which convey flow south into this network. This network eventually conveys flow east, eventually discharging to Afon Llynfi.
- 6.4.6 The watercourse of Afon Cynffig is located approximately 0.7 km west of the Site. This watercourse conveys flows south, beneath Crown Road and then west, away from the Site. Nant Iorweth-goch is a tributary of this watercourse, downstream of the Site. Afon Cynffig becomes a designated Main River as the two watercourses converge, 2.0 km south-west of the Site.
- 6.4.7 Nant Cedfyw is an off-site Ordinary Watercourse and conveys flow south, converging with Afon Llynfi approximately 1.4 km east of the Site.
- 6.4.8 As shown on **ES Volume IV, Figure 6.2: Designation mapping and local topography comparison**, it is noted that the main parcel of the Site is split into two main catchments: one draining to Craigraber to the south-west of the main parcel and the second draining to Nant y Gadlys and Afon Llynfi to the north/east/south-east. The smaller western parcel of the Site drains to Nant Craigraber to the south-east and to Afon Cynffig to the south-west.
- 6.4.9 It is also noted there are no Main Rivers within the Site and all the on-site watercourses aforementioned are designated as Ordinary Watercourses and emerge on-site, noted as springs on OS mapping.

Hydrologically Connected NRW Protected Areas

- 6.4.10 Cwm Risca Meadows is a designated SSSI and is located directly south of the Site, between the Site and New Road. Two small watercourses (Nant y Gedd and an unnamed watercourse) emerge in the south of the Site and flow south through this designated area and hydrologically link Cwm Risca Meadows SSSI to the Site. A catchment exercise has been undertaken to determine the hydrological catchments of the SSSI. The topographic data used has been taken from the available DTM LiDAR tiles, the results of which can be seen in **ES Volume IV, Figure 6.1: Cwm Risca Meadows SSSI Catchments**. The results show that there are three distinct catchments on-site which drain into the SSSI, located in the south-eastern Site corner.
- 6.4.11 Cefn Cribwr (Bryn Bach), Caeau Cefn Cribwr and Waun Cimla are also designated SSSI's and are located south of the Site, between Parc Slip Nature Reserve and Margam Opencast Coal Mine and the B4281. **ES Volume IV, Figure 6.5: Cefn Cribwr (Bryn bach), Caeau Cefn Cribwr and Waun Cimla SSSI Hydrological Catchments** has been produced to illustrate the local topography and the location of the three aforementioned SSSI's. It is shown that whilst the topography of the southern area of the Site falls south, the SSSI's are located in a separate catchment to this part of the Site which falls north towards the line of the old Dyffryn, Llynfi and Porthcawl Railway. This railway line forms a low lateral ridge east to west and separates the Site's southern catchment from the catchment containing the three SSSI's. Whilst there are Ordinary Watercourses crossing

these SSSI designations that are tributaries of Afon Cynffig and Nant Cynffig, these Ordinary Watercourse tributaries converge with the Afon Cynffig and Nant Cynffig downstream of the Site and are therefore not hydrologically linked to the Site.

- 6.4.12 According to NRW's online mapping, the following water bodies are designated as 'Moderate' overall waterbodies under the Water Framework Directive/ River Basin Management Plan (Cycle 3 – 2021), as shown in **Table 6.8**:

- Kenfig - headwaters to tidal;
- Llynfi - Lletty Brongu STW to conf with Ogmore; and
- Ogmore - confluence with Llynfi to tidal limit.

Table 6.8 WFD Watercourse Baseline Information (Cycle 3 - 2021)

Water body name	HMBW	Overall water body status
Kenfig - headwaters to tidal	Natural	Moderate
Llynfi - Lletty Brongu STW to conf with Ogmore	Natural	Moderate
Ogmore - confluence with Llynfi to tidal limit	Natural	Moderate

- 6.4.13 A full WFD Assessment is included in **ES Volume III, Appendix 6.3: Water Framework Directive Assessment**. These WFD designated water bodies are located off-site, however, they have hydrological linkages to all of the Ordinary Watercourses on-site. The WFD water body names are stated below, with the specific watercourse names listed beneath each WFD water body designation:

- Kenfig - headwaters to tidal:
 - Nant Craigyraber;
 - Nant Iorweth-goch; and
 - Afon Cynffig.
- Llynfi - Lletty Brongu STW to conf with Ogmore:
 - Nant y Gadlys;
 - Nant Cedfyw; and
 - Afon Llynfi.
- Ogmore - confluence with Llynfi to tidal limit:
 - Downstream Afon Llynfi.

Private Water Supplies

- 6.4.14 According to the freedom of information request, there are no private water supplies within the Site boundary. NRW provided record of two nearby discharges to ground (sewage) which would remain unaffected by the Proposed Development as they are not potable water supplies. The details of these discharges are as follows:

- EPR/GE5254BT/A001 - Grid reference: SS 85933 85655 (Bryn Llefrith Farm). It is to note that the grid reference and the address do not correlate, however,

the discharge to ground from sewage is likely associated with the farm address as means to discharge sewage from the existing buildings, located 0.65 km north of the Site; and,

- EPR/CE5955SN/A001 - Grid reference: SS 88020 84675 (Cwm Risca Farm). Located on-site in the south-east.

Sensitive receptors

6.4.15 **Table 6.9** sets out the receptors scoped in as relevant to this assessment and their assigned importance. The location of these receptors is illustrated in **ES Volume IV, Figure 6.4: Location of sensitive receptors relating to surface water (watercourse location map)**.

Table 6.9 Sensitive receptors

Receptor	Discussion	Importance
Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses	This Protected Site is located towards the south of the Site and is proven to be hydrologically linked to the Site. Cwm Risca Meadows SSSI is designated for old wet acidic meadow on Coal Measures bedrock, supporting over 80 species of herbaceous plants and a colony of Marsh Fritillary butterfly (<i>Euphydryas aurina</i>) and is therefore assigned High importance.	High
WFD water body of Kenfig - headwaters to tidal (Nant Craigyraber, Nant Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses	The nearby WFD water body is designated as 'Moderate' Overall waterbody under the Water Framework Directive/ River Basin Management Plan (Cycle 3 – 2021) and has hydrological linkages to the watercourses on-site. It is therefore assigned Medium importance.	Medium
WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmor (Nant y Gadlys, Nant Cedfyw and Afon Llynfi) and on-site hydrologically connected watercourses	The nearby WFD water body is designated as 'Moderate' Overall waterbody under the Water Framework Directive/ River Basin Management Plan (Cycle 3 – 2021) and has hydrological linkages to the watercourses on-site. It is therefore assigned Medium importance.	Medium

Receptor	Discussion	Importance
WFD water body of Ogmore - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses	The nearby WFD water body is designated as 'Moderate' Overall waterbody under the Water Framework Directive/ River Basin Management Plan (Cycle 3 – 2021) and has hydrological linkages to the watercourses on-site. It is therefore assigned Medium importance.	Medium

Future Baseline in the Absence of the Proposed Development

- 6.4.16 It is possible that the existing baseline conditions as described above may be subject to change in the future due to natural and human factors. Primarily, future baseline conditions may be influenced by climate change. The future climate impacts on the hydrology of the Site could include changes in precipitation patterns and seasonality, temperature and extreme weather events. These changes could have various impacts on the hydrology of the area, including:
- Temperature changes can lead to changes in the rate of weathering and erosion of rocks and soils, as well as changes in the distribution of plants and animals that can impact erosion and sedimentation patterns.
 - Changes in precipitation patterns can lead to changes in the availability of water resources, as well as changes in surface water flow and groundwater recharge. Fluvial and pluvial flooding events may increase in frequency and severity, although effects could be highly localised. Groundwater recharge could be affected by an increase in flash flooding. High-intensity storms could lead to increased frequency in landslides and slope failures.
 - Changes in vegetation can impact erosion and sedimentation patterns. This may particularly affect wetland habitats if the availability of water decreases and ambient temperatures increase, raising evaporation rates.
- 6.4.17 If the Proposed Development is not progressed, the future baseline with respect to surface water and water bodies is not expected to change significantly. Assuming no changes in agricultural practices, then there should be no significant changes to watercourse routing and discharges expected to occur.
- 6.4.18 The future baseline of water quality is unlikely to change from the existing baseline. Assuming no changes in agricultural practices, then there are no reasons to suggest that water quality will change for Ordinary Watercourses and Main Rivers within the study area.
- 6.4.19 The nearby WFD water bodies, of which the on-site watercourses are tributaries, are classified under Cycle 3 (2021) of the Water Environment (Water Framework Directive) (WFD) (England and Wales) Regulations 2017 and have an overall classification of 'moderate'. Assuming no changes in agricultural practices, then there are no reasons to suggest that these watercourses will achieve a status that differs from the current rating.

- 6.4.20 It is important to note that the future baseline is a projection, with a range of possible future conditions, and it is subject to uncertainty associated with the available projections. Across the lifetime of the Proposed Development, it is considered highly likely that the future baseline would be broadly comparable to the existing baseline described above.

6.5 Mitigation Embedded into the Design

- 6.5.1 This assessment has been based on the principle that measures have been ‘embedded’ into the design of the Proposed Development to remove potential significant effects as far as practicable, for example, by the considered placement of infrastructure. The embedded mitigation relevant to this assessment is detailed in **Table 6.10**.

Table 6.10 Embedded mitigation

Receptor(s)	Embedded Mitigation
All	Internal access tracks and cable routes propose to use existing tracks, crossings and/or gaps in the hedgerows, where reasonably practicable.
Ordinary watercourses	Watercourse crossings have been kept to a practical minimum by careful infrastructure design.
	The watercourse crossing design, at the locations where the access track crosses small watercourses, will allow the water to flow through.
	Infrastructure has been sited outside a minimum 15 m buffer from all Ordinary Watercourses within the Site where possible. This has reduced the amount of work required within and adjacent to watercourses. This will reduce the likelihood that spillage of potential contaminants would enter surface watercourses.
	The outline Surface Water Drainage Strategy sets out proposed design and mitigation measures within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement . The measures are that all SuDS features are to be designed in accordance with the CIRIA C753 SuDS Manual, this will ensure that surface water runoff discharged from the Proposed Development will be clean by following best design practices.
	Vegetation below solar panels will ensure the kinetic energy from rainfall runoff dripping from the panel lip will be dispersed and reduce the risk of soil erosion. Vegetation will improve soil stability during the operational phase.

Receptor(s)	Embedded Mitigation
Protected Areas	Cwm Risca Meadows SSSI has been defined in ES Volume IV, Figure 6.1: Cwm Risca Meadows SSSI Catchments to be hydrologically linked to the Site. The proposed infrastructure will be placed approximately a minimum of 110 m away from this designated site.

6.6 Assessment of Likely Effects (Without Additional Mitigation)

- 6.6.1 Assessment of the potential effects on the above sensitive receptors during the construction, operational and decommissioning phases are presented below.

Construction

6.6.2 Potential effects on water receptors, before additional mitigation is applied, are listed in **Table 6.11** for the construction phase.

Table 6.11 Assessment of Likely Effects (without Additional Mitigation) during the Construction Phase

Paragraph number	Receptor / receptor groups	Description of impact
1.	Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses Importance: High	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses which are hydrologically linked to the SSSI could enter the channels and flow through the designation.
2.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses which are hydrologically linked to the SSSI if spilled directly into the water or allowed to runoff towards these watercourses during rainfall events.
3.	WFD water body of Kenfig - headwaters to tidal (Nant Craigyraber, Nant Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses Importance: Medium	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses.
4.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events.

Paragraph number	Receptor / receptor groups	Description of impact
5.	WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmre (Nant y Gadlys, Nant Cedfyrw and Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, construction of watercourse crossings, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses.
6.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events.
7.	WFD water body of Ogmre confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, construction of watercourse crossings, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses.
8.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events.

Operation

6.6.3 Potential effects on water receptors, before additional mitigation is applied, are listed in **Table 6.12** for the operational phase.

Table 6.12 Assessment of Likely Effects (without Additional Mitigation) during the Operational Phase

Paragraph number	Receptor / receptor groups	Description of impact
1.	Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses	Due to the nature of the Proposed Development, there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There should be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.
2.	Importance: High	The Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hardstanding, including the access track, are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The solar arrays should not increase the surface water quantity to the existing watercourses as water will be able to move freely below the panels as per the existing regime, with management in land use ensuring channelisation of flows does not occur. Any overland exceedance flows will be captured by downslope cut off swales to slow the rate of runoff to the downslope watercourses.
3.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only.

Paragraph number	Receptor / receptor groups	Description of impact
4.	WFD water body of Kenfig - headwaters to tidal (Nant Craigyraber, Nant Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses Importance: Medium	Due to the nature of the Proposed Development there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There should be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.
5.		The outline Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hardstanding including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to the QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.
6.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only.
7.	WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmre (Nant y Gadlys, Nant Cedfyw	Due to the nature of the Proposed Development, there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There should be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.

Paragraph number	Receptor / receptor groups	Description of impact
8.	and Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	The outline Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hardstanding including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.
9.		The unnamed Ordinary Watercourse in the north-east of the Site and Nant Cwm-bach in the south-east of the Site are proposed to be crossed for access purposes during operation. These watercourses are hydrologically linked to the WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmre. The full assessment of the proposed crossings is detailed in ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment . The sizing of the crossings will be determined at detailed design and will be designed so they allow the design flood event plus a blockage to pass through with an additional freeboard allowance (safety margin). There will therefore be no restriction in flows due to the implementation of these crossings, with a clear-span bridge being the preferred crossing type or a bottomless arch culvert, as such there will be no increase in surface water quantity to the existing watercourses.
10.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only.

Paragraph number	Receptor / receptor groups	Description of impact
11.	WFD water body of Ogmore - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Due to the nature of the Proposed Development there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There should be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.
12.		The Outline Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hardstanding including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to the QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.
13.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only.

Decommissioning

6.6.4 Potential effects on water receptors, before additional mitigation is applied, are listed in **Table 6.13** for the decommissioning phase.

Table 6.13 Assessment of Likely Effects (without Additional Mitigation) during the Decommissioning Phase

Paragraph number	Receptor / receptor groups	Description of impact
1.	Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses Importance: High	Decommissioning activities would include dismantling of on-site infrastructure and removal from the Site. This would include top soil stripping and stockpiling of material, establishment of decommissioning compounds and reinstatement. These activities will have the potential to result in silt laden runoff arising from on-site earthwork activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses which are hydrologically linked to the SSSI could enter the channels and flow through the designation.
2.		Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses which are hydrologically linked to the SSSI if spilled directly into the water or allowed to runoff towards these watercourses during rainfall events.
3.	WFD water body of Kenfig - headwaters to tidal (Nant Craigraber, Nant Iorweth-goch and Afon Cynffig) and on-site	Decommissioning activities including infrastructure dismantling, topsoil stripping and stockpiling of material, establishment of decommissioning compounds and reinstatement will have the potential to result in silt laden runoff arising from on-site earthwork activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses.
4.	hydrologically connected watercourses Importance: Medium	Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events.
5.	WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmre (Nant y Gadlys, Nant	Decommissioning activities including infrastructure dismantling, topsoil stripping and stockpiling of material, establishment of decommissioning compounds and reinstatement will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses

Paragraph number	Receptor / receptor groups	Description of impact
	Cedfyw and Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	within the Site may ultimately be transported within the channel flow towards off-site watercourses. It is anticipated that the watercourse crossings would be retained following the decommissioning of the Proposed Development.
6.		Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events.
7.	WFD water body of Ogmere - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Decommissioning activities including infrastructure dismantling, topsoil stripping and stockpiling of material, establishment of decommissioning compounds and reinstatement works will have the potential to result in silt laden runoff arising from on-site earthwork activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses.
8.		Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events.

6.7 Additional Mitigation Measures

6.7.1 Table 6.14 sets out the additional mitigation measures required to mitigate the likely effects identified in Section 6.6.

Table 6.14 Additional Mitigation

Phase	Description of additional mitigation measure	Securing mechanism
Construction	Water requirements are to be met by bringing in raw water using a bowser, rain water harvesting or private water supply, or a mixture of these. Dwr Cymru Welsh Water mains water supply or groundwater abstraction will not be used for construction or decommissioning works.	Detailed CEMP via planning condition
Construction	Pollution prevention measures will be implemented to reduce the potential for adverse effects to occur. A summary of the pollution prevention measures in the OCEMP (provided in ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan), are set out below: • No vehicle, equipment or material storage is permitted within Flood Map for Planning Flood Zone 2 or Flood Zone 3 or within 15 m of all watercourses. • The placement of stockpiled materials as far away as practically possible from sensitive receptors (including the watercourse). • Vegetation removal is undertaken on a phase-by-phase basis to avoid excessive exposure of bare soil. • Silt fencing or straw bales to be placed downslope of construction works to prevent silt entering watercourses. • Additional silt fencing kept on-site for deployment at short notice. • A wheel wash at the Site access to reduce silt migration across the site. • All vehicles will be inspected on arrival. Vehicle showing signs of fuel/oil drips, missing fuel caps, damaged hydraulics will be rejected and not used on-site before repair. • Fuels will be stored in a double skinned locked and bunded fuel bowser as far away from the watercourse as possible. Refuelling will be carried out over a plant nappy. These will be regularly maintained and inspected for rainwater, rainwater will be removed by specialist removal. A spill kit will be located next to the bowser.	Detailed CEMP via planning condition

Phase	Description of additional mitigation measure	Securing mechanism
	• Spillage kits will contain as a minimum; spill booms, granules, mats and gully covers. • Staff will be trained in the use of spill kits. • All surface waters and drains must be protected from silt runoff by the use of gully guards, straw bales, gravel traps or silt fencing. These measures must be inspected frequently. • Preparation and adoption of a Pollution Incident Response Plan.	
Decommissioning	Water requirements are to be met by bringing in raw water using a bowser, rain water harvesting or private water supply, or a mixture of these. Dwr Cymru Welsh Water mains water supply or groundwater abstraction will not be used for decommissioning works.	Detailed Decommissioning Environmental Management Plan (DEMP) via planning condition.
Decommissioning	Pollution prevention measures would be set out in, and secured by the implementation of, a detailed Decommissioning Environmental Management Plan (DEMP). A summary of the measures to be included are outlined below: • No vehicle, equipment or material storage is permitted within the Flood Zone 2 or Flood Zone 3 or within 15 m of all watercourses. • The placement of stockpiled materials as far away as practically possible from sensitive receptors (including the watercourse). • Silt fencing or straw bales to be placed downslope of decommissioning works to prevent silt entering watercourses. • Additional silt fencing kept on-site for deployment at short notice. • A wheel wash at the Site access to reduce silt migration across the site. • All vehicles will be inspected on arrival. Vehicle showing signs of fuel/oil drips, missing fuel caps, damaged hydraulics will be rejected and not used on-site before repair.	Detailed DEMP via planning condition

Phase	Description of additional mitigation measure	Securing mechanism
	- Fuels will be stored in a double skinned locked and bunded fuel bowser as far away from the watercourse as possible. Refuelling will be carried out over a plant nappy. These will be regularly maintained and inspected for rainwater, rainwater will be removed by specialist removal. A spill kit will be located next to the bowser. - Spillage kits will contain as a minimum; spill booms, granules, mats and gully covers. - Staff will be trained in the use of spill kits. - All surface waters and drains must be protected from silt runoff by the use of gully guards, straw bales, gravel traps or silt fencing. These measures must be inspected frequently. - Preparation and adoption of a Pollution Incident Response Plan.	

6.8 Assessment of Residual Effects (with Additional Mitigation)

Construction

6.8.1 Potential effects on water receptors, with additional mitigation applied, are listed in **Table 6.15** for the construction phase

Table 6.15 Assessment of Likely Effects (with Additional Mitigation) during The Construction Phase

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
1.	Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses Importance: High	Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses which are hydrologically linked to the SSSI if spilled directly into the water or allowed to runoff towards these watercourses during rainfall events. However, with mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects associated with spills or leaks would be immediately mitigated and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
2.		Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects will be minimised and silt would not be allowed to enter the watercourses therefore no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
3.	WFD water body of Kenfig - headwaters to tidal (Nant Craigraber, Nant Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the OCEMP, any	Negligible	Negligible effect (Not Significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
	Importance: Medium	effects will be minimised and no significant impacts are anticipated.		
4.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, with mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
5.	WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmore (Nant y Gadlys, Nant Cedfyw and Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
6.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards	Negligible	Negligible effect (Not Significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
		watercourses during rainfall events. However, with mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects will be minimised and no significant impacts are anticipated.		
7.	WFD water body of Ogmere - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Construction activities including topsoil stripping and stockpiling of material, establishment of construction compounds and access tracks, reprofiling and vegetation clearance will have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
8.		Construction activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. With mitigation measures in place for the Proposed Development as detailed in the OCEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)

- 6.8.2 Cwm Risca Meadows SSSI is considered as **high** sensitivity. The magnitude of impact to water quality, and water quantity as a result of increases in silt-laden runoff and chemical spillages, following additional mitigation would be **negligible**. Therefore, the significance of effect is considered to be **negligible** and **not significant**.
- 6.8.3 Kenfig - headwaters to tidal, Llynfi - Lletty Brongu STW to conf with Ogmre and Lletty Brongu STW to conf with Ogmre as Water Framework Directive designated water bodies with moderate overall status and the hydrologically connected watercourses on-site are considered to be **medium** sensitivity. The magnitude of impacts to water quality, and water quantity as a result of increases in silt-laden runoff and chemical spillages, following additional mitigation would be **negligible**. Therefore, the significance of effect is considered to be **negligible** and **not significant**.

Operation

- 6.8.4 Potential effects on water receptors, with additional mitigation applied, are listed in **Table 6.16** for the operational phase.

Table 6.16 Assessment of Likely Effects (with Additional Mitigation) during the Operational Phase

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
1.	Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses Importance: High	Due to the nature of the Proposed Development there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. No polluted runoff is anticipated to affect the on-site watercourses or the SSSI.	Negligible	Negligible effect (Not significant)
2.		The Outline Surface Water Drainage Strategy detailed within ES Volume IV, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hardstanding including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled	Negligible	Negligible effect (Not significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
		outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to the QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.		
3.	WFD water body of Kenfig - headwaters to tidal (Nant Craigraber, Nant Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses Importance: Medium	Due to the nature of the Proposed Development there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There would be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.	Negligible	Negligible effect (Not significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
4.		The outline Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hardstanding including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to the QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.	Negligible	Negligible effect (Not significant)
5.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only. Vehicles would be well maintained such that leaks would be unlikely and in the unlikely situation that they did occur, they would be at a scale unlikely to create a discernible change. Nonetheless, in line with good site practice, should any spills	Negligible	Negligible effect (Not significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
		occur these would be managed in accordance with the operator's environmental management system.		
6.	WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmore (Nant y Gadlys, Nant Cedfyw and Afon Llynfi) and on-site	Due to the nature of the Proposed Development there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There would be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.	Negligible	Negligible effect (Not significant)
7.	hydrologically connected watercourses Importance: Medium	The outline Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement proposes that rainfall runoff from large areas of hard standing including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.	Negligible	Negligible effect (Not significant)
8.		The unnamed Ordinary Watercourse in the north-east of the Site and Nant Cwm-bach in the south-east of the Site are proposed to be crossed for access purposes during operation. These watercourses are hydrologically linked to the WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmore. The full assessment of the proposed crossings	Negligible	Negligible effect (Not significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
		is detailed in ES Volume III, Appendix 6.1: Watercourse Crossing Baseline Assessment . The sizing of the crossings will be determined at detailed design and will be designed so they allow the design flood event plus a blockage and a freeboard allowance to pass through. There will therefore be no restriction in flows due to the implementation of these crossings, with a clear-span bridge being the preferred crossing type or a bottomless arch culvert, as such there will be no increase in surface water quantity to the existing watercourses.		
9.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only. Vehicles would be well maintained such that leaks would be unlikely and in the unlikely situation that they did occur, they would be at a scale unlikely to create a discernible change. Nonetheless, in line with good site practice, should any spills occur these would be managed in accordance with the operator's environmental management system.	Negligible	Negligible effect (Not significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
10.	WFD water body of Ogmore - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Due to the nature of the Proposed Development there is a low likelihood that during the operational phase the water quality would be degraded. Once vegetation is established below solar PV modules this would enable the stabilisation of soils which would be less prone to the erosional forces of rainfall runoff. There would be no increase in silt laden runoff to the nearby watercourses from the Proposed Development once in operation.	Negligible	Negligible effect (Not significant)
11.		The outline Surface Water Drainage Strategy detailed within ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement recommends that rainfall runoff from large areas of hardstanding including the turbine hard standings and substation are drained to SuDS. This ensures the water quality of surface water discharged to either watercourses via controlled outfalls or into the ground via infiltration would be of an acceptable quality. The controlled outfalls will be restricted to the QBar greenfield runoff rates and as such there will be no increase in surface water quantity to the existing watercourses.	Negligible	Negligible effect (Not significant)
12.		It is likely that the maintenance of the Proposed Development will require some of the components to be replaced over the development lifetime (50 years). As such, construction activities for the replacement may occur and have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall	Negligible	Negligible effect (Not significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
		events. However, the frequency and scale of these activities will be less than that required for the construction phase of the development as it will be for specific components only. Vehicles would be well maintained such that leaks would be unlikely and in the unlikely situation that they did occur, they would be at a scale unlikely to create a discernible change. Nonetheless, in line with good site practice, should any spills occur these would be managed in accordance with the operator's environmental management system.		

- 6.8.5 The sensitivity of Cwm Risca Meadows SSSI is considered as **high** sensitivity. The magnitude of impact to water quality and water quantity (which could in turn affect the SSSI) as a result of increases in runoff from hardstanding areas following additional mitigation would be **negligible**. Therefore, the significance of effect is considered to be **negligible** and **not significant**.
- 6.8.6 The sensitivity of Kenfig - headwaters to tidal, Llynfi - Lletty Brongu STW to conf with Ogmore and Lletty Brongu STW to conf with Ogmore as Water Framework Directive designated water bodies with moderate overall status and the hydrologically connected watercourses on-site are considered to be **medium** sensitivity. The magnitude of impacts to water quality and water quantity as a result of increases in runoff from hardstanding areas, control of potentially contaminated firewater runoff in the unlikely event of a fire and the implementation of two proposed watercourse crossings following additional mitigation would be **negligible**. Therefore, the significance of effect is considered to be **negligible** and **not significant**.

Decommissioning

6.8.7 Potential effects on water receptors, with additional mitigation applied, are listed in **Table 6.17** for the decommissioning phase.

Table 6.17 Assessment of Likely Effects (with Additional Mitigation) during the Decommissioning Phase

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
1.	Cwm Risca Meadows SSSI and on-site hydrologically connected watercourses Importance: High	Decommissioning activities have the potential to result in silt laden runoff arising from on-site earthworks, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses which are hydrologically linked to the SSSI could enter the channels and flow through the designation. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and silt would not be allowed to enter the watercourses therefore no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
2.		Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses which are hydrologically linked to the SSSI if spilled directly into the water or allowed to runoff towards these watercourses during rainfall events. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and no significant impacts are anticipated.		
3.	WFD water body of Kenfig - headwaters to tidal (Nant Craigyraber, Nant	Decommissioning activities have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the	Negligible	Negligible effect (Not Significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
	Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses	watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and silt would not be allowed to enter the watercourses therefore no significant impacts are anticipated.		
4.	Importance: Medium	Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
5.	WFD water body of Llynfi - Lletty Brongu STW to conf with Ogmre (Nant y Gadlys, Nant Cedfyw and Afon Llynfi) and on-site hydrologically connected watercourses	Decommissioning activities have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and silt would not be allowed to enter the watercourses therefore no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)

Paragraph number	Receptor / receptor groups	Description of impact	Magnitude of Impact / Change	Likely effect (with additional mitigation)
	Importance: Medium	Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
6.	WFD water body of Ogmere - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses Importance: Medium	Decommissioning activities have the potential to result in silt laden runoff arising from on-site construction activities, resulting in the sedimentation and pollution of watercourses, which could significantly degrade the water quality of surface water runoff leaving the Site. Any silt-laden runoff which could enter the watercourses within the Site may ultimately be transported within the channel flow towards off-site watercourses. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and silt would not be allowed to enter the watercourses therefore no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)
7.		Decommissioning activities have the potential to lead to spillages and leaks of fuels, oils and chemicals. This could have effects on the water quality of local watercourses if spilled directly into the water or allowed to runoff towards watercourses during rainfall events. With mitigation measures in place for the Proposed Development as detailed in the detailed DEMP, any effects will be minimised and no significant impacts are anticipated.	Negligible	Negligible effect (Not Significant)

- 6.8.8 Cwm Risca Meadows SSSI is considered as **high** sensitivity. The magnitude of impacts to water quality and water quantity (which could in turn affect the SSSI) as a result of increases in silt-laden runoff and chemical spillages following additional mitigation is **negligible**. Therefore, the significance of effect is considered to be **negligible** and **not significant**.
- 6.8.9 Kenfig - headwaters to tidal, Llynfi - Lletty Brongu STW to conf with Ogmore and Lletty Brongu STW to conf with Ogmore as Water Framework Directive designated water bodies with moderate overall status and the hydrologically connected watercourses on-site are considered to be **medium** sensitivity. The magnitude of impacts to water quality and water quantity as a result of increases in silt-laden runoff and chemical spillages following additional mitigation is **negligible**. Therefore, the significance of effect is considered to be **negligible** and **not significant**.

6.9 Opportunities for environmental enhancement

- 6.9.1 The Site's current use is for agricultural practises. Following the Proposed Development, improvements in land use would be implemented such as woodland and hedgerow planting, creation of wet grassland and management of dry grassland; the full details of the improvements is included in **ES Volume IV, Appendix 10.4: Net Benefit for Biodiversity Report**.
- 6.9.2 These improvements will be beneficial in regard to the management of surface water runoff across the Site as the current Site practices in the agricultural use of the land compact the soil due to the use of heavy machinery where arable farming is undertaken. This, in turn, decreases the potential for infiltration, therefore promoting sheet flow across the land and increasing surface water flooding. In addition, ploughing of land downslope causes rivulets within the soil which can channelise overland flows, increasing the rate of runoff and therefore increasing the rate of erosion.
- 6.9.3 Additionally, across the wider Site, the root network of hedgerows will aid in the interception and absorption of surface water, whilst also stabilising the soils beneath. They also act as a barrier in silt capture, reducing the amount of sediment that can enter the nearby watercourses. The wet grassland will be used as flood storage areas where any overland flows in excess of natural infiltration can be stored, holding the water on-site and preventing increases in off-site runoff.

6.10 Difficulties and uncertainties

- 6.10.1 The following difficulties and uncertainties have been encountered during the undertaking of this assessment:
- The proposed watercourse crossing points are the only locations where field data via visual observation and watercourse dimension measurements have been obtained in regard to watercourses. These survey locations were based on desk-based assessment using NRW's Flood Map for Planning basemap on the positioning of watercourses within the Site. It may be the case that smaller field boundary ditches also need to be crossed by the Proposed Development access which have not been surveyed. It is likely that any small drainage ditches will be culverted for access purposes as the likelihood of the

flow regime of these ditches are ephemeral and do not have wider associated flood plains. This is supported within NRW's Flood Map for Planning mapping which shows all the of the mapped Flood Zones 2 and 3 designations for small watercourses associated with the mapped watercourses shown on Ordnance Survey and Google Satellite mapping. The assessment regarding the crossing of the mapped watercourses is considered to be robust and any crossings of smaller ditches are not deemed to be significant due to their size and smaller hydrological catchments.

- Detailed 1D/2D surface water modelling has not been undertaken for the Site and the risk from the Ordinary Watercourses used to inform the Proposed Development has been taken from available NRW Flood Map for Planning mapping. However, due to the 15 m minimum development buffer from the watercourses, the results of the modelling is not likely to affect the Proposed Development and the current modelled risk is shown to remain within channel. Furthermore, the assessment within the FCA (**ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement**) is considered robust and it has been concluded that there should be no flooding on-site which will adversely affect the Proposed Development.

6.11 Inter-Project Cumulative Effects

- 6.11.1 This section considers the combined effects of the Proposed Development and other projects on receptors that are assessed within this Chapter.

Screening cumulative developments within the Zone of Influence

- 6.11.2 The inter-project cumulative effects assessment has been undertaken in accordance with Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024), as set out in **ES Volume II, Chapter 4: Approach to the EIA. Table 6.18** sets out the other committed developments located within 600 m of the Site boundary. This 600 m Zol has been determined as appropriate for this cumulative assessment as it will allow consideration of any other developments that are close enough to have a potential effect that interacts with the Proposed Development. The Zol would capture effects across the catchments within the Site and the catchments of other committed development which may overlap.
- 6.11.3 Any other developments at a greater distance than 600 m from the Site boundary would not be expected to result in an inter-project cumulative effect as the hydrological catchments of the developments further than this are unlikely to be hydrologically connected to the Site.
- 6.11.4 **Table 6.18** sets out the other developments identified within the study area and also sets out the findings of a screening assessment undertaken to identify whether those developments have the potential to result in significant effects in combination with the Proposed Development.

Table 6.18 Inter-Project Cumulative Effects: Screening

Development description	Hydrological catchment overlaps?	Potential for significant inter-project cumulative effects?
66 kV electricity network infrastructure comprising overhead lines and underground cables.	No – Both of the developments are connected to Afon Llynfi. The Site's catchment is to the west of Afon Llynfi and south of Nant y Gadlys (tributary) whilst the committed development is west of Afon Llynfi upstream and north of Nant y Gadlys (tributary). The catchments do not overlap, as they are separated by Nant y Gadlys.	No With mitigation measures in place for the Proposed Development and for the other development, any effects will be minimised and no significant effects are anticipated.
New plant producing tissue paper at Bridgend.	Yes – Both of the developments are within the same catchment connected to Afon Llynfi.	No With mitigation measures in place for the Proposed Development and for the other development, any effects will be minimised and no significant effects are anticipated.

Assessment

- 6.11.5 Based on the screening exercise provided in **Table 6.18**, **no likely significant cumulative effects** have been identified with respect to water receptors.

Proposed Mitigation

- 6.11.6 No likely significant effects have been identified relating to water. As a result, no additional mitigation is proposed relating to cumulative effects.

6.12 References

Bridgend County Borough Council, 2024. *Adopted Bridgend Replacement Local Development Plan 2018-2033*. [Online]
Available at: <https://www.bridgend.gov.uk/residents/planning-and-building-control/replacement-local-development-plan/adopted-bridgend-replacement-local-development-plan-2018-2033/>
[Accessed 29 January 2025].

CIRIA, 2015. *The SuDS Manual (C753)*, s.l.: s.n.

CIRIA, 2023. *Environmental good practice on site guide (C811)*, London: CIRIA.

Department for Environment, Food and Rural Affairs, 2025. *MAG/IC*. [Online]
Available at: <https://magic.defra.gov.uk/>
[Accessed 29 January 2025].

DMRB, 2020. *Design Manual for Roads and Bridges LA 104 - Environmental assessment and monitoring*. [Online]

Available at: <https://www.standardsforhighways.co.uk/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a>
[Accessed 29 January 2025].

DMRB, 2020. *Design Manual for Roads and Bridges LA 113*. [Online]
Available at: <https://www.standardsforhighways.co.uk/tses/attachments/d6388f5f-2694-4986-ac46-b17b62c21727>
[Accessed 29 January 2025].

HM Government, 2018. *A Green Future: Our 25 Year Plan to Improve the Future*. [Online]
Available at:
https://assets.publishing.service.gov.uk/media/65fd713d65ca2f00117da89e/CD1.HM_Government_A_Green_Future_Our_25_Year_Plan_to_Improve_the_Environment.pdf
[Accessed 29 January 2025].

JBA Consulting , October 2020. *Strategic Flood Consequence Assessment* ,
Bridgend: Bridgend County Borough Council .

Neath Port Talbot County Borough Council, 2016. *Neath Port Talbot County Borough Council Adopted LDP (2011-2026)*. [Online]
Available at: <https://www.bridgend.gov.uk/residents/planning-and-building-control/replacement-local-development-plan/adopted-bridgend-replacement-local-development-plan-2018-2033/>
[Accessed 6 February 2025].

Planning Inspectorate, 2024. *Guidance, Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment*. [Online]
Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment>

Planning Policy Wales, July 2004, Updated March 2026. *Technical advice note (TAN) 15: development, flooding and coastal erosion*, s.l.: Welsh Government.

SoBRA, 2022. *SoBRA reports*. [Online]
Available at: https://sobra.org.uk/?pmpo_getfile=1&file=2022/08/SoBRA-controlled-waters-and-climate-change-report--FINAL_published-issue_Aug-2022-1&ext=pdf
[Accessed 6 February 2025].

The Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017. *The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017*. [Online]
Available at: <https://www.legislation.gov.uk/ukxi/2017/407/contents/made>
[Accessed 29 January 2025].

Water Resources Act, 1991. *Water Resources Act 1991*. [Online]
Available at: <https://www.legislation.gov.uk/ukpga/1991/57/contents>
[Accessed 29 January 2025].

Welsh Government Llywodraeth Cymru, 2024. *Planning Policy Wales*. 12 ed. s.l.:Welsh Government.

Welsh Government, 2021. *Future Wales: the national plan 2040*. [Online]
Available at: <https://www.gov.wales/future-wales-national-plan-2040>
[Accessed 6 February 2025].

Welsh Government, 2025. *DataMapWales: Data and maps from the Welsh public sector*. [Online]
Available at: <https://datamap.gov.wales/>
[Accessed 11 February 2025].