Future Port Talbot

Environmental Impact Assessment
Scoping Report
Volume I – Main Report

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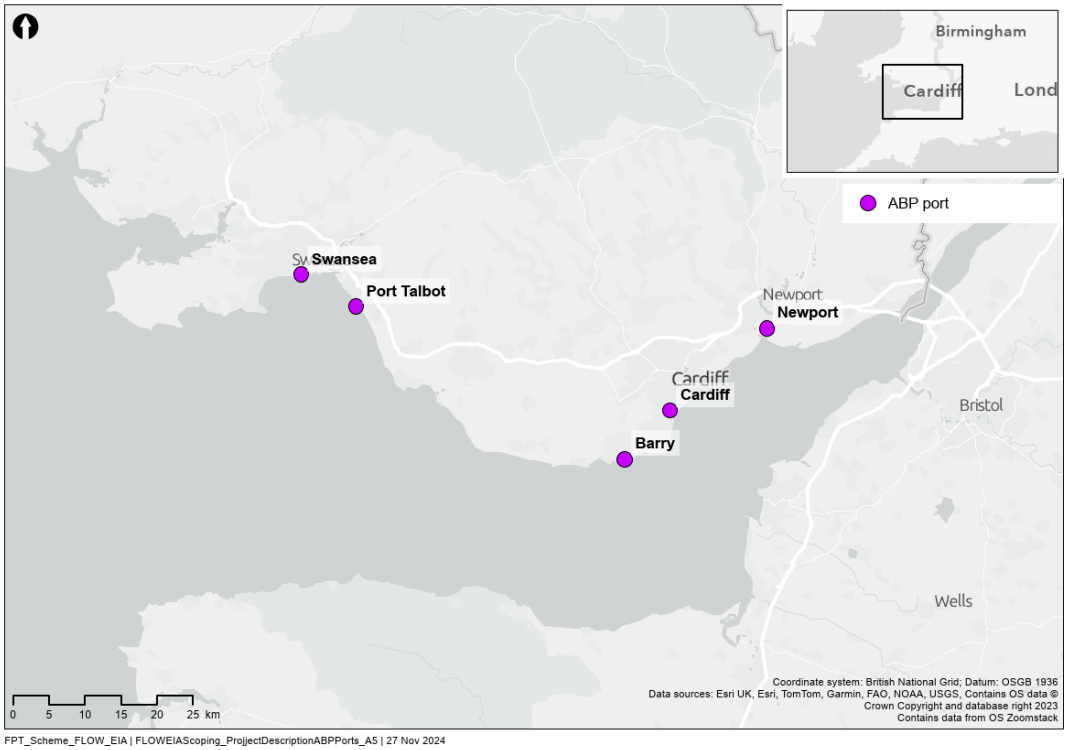
1 Introduction

1.1 Associated British Ports ("ABP" or "the Applicant")

1.1.1 ABP was established in 1981 following the privatisation of the British Transport Docks Board. It is the largest ports group in the UK, owning and operating 21 ports and other transport-related businesses across England, Wales and Scotland.

1.1.2 In South Wales, ABP owns and operates, as the Statutory Harbour Authority ('SHA') and the Competent Harbour Authority ('CHA'), the ports of Barry, Cardiff, Newport, Port Talbot, and Swansea as shown in **Figure 1.1**. The five ports meet the needs of both the local regional economy of South Wales, the south-west and Midlands due to strong road links (ABP, 2025).

Figure 1.1: South Wales ports owned and operated by ABP



1.2 Background

1.2.1 ABP, referred to as 'the Applicant', is the SHA for both the inner docks (Impounded Dock) and the Tidal (or Outer) Harbour at the existing Port of Port Talbot (the Port). It is also the CHA for pilotage and local lighthouse authority for the Port.

1.2.2 ABP has launched a transformational programme called "Future Port Talbot" ('FPT') that aims to diversify the Port and its infrastructure to take advantage of emerging opportunities in offshore wind energy and green industries. FPT will help Wales achieve its renewable energy and carbon

reduction goals, while also providing socio-economic benefits locally, regionally and nationally. The location of the Port relative to the surrounding area is shown in **Figure 1.2**.

1.2.3 As part of the FPT programme, the Applicant intends to apply for permission to develop the Port into a hub for offshore wind energy supporting the import of wind turbine related components for storage and marshaling, and the pre-assembly of wind turbine generators ('WTG'), hereafter referred to as the Project. To deliver floating offshore wind ('FLOW'), the Project would enable WTG assembly, integration with the floating substructure, commissioning, manufacturing (of floating substructures), storage, and tow-out.

1.2.4 The Project comprises proposals to expand and modify areas within the Port, and also to deliver ecological compensation on at least two areas located outside of the Port estate. Once operational, the Applicant aims to facilitate operations for future offshore marine renewable energy developers via the Project.

1.2.5 Section 2.5 of **Chapter 2 – Description of Development** contains further detail in relation to the Project. It also explains the proposed phased approach to the Project's delivery.

Figure 1.2: Location of the Port

Source: Mott MacDonald, 2024.

1.3 Existing Port of Port Talbot

1.3.1 Figure 1.1 in **Appendix A** shows the location and features of the Port which comprises approximately 400ha and includes port operational land, the Tidal Harbour and the Impounded Dock. It is located in south-west Wales, approximately 12km southeast of Swansea. The Port is located within close proximity to the Bristol Channel, is close to mainline rail (Port Talbot Parkway) and lies approximately 0.5km south-west of the M4.

1.3.2 The existing marine facilities at the Port are:

- Berths north and south of the existing iron ore jetty location in the Tidal Harbour, where vessels of up to 17.0m draught, 305m length, and 50m beam (width at widest point) may be accepted subject to tidal constraints (ABP, 2021). These have been used for imports of coking coal, minerals and ores to the steelworks.
- Berths within the Impounded Dock (including the existing lock) are:
  - Talbot Wharf
  - Talbot Block
  - Margam Wharf
  - Entrance Lock
  - Phoenix Wharf East
  - Phoenix Wharf West
  - Rio Tinto Wharf
  - Crown Wharf

1.3.3 Of these, the iron ore jetty (north berth), the Entrance Lock berth, Heidelberg (formally Hanson) berth (at Rio Tinto Wharf in the Impounded Dock) and Talbot Wharf (north side of the Impounded Dock) are operational. There is a further landing point at Talbot Block in the Impounded Dock. The Impounded Dock offers berths for general cargo, as well as the ability to accommodate heavy lift ro-ro cargoes.

1.3.4 The Port also accommodates companies that are tenants of, and operate from, the Port, including but not limited to the:

- Dŵr Cymru Welsh Water wastewater treatment facility at the landward end of the existing Main Breakwater;
- Dyfed Steels;
- Port Talbot Sea Cadets; and
- Heidelberg Materials

1.3.5 There is an existing water intake in the Impounded Dock, near Margam Wharf (related to the existing steel works operations), a feeder from the Afan into the Impounded Dock (indicated in Figure 1.1 in **Appendix A** as 'Dock feeder'), and the River Ffrwdwyllt which flows into the dock near Llewellyn's Quay (a mixed-use development located to the eastern end of the Impounded Dock).

1.4 Offshore Wind Energy

1.4.1 The offshore wind energy sector involves the use of WTG[1] deployed within the marine environment to produce electricity. Offshore wind energy technology is categorised into two main classes based on the type of support for the WTG: fixed foundations (or 'fixed-bottom') and floating platforms.

1.4.2 Fixed-bottom WTG directly attach to or rest on the seabed via sub-structures such as monopiles (large, cylindrical steel tubes driven into the seabed), jackets (formed of lattice frameworks made of steel tubes, usually with three or four legs anchored to the seabed with piles), or gravity-based foundations (a very large concrete or steel structure that rests on the seabed, relying on weight for stability), whereas FLOW WTG sub-structures are not fixed to the seabed, but instead float and are anchored in place through the use of catenary or tensioned mooring tethers to anchors on the sea bed.

1.4.3 Fixed offshore wind is limited by water depths, with FLOW technology designed to exploit deeper waters where wind resources are stronger, ultimately meaning more reliable power (BVG Associates, 2023).

1.4.4 Whilst FLOW projects use broadly similar turbine models to those used for fixed-bottom turbines there are some key differences, one of which is that FLOW WTG towers are typically required to be stronger and heavier to compensate for the increased loads experienced by the floating substructures, and the very large floating substructures themselves (concrete or steel) needed to support the wind turbine (BVG Associates, 2023).

1.4.5 The assembly of FLOW systems, as opposed to fixed-bottom types, is mostly based onshore at ports. Ports need sufficient land areas, quay reinforcement, space for storage for components, cranes to support commercial scale production of floating substructures and other WTG components (Crowle A, 2022).

Relationship with Port Sector

1.4.6 Ports are essential to the offshore wind energy sector as they fulfil a range of functions which, critically, includes serving as locations for the manufacture, marshalling and assembly of WTGs prior to installation offshore.

1.4.7 In the case of FLOW, port facilities will be required for fabrication, manufacture, marshalling, integration and commissioning, and also operational and maintenance support.

1.4.8 The types of WTG associated with commercial scale FLOWOSW are currently in the range of 15-25MW capacity. The component sizes (nacelle,

[1] For simplicity main components for WTGs are a tower, nacelle and rotors

rotor and tower) are too big to be transported on public roads. Assembly of the WTG relies on bringing the component parts together in one location by marine transport.

1.4.9 Similarly in the case of FLOW, the floating substructures if manufactured and preassembled, or requiring assembly at port, are very large structures and can only be brought to port by marine transport.

1.4.10 Taking into account the transportation needs and WTG component sizes, the ports suitable for the vertical assembly of FLOW infrastructure have specific requirements (Welsh Government & Offshore Renewable Energy Catapult, 2021) (BVG Associates, 2023):

- water depths that allow the movement of large floating structures in and out of the port;
- the ability for the large floating structures to be moored alongside a quay for assembly, integration and commissioning;
- quayside facilities that allow large structures to be loaded and unloaded across that quay;
- large contiguous areas of laydown space to accommodate storage of components and subassemblies, such as turbine blades, tower sections, and nacelles;
- in cases where manufacturing of the floating foundation substructures occurs, the need for engineering and construction facilities at the port to produce the floating foundation substructures; and
- no air draft restrictions, to allow tow-out of assembled WTGs.

1.5 The Project

1.5.1 The Project requires the development of marine and landside infrastructure at the existing Port to create a FLOW platform fabrication, assembly, storage, integration, commissioning and maintenance facility. The current layout and form of the Port is constrained by available space and the absence of suitable quayside extents.

1.5.2 To accommodate the required marine and landside infrastructure, the Project proposes the expansion and modification of the Port through the incorporation of land from within the existing landside area of the Port estate, and also through reclaiming land from within the Tidal Harbour.

1.5.3 The additional land (from within the Port and from land reclamation) would allow for activities to occur to support the deployment of OSW projects through the production of foundations and subsequent integration and commissioning of WTGs ready for deployment. The Project would also have the potential for the import of fixed-bottom sub-structure and WTG components for collection by installation vessels for construction offshore.

1.5.4 The Project primarily relates to and within the existing Port, in addition to at least two nearby land parcels to be used for the purpose of ecological compensation and enhancement. There could be additional land required for ecological compensation, and the Applicant is reviewing land within its

ownership to provide for compensation habitat outside of the Port. This will be reported on within the future planning application.

1.5.5 In relation to dredging, it is expected that there would be dredged material that cannot be incorporated into the construction of the Project. This material would need to be disposed of at existing licensed disposal sites outside the Environmental Impact Assessment (EIA) Scoping Boundary.

1.5.6 If additional material is required to support land reclamation, this would be through the import of suitable material likely sourced from existing licensed offshore aggregate extraction sites outside the EIA Scoping Boundary.

1.5.7 If existing designated sites for dredge disposal or licenced aggregate for material supply are not suitable or have insufficient capacity, additional sites would be sought. The assessment of these sites would be incorporated within the EIA and reported in the ES.

1.5.8 The Project location is shown on Figures 1.1, 1.3 and 1.4 in **Appendix A**.

Phasing

1.5.9 The Project would be delivered in phases to account for changing market requirements as more offshore concession areas are made available and the regional OSW industry matures.

1.5.10 The Phase 1 facilities, detailed below, need to be available to meet developer requirements[2] as part of The Crown Estate's leasing process and the programme for the deployment of FLOW generation capacity in the Celtic Sea. Under Leasing Round 5, the current ambition is to deliver 4.5GW of FLOW capacity in the Celtic Sea (The Crown Estate, 2023). This means, as a minimum, a facility within which integration and commissioning can take place needs to be provided. Assembly and storage activities of foundations might also be undertaken during this phase, should the need arise.

1.5.11 Future phases of the Project's development would seek to include further facilities in the Port to manufacture the WTG floating substructures. This is expected to require further land areas and quay lengths, which would be acquired through some additional land reclamation and use of landside areas from within the Port. The potential maximum extent of future phases for marine and landside development is shown in Figure 1.2 within **Appendix A**.

1.5.12 The following summarises the Project phases, with more detail provided in **Chapter 2 – Description of Development**.

[2] Understood to be the availability of a facility within which integration and commissioning can take place.

Main Components and Activities

Phase 1

1.5.13 Phase 1 of the Project comprises work to develop sufficient operational areas and quay lengths to support the integration and commissioning of the FLOW foundations and turbines alongside the storage and potential assembly of the foundations. The operational areas are required to support both floating and fixed-bottom wind turbine production, to be responsive to market demand. Activities to support fixed-bottom offshore wind would be expected to occur if there are delays to the progression of the FLOW market or to respond to any periods between FLOW projects.

1.5.14 In the case of FLOW, it is expected that activity will take place at the quayside to assemble the tower, the nacelle and the rotors, which are then integrated onto the floating structure (located in the water).

1.5.15 In the case of fixed-bottom turbines there would be storage of components within the port in preparation to load these on to installation vessels.

1.5.16 Once these activities are complete, the FLOW turbines are ready to be deployed, and for the fixed-bottom turbines the installation vessels are ready to transport turbines to the offshore location.

1.5.17 Phase 1 of the Project would require works including the following:

- dredging in the Tidal Harbour in relation to provision of a quay and land reclamation;
- land reclamation south of the existing iron ore jetty to extend the area of operational port land and quay side with berths for importing components, and WTG integration and commissioning;
- construction of a maintenance berthing facility within the Tidal Harbour, which could be used to undertake repairs of deployed platforms returned to Port before being redeployed;
- works to surface and strengthen the extent of the Port operational land;
- installation of new mobile equipment (such as ring cranes, and self-propelled modular transporters (SPMTs));
- construction of operational building, storage buildings and workshops;
- works to utilities, perimeter fencing and security infrastructure;
- works to install fenders, moorings and navigation marks; and
- potential movement and storage of assembled floating substructure to a designated wet storage area within the SHA until they are required for integration with the turbine.

1.5.18 Under Phase 1, the Port is likely to operate as follows: import components (including the floating substructure or the components of these structures), store the components, and then integrate and commission platforms ready for deployment. The detail and sequencing of integration operations would be dependent on the eventual developer and their selected foundation design.

1.5.19 Phase 1 is expected to also include capability to provide maintenance support services to platforms from an operational offshore wind farm.

1.5.20 Given the use of the Port for FLOW long term is subject to future leasing rounds, it is envisaged that the Port could be used to support fixed-bottom wind projects. As with the FLOW WTG components and the floating substructures, the components for fixed-bottom projects would be brought in by sea.

1.5.21 Once operational, there would be a need to undertake maintenance dredging within the Port to maintain water depths, as well as periodic maintenance of port infrastructure.

Future Phases

1.5.22 If undertaken, a future phase/phases could introduce manufacturing of the floating substructures (either steel or concrete) which would require additional development beyond the extent of Phase 1 within the Port.

1.5.23 A future phase would be likely to have similar operational activities to Phase 1, including the import of WTG components for FLOW, and the offloading and storage of these components. It would also involve the import of materials (such as cement and aggregates for concrete substructures or steel sheet for steel substructures) to manufacture the floating substructures, and the construction of additional buildings within which to undertake activities related to manufacturing and for additional materials storage.

1.5.24 As with Phase 1, there would remain a need for wet storage of the assembled floating substructures until they are required for integration with the WTG, and also for maintenance dredging and maintenance of port infrastructure.

1.5.25 In relation to future phase(s) of development, it is expected that the following works may be required:

- further dredging in the Tidal Harbour in relation to extension of the quay and the potential creation of deeper berth pockets on the assumption that there could be larger foundations for bigger WTGs which will have a deeper draft;
- additional reclamation to further extend the area of operational port land and quay length;
- works to surface and strengthen the extent of the additional port operational land;
- construction of topside buildings related to component storage, assembly, integration and manufacturing;
- in the event of concrete substructure manufacture, construction of a batching plant and associated stockyard;
- bringing in of additional mobile lift equipment;
- utilities works and works for perimeter fencing and security;
- maintenance and decommissioning of turbines; and

- works to install fenders, moorings and navigation markers.

1.5.26 Whilst construction of a future phase(s) is undertaken, it is expected that Phase 1 operations would continue at the same rates of production, although it is expected there would be a break in operations prior to recommencing under the revised operational layout.

1.5.27 Following the expansion and introduction of assembly and manufacturing, operational activities would continue as described for Phase 1, that is to import, store, commission and deploy integrated platforms for FLOW.

1.6 Consent Application

1.6.1 The Applicant will apply for an order granting Infrastructure Consent for the Project ("the ICO Application") further to the Infrastructure (Wales) Act 2024 ("the 2024 Act") and The Infrastructure Consent (Pre-Application and Application Procedure and Transitional Provisions) (Wales) Regulations 2025 (the "Pre-Application Regulations").

1.6.2 Formal notification of the intention to make the ICO Application will be provided to the Welsh Ministers and other organisations and individuals specified in section 29(1) of the 2024 Act and regulation 3(2) of the Pre-Application Regulations, once the relevant provisions in the 2024 Act and Pre-Application Regulations come into force in December 2025. The precise timing of the notification of the proposed application is to be confirmed by the Applicant including by having regard to the requirement of regulation 14 of the Pre-Application Regulations that the ICO Application be submitted within 18 months of acceptance of the notice of the proposed ICO Application by the Welsh Ministers. Publicity of the proposed ICO application and consultation on it with the public, landowners, statutory and specialist consultees and other stakeholders will be undertaken in accordance with the 2024 Act and the Pre-Application Regulations with the formal ICO Application to be subsequently submitted to Welsh Ministers

1.6.3 The ICO Application will seek planning approval for the works comprised in the Project that are located above the mean low water mark. The draft Infrastructure Consent Order that will form part of the ICO Application will also include provisions deeming a marine licence to have been issued under Part 4 of the Marine and Coastal Access Act 2009 authorising the works comprised in the Project which are located above, in or below the sea below the mean high water mark ("the Welsh marine area"). The terms of that licence will be included within a Schedule to the draft Infrastructure Consent Order.

1.6.4 The Project is an environmental impact assessment ("EIA") development as described in regulation 7 and paragraph 14 of Schedule A1 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (the "Marine Regulations") and (whilst not strictly applicable to the ICO Application) regulation 2 and paragraph 8(b) of Schedule 1 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (the "TCPA Regulations"). It follows that the ICO Application must be accompanied by an Environmental Statement ("**ES**") in respect of the

Project that includes a description of the works included in the Project and a description of the likely significant effects of the Project on the environment. The Applicant is seeking a Scoping Opinion in respect of the Project as set out below to establish the scope of the Applicant's EIA of the Project, which will be described in the ES to be submitted with the ICO Application.

1.6.5 This Scoping Report and formal request for adoption of a Scoping Opinion in respect of the EIA of the Project is being submitted to the Welsh Ministers. It is submitted to them as the appointed decision maker in respect of the ICO Application under the 2024 Act including, as appropriate authority for the determination of the application for the deemed marine licence included in the draft Infrastructure Consent Order forming part of the ICO Application, in respect of works comprised in the Project that are located in the Welsh marine area further to Regulation 13(1) of the Marine Regulations. The Scoping Report has been prepared having regard to the legal requirements for the Report specified in Schedule 4 of the Marine Regulations and regulation 14 of the TCPA Regulations as a matter of good practice as the TCPA Regulations are not strictly applicable to the ICO Application (as it is not an application for planning permission). For the avoidance of doubt the Report is not formally submitted to the Welsh Ministers under the TCPA Regulations.

1.6.6 The EIA of the Project by the Applicant, as reported in the ES that will accompany the ICO application, will be completed in accordance with the Welsh Ministers adopted Scoping Opinion as required by Regulation 13(3) of the Marine Regulations and generally.

1.6.7 Several secondary consents, such as protected species licences and various environmental approvals, will also be required and these will be progressed alongside the main ICO Application.

1.7 Document Purpose

1.7.1 This EIA Scoping Report describes how the Applicant proposes to undertake the EIA and details any assessments carried out to date. An effective scoping process enables the agreement of methodologies for use in the EIA and defines the information required to form the ES. The process includes initial identification of the likely significant effects applicable to the EIA Regulations and provides an opportunity to agree where topics and matters[3] can be scoped out from further assessment. This EIA Scoping Report accompanies a request by ABP, as the Applicant, made for a written Scoping Opinion from the Welsh Ministers as to the extent of issues to be considered in the EIA.

[3] Reference the Planning Inspectorate guidance (PINS, 2020) term matters, with the term 'matters' referring to those parts that are a subdivision of a particular EIA topic, for example an assessment of a particular species is a 'matter' to the topic of biodiversity.

1.7.2 The purpose of this EIA Scoping Report is to:

- Provide a summary of the nature and purpose of proposed Project including its location;
- To provide a plan to identify the location of the activity and other activities required to complete the Project;
- Set out the proposed scope and methods applied for the purpose of carrying out the EIA;
- Set out the anticipated likely significant environmental effects as a result of the Project; and
- Set out the proposed approach to EIA and the structure and content of the ES.

1.7.3 **Chapter 3** – **Legislative and Policy Framework** provides further detail in relation to the legal and policy framework relevant to the Project.

Scoping Report Structure

1.7.4 The structure of the EIA Scoping Report is provided in **Table 1** below.

Table 1: EIA Scoping Report Structure and Content

Section	Purpose
Chapters	
Chapter 1 Introduction	Provides the background to, and the need for, the Project. Introduces the purpose of this EIA Scoping Report and provides an overview of the Project and the approach to consent.
Chapter 2 Description of Development	Provides a description of the surrounding land and its land uses alongside a description of the components of the Project, and an overview of the alternatives considered.
Chapter 3 Legislative and Policy Framework	Provides an overview of the planning legislation and policy framework applicable to the Project.
Chapter 4 Consultation and Engagement	Provides an overview of the approach to Consultation and Engagement in relation to the Project, including mandatory consultation relevant to the consenting approach.
Chapter 5 Approach to Assessment	Presents the general EIA methodology, the proposed content and structure of the ES, and details other assessments to be undertaken.
Chapters 6-26 Environmental Topic Chapters	Set out the technical scope for each of the environmental topics that would be assessed within the EIA process, including any assumptions and limitations as relevant to the topic and stage of Project. The environmental topics covered by the chapters comprises: • Chapter 6 – Air Quality • Chapter 7 – Airborne Noise and Groundborne Vibration • Chapter 8 – Flood Risk • Chapter 9 – Freshwater Environment • Chapter 10 – Terrestrial Historic Environment • Chapter 11 – Land Quality and Hydrogeology • Chapter 12 – Onshore Traffic and Transport • Chapter 13 – Terrestrial and Freshwater Ecology • Chapter 14 – Coastal Processes

Section	Purpose
	• Chapter 15 – Commercial and Recreational Fisheries • Chapter 16 – Marine Historic Environment • Chapter 17 – Marine Ecology • Chapter 18 – Marine Water and Sediment Quality • Chapter 19 – Navigation and Marine Transport • Chapter 20 – Climate Change • Chapter 21 – Landscape, Seascape and Visual Amenity • Chapter 22 – Major Accidents and Natural Disasters • Chapter 23 – Materials and Waste • Chapter 24 – Ornithology • Chapter 25 – Population and Human Health • Chapter 26 – Socio-Economics
Chapter 27 Cumulative and In-Combination Effects	Sets out the scope of the cumulative and in-combination effects assessment.
Appendices	
A Figures	Contains all figures related to the scoping activities and cross-referred to in the scoping chapters to assist the reader.
B Detailed Unexploded Ordnance (UXO) Threat and Risk Assessment with Risk Mitigation Strategy	Contains the Detailed UXO Threat and Risk Assessment, including a Risk Mitigation Strategy, carried out to understand the likely risk of UXO at the Project Site or as a result of the Project proposed works.
C Transboundary Effects Screening Matrix	Contains the screening matrix undertaken to review the scoping of potential transboundary effects relating to the Project.
D Report to Inform a Habitats Regulations Assessment (HRA) Screening	Contains the report to inform the HRA screening assessment.
E Preliminary Water Framework Directive (WFD) Assessment	Sets out the scope of the WFD compliance assessment that will be undertaken to support the application processes.
F Terrestrial Historic Environment Gazetteer	Contains the full list of terrestrial historic assets recorded within the terrestrial historic environment study area.
G Geo-Environmental Baseline Report	Contains the geo-environmental and geotechnical baseline report of the Project Site.
H Ecology Surveys Technical Note – Survey Methodology and Scope	Explains the high-level scope of the Project's ecological surveys.
I Underwater Noise and Vibration	Contains the proposed scope and approach to assessing potential underwater noise and vibration effects on marine receptors as a result of the Project.
J Marine Historic Environment Gazetteer	Contains the full list of marine historic assets recorded within the marine historic environment study area.
K Viewpoint Photography	Presents the viewpoint photography carried out as part of the landscape, seascape and visual amenity scoping process and which will be used to inform the assessment.
L Landscape, Seascape and Visual Amenity – Detailed Methodology	Explains the full assessment methodology proposed for the landscape, seascape and visual impact assessment of the Project.
M Major Accidents and Disasters Screening	Contains the initial hazard and identification assessment carried out as part of the major accidents and disasters screening process.
N Potential Quay Wall Design Options	Explains each of the potential quay wall design options for the Project.

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2 Description of Development

2.1 Introduction

2.1.1 This Chapter provides an overview of the Project location, EIA Scoping Boundary and surrounding context, alongside a description of the anticipated works associated with the delivery, operation and maintenance of the Project.

2.1.2 The Project involves a phased programme of works to develop the existing Port of Port Talbot ('the Port') into an offshore wind energy hub for the Celtic Sea. This will require the phased expansion (including land reclamation) and modification of areas within the Port, as well as the completion of ecological mitigation on areas located outside of the Port estate.

2.1.3 Once operational, the Port would serve as a link in the supply chain for the delivery, operation, and potential maintenance of offshore wind farms (OWFs). The Port would be the location where inbound wind turbine related components are staged and stored, the wind turbine generators (WTG) are pre-assembled.

2.1.4 In the case of floating offshore wind (FLOW), the WTGs are mounted and assembled on top of floating foundations by lifting operations using cranes, and the assembled units of wind turbines and foundations ('platforms') are towed from the Port for installation.

2.1.5 Later phases of the Project may introduce the function to manufacture floating substructures (either from concrete or steel) within the Port. The Project would be completed in phases, with later phases dependent on a number of variables, for example future market demand for floating offshore wind turbines and future leasing rounds.

2.1.6 The Project involves works and operation and maintenance activities within the marine and the terrestrial environments of the Port. The information on the approach to obtaining consent for the Project is provided in **Chapter 3 – Legislative and Policy Framework**.

2.2 The Project Site

2.2.1 The Project Site is principally concerned with land at Port Talbot where the activities to develop an offshore marine renewables hub would be implemented.

2.2.2 There are two further land parcels currently identified for the purpose of implementing ecological compensation that cannot be provided within the Port. This is land at Jersey Marine ('Jersey Marine Site') and land at Kenfig Marshalling Yard ('Kenfig Marshalling Yard Site').

2.2.3 Figure 2.1 in **Appendix A** shows the locations of these two sites within the Project Site boundary.

2.2.4 There may be additional or alternative locations used for the purposes of ecological compensation and enhancement as part of the Project. However, at this stage, the Kenfig Marshalling Yard Site and the Jersey Marine Site have been secured to enable early consideration of compensation requirements alongside emerging proposals for plans forming part of the Project.

Existing Port of Port Talbot

2.2.5 The Port of Port Talbot is a major port on the South Wales seaboard. It is a nationally strategic port asset located to the eastern side of Swansea Bay, on the River Afan estuary. It lies 12km southeast of Swansea and 45km west of Cardiff. **Figure 1.1** in **Chapter 1 – Introduction** shows the location of the Port and surrounding area. The Port lies within the administrative boundary of Neath Port Talbot County Borough Council (NPTC).

2.2.6 Today the Port covers approximately 400ha, which includes 160ha of landside area, having undergone several expansions and improvements over the course of the last two centuries.

2.2.7 The area surrounding the Port is varying in character. The steelworks are to the south and east of the Port. The A4241, the South Wales Railway, Taibach and Margam residential areas and M4 are to the east. Llewellyn's Quay Industrial Estate and Port Talbot Railway Station and Town Centre to the north-east, with the Harbourside Business Park, Talbot Wharf and the Sandfields residential area to the north.

2.2.8 Swansea Bay is located to the west outside the Tidal Harbour, with Aberavon Beach immediately north of the existing Northern Breakwater and Margam Sands south of the Main Breakwater (see **Figure 2.1**).

2.2.9 The land within the Port comprises developed operational land, a perimeter road, areas of undeveloped land, a disused sand quarry and intertidal habitats within the Tidal Harbour.

2.2.10 Within the Port, there are two listed buildings:

- Harbour Watch-Tower (23155) (Grade II), a mid-19th century watch-tower predating the major redevelopment of the docks by the Port Talbot Railway & Docks Company from 1894-8 located to the east of Puckey House; and
- Former Harbour House (23154) (Grade II), a late 19th century building located in land to the northern side of the Impounded Dock (currently used by Port Talbot Sea Cadets as a Training Centre).

2.2.11 Puckey House is an existing port operational building close to the root of the existing Northern Breakwater.

2.2.12 There is an existing jetty within the Tidal Harbour that was previously used for the import of materials primarily to supply the steelworks.

2.2.13 **Chapter 13 - Terrestrial and Freshwater Ecology** and **Chapter - 17 Marine Ecology** provide more detail on existing habitats within the Port.

Figure 2.1: The Port's context

Land Outside the Port

Kenfig Marshalling Yard Site

2.2.14 The boundary of the Kenfig Marshalling Yard Site is provided in Figure 1.4 of **Appendix A**.

2.2.15 The Kenfig Marshalling Yard Site is an area of former rail sidings with fragmented fen habitats, located within the administrative boundary of NPTC. It is accessed via an existing track off the B4283, Water Street, via the Kenfig Industrial Estate. The access passes under the M4 and the existing railway line and into the southern end of the land parcel.

2.2.16 The site is approximately 24ha in area and comprises predominantly undeveloped, vegetated land with areas of hardstanding and disused railway sidings near its eastern boundary and its north-western area. The site is generally flat at approximately 7m to 8m above Ordnance Datum (mAOD) (Mott MacDonald, 2023).

2.2.17 The site was part of a development in the 1950s – 60s for the construction of railway sidings with areas of hardstanding and buildings. During this period the River Kenfig was diverted to its present-day alignment (off-site, along the south and south-western boundary). By the early 1990s the sidings were no longer in use and mostly dismantled, with the extent of remaining sidings, hardstanding and building areas resembling present-day extents (Mott MacDonald, 2023).

2.2.18 The site is bounded on all sides by undeveloped, vegetated land, beyond which, to the east is the South Wales Main Line railway which then runs to

the north of the site, to the south and south-west is the Kenfig Local Nature Reserve (LNR), National Nature Reserve (NNR), Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), to the west is Margam Landfill, to the north-west is Margam Moor SSSI, and to the north-east, beyond the South Wales Main Line is the Port Talbot Railway Line with the Eglwys Nunydd Reservoir SSSI (Mott MacDonald, 2023). **Chapter 13 - Terrestrial and Freshwater Ecology** provides more detail on existing habitats within the Kenfig Marshalling Yard site.

2.2.19 The regional unexploded ordnance (UXO) mapping published by Zetica (**Appendix B**) shows that the site lies within a zone that experiences a low risk of UXO (AECOM , 2022).

2.2.20 The extent and access are indicated in Figure 1.4 in **Appendix A**.

Jersey Marine Site

2.2.21 The boundary of the Jersey Marine Site is shown in Figure 1.3 of **Appendix A**.

2.2.22 The Jersey Marine Site comprises three linked land parcels totalling 24ha, located within the administrative boundary of NPTC. This area of undeveloped land is crossed by the existing M4 and A483 and there is an underpass beneath the A483 providing connectivity between land parcels. A smaller central parcel is located between the M4 and A483, and the western parcel is west of the M4 with the Red Jacket Pill watercourse to the north. The eastern parcel is bordered by the Afon Nedd (River Neath, a main river) to the east and the Red Jacket Pill (ordinary watercourse) to the north. To the north and west of the Jersey Marine Site is the Tennant Canal (AECOM , 2022). Collectively the Jersey Marine Site is located south of the Edwards Works Industrial Estate and north of the Earlswood Golf Club and the existing A48 and Earlswood Fire Training Centre (Figure 1.3 in **Appendix A**).

2.2.23 The land at the Jersey Marine Site is accessed by a secondary road off the B4290. The access route into the site crosses over the canal and the railway line, passes through the Edwards Works industrial site and then into the north of the site via an existing bridge located under the elevated section of M4 crossing over the Red Jacket Pill watercourse. The extent and access are indicated in Figure 1.3 in **Appendix A**.

2.2.24 In the 1880s, land at the Jersey Marine Site was used by the Red Jacket Copper Works with an area of worked ground in the western half of the site and a quarry located in the south-western corner. The copper works were disused by 1899, and the majority of the associated works buildings removed by 1914. A tramway associated with the works was located within site, and a branch of the Tennant Canal ran along the southern boundary of the eastern most land parcel but was removed by the early 1970s. From 1971 onwards, the site has remained largely unchanged (AECOM , 2022). There are two Grade II listed structures associated with this historic activity located within the Jersey Marine site. The first is the River Lock and

attached bridges at Red Jacket Pill, with the second being the weir on east side of Tennant Canal at Red Jacket Pill.

2.2.25 There is an intermediate pressure[4] gas pipeline crossing the western part of the Jersey Marine Site (parallel to the Red Jacket Pill watercourse), and a low pressure[5] gas pipeline located directly north of the site at its closest point, within the Edwards Works industrial estate, this connects the land with the Flogas facility located off-site to the north within the Edward Works Industrial Estate (AECOM , 2022). In addition, there are existing overhead powerlines crossing the Jersey Marine Site from west to north-east, and the eastern part of the site has an above ground water main running from north to south in parallel with the tidal River Neath.

2.2.26 The regional UXO mapping published by Zetica (**Appendix B**) shows that the site lies within a zone that experiences a low risk of UXO (AECOM , 2022).

2.2.27 This site contains the Earlswood Road Cutting and Ferryboat Inn Quarries geological SSSI. The weir on east side of Tennant Canal at Red Jacket Pill is a designated listed building (grade II) (Reference Number 23077).

2.2.28 The Jersey Marine Site is undeveloped with varying habitat types ranging from steep woodland / cliff, unimproved pasture with overgrown field margins. To the east adjacent to the tidal River Neath there are intertidal habitats with mudflat and saltmarsh. Section 13.5 within **Chapter 13 - Terrestrial and Freshwater Ecology** and Section 13.5 **Chapter 17 - Marine Ecology** provides more detail on existing habitats within the Jersey Marine Site. There are patches of buddleia and Japanese knotweed (invasive non-native species, INNS) reported as being present (AECOM , 2022).

2.3 Scoping Boundary

2.3.1 The boundary for the purpose of Environmental Impact Assessment (EIA) Scoping ('the EIA Scoping Boundary') is provided in Figure 2.1 and Figure 2.2 in **Appendix A**. It comprises the following:

- **Land within the Port**: 160ha from within the existing ABP port estate land, including the Tidal Harbour and Impounded Dock;
- **Kenfig Marshalling Yard Site**: approximately 24ha of land, approximately 4.5km south-east of the existing Port; and
- **Jersey Marine Site**: approximately 24ha of land, approximately 5.5km north-west of the existing Port.

2.3.2 This boundary has been defined to assume a maximum anticipated area based on the information available at the time of the scoping report. This is to capture all potential receptors and baseline information.

[4] 2 – 7 bar

[5] 21 – 75 mbar

2.3.3 It is anticipated that the disposal of dredged material that cannot be incorporated into the Project or beneficially reused elsewhere, would need to be undertaken outside the EIA Scoping Boundary within existing designated sites used for licensed marine disposal.

2.3.4 The potential to use disposal site LU130 (Swansea Bay Outer), the extant maintenance dredge disposal site for the Port of Port Talbot will be considered for use. No further specific disposal site(s) have been identified, and this will be kept under review as the Project develops, and further assessment work is undertaken. If an active site for disposal is not suitable and or have insufficient capacity additional sites would be characterised and sought for disposal.

2.3.5 In the event that quality testing indicates any material is not suitable for disposal to designated marine sites, it would have to be disposed of within land based locations. Outcomes of sediment quality testing will be used to understand disposal options.

Terrestrial and Marine Boundaries

2.3.6 The extent of the EIA Scoping Boundary includes an area above and below mean high water springs (MHWS) and, therefore, is subject to different regimes for the purpose of obtaining consent for the Project. These are set out in Section 1.6 in **Chapter 1 - Introduction** and explained in detail in **Chapter 3 - Legislative and Policy Framework.**

2.3.7 Different works within the Project are set out by reference to:

- Landside Works - works undertaken above the mean low water mark (MLWM); and
- Marine Works - works undertaken below Mean High Water Springs (MHWS).

2.3.8 Figure 2.3 in **Appendix A** shows the areas below MHWS which would be consented via a Marine Licence, with the area of the Impounded Dock as a transitional water body also subject to a Marine Licence.

2.4 Offshore Wind Energy Generation General Background

2.4.1 This section provides a general background to offshore wind generation intended to explain different systems, the components of fixed-bottom and floating offshore wind generating infrastructure, and the role of ports in the offshore wind farm supply chain.

Introduction

2.4.2 Offshore wind energy involves generating electricity from wind turbines located at sea.

2.4.3 Offshore wind energy systems can be fixed-bottom turbines which are the most common, or turbines mounted on floating structures.

2.4.4 Fixed-bottom wind energy refers to offshore wind turbines that are anchored directly to the seabed using various types of foundations, such as monopiles (single large-diameter steel tubes), jackets (lattice structures), and gravity-based foundations (heavy concrete structures). These turbines are typically installed in shallow waters of up to about 60m.

2.4.5 FLOW structures are created by using the same type of wind turbines used for fixed-bottom offshore wind, however these are instead mounted on floating foundation structures secured to the seabed with mooring lines and anchors. These structures are suitable for deeper waters compared to fixed-bottom foundations. The technology allows for the expansion of offshore wind farms into areas with stronger and more consistent wind.

Floating Offshore Wind (FLOW)

2.4.6 This section provides a general background to explain FLOW generating infrastructure components. It is these components that ports need to be designed to handle and therefore influence the operational requirements such as the size and load bearing capacity of operational areas.

2.4.7 This section also provides a general explanation of the processes to prepare and deploy the offshore wind generating infrastructure and the associated port functions.

FLOW platform components

2.4.8 **Figure 2.2** shows the main components of a FLOW platform, comprising the WTG and a floating foundation. The WTG comprises the nacelle, blades, tower and electrical system.

2.4.9 Offshore turbine sizes are expected to evolve as technological advancements are made. Currently there are 16MW turbines installed in fixed-bottom systems (Adrijana Buljan, 2024) with larger models announced of up to 25MW in 2024 for commercial use (Lasson, 2024).

2.4.10 As turbine capacity increases as will the size of assembled WTGs. To ensure efficient optimal operation, the wind turbines must remain stable and minimise movement. A floating substructure attached to a turbine provides this stability once the turbines are deployed.

2.4.11 There are different types of floating foundation substructures for the WTG which provide stability once the turbines are deployed. **Figure 2.3** shows the main floating foundation types currently in commercial use.

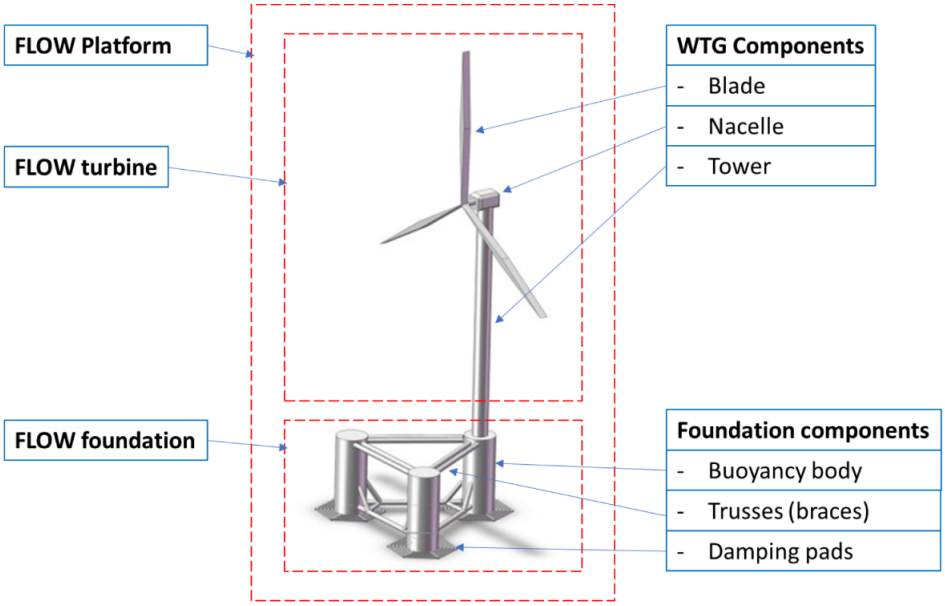
2.4.12 The floating foundation is formed of the following main parts:

- trusses (braces) to connect each of the buoyancy bodies;
- buoyancy bodies; and
- damping pads.

2.4.13 These are large and heavy structures. For example, steel floating substructures for a 15MW or 25MW turbine could weigh 3500 to 7000 tonnes while concrete floating substructures are in the range of 12,000 to 22,000 tonnes. The width of some floaters would be in the region c.120 metres (Orsted, n.d.).

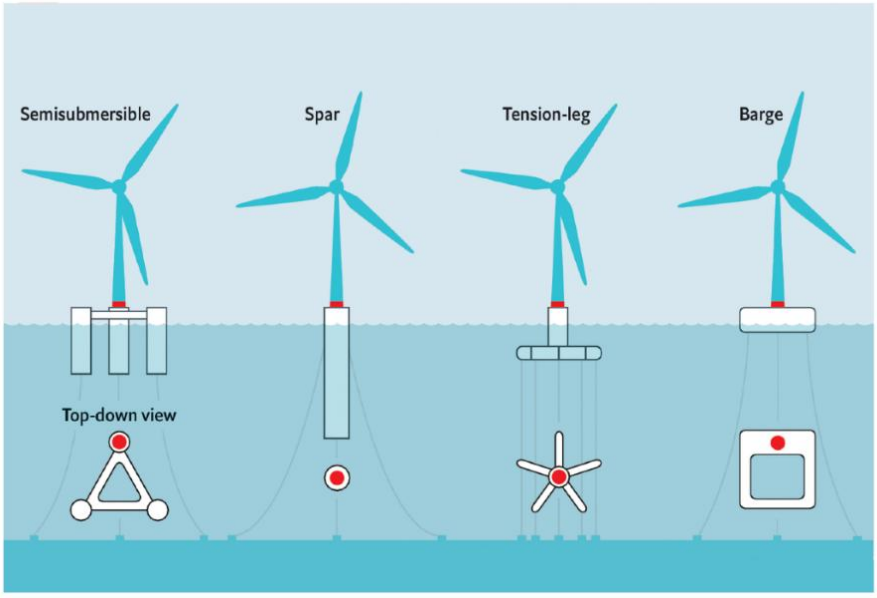
2.4.14 There are associated seabed mooring and anchoring systems also required for FLOW platforms. These maintain the position and also provide stability of floating wind turbines once they have been deployed to the offshore wind farm.

Figure 2.2: Indicative representation of components for a FLOW platform with semi-submersible foundation



Source: RHDHV

Figure 2.3: Main Commercially Available Floating Platform Types



Source: (Barooni, 2023)

Port functions and processes for the FLOW industry

2.4.15 Section 1.4 in **Chapter 1 – Introduction** sets out functions that floating offshore wind ports need to consider. These being:

- provision of sufficient areas for laydown and pre-assembly of turbines;
- sufficient length of quayside with adequate load bearing capacity;
- areas for the storage of floating substructures and assembled turbines before tow-out;
- suitable water depths to accommodate the draft of floating substructures as well as the transport vessels;
- high-capacity cranes to manage the heavy components of floating wind turbines;
- appropriately sized port access channels that are wide and deep enough to allow the movement of large installation vessels and integrated turbine foundations; and
- no air draft restrictions so that the tow-out of assembled turbines is not prevented.

2.4.16 The following sections set out the anticipated operations that may be needed are needed for floating wind farm deployment.

Floating foundation manufacture

2.4.17 The foundations are manufactured within the port, either from raw materials such as sheet steel or concrete, or they are assembled from larger sub-components manufactured elsewhere. This is usually completed on land.

Floated foundation assembly and storage

2.4.18 Once the floating foundation has been assembled it needs to be stored until required. Storage can either be on land if there is sufficient space, or in a sheltered area in port or at sea (wet storage) (or potentially a combination).

Mooring storage

2.4.19 Mooring chains and anchors are stored on a quayside, until required. Mooring chains do not need specialised storage, but can damage quay surfaces, so may require repairs to be done before that quay area can be used for other purposes.

2.4.20 Whether mooring chain storage happens in parallel with wind turbine component lay down depends on the project developer. It is possible to install mooring systems at sea well in advance of turbine deployment.

WTG component laydown

2.4.21 The WTG comprises nacelle, rotors, and a tower (which are usually in 3 to 6 sections) which are imported to the staging port and stored in a lay down area.

2.4.22 The wind turbine staging port requires enough lay down space to store, at any one time, a sufficient quantum of components necessary to achieve the applicable delivery of FLOW capacity.

Wind Turbine Integration (also referred to as integration)

2.4.23 The activity of erecting the components on to a floating foundation substructure is called integration. This is completed at the quayside if there is the ability to launch the completed platform across a quayside into the water. It is however more likely that this is completed with the floating foundation substructure moored alongside a quay. The component parts of the WTG are then lifted from the quayside and assembled on to the foundation substructure.

2.4.24 There needs to be sufficient water depths next to the quay to facilitate this process. To avoid damage to the platform structures the process must be started and completed in suitable weather conditions (particularly low wind and wave) and so it is essential that all components are in close proximity for efficiency of production.

Commissioning

2.4.25 This process is carried out before deployment of the completed platform to its final wind farm site. This involves inspections, assessments and tests of the turbine infrastructure onboard the foundation.

Deployment

2.4.26 This refers to the completed platform structure being collected from the port and taken to the offshore wind farm site to be deployed for use for offshore energy generation. Installation vessels manoeuvre the completed platform out of the port via the access channel.

Fixed-Bottom Wind Energy

2.4.27 Ports supporting fixed-bottom offshore wind projects need to meet some of the same requirements as ports supporting FLOW, they need:

- to be appropriately sized with sufficient storage areas;
- to have quay lengths with a load-bearing capacity able to handle heavy components sized to accommodate large vessels; and
- water depths to accommodate the draft of installation vessels.

2.4.28 This is to allow for the import, storage, assembly, and collection of fixed-bottom WTG components by specialist installation vessels.

2.4.29 Section 2.9 explains the Project's assumptions in relation to fixed-bottom WTGs.

2.5 Project Description

Overview

2.5.1 The Project would entail the redevelopment of the Port of Port Talbot to support the development of a commercial scale OSW energy sector. This would be achieved through a series of extensions and modifications to the existing Port, with an initial phase for the integration and commissioning with component import and storage which may also require foundation assembly and possible storage of limited FLOW turbines ready for tow-out and deployment.

2.5.2 There may be a later series of works associated with further expansion phase to allow increased throughput and potentially include the ability to manufacture floating foundations at the port.

2.5.3 A description of the consents that will be applied for and how their requirements are addressed by this Scoping Report is described in **Chapter 3 – Legislative and Policy Framework**.

The Project

2.5.4 As a minimum, the Project will require the construction of new landside and marine infrastructure to deliver the modifications required for an OSW port. These modifications will be achieved through progressive build out in phases.

2.5.5 Phase 1 recognises the leasing ambitions of The Crown Estate for the Celtic Sea, UK Government policies in relation to offshore renewable energy, as well developer need and the leasing round requirements. For Leasing Round 5[6]. Phase 1 must be capable of integration and commissioning activities for FLOW WTGs. Currently the design has been progressed so that this phase can provide facilities for integration and commissioning of platforms and the assembly of floating foundations.

2.5.6 Future phase(s) will comprise of the construction of an expanded OSW facility to enable floating foundation assembly and / or manufacturing of the FLOW foundations at the Port in addition to integration and commissioning functions. The port modifications at future phases will be designed to accommodate either steel or concrete types of semi-submersible floating substructure to provide future flexibility to respond to developer requirements.

[6] Leasing Round 5 is an initiative by The Crown Estate to support the development of floating offshore wind farms in the Celtic Sea, off the coasts of South Wales and South West England. This round aims to deliver up to 4.5GW of renewable energy capacity (The Crown Estate, 2023).

2.5.7 The design will also provide flexibility to support fixed-bottom wind logistical support operations.

2.5.8 The operations to support fixed-bottom offshore projects are similar to the FLOW import and integration operations since WTG components are imported and stored and then staged for transfer to installation vessels. This means there is a requirement for a quay structure that can withstand heavy loads as well as space for storage of components. There would be no requirement for a deeper pocket associated with the launch of floating substructures, however, there may be a need for the placement of stone blankets in relation to the installation vessel load capacity.

2.5.9 A summary of the features of Phase 1 and future phases based on current design information for FLOW is presented in **Table 2**.

Table 2: Design Features of Phase 1 and later Phases

Design Feature	Phase 1	Future Phases
Quay length for import berth(s)	✓	✓
Quay length for commissioning berth(s)	✓	✓
Operational land for storage of turbine components	✓	✓
Operational land for storage of steel foundation components	✓	✓
Quayside land for operations to integrate turbines	✓	✓
Quayside to integrate the turbine on to the floating structure	✓	✓
Quayside launching area for foundation structures	✓	✓
Operational land for the fabrication of steel floating structures	×	✓
Operational land for the assembly of steel floating structures	✓	✓
Operational land for the manufacture of concrete floating structures	×	✓
Batching plant	✓ (if required in port construction)	✓ (if manufacture concrete floating substructures)
Precast yard and foundation materials storage	×	✓ (if manufacture steel floating substructures)
High mast lighting (up to 60m height)	✓	✓
Dredging of berth pockets alongside the new quay extents	✓	✓
Dredging within the Tidal Harbour and existing access channel	✓	✓
Painting building for foundations	×	✓
Storage building(s)	✓	✓
Office building(s)	✓	✓
Outfitting building(s) and other smaller workshop(s)	✓	✓

**Floating platforms may be manufactured in steel or concrete. This will be subject to the FLOW developers.*

Design Capacity

2.5.10 The FLOW industry and associated technology is rapidly advancing. This requires the planning of future port infrastructure to account for the types of structures that would become commercially available in the future. This is in order that the design is adequately sized to allow for the required operational areas.

2.5.11 This means that the design development needs to consider the future size and mass of the WTGs and the floating substructures that they would be connected to.

2.5.12 The Project has been developed to consider a maximum of 20MW WTGs for Phase 1; however, Project infrastructure has been future proofed to accommodate larger 25MW WTGs associated with future development phases.

2.5.13 Based on current market analysis, the dimensions of the main components for a 20MW WTG that have been assumed are:

- rotor blade of 137m length;
- nacelle of 12m height;
- tower of 155m height; and
- steel floating foundation 43m height.

2.5.14 Based on the above component sizes, the water draft for the integrated 20MW WTG floating substructure is 14m. This would mean on a highest tide in the Port of 4.5mAOD that the completed integrated turbine height to the tip of the blade would be at 337.5mAOD when moored in the Tidal Harbour or alongside the Commissioning Berth.

2.5.15 The Project has been developed to consider the semi-submersible type of floating substructure as a reference foundation. This typically comprises 3-5 vertical cylinders connected in a triangular shape and linked by connecting bracings / submerged pontoons. The WTG is attached to one of the columns and is stabilised through water and gravity stabilisation.

2.5.16 The current design would mean the production of up to approximately 26 integrated turbines per year for Phase 1 for WTG of up to 20MW. The maximum extent of operational landside area required is estimated to be up to 57ha.

2.5.17 For future phases, the design has considered the potential for larger WTGs of a current theoretical 25MW capacity. This is for the purpose of understanding the additional space requirements that could be needed by future phases of development. The dimensions of the main components for a 25MW WTG that have been assumed are:

- rotor blade of 160m length;
- nacelle of 15m height;
- tower of up to 180m height; and
- steel floating foundation of 50m height.

2.5.18 Currently the design for future phases is estimating an increase to up to 100 platforms per year.

Embedded Mitigation and Enhancement

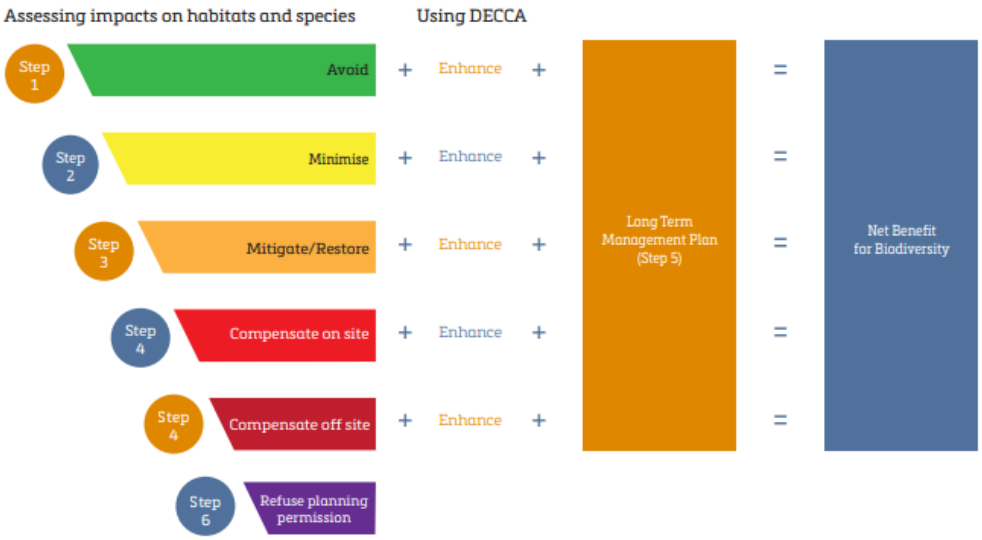
2.5.19 The Project proposals are being developed taking account of transport, engineering, land, economic, cost, environmental, sustainability and community considerations. The development of the Project design will continue to be an iterative process undertaken as part of an integrated team of designers, master planners, and environmental specialists to adhere to the principles of the mitigation hierarchy (IEMA, 2024) (see Section 5.9 in **Chapter 5 – Approach to Assessment**).

2.5.20 The design is being developed to follow the step-wise approach and whilst considerable effort is being made to avoid and minimise habitat losses and identify opportunities for onsite enhancements, it is recognised that the amount of operational space needed will mean the loss of habitat is unavoidable. For this reason, the Applicant has proactively secured additional land for the purpose of compensation.

2.5.21 The process of applying the step-wise approach set out within **Figure 2.4** will be central to an Overarching Biodiversity Strategy developed for the entirety of the Port estate. The step-wise approach is set out in Planning Policy Wales (PPW) and is designed to assess and manage impacts on habitats and species, to ensure biodiversity and ecosystem resilience. The Diversity, Extent, Condition, Connectivity, and Aspects (DECCA) framework is a tool developed by Natural Resources Wales (NRW) to evaluate ecosystem resilience. It evaluates ecosystem resilience through DECCA of ecosystem resilience (CIEEM, 2022). The step-wise approach uses these evaluations to guide planning decisions, ensuring developments avoid, minimize, mitigate, or compensate for impacts on biodiversity.

2.5.22 Net Benefit for Biodiversity (NBB) concept aims to ensure that development results in a net positive impact on biodiversity. The DECCA Framework helps guide the implementation of NBB by providing a structured approach to assessing and enhancing ecosystem resilience (Welsh Government, 2024).

Figure 2.4: Step-Wise approach summary



Source: Figure 12 PPW Edition 12 (Welsh Government, 2024)

Design Elements of Phase 1

2.5.23 The potential features of the first stage of development involve both marine and landside works.

2.5.24 The marine works include:

- construction of new quay wall and land reclamation south of the existing iron ore jetty and dredging within the Tidal Harbour to create new areas of quayside and to ensure that water depths in the Tidal Harbour are suitable for port operations. This would provide:
  - Integration and import berths in the order of 310m and 320m in length respectively;
  - A commissioning berth in the order of 300m, in length;
  - A launch facility in the order of 250m in length;
  - Placement of stone blankets alongside the quay;
- additional operational land for turbine operational quayside. The height of the quay wall takes into account the dredge pocket requirements for the import and integration berths and the tidal range so that the height will be up to +8mAOD;
- a new pontoon berth for crew transfer activities;
- dredging to improve navigable access to the Port by larger vessels and facilitate the potential for temporary storage to support integration and commissioning activities, includes an expanded section of the navigation channel to provide sufficient widths to allow the tow-out of completed platforms;

- the designation of a wet storage area within the SHA for the mooring of floating platforms. The final definition of the need, size, and location of this area remains subject to agreement between the Developer and ABP.
- a new marine offloading facility (‘MOLF’) within the Impounded Dock used for the transfer of materials and equipment from ship to shore. This would be subject to further study and design. It may instead be necessary to construct a MOLF elsewhere in the Port if the Impounded Dock is unsuitable;
- changes to navigation marks within the Tidal Harbour;
- construction of separate platform maintenance mooring point within the Tidal Harbour (this could be multi use) – potentially a piled structure;
- new intertidal habitats and/or enhancements within the limits of the Port and off-site locations within land owned by ABP (including but not limited to the Jersey Marine Site and the Kenfig Marshalling Yard Site);
- main breakwater, Lee and Southern breakwater crest height improvements and armouring works.
- works such as (cathodic protection system, pile repairs, remediation to the deck structure, replacement/repair of safety equipment, replacement/repair fenders and moorings) to ensure future safety of the existing iron ore jetty (the exact nature of the works will be dependent on the findings of studies to understand the condition of the structure); and
- There are different options for the way that quay walls can be constructed. There are a number of factors that influence how the quay wall would be constructed including ground conditions, and market skills and availability, programme, to name a few. The current quay wall types under consideration are listed below and summarised in **Appendix N – Potential Quay Wall Design Options**. It should be noted that the final quay wall design could be one or a combination of different design options. The quay wall design options currently under consideration consist of:
  - Combi-walls;
  - Secant pile walls;
  - Blockwork walls;
  - Suspended Deck / Slab Structures on Piles;
  - Cofferdam Walls;
  - Monolith Walls;
  - Counterfort Walls;
  - Caisson Walls;
  - Diaphragm Walls;
  - Contiguous Walls; and
  - Cellular Cofferdam.

2.5.25 The landside works (including work to the topside of newly created quay areas) are:

- new open operational area for the storage of turbine components prior to assembly;
- new open operational area for the storage of floating substructure components prior to assembly;
- new open area for the assembly of floating foundations prior to launch;
- new heavy lift area(s) within the quay for high-capacity cranes to support integration, foundation launch, and component import activities;
- mobilisation of operational equipment (such as mobile cranes/heavy lift equipment, and SPMTs);
- construction of section of road from access road to provide access to the existing wastewater treatment facility;
- new main incoming electricity substation, and supply to downstream substations, and power distribution within the Port facility;
- other utility connections and diversions including drainage;
- construction of a port operations building of approximately 120m long x 60m wide x 20m high;
- An enclosed building for the assembly / painting activities of approximately 200m long x 120m wide x 30m high for the foundations;;
- a building for offices and welfare facilities of approximately160m long x 60m wide x 20m high (it is expected that this would be a prefabricated structure allowing deconstruction and relocation elsewhere within the Port);
- A workshop for mechanical, electrical and EC&I fabrication, fitting and testing approximately 120m long x 60m wide x 20m high
- Up to 3 specialist supply chain, maintenance and/or warehousing buildings of approximately 120m long x 60m wide x 20m high;
- Up to 10 tracked type cranes ranging from 60 tons to 1200 tons capacity and 50m to 300m high, required for lifting, moving and assembling components around the Port;
- Lighting ranging from standard street lighting columns up to tower lighting scale around 60m high to all storage areas, working areas and access routes;
- car parking to accommodate the workforce and port operations staff;
- perimeter fencing, security structures;
- new terrestrial habitat areas within the Kenfig Marshalling Yard Site area and the Jersey Marine Site; and
- onsite terrestrial ecological mitigation and or enhancement features.

2.5.26 An indicative layout for Phase 1 is provided in Figure 2.4 within **Appendix A.**

Design Elements of Future Phases

2.5.27 Depending on market conditions, future phases of expansion would be completed to provide additional operational land to provide the additional function of manufacturing of floating substructures. These could be either steel or concrete.

2.5.28 Future phases would be primarily to the north with potentially some to the south of the existing Iron Ore Jetty and could involve similar works to the Phase 1 which may require additional areas of reclamation in the Tidal Harbour and additional extents of landside works. The extent of additional land reclamation works would be dependent on FLOW developer requirements and the availability of additional land within the Port.

2.5.29 Depending on the scale of development required for further phases, the Project may include the following:

- additional lengths of new quay wall located to the north of the existing iron ore jetty (these could be up to 1200m) to provide a combination of import berth, launch, and integration facilities;
- land reclamation in the northern extent of the Tidal Harbour a maximum extent of which is shown on Figure 1.2 in **Appendix A;**
- incorporation of more land from within the Port estate (the balance depends on the extent of land reclamation);
- addition of further mobile heavy lift cranes of up to 250m height;
- potentially repurposing launching facility from Phase 1 to provide an import berth (the eventual arrangement and reuse depends on ongoing design);
- Further high mast lighting of up to 60m height;
- manufacturing of steel foundation substructures, which would require the following areas and enclosed manufacturing buildings with overhead gantry crane facilities throughout:
  - office(s) of approximately 200m long x 60m wide x20m high;
  - Manufacturing buildings with their approximate sizes are envisaged to include:
  - Plate Cutting, Outfitting & Steel Forming 275m long x 100m wide x 36m high;
  - Profile cutting 120m long x 40m wide x 35m high;
  - Flat panel assembly 200m long x 180m wide x 45m high;
  - Sub-assembly 150m long x 180m wide x 45m high;
  - Half Block and Top Block assembly 350m long x 100m wide x 60m high;
  - Mid-Block and Top Block assembly 450m long x 160m wide x 80m high;
  - Damping Box assembly 280m long x 160m wide x 50m high;
  - Grand Panel assembly 280m long x 80m wide x 50m high;
  - Brace assembly 250m long x 80m wide x 40m high;

- Paint Shop1 300m long x 80m wide x 80m high;
- Paint Shop2 200m long x 120m wide x 40m high;
- Rigging, Electrical and M&E 140m long x 60m wide x 30m high;
- Stores 160m long x 50m wide x 30m high;
- Pipe Shop 80m long x 30m wide x 15m high;
- Maintenance Shop 100m long x 30m wide x 15m high;
- Grand Assembly (outdoor) 600m long x 100m wide (components 50m high);
- Grand Component Assembly (outdoor) 600m long x 100m wide (components 50m high);
- Foundation Assembly Area (outdoor) 600m long x 400m wide (components 50m high);
- Launch Trackway (outdoor) 600m long x 150m wide (components 50m high); and
- Steel Stockyard (outdoor) 400m long x 100m wide (components 50m high).

- manufacturing of concrete foundation substructures would require the following areas and buildings:
  - office(s) of approximately 200m long x 60m wide x 20m high;
  - batching plant with a capacity of c.250 m^3/hr;
  - pre-cast yard for concrete foundations approximately 600m long x 600m wide (possibly covered to provide overhead gantry style craneage at 80m high);
  - Paint Shop 300m long x 80m wide x 70m high;
  - Stores 160m long x 50m wide x 30m high;
  - Pipe Shop 80m long x 30m wide x 15m high;
  - Maintenance Shop 100m long x 30m wide x 15m high;
  - A reinforcement prefabrication facility 400m long x 150m wide;
  - Steel Stockyard 300m long x 150m wide;
  - 24 Fixed concrete pumps to 70m height;
  - Plant Maintenance yard 250m long x 100m wide;
  - Formwork prefabrication and maintenance building 300m long x 60m wide;
  - Rigging, Electrical and M&E 140m long x 60m wide x 30m high;
  - Launch Trackway (outdoor) 600m long x 150m wide (components 50m high); and
  - possible conveyor for aggregate/cement import.
- on-site and off-site habitat mitigation and compensation and or enhancement features (including marine habitat enhancements). The extent to which and types (terrestrial and or marine) are dependant on the extents of land reclamation and existing landside areas incorporated into Phase 2; and

- utilities, lighting, fencing and habitat mitigation and compensation features.

2.5.30 An indicative layout for future phases is provided in Figure 1.2 within **Appendix A.** An indicative extent of dredging associated with all phases is provided in Figure 2.5 within **Appendix A.**

2.6 Indicative Programme

2.6.1 Collectively construction works would be split into activities completed by ABP as the 'Landlord' and works completed by operators termed 'Developers'. Landlord works consist of port infrastructure modifications readying the port to support FLOW operations, thereafter the Developer would complete buildings and finishing works suited to their individual approach to operations.

2.6.2 The timing of construction activities and phasing to prepare the Port will be linked to delivery timescales based on The Crown Estate Leasing requirements.

2.6.3 Furthermore, the programme for future port development is driven by requirements of the FLOW developers, The Crown Estate, and the UK and Welsh Governments requirements for the Celtic Sea FLOW project development areas.

2.6.4 There would be an operational period between the first and later phase of construction and potentially operations would continue whilst the landlord commences a later stage of construction meaning some overlap in these activities. As design and market engagement continues a more defined approach to delivery will be identified and presented within the Environmental Statement (ES).

2.7 Construction Approach

Construction of Phase 1

2.7.1 This Section provides information on how the Phase 1 of the Project is anticipated to be constructed. It is set out by Marine Works and Landside Works.

Marine Works

2.7.2 The marine works would include dredging and reclamation of land behind new quay walls within the Tidal Harbour to the south of the existing Iron Ore Jetty.

2.7.3 Reclamation would be through the placement of suitable site-won or imported material (likely sourced from existing licensed offshore borrow sites). Associated working quay wall for the berthing and mooring will also be constructed, alongside ground improvements to reclaimed areas to ensure adequate loading capacity for Project operations. The method for

the construction of the quayside is dependent on the design that is implemented (see paragraph 2.5.24 for the potential types).

2.7.4 Dredging would be required for the Project within the existing Tidal Harbour; however, the dredge methods that could be used are not yet defined. Depending on the ground conditions and the design of the quay wall, and the approach to reclamation there could be several dredging methods used. These could include use of trailing suction hopper dredging (TSHD), cutter suction dredging (CSD), and mechanical dredging involving stationary grabbers, such as clamshell dredgers or backhoes, mounted on a barge to scoop up softer materials.

2.7.5 Based on the current level of design up to 1.7 million cubic metres (MCM) of material may need to be excavated for Phase 1. The majority of the dredged material is likely to be silt and sand, with some firmer material. The dredged material would, where appropriate, be reused within the Project, surplus would require disposal to licenced disposal sites (see paragraph 2.3.34).

2.7.6 A wet storage area would be designated within the SHA for the mooring of floating platforms during this phase and subsequent phases. In the short term, floating platforms may be imported and moored ready for use. In later phases, platforms may be manufactured, launched, and retained on site in preparation for integration and commissioning.

2.7.7 Piling would be required within the Tidal Harbour to support the marine construction works and may also be required to a limited extent in the Afon Afan and Impounded Dock. This may include some impact piling; the likely methods will be confirmed through further design.

2.7.8 There may be some dredging in the Afon Afan, north of the existing Southern Breakwater to facilitate construction and the provision of a small pontoon to operate as a crew transfer berth. This would require piling works to install, the likely methods will be confirmed through further design but could include vibro-piling or impact piling or a combination thereof.

2.7.9 The construction of a MOLF is dependent on the eventual location and in the case of the Impounded Dock location would require remediation of the existing docksides and potential strengthening of the quayside. Alternative locations could involve the construction of additional temporary structures such as a suspended deck on piled foundation (either steel or pre-cast concrete) with a deck capable of sustaining the imported material and equipment/plant loads.

2.7.10 It is considered likely that the existing lock gate to the Impounded Dock will continue to operate in line with current procedures (that being at slack water), although it may be used more frequently.

2.7.11 The potential sequence of the first phase of marine works including reclamation in the Tidal Harbour is:

- general enabling works, including removal of seabed debris and obstacles;
- new pontoon berth installation;
- enabling works for the construction of the quay wall, including the import of fill material and the construction of a temporary supply berth;
- construction of the main quay wall (may include piling, diaphragm walls, or the installation of concrete caissons) and return walls;
- construction of protection revetments and upgrades to main breakwater;
- dredging (precedes quay wall construction if a concrete caissons option is selected);
- reclamation behind the newly constructed quay walls and ground improvement. Installation of buried services (power, drainage, communications);
- construction of bored pile relieving platforms in the reclaimed land behind the quay wall, in selected locations subjected to very heavy loads;
- construction of a permanent mooring dolphin (piled or gravity structure);
- construction of the commissioning berth (may include piled and/or gravity structures, and pre-assembled structural steelwork);
- installation of marine habitat enhancement features; and
- installation of new navigation marks, quayside moorings and fenders.

Landside Works

2.7.12 The Project will make provision for various temporary construction compounds which will be located within the EIA Scoping Boundary during the construction period to facilitate the delivery of the Project.

2.7.13 Landside works will include service diversions, and the provision of new utility infrastructure will be required throughout the Port. This includes a major sewer diversion to realign two existing pipes of 700mm diameter so that they avoid conflicting with areas required for heavy loads which could damage the pipes should they remain in their current alignment. The routing would be developed and delivered by the asset owner.

2.7.14 It is expected that there would be upgrades to the existing vehicular access points and road infrastructure within the Port as part of the Project.

2.7.15 All necessary remediation activities will be undertaken to ensure the land is suitable for commercial use. Completion of remediation works which could be as simple as removing existing buildings or removing over and underground structures and or soils. The extent of remediation will be determined through ground investigations this would include an evaluation of any material to be removed and appropriately disposed of off-site.

2.7.16 The majority of the large landside area will be reprofiled and will require extensive strengthening works (of which there are several methods such as dynamic compaction, pre-loading, and vibro-compaction). These works will enable the formation of a new levelled expanse of land with sufficient load bearing capacity to accommodate transportation of heavy foundation and WTG components, storage of components, assembly of substructures, and transportation of complete floating substructures to the launch site.

2.7.17 The potential sequence of the landside works is:

- mobilisation works including pre-construction environmental mitigation works, compound and welfare area set up, fencing and security, access route demarcation, temporary utility connections;
- vegetation clearance (including Japanese Knotweed removal);
- remediation of any contaminated land;
- earthworks and levelling;
- ground improvements and strengthening (such as deep and surface compaction methods);
- permanent utilities and drainage works;
- construction of security kiosks, offices and stores;
- construction of hardstanding (predominantly compacted granular material) and parking areas;
- landscaping and surfacing (including of newly created quayside from reclamation);
- demarcation of operational areas including access / circulation roads and turning areas; and
- demobilisation of any temporary structures and completion of any habitat reinstatement activities.

Expected working patterns

2.7.18 For marine works some activities, such as dredging operations or time critical concrete works, these may be carried out 24 hours per day, seven days per week.

2.7.19 Marine works such as piling activities would be expected to be limited to a range of factors such as tidal state. These are expected to occur all days of the week.

2.7.20 For landside activities (including off-site mitigation works) the typical construction working hours are expected to be 07:00 - 19:00 Monday to Friday, 07:00 – 13:00 on Saturdays and no working on Sundays or Public Holidays.

2.7.21 Longer working hours may be proposed in the summer months in order to maximise the works which can be undertake in better weather conditions or longer periods of daylight.

2.7.22 There would be exceptions to these work patterns in relation to time critical works and or safety critical such as:

- landside activities which support marine works;
- major concrete pours;
- abnormal load delivery including those escorted by the Police; and
- contract lifts, such as the lifting of pieces of equipment by crane.

2.7.23 For some marine works activities, such as dredging operations or time critical concrete works, these may be carried out 24 hours per day, seven days per week.

2.7.24 Other marine works such as piling activities would be expected to be limited to a range of factors such as tidal state, and licensing conditions. These are expected to occur all days of the week with the exception of Sundays and Public Holidays.

Off-site compensation and enhancement

2.7.25 Within the off-site locations at the Kenfig Marshalling Yard Site and the Jersey Marine Site, it is expected that would be habitat creation, improvement and enhancement works which could require selected vegetation removal, planting, seasonal pond creation, installation of enhancement features as well as any fencing/boundary treatments.

Construction of Future Phases

2.7.26 This Section provides information on how an optional future phase is anticipated to be constructed. It is set out by Marine Works and Landside Works.

Marine Works

2.7.27 The marine works would include dredging and reclamation of land behind new quay walls within the Tidal Harbour to the north of the existing Iron Ore Jetty.

2.7.28 The extent of dredging and excavation volume is dependent on the extent of land reclamation required which relates to the extent of land that can be made available for use from the landside of the Port.

2.7.29 As with Phase 1, the dredging methods are not yet known with the potential methods the same as those indicated in paragraph 2.7.5. The dredged material would, where appropriate, be reused and the surplus would require disposal to licensed disposal sites (see paragraph 2.3.4).

2.7.30 Similar to Phase 1 this phase would require the import and placement of suitable material from existing licensed offshore aggregate sites in relation to reclamation of land.

2.7.31 The potential marine works sequence for later phases is:

- general enabling works, including removal of seabed debris and obstacles;
- enabling works for the construction of a further section of quay wall, including the import of fill material;
- construction of the quay wall (may include piling, diaphragm walls, or the installation of concrete caissons) and return walls;
- dredging (precedes quay wall construction if a concrete caissons option is selected);
- designated wet storage area within the SHA potential movement and storage of assembled floating substructure until they are required for integration with the turbine.
- reclamation behind the newly constructed quay walls and ground improvement;
- installation of buried services (power, drainage, communications);
- construction of bored pile relieving platforms in the reclaimed land behind the quay wall, in selected locations subjected to very heavy loads;
- depending on the eventual design there could be works to repurpose the launching berth from the earlier phase;
- construction of an additional commissioning berth (may include piled and/or gravity structures, and pre-assembled structural steelwork);
- installation of marine habitat enhancement features; and
- installation of new navigation marks, quayside moorings and fenders.

Landside Works

2.7.32 There would be further landside works to clear, reprofile and as with Phase 1 complete extensive strengthening works (see paragraph 2.7.15). These works will expand the levelled expanse of land with sufficient load bearing capacity to accommodate operational areas required for manufacturing and additional storage.

2.7.33 It is assumed that the later phase would also include the demolition of Puckey House and removal of waste material from the Port. Where possible inert material would be reused within the construction of the future later phase.

2.7.34 For the fabrication of steel foundations this would also require the construction of additional buildings to house steel fabrication, surface blasting and paint spraying building[7], and for concrete this would include

[7] These towers and substructures face extreme environmental conditions requiring durable and stable protective coating. To apply the protective coasting there are surface preparation activities such as sand blasting to provide a clean surface followed by the application of protective surface coatings.

concrete batching plants and associated infrastructure as well as a paint spraying building where protective surface coatings are applied.

2.7.35 Once further marine works are completed there would be a need to reconfigure port storage and assembly areas for components. It is also expected that there would be a need to alter the position of internal access routes and manoeuvring zones on the quayside. There would also be further utilities works (lighting, drainage, power) as well as landscaping and surfacing works.

Expected working patterns

2.7.36 The expected working patterns are assumed to be the same as for Phase 1.

Off-site Supporting Works

2.7.37 There may be off-site works in relation to utilities connections to the Port or highways signage works.

2.7.38 New or modified utilities connections outside of the Port would not form part of the application and would be developed and delivered by the relevant undertaker using their permitted development powers.

2.7.39 Works to highways outside of the Port would be brought forward through the use of other regulatory mechanisms.

Demolition and Deconstruction

2.7.40 There may be the need to remove structures and other buildings and these will be confirmed through ongoing surveys and subsequent design.

2.7.41 To reconfigure activities and to facilitate the marine works at later phases of construction of the Project there may be a need for the deconstruction of some structures and or the relocation of some equipment, such as cranes from Phase 1.

2.8 Operation and Maintenance

Phase 1 Operations

2.8.1 The actual sequence of operations in relation to the preparation of offshore turbines depends on the FLOW developer requirements and business models.

2.8.2 The following represents operations that may be expected for Phase 1:

- delivery of turbine components to the Port by sea and unloading at the quayside at the import berth, movement of these to storage areas within the Port;
- delivery of foundation substructure components to the Port by sea and unloading at the quayside at the import berth, movement of these to storage areas within the Port;

- delivery of other supply chain materials (such office supplies, welding plant / rods, oils/ lubricants, mechanical and electrical equipment) to the Port by road;
- assembly of steel floating foundations through assembly lines (steel foundations typically require welding and painting where components are connected);
- movement of the assembled steel substructure from assembly lines to launch area followed by movement by sea to wet storage;
- progressive integration of WTGs onto the floating foundations at the quay side is anticipated to be over a period of six months over summer (this could be longer depending on factors such as weather-related downtime or developer desire to integrate over an extended period) involving:
  - preparing the WTG through vertical assembly of the tower, nacelle and rotors at the quayside;
  - mounting of the WTG onto the foundation substructure by use of cranes or other specialist lift equipment whilst it is moored alongside the quay to form the completed platform;
  - moving the platform from the integration berth to the commissioning berth for mechanical and electrical testing and small works to ensure the WTG is functioning correctly. Whilst being commissioned the tower and blades will go through phases of rotating and being locked in place; and
  - moving the completed integrated turbine out of the Tidal Harbour for direct deployment;
- on the landside there would be operation and servicing of administrative/office facilities; and
- daily landside travel to/from FLOW port for the workforce for the Project.

2.8.3 It is currently expected that once fully operational, there will be up to:

- one platform in the Tidal Harbour in the process of being assembled and integrated onto the floating substructure; and
- two completed platforms at the Commissioning Berth being tested.

2.8.4 Potentially there would be up to two complete platforms temporarily held in the Tidal Harbour for a short duration (days) waiting to be collected by installation vessels and towed out for deployment.

2.8.5 With the exception of vessel traffic control, Port operations cease once the integrated turbine has been collected and towed out of the Port for deployment.

Future Phases

2.8.6 Operations may be similar to Phase 1 but would change to include further manufacturing activities which could include the production of floating substructures either from concrete or steel.

2.8.7 The production of floating foundation substructures would include storage of the completed foundations outside of the tidal harbour in a wet storage area. From here they would be returned to the Port when required for integration with a WTG and commissioning. There would also be instances where the foundation is launched over the quayside for direct integration with WTG followed by commissioning.

2.8.8 The Port would function all year round, with the WTG integration, commissioning and deployment likely to occur over six months around summer, but this could occur beyond this window.

Working hours

2.8.9 Once operational the Project would operate on a continuous basis seven days per week, with the level of activity on different elements of the Project changing across the year to enable the Project to coincide with expected suitable weather patterns for the platform deployment. This does not mean that all activities would be continuous on a 24/7, 365 day-a-year basis, however due to selective time/tide and/or safety critical issues, there must be the ability to operate at any time.

Port Maintenance

2.8.10 The type and frequency of maintenance activities within the Port will be defined as the design evolves however it is expected that there would be ongoing maintenance dredging within the Tidal Harbour to maintain appropriate depths.

2.8.11 Intermittent maintenance and monitoring of any created habitats and enhancements within the Port area as part of the overall Project extent.

Off Port Areas

2.8.12 It is expected that the off-Port areas of the Project at the Kenfig Marshalling Yard Site and the Jersey Marine Site would be accessible to the public only by prior appointment for the purpose of accompanied visits typically for educational purposes.

2.8.13 These locations will require intermittent management, such as grass cutting, scrub management, and fence maintenance, as well as ecological monitoring of the created and enhanced habitats within the Kenfig Marshalling Yard Site and the Jersey Marine Site. These works would be set out within agreed management and monitoring plans, as these plans would be adaptive the type and frequency of the management and monitoring activities are expected to vary according to plan updates.

Future Port

2.8.14 The Port will remain as an integral part of Wales's port infrastructure; it has been assumed that the assets developed under the Project will not be decommissioned but that it may be subject to different industry uses in the

future. The port owner and operator (ABP) will maintain their port at Port Talbot in perpetuity.

2.8.15 The assessment of decommissioning effects of the Project are therefore scoped out of the EIA.

2.9 Assumptions and Limitations

2.9.1 The Project is still in development and there are unknowns which will be resolved through design evolution. Where design/construction information is needed for scoping and unknowns have been identified, assumptions have been made to form the basis of the scoping assessment. These assumptions will be revisited throughout the EIA process.

2.9.2 An assessment year for peak construction will be determined once further work has been completed for the staging/phasing of these activities.

2.9.3 There would be landside activities to reprofile and strengthen operational areas. The strengthening is achieved through various methods which are not currently known. These could be, for example, through dynamic compaction, pre-loading, vibro-compaction and engineered platforms including piling. The likely methods will be reported in the ES once design is progressed and there is a greater understanding of existing ground conditions as informed by ongoing surveys.

2.9.4 As part of the development works, a major sewer diversion to realign two existing pipes of 700mm diameter is required so that they avoid conflicting with areas required for heavy loads. The routing of the realignment is not currently known and would be developed in consultation with the asset owner.

2.9.5 No drainage information has been provided to inform the baseline for this EIA Scoping exercise. Given the industrial nature of the existing Port and adjacent steelworks, it is assumed there is a road drainage network within the study area.

2.9.6 Where technically feasible, it is assumed that dredge material will be used land reclamation activities. Alternatively, if dredge material is not suitable then fill material would be obtained from existing aggregate sites.

2.9.7 Activities to transfer the completed platforms to the deployment location and the associated activities to attach anchor connections and mooring of the completed structures within the offshore wind farm are not part of the application. The consenting of the deployment location is also not part of the project and will be dealt with under separate application for development consent under the Planning Act 2008 which will be made by the developer and operator of the windfarms.

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3 Legislative and Policy Framework

3.1 Introduction

3.1.1 The Project involves development within both the terrestrial and marine environments and, as a consequence, will be assessed against various legal and policy requirements under the applicable consenting regimes, explained further in **Chapter 1 – Introduction**. This includes requirements related to environmental impact assessment ('EIA'), assessments under the Conservation of Habitats and Species Regulations 2017 and Wales specific legislation.

3.1.2 This Chapter of the EIA Scoping Report summaries the key planning legislation, policy and guidance against which the Project will be assessed, and which have been considered when defining the scope of the EIA. Full details and analysis of the relevant planning legislation, policy and guidance will be provided in the ES and other supporting documents to accompany the Applicant's future Infrastructure Consent Order ('ICO') Application for the Project.

3.2 Relevant Planning Legislation

3.2.1 The following paragraphs summarise the key pieces of primary and secondary planning and environment legislation applicable to the Project, building upon the consenting processes for the Project explained in **Chapter 1 – Introduction**.

Infrastructure (Wales) Act 2024

3.2.2 The Infrastructure (Wales) Act 2024 (the '2024 Act') received Royal Assent on 3 June 2024, establishing a new regime and process for consenting of significant infrastructure projects in Wales. The full regime (including regulations necessary to implement the regime) is due to come into effect from 15th December 2025 and under which the Applicant will apply for an ICO Application for the Project.

3.2.3 Under Section 56, a decision on an ICO Application is to have regard to: any infrastructure policy statement that has effect; the National Development Framework for Wales so far as relevant; and any marine plans so far as relevant, unless relevant considerations indicate otherwise. These documents are discussed further below, excluding relevant infrastructure policy statements as they are not yet in place. Any forthcoming infrastructure policy statements will considered through the Project and its EIA processes to the extent it is relevant to the Project and appropriately progressed.

3.2.4 Furthermore, Section 57 directs that a decision on an ICO Application must have regard to:

- Any local impact report submitted to the Welsh Ministers in accordance with the relevant deadline;

- Any marine impact report submitted to the Welsh Ministers in accordance with the relevant deadline;
- Any examination of the ICO Application (under Part 4 of the 2024 Act);
- Any matters specified in the regulations;
- The desirability of mitigating, and adapting to, climate change; and
- Any other relevant consideration.

3.2.5 Such information, particularly a local impact report, will in turn be informed by the relevant local development plan (the 'LDP') for the Project Site. In respect of the terrestrial development at the Project Site, the LDP comprises:

- Future Wales: The National Plan 2040 (2021); and
- NPTC's Local Development Plan (2016).

3.2.6 The LDP is discussed further below and will be considered through the Project and its EIA processes. Planning Policy Wales ('PPW') (Edition 12) (2014) and the Technical Advice Notes published by the Welsh Government are also discussed below in the context of these being important and relevant considerations in relation to the Project. It is also recognised that the Planning (Wales) Bill (Section 408(3)) proposes that the LDP and national policies have a statutory effect to the extent that decision makers must have regard to them in determining an application to which the LDP and national policies applies and the documents are relevant to the function that decision maker is exercising.

Marine and Coastal Access Act 2009

3.2.7 The Marine and Coastal Access Act 2009 ('the 2009 Act') (as amended) prescribes the marine planning system for the United Kingdom and, amongst other things, provides a framework for obtaining a marine licence for the carrying out of certain operations and activities, known as licensable marine activities, within the United Kingdom marine area of which the Welsh Marine Area below the mean high water mark forms part. The Project is partly located in the Welsh Marine Area.

3.2.8 Section 65(1) in Part 4 of the 2009 Act imposes a general prohibition on the carrying out of any licensable marine activity or activities otherwise than in accordance with a marine licence. The marine licence is granted by the appropriate marine authority (being the Welsh Ministers in respect of works relating to harbours in Wales which are not reserved trust ports, which the Port of Port Talbot is not) and for licensable marine activities set out in Section 66(1).

3.2.9 For the Project, the draft ICO forming part of the ICO Application will include provisions deeming a marine licence to have been granted under Part 4 of the 2009 Act (further to section 83 of the 2024 Act). This Deemed Marine Licence would relate to Project works which are located above, in, over or

below the sea below the mean high water mark (ie in the Welsh Marine area).

3.2.10 In determining an application for infrastructure consent, Section 56 of the 2024 Act requires that the decision maker has regard to any marine plan within the meaning of Section 51(3) of the 2009 Act prepared and adopted by Welsh Ministers so far as relevant to the kind of development to which the application relates. The appropriate marine policy documents in Wales include the UK Marine Policy Statement (2011) and the Welsh National Marine Plan (2019), discussed in further detail below.

Environment (Wales) Act 2016

3.2.11 Part 1 of the Environment (Wales) Act 2016 (the '2016 Act') sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory *'principles of sustainable management of natural resources'* defined within the Act.

3.2.12 Section 6 of the 2016 Act requires that public authorities must seek to maintain and enhance biodiversity in the exercise of their functions and in doing so promote the resilience of ecosystems, so far as consistent with the proper exercise of their functions. In undertaking this function, each authority must have regard to the following resources:

- The list of habitats and species of principal importance for Wales, published by Welsh Ministers under Section 7 of the 2016 Act in consultation with Natural Resources Wales;
- The State of Natural Resources Report, published by Natural Resources Wales under Section 8 of the 2016 Act;
- Any Area Statement which covers all or part of the area in which the authority exercises its function, produced under Section 11 of the 2016 Act;
- The sustainable land management report published under Section 6 of the Agriculture (Wales) Act 2023;
- Any guidance given to the authority from Welsh Ministers.

3.2.13 Under Section 6(9)(g), a public authority is defined as, amongst others, a 'statutory undertaker'. The Applicant, as the statutory harbour authority for the Port Talbot Harbour, fulfils the role defined under Section 6(10)(a) as a person authorised to carry out any dock or harbour undertaking. As such, the requirements of Section 6 apply to the Applicant.

3.3 Relevant EIA Regulations

3.3.1 As explained above, consent for the Project will be sought via a ICO Application under the Infrastructure (Wales) Act 2024 once the full regime is in place.

Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017

3.3.2 The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (the 'TCPA EIA Regulations') do not apply to the ICO Application as it is not a grant of planning permission to which those regulations are directed and apply.

3.3.3 This Scoping Report has nevertheless been prepared having regard to the requirements of Regulation 14 of the TCPA EIA Regulations as a matter of good practice albeit, and for the avoidance of doubt, the Scoping Report is not being formally submitted to the Welsh Minsters under the TCPA EIA Regulations.

The Marine Works (Environmental Impact Assessment) Regulations 2007 ("the Marine EIA Regulations")

3.3.4 The Marine EIA Regulations sets out the requirements for an environmental impact assessment for certain regulated activities in the Welsh marine area (i.e. the sea below mean high water mark in Wales). These regulated activities include the granting of a deemed marine licence for harbour works by the Welsh Minsters under Part 4 of the Marine and Coastal Access Act 2009 (further to Section 83 of the 2024 Act).

3.3.5 Regulation 13 enables an Applicant to request a scoping opinion from the appropriate authority, the Welsh Minsters, which Schedule 4 states must include:

- A chart, plan or map sufficient to identify the location of the regulated activity and of other activities to be carried out in the course of the project;
- A brief description of the specific characteristics of the regulated activity and the project, including their nature, purpose, location and technical capacity;
- An explanation of the likely significant effects of the regulated activity and the project on the environment; and
- Such other information or representations as the applicant may wish to provide or make.

3.3.6 In adopting a scoping opinion, the Welsh Ministers must take the following into account in line with Schedule 4(5):

- The specific characteristics of the project, including its location and technical capacity;
- The nature and purpose of regulated activities of the type concerned in the project;
- The environmental features likely to be affected by the project; and

- Any information provided by the applicant about the project and the regulated activity.

3.3.7 Schedule 4 goes to explain the process of consultation and notification of a scoping opinion, to be carried out by the Welsh Ministers.

3.3.8 Regulation12(2) sets out the requirements for the ES accompanying application for a regulatory approval for a regulated activity, including the requirement that the ES is based upon the most recent scoping opinion (and insofar that the project remains materially the same as the project subject to that opinion) (Regulation 12(2)(c)).

3.4 Other Legislation

Well-being of Future Generations (Wales) Act 2015

3.4.1 All public bodies in Wales have a statutory duty to carry out 'sustainable development' under the Well-being of Future Generations (Wales) Act 2015 (the '2015 Act').

3.4.2 The 2015 Act defines 'sustainable development' as the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle of acting in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs, which is aimed at achieving well-being goals that are set out in the 2015 Act.

3.4.3 The 2015 Act also sets out new "ways of working" which public bodies must adopt in order to demonstrate that they are taking into account the impact that they could have on people living their lives in Wales, in the future as well as in the present, in order to show that they are acting in accordance with the sustainable development principle.

3.4.4 ABP is not a 'public body' within the meaning given to that term in Section 6 of the 2015 Act, but is nonetheless willing to provide such information and assistance regarding the interaction between the Project and the well-being goals set out in the 2015 Act as is necessary in order for each of the Welsh Ministers, NPTBC and NRW to discharge their statutory duties as 'public bodies' for the purposes of that Act.

3.5 Planning Policy Context

3.5.1 This section summaries the key planning policy documents that will inform the Project's development and the EIA process. Further detail on the topic-specific planning policies within these policy documents is set out in individual environmental topic chapters (Chapters 6 – 27).

National Planning Policy

Future Wales: The National Plan 2040 (2021)

3.5.2 Future Wales was adopted in February 2021 as the national development framework for Wales to 2040. It sets out a strategy for addressing key national priorities through the planning system and is prepared as a spatial plan to set the direction for investment in infrastructure and development in Wales.

3.5.3 The National Plan has been shaped by the Well-being of the Future Generation (Wales) Act 2015, demanding that development and the use of land contributes to improving the economic, social, environmental and cultural well-being of Wales and under the seven well-being goals.

3.5.4 Where relevant, the National Plan will be taken into consideration through the Project's development and the EIA process, recognising it is the highest tier of the LDP applicable to the Project.

UK Marine Policy Statement (2011)

3.5.5 The UK Marine Policy Statement ('UKMPS') (2011) is a statutory marine policy document for the purposes of Section 44 of the Marine and Coastal Access Act 2009.

3.5.6 The UKMPS provides the national framework for Marine Plans to be produced and for marine decisions affecting the UK marine environment, set within the UK vision for "clean, healthy, safe, productive and biologically diverse oceans and seas". It provides a framework for environmental, social and economic considerations that need to be taken into account in marine planning, ensuring that marine resources are used in a sustainable way.

3.5.7 The Project and its EIA processes will take account of the UKMPS to the extent that it is relevant to the Project's development and the Project Site.

Welsh National Marine Plan (2019)

3.5.8 The Welsh National Marine Plan ('WNMP') (2019) is the statutory marine policy document for proposals and licencing applications for the inshore and offshore Welsh Marine Area, under the Marine and Coastal Access Act 2009. It contains marine planning policies, including those specific to ports and harbours.

3.5.9 As a statutory marine plan, the WNMP must be considered by the decision maker in determining an infrastructure consent application under Section 56 of the 2024 Act.

3.5.10 The WNMP will be considered through the Project's development for works applicable to the Welsh marine area.

Other National Policy Documents

3.5.11 The Welsh Government has published several strategies, advice notes and policies that sit alongside national planning policy which are of relevance to the Project. These will be considered, where appropriate, within the Project's development and EIA processes including but not limited to:

- Planning Policy Wales (Edition 12) (2024);
- Technical Advice Notes;
- Welsh Government Planning Circulars;
- Prosperity for All: Economic Action Plan (2019);
- Prosperity for All: A Low Carbon Wales (2019);
- Welsh Government's Declaration of a Climate Emergency (April 2019);
- Welsh Government's 10 Point Plan (June 2019).
- Net Zero Wales (2021);
- Wales Infrastructure Investment Strategy (2021);
- Wales Transport Strategy (2021); and
- Natural Resources Policy and Area Statements.

3.5.12 The Planning (Wales) Bill (Section 408(3)(a)) proposes that the LDP and national policies (such as the PPW 2024) have a statutory effect to the extent that decision makers must have regard to them in determining an application to which the LDP and national policies applies and the documents are relevant to the function that decision maker is exercising.

Planning Policy Wales (Edition 12) (2024)

3.5.13 PPW was adopted in February 2024 and sets out land use planning policies for Wales, prepared in the context of the Welsh Government's objectives, strategies and strategic policies. The PPW aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, informed by the Well-being of Future Generations Act 2015 and its seven well-being goals.

3.5.14 PPW sets out the Welsh Government's energy-related objectives in order that the planning system secures an appropriate mix of energy provision that maximises benefits to our economy and communities whilst minimising potential environmental and social impacts. It directs that planning authorities should ensure its development plan policies are supportive of renewable and low carbon energy developments, direct development to the

right locations and set out local criteria against which individual proposals will be evaluated.

3.5.15 Individual sections of PPW are discussed in the relevant chapters of this Scoping Request, as applicable, and which will be considered throughout the Project's development and EIA processes.

Technical Advice Notes

3.5.16 The Welsh Government has published a series of Technical Advice Notes ('TANs'), setting out detailed planning advice on certain topics. The TANs include guidance on nature conservation, flooding, noise, design, tourism, coastal planning and transport.

3.5.17 TANs of relevance to the Project will be considered throughout the Project's development and EIA processes.

Local Planning Policy

NPTC Local Development Plan 2011 – 2016 (2016) and Proposals Map (2016)

3.5.18 NPTC's LDP' was adopted in January 2016. It sets out the Council's strategic, site-specific and topic-based policies to shape development in the County Borough up to 2026.

3.5.19 Local planning policies within the LDP will be considered during the EIA process and the Project's development, where relevant to each environmental topic.

Other Local Policy Documents

3.5.20 NPTC has a suite of documents, including Supplementary Planning Guidance ('SPG') documents, that set out more detailed topic or site specific guidance explaining the way that LDP policies will be applied. Such documents will be considered through the EIA process and the Project's development, such as:

- Planning Obligations SPG (October 2016);
- Renewable and Low Carbon Energy SPG (July 2017);
- Design SPG (July 2017);
- Landscapes and Seascapes SPG (May 2018); and
- The Historic Environment SPG (April 2019).

3.6 Emerging Legislation and Policy

Emerging Legislation

3.6.1 The Infrastructure (Wales) Act 2024 received Royal Assent on 3 June 2024 albeit the full ICO regime is not in force until 15th December 2025, The regime relies on a series of subsidiary regulations that have been made and that largely come into force on that date. As explained above, the Project will apply for an ICO Application for the Project under the new infrastructure consenting regime.

3.6.2 The Welsh Government has also laid two Bills before the Senedd (Welsh Parliament), namely the Planning (Wales) Bill and the Planning (Consequential Provisions) (Wales) Bill, on 15th September 2025. The purpose of these Bills are to consolidate legislation relating to planning in Wales and to modernise the form and drafting of the law.

Emerging Local Policy

3.6.3 NPTC has formally commenced work on a new plan to replace the existing LDP (2016), referred to as the Replacement Local Development Plan ('RLDP'). Once adopted, it will supersede the existing LPD and set out strategic, site-specific and topic-specific policies to shape development in the County Borough up to 2036.

3.6.4 The Council undertook public consultation on the RLDP 'Preferred Strategy' (Regulation 15) between December 2024 and February 2025.

3.6.5 A Delivery Agreement for the RLDP has been prepared by the Council and approved by the Welsh Government in October 2023. This sets out the timetable for the RLDP's preparation, duplicated below in **Table 3**.

Table 3: RLDP Delivery Agreement

Key Stage	Timescale
Definitive	
Deposit Participation / Preparation	December 2024 – September 2025
Deposit RLDP Consultation (Regulation 17)	November 2025 – December 2025
Indicative	
Submission of RLDP to WG for Examination (Regulation 22)	June 2026
Independent Examination (Regulation 23)	September 2026 – December 2026
Receipt and Publication of Inspector's Report (Regulation 24)	February 2027
Adoption of RLDP (Regulation 25)	April 2027
Monitoring and Review	April 2028

3.6.6 The Project's development and the EIA process will take account of the emerging local policies in the context of their development, dictating the weight to be attached to them, and their relevance to the Project.

4 Consultation and Engagement

4.1 Introduction

4.1.1 The Infrastructure (Wales) Act 2024 (the "2024 Act"), under which the Applicant will apply for an ICO once fully in effect, places a duty on an Applicant to carry out consultation on the proposed ICO application (Section 30). Part 3 of The Infrastructure Consent (Pre-Application and Application Procedure and Transitional Provisions) (Wales) Regulations 2025 (the "2025 Regulations") sets out the pre-application process, including a requirement to publish and consult on a draft application prior to formal submission. Guidance is anticipated from the Welsh Government on the pre-application requirements to support the new consenting process.

4.1.2 Under the EIA process, the Welsh Ministers must have consulted the prescribed consultees prior to adoption of their Scoping Opinion further to the submission of the Scoping report.

4.2 Engagement Undertaken to Date

4.2.1 ABP (the Applicant) believes that effective and meaningful consultation is an integral part of the Project's development. From an early stage of the Project, the Applicant has sought to engage key stakeholders in the Project and initial assessment work.

4.2.2 To date, the Applicant has engaged at an organisational level with the following bodies (including but not limited to):

- Neath Port Talbot Council (NPTC), including Officers in the planning, transport, environmental health (air quality and noise), ecology, economic development and landscape departments and Local Councillors
- Natural Resources Wales, including the Marine Licensing and Flood Risk Activity permitting departments
- Welsh Government
- Cadw
- Wales Office
- Royal Commission on the Ancient and Historical Monuments of Wales
- Glamorgan-Gwent Archaeological Trust Ltd

4.2.3 The individual environmental topic chapters (**Chapters 6-26**) provide a summary of the relevant stakeholder engagement undertaken to date to inform the content of the scoping chapter.

4.2.4 Engagement with these parties will continue alongside the Project's development, with further detail on the Project's consultation approach discussed further below.

4.3 Approach to Consultation and Engagement

4.3.1 In recognition of the importance of consultation and engagement, the Applicant has established key objectives for the Project taking account of the 'Gunning Principles'[8]:

- Undertake proactive and early engagement with key stakeholders from the Project's outset and while proposals are still at a formative stage, where flexibility is available;
- Ensure consultation information is clear and of a sufficient level to enable informed feedback to be provided, based on the Project's stage of development;
- Ensure all engagement is undertaken fairly, respectfully and encourages feedback;
- Provide adequate time for consultees to consider the proposals and respond;
- Carefully track, analyse and consider all feedback provided, and ensure all respondents are responded to and understand how their views have informed the Project's development and assessment work where appropriate.

4.3.2 The Applicant will undertake consultation through two methods, via ongoing informal engagement with key stakeholders and formal consultation stage(s).

4.3.3 Non-statutory engagement will continue through regular meetings and exchange of information with key stakeholders, including local communities, statutory consultees and political representatives. As part of the EIA process, ongoing consultation with technical consultees will be carried out on the approach to environmental assessment work, key effects and opportunities, and appropriate mitigation strategies. Where possible and appropriate, joint meetings will be held between different environmental bodies to ensure consistent messaging and collaborative discussions on key matters.

4.3.4 Statutory consultation will be carried out in accordance with the legislative requirements, summarised above, and which will include a draft Environmental Statement in accordance with Regulation 6(2)(k) of the 2025 Regulations. The Applicant will hold a statutory consultation stage, seeking views, comments and feedback on the Project and the draft application documents. The scope of the consultation activities will include in-person

[8] Established in the R v London Borough of Brent ex parte Gunning case

events and virtual material, with the consultation issued to specialist consultees and also widely advertised to ensure members of neighbouring residents of the Port, local communities and the wider public is aware of the consultation and have the opportunity to respond.

4.3.5 Additional statutory or targeted consultation may also be carried out, dependent on the needs of the Project and outcomes of the assessment work.

4.3.6 All consultation feedback will be accurately recorded, reviewed and analysed against the Project proposals. The pre-application consultation will be recorded within a Pre-Application Consultation Report submitted as part of the ICO Application in line with Section 32(3)(c) of the 2024 Act, providing details of both the non-statutory engagement and statutory consultation stage(s). The report will capture the feedback received, how it has been analysed and explain how views may have been taken into account in the application material and Project design.

5 Approach to Assessment

5.1 Introduction

5.1.1 This Chapter describes the purpose and principles of the Environmental Impact Assessment ('EIA'), the assessment undertaken as part of this scoping exercise, and the methodology proposed to be undertaken to determine potential significant effects associated with the Project.

5.1.2 The legislative and policy framework that underpins the EIA of the project including this scoping Report is set out in **Chapter 3 – Legislative and Policy Framework**. That framework has shaped the scoping exercise undertaken to date and the proposed EIA assessment methodology detailed within it.

Purpose of EIA

5.1.3 EIA is a process used for identifying the likely significant environmental effects (beneficial and adverse) of development proposals, to allow decision-makers to be fully informed of the implications of proposals prior to granting consent for development.

5.1.4 The EIA process should be completed in way that promotes the early identification and evaluation of the likely significant effects. This enables:

- appropriate mitigation (measures to avoid, prevent, or reduce significant adverse effects) to be identified and incorporated into the design of the development;
- early development of offsetting approaches in particular compensatory habitat for those effects that cannot be mitigated on site; and
- for commitments to be made to implement environmentally sensitive construction methods and practices that would avoid otherwise significant effects occurring.

5.1.5 To assess a project's likely significant effects on the environment, baseline conditions are identified, including the predicted environmental conditions at a specific point or points in the future ('future baseline') assuming that the proposed development does not proceed. Potential impacts are predicted and the effects quantified, but where this is not possible, a qualitative assessment is completed based on available knowledge and professional judgment. Where any uncertainty exists, this is set out within the relevant topic specific chapter. Mitigation measures are identified to avoid, prevent, reduce or offset adverse effects. The resulting effects are evaluated based on the magnitude of the impact (degree of change) and importance, sensitivity or value of an impacted receptor or resource, and the level of significance is determined.

5.1.6 Project design evolves through multiple iterations, incorporating evolution of understanding obtained through the EIA process and feedback from consultations. This iterative process helps refine the design and layout, with changes likely even after the EIA Scoping Report is submitted.

5.2 Approach to EIA Scoping

5.2.1 EIA scoping is undertaken at an early stage of a project to establish the scope and likely significant effects that are taken forward for further assessment and reported in the Environmental Statement (ES). The methodology adopted for the Project's scoping exercise documented in this EIA Scoping Report is provided in this section.

5.2.2 This EIA Scoping Report accompanies a formal request for the adoption of a Scoping Opinion in respect of the EIA for the Project by the Welsh Ministers. The adopted EIA Scoping Opinion will provide the Welsh Ministers' written opinion on the scope of the EIA and level of detail to be provided in the ES. Statutory consultees will be consulted on the Scoping Report.

Scoping Methodology

5.2.3 The scoping exercise presented in this Scoping Report has:

- identified people and environmental resources (referred to as 'receptors') that could be significantly affected by the Project, by undertaking desk-based and site-based appraisals and surveys;
- used the Project information presented in Chapter 2 – Description of Development to identify activities that could cause an impact;
- identified likely mitigation measures (primary, secondary and tertiary – see paragraph 5.9.5 for description);
- identified the potential likely significant effects on the sensitive receptors caused by the potential impacts; and
- set out the work required to take forward the assessment of the potentially significant effects.

5.2.4 Upstream and downstream effects of the Project will be assessed as necessary.

5.2.5 Mitigation measures that will likely be taken forward for the Project have been considered when determining the potential likely significant effects. Each environmental topic chapter sets out those considered in the scoping exercise. The lists of measures will be kept under review though the EIA process and are non-exhaustive and indicative at this stage of scoping.

Temporal Scope to be Assessed

5.2.6 The scope of the Project to be assessed includes the construction, operation and maintenance phases. The assessment of decommissioning effects of the Project are scoped out of the EIA on the following basis:

- it is assumed that the Applicant (or any successor) will maintain the Port in perpetuity;
- the design life for the different physical assets of port infrastructure is different, ranging from 50 to 100 years. This design life is the operational function of the infrastructure before major maintenance. It is assumed that the operational life of the Project will be in perpetuity, as is the case for the rest of the Port, as the Project would become core marine infrastructure and maintained on the same basis as the rest of the Port; and
- it is assumed that the design of future development related to FLOW developers will allow for repurposing or removal of infrastructure, in whole or in part, with relevant planning consents obtained at the time for the work, or undertaken as part of permitted development rights, and is not required to be included within the scope of this EIA.

5.2.7 Decommissioning is therefore scoped out of the EIA and will not be considered further in this EIA Scoping Report.

5.2.8 The assessment approach for each environmental topic is provided in **Chapters 6–26** of this EIA Scoping Report.

Spatial Scope to be Assessed

5.2.9 The spatial scope used in the scoping exercise has been defined by each environmental topic and found in the relevant chapters. The EIA Scoping Boundary has been used as the reference point to determine suitable study areas. Section 2.3 of **Chapter 2 – Description of Development** details areas included in the boundary and why the areas were chosen.

Management of Project Development

5.2.10 The scoping exercise has been conducted using a design envelope which is reported in **Chapter 2 – Description of Development.** Figures 1.2 and 2.4 in **Appendix A** show the design envelope areas. Environmental topic assessments will consider the environmental effects of the full range of activities within the design envelope, to ensure that significant effects are considered and meaning the scoping exercise will remain applicable and robust following design refinement.

5.2.11 Further design work will be undertaken, and design parameters may be refined. Recognising that the available information at this stage may not conclusively determine the significance of potential effects, a precautionary approach has been applied, and such effects have been included in the assessment.

5.2.12 It is acknowledged that if the Project proposals change substantially during the EIA process, prior to application submission, there may be a need to request a new Scoping Opinion(s).

Environmental Topics

5.2.13 In line with EIA Regulations (see **Chapter 3 – Legislative and Policy Framework**), the following environmental topics have been considered in the scoping exercise (see **Chapters 6-26**):

- Air Quality;
- Airborne Noise and Groundborne Vibration;
- Flood Risk;
- Freshwater Environment;
- Terrestrial Historic Environment;
- Land Quality and Hydrogeology;
- Onshore Traffic and Transport;
- Terrestrial and Freshwater Ecology;
- Coastal Processes;
- Commercial and Recreational Fisheries;
- Marine Historic Environment;
- Marine Ecology;
- Marine Water Quality and Sediment Quality;
- Navigation and Marine Transport;
- Climate Change
- Landscape, Seascape and Visual Amenity;
- Major Accidents and Disasters;
- Materials and Wastes;
- Ornithology;
- Population and Human Health; and
- Socio-economics.

5.2.14 Each environmental topic chapter in this Scoping Report includes the following:

- a summary of the relevant legislation, policy and guidance used to inform the scoping exercise;
- identification of the scoping study area;
- an overview of the existing baseline environmental conditions and where further work is required to complete the baseline to inform the EIA;
- identification of potential mitigation measures considered in the scoping exercise and proposed to be taken forwards;
- identification of potential likely significant effects and the proposed scope of the EIA; and
- the proposed assessment methodology.

Cumulative and In-combination Effects

5.2.15 In-combination effects occur where a single receptor or resource is affected by more than one source of effect from different aspects of the Project. Cumulative effects occur as a result of one or more developments, which individually may not cause a significant effect, but when considered together with the Project, a significant cumulative effect on a shared receptor or resource could be caused. Such potential in-combination or cumulative effects can be negative or positive in nature.

5.2.16 Cumulative and in-combination effects have also been considered and are reported in a standalone chapter of this Scoping Report (**Chapter 27 – Cumulative and In-combination Effects**).

Transboundary Effects

5.2.17 Transboundary effects arise when development within one European Economic Area (EEA) member state affects the environment of another EEA state(s).

5.2.18 A transboundary effects screening appraisal in line with the Planning Inspectorate's advice has been undertaken as part of the scoping exercise. The methodology and findings are presented in a matrix in **Appendix C**. No significant transboundary effects have been identified and a detailed assessment of transboundary effects is scoped out of the EIA and will not be discussed further in this Scoping Report.

Relevant EIA Guidance

5.2.19 The general approach to the EIA Scoping exercise has been informed by the following guidance documents:

- EIA Statutory guidance: Handbook for scoping projects: environmental impact assessment (EA, 2012);
- Design Manual for Roads and Bridges (DMRB) LA103 – Scoping projects for environmental assessment (National Highways, 2020. DMRB Volume 11 Environmental Assessment, LA103 – Scoping projects for environmental assessment);
- EIA Handbook – A practical guide for planners, developers and communities (3rd Edition). ICE, 2020;
- NRW What to include in your marine development scoping report for EIA (NRW, 2024);
- What is scoping for marine developments (NRW, 2021);
- Environmental Impact Assessment (EIA) for marine development: its purpose and our role (NRW, 2021);
- Legislation, policy and information for marine Environmental Impact Assessment (EIA) (NRW, 2021);
- IEMA Implementing the Mitigation Hierarchy from Concept to Construction (IEMA, 2024);
- Welsh Government (2019) Environmental impact assessment (Welsh Government, 2019); and
- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (CEA) (PINS, 2025).

5.2.20 The guidance referred to in relation to CEA is referred to as it provides an established assessment framework for the consideration of cumulative effects in relation to major infrastructure projects. No similar regional specific guidance has been developed in Wales.

5.2.21 Reference to DMRB is made as it provides a comprehensive assessment framework, proven to be a robust tool for consistently assessing the environmental impacts of large-scale infrastructure projects. The reference to DMRB EIA methodology is further discussed at paragraph 5.9.4.

5.2.22 Each environment topic chapter (**Chapters 6-26**) refers to the legislation, policy and technical guidance relevant to the individual environmental topic under consideration and this information is not repeated here.

General assessment assumptions and limitations

5.2.23 Assumptions relating to the EIA will be set out in the ES. General assessment assumptions and limitations relating to this scoping exercise are set out in this section. Any topic-specific assumptions or limitations are included in the relevant environmental topic chapters (**Chapters 6-26**).

5.2.24 General assumptions:

- the extent of EIA Scoping Boundary (shown on Figure 2.1 in **Appendix A**) represents the maximum area within which physical disturbance may occur to environmental resources and receptors;
- in relation to construction, it has been assumed that best practice mitigation measures would be implemented to protect sensitive environmental receptors during the works;
- the scoping exercise is based on the Project information available at time of submission (refer to **Chapter 2 – Description of Development**). Scoping has acknowledged that the design of the Project will be subject to further refinement and adjustment in response to the outcomes of statutory consultation and further stakeholder engagement, ongoing design development and the iterative EIA process. Where uncertainty exists in the final design solution, a precautionary approach has been adopted for EIA Scoping purposes (refer to Section 5.6 for further detail);
- as the Project will remain an integral part of Wales's port infrastructure, it has been assumed that the assets developed under the Project will not be decommissioned but that it may be subject to different industry uses in the future. It is assumed that the port owner and operator (ABP) will maintain their port at Port Talbot in perpetuity;
- should any standards or guidance be updated during the EIA process and prior to submission of the ICO Application, consideration will be given to applying the new standards or guidance, in discussion with relevant consultees and if sufficient time allows for this to be done, a justification provided in the ES;
- conclusions and recommendations identified in the scoping exercise may be revised and documented within the ES, on the basis of updated information following further research, survey, and investigation. Any changes would be discussed with the relevant consultees;
- the potential mitigation measures proposed in the scoping exercise are not final. Proposed mitigation measures will be further refined and updated following the assessment work required as part of the EIA process and as the Project evolves; and
- potential effects scoped into the assessment are based on the latest available design information at the time of scoping. However, the pathways and potential effects scoped in could change as the Project evolves and in light of further assessment work required for the ES.

5.3 EIA Methodology

5.3.1 The following sections set out the proposed methodology for the EIA, the identification and assessment of likely significant effects as well as how the findings will be reported in the ES. The guidance used to inform the EIA methodology is the same as listed in paragraph 5.2.19 with topic specific guidance set out in **Chapters 6-26**.

5.4 Spatial and Temporal Scope

Spatial Scope

5.4.1 The spatial extent of assessment (i.e. the study area) is the area over which changes to the environment are predicted to occur as a consequence of the Project and varies with the environmental topic area being considered.

5.4.2 The EIA Scoping boundary used in the scoping exercise will be refined and developed into the Application Boundary and will be the reference point to establish each study area. Each environmental topic will define a study area for use in the EIA, which will take account of:

- the physical area of the Project (currently the EIA Scoping Boundary as illustrated on Figure 2.1 in **Appendix A**);
- the baseline environment, sensitive features and receptor locations; and
- the pathways and extent to which environmental effects may occur.

5.4.3 Study areas may be refined through the process of engagement with consultees, including in response to consultee comments or following further assessment work.

5.4.4 The Project and its geographic context are shown in Figure 1.1 of **Chapter 1 – Introduction**. The EIA Scoping boundary (Figure 2.1 of **Appendix A**) currently indicates the likely maximum area for construction, operation and maintenance, including land required for permanent and temporary purposes and includes both terrestrial and marine areas.

5.4.5 The Project will be delivered in phases, each comprising terrestrial and/or marine works as described in **Chapter 2 – Description of Development**. The spatial extent of each anticipated phase is shown in Figure 1.2 and Figure 2.4 in **Appendix A**. The spatial extent for each phase is based on a reasonable worst-case estimate of land and marine extents that could be required.

Temporal Scope

5.4.6 Temporal scope is the timeframe over which significant effects relating to changes to the environment might occur. Effects may be temporary or permanent, short-term or long-term, and related to construction and operational phases.

5.4.7 Individual technical Chapters will define the timescales associated with effects.

5.4.8 The EIA will consider the construction, operation and maintenance phases of the Project. Due to the overlapping nature of the sequencing of the construction and operational phases (see **Chapter 2 – Description of Development**) assessment scenarios will likely be established. This will likely involve considering construction activities of future phases occurring at the same time as operational activities of Phase 1 works.

5.5 Approach to Project Development and Limitations

Design Envelope

5.5.1 The complex nature of offshore wind farm development is recognised in the National Policy Statement (NPS) for Renewable Energy Infrastructure (NPS EN-3, DESNZ 2023) which came into force on 17 January 2024. Whilst this ICO Application is not for permission to build an offshore windfarm, nor is it governed by the DCO system (to which the NPSs are relevant), NPS EN-3 recognises the complexity of assessments that include scheme elements that are not finalised and the need for flexibility in the final consent where precise details are not known. The following taken from the NPS EN-3 will be considered in the approach to the EIA:

- “many of the details of a proposed scheme may be unknown to the applicant at the time of the application…” (para 2.8.74);
- “Where details are still to be finalised, applicants should explain in the application which elements of the proposal have yet to be finalised, and the reason why this is the case.” (para 2.6.1);
- “Where flexibility is sought in the consent as a result, applicants should, to the best of their knowledge, assess the likely worst-case environmental, social and economic effects of the proposed development to ensure that the impacts of the project as it may be constructed have been properly assessed. (para 2.6.2)
- “Case law, beginning with R v Rochdale MBC Ex p. Tew [2000] Env.L.R.1 establishes that while it is not necessary or possible in every case to specify the precise details of the development, the information contained in the ES should be sufficient to fully assess the project’s impact on the environment and establish clearly defined worst case parameters for the assessment. This is sometimes known as ‘the Rochdale Envelope’.” (Footnote 12).

5.5.2 The Project proposals are large scale and complex. The ICO Application is currently expected to be hybrid, with Infrastructure Consent sought in full for specific elements of the first phase of the Project and the remainder in outline as some design details will not be confirmed when the ICO

Application is submitted and flexibility is sought to address this uncertainty and enable future circumstances to be responded to.

5.5.3 To accommodate flexibility of the Project, a 'Rochdale Envelope' or parameter-based design envelope approach will be taken for the consideration of construction, operation and maintenance of the Project. The approach is based on setting maximum design parameters in order that a reasonable worst-case assessment can be undertaken where project details are yet to be finalised.

5.5.4 There is no specific Welsh Government guidance related to the application of the Rochdale Envelope, however guidance and good practice approaches are available in the Planning Inspectorate's Nationally Significant Projects - Advice Note Nine: Rochdale Envelope (PINS, 2025), which provides guidance regarding the degree of flexibility that may be considered appropriate.

5.5.5 The Rochdale Envelope approach allows various parameters to be set to limit the potential scope of a project but still providing flexibility in design options. It also provides a precautionary approach[9] in identifying and assessing significant environmental effects within the EIA. Its adoption allows robust EIA to be undertaken by defining a reasonable worst-case scenario that decision-makers can consider when determining the acceptability or otherwise of the environmental effects of a development project.

5.5.6 Whilst the assessment will consider effects that occur once the Project is fully operational, there are some details that will not be known at the time of the application. For these, the Rochdale Envelope will be applied. The EIA will assess the reasonable worst-case to understand the likely significant effects which could reasonably arise during construction, operation and maintenance within the predicted 'envelope' of impacts identified in the ES.

5.5.7 The assessment will include the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use.

5.5.8 The assessment will consider the reasonable worst-case parameters relevant to a topic and could include: the first full 12 months of operation of each phase; a different full operational year of each phase; the maximum throughput or capacity (i.e. number of turbines manufactured, assembled or stored); the size of turbine; the manufacturing technology or process; the foundation material type; or the maximum quantity of material or components brought in or exported. These criteria would be kept under review through the process of EIA.

5.5.9 An estimated throughput for the manufacture of Wind Turbine Generators (WTGs) will be described in the EIA, so that a reasonable indicative range or upper limit of manufacturing activity can be assessed. Actual throughput

[9] Approach adopted to manage potential environmental risks when there is scientific uncertainty such as gaps in baseline information, consideration of new or novel techniques.

information would not be available until much later (as offshore windfarm leasing agreements would need to be confirmed, developers appointed and designs progressed). Therefore, either peak throughput or maximum range will be assumed as a worst-case, as the Rochdale Envelope will require an assumption based on a reasonable worst-case scenario.

5.5.10 This approach follows the advice in the NPS EN-3, albeit the Project is not governed by the DCO system, which recognises that individual project lease agreements from The Crown Estate often include limits on development but that *"project developers should seek to maximise their capacity within the technological, environmental, and other constraints of the project"* (para 2.8.25).

5.5.11 A further area of uncertainty relates to the time needed for the manufacturing facility to reach maximum throughput, as this will not necessarily be achieved in year 1 but could take five or more years. Again, a reasonable worst-case assumption will be set out in the EIA to accommodate this uncertainty.

5.5.12 For certain topics it may also be necessary to consider multiple assessment scenarios where there are design options, for example, the construction of concrete bases (which would require a concrete batching facility) or steel bases (which would require a fabrication facility). Where this is the case, this will be indicated within individual environmental topic methodologies.

5.5.13 The design parameters, together with the approach to assessment, will be detailed in the ES. Where flexibility is requested, the ES will provide a justification as to why this is required, acknowledging the guidance in PINS Advice Note Nine (PINS, 2025).

5.6 Assessment of Alternatives

5.6.1 The EIA regime requires an ES to include an assessment of reasonable alternatives. The Marine EIA Regulations further to which this Scoping report is submitted directs that the ES must include: *"a description of the reasonable alternatives studied by the applicant which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment" (see regulation 12(2)(b)9iv).* Paragraph 2 of Schedule 3 of the Marine EIA Regulations, require an ES to include: *"a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the applicant, which are relevant to the proposed project, the regulated activity and their specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

5.6.2 The EIA process will consider alternatives in terms of the Project's location, Project design, technology and operations (for example, quay design and its construction or manufacture of steel or concrete floating structures) and the justification for selecting the chosen solution will be presented in the ES.

5.7 Characterisation of the Baseline Environment

5.7.1 To identify the effects of the Project on the environment, an understanding of the environment that would be affected by it (the 'baseline conditions') is required. Understanding the baseline allows any changes that would be caused by the Project to be predicted. Baseline conditions denote the importance, value or sensitivity of a particular receptor or resource.

5.7.2 Environmental data has been obtained to help inform the scoping process to scope out aspects from further consideration or scope in aspects for further assessment in the EIA. Further studies, field surveys and stakeholder consultation will refine the baseline information and support the assessment of resource value reported in the ES.

5.7.3 Any assumptions and limitations in relation to baseline information relied upon for the purpose of assessment will be set out in the ES.

Current Baseline

5.7.4 The Port operates under a broad regulatory framework that ensures its safe and efficient operation. Port Talbot has existing operational permissions for land and marine (harbour) activities and is capable of accommodating cape sized vessels on a regular and frequent basis.

5.7.5 The two off-site land parcels identified to be used for ecological mitigation and enhancements are described in **Chapter 2 – Description of Development**.

5.7.6 Information on the baseline environment collected to date is included within the baseline sections of the technical **Chapters 6 to 26**. Key data sources include, but are not limited to:

- review of primary baseline studies (surveys);
- review of secondary sources (desk-based, i.e. review of existing documentation and literature; data searches); and
- stakeholder consultation.

5.7.7 Each environmental topic chapter (**Chapters 6-26**) sets out how it intends to complete the baseline for the purpose of the EIA.

Future Baseline

5.7.8 The future baseline is the situation in future years without the Project at the time when it is likely to be implemented. An understanding of the future baseline is important to recognise how environmental conditions may evolve over time (from natural/climate change or other development), to highlight the differences in conditions with and without the Project, and to create effective measures to mitigate the Project's impacts.

5.7.9 The ES will describe how the baseline environmental conditions are likely to change in the future in the absence of the Project and for reasons unrelated to the Project. For example, vehicular air emissions are expected to reduce year-on-year with progressive vehicle electrification.

5.7.10 The future baseline will also consider likely changes to existing operational uses at the Project Site or other permitted uses, and changes resulting from other consented/permitted development (under construction or operational) or approved plans.

5.7.11 Only known or certain changes will be incorporated within any updates to the future baseline. Furthermore, the EIA will adopt a precautionary worst-case approach for any changes which are not known or certain.

5.7.12 The current baseline will be extrapolated to take account of predicted or anticipated change factors including, but not limited to, changes caused by changing climatic conditions, policy, legislation, proposed development, advances in technology and by other planned infrastructure projects.

5.7.13 The ES will justify and provide evidence to support the assumptions for the defining the future baseline used in the ES. The assessment years for each phase would include a consideration of those developments with the potential to change baseline conditions.

5.7.14 Based on information available at the EIA Scoping stage, the following changes to the Port are expected to be underway or complete at the time the Project is due to commence, therefore likely to be included in the future baseline. This is an initial list and will be developed for the purpose of the EIA. Information or assumptions relating to the timeframes for permissions, construction and operation of each of these projects will be set out in the ES:

- General works within the Port to upgrade the existing Port estate including the provision of works to remediate a disused sand quarry, and habitat compensation works including translocation of species to both Kenfig Marshalling Yard Site and Jersey Marine Site;
- LanzaTech (Project Dragon) (NPTC Planning Reference P2023/0858): construction of carbon recycling facilities to convert industrial waste gas emissions into sustainable aviation fuel (SAF). Timeframes for LanzaTech are currently uncertain. The Applicant will refer to the most recent planning documentation in relation to information on this development as well as engaging with the proponent in relation to the LanzaTech site including in relation to programme; and
- Changes to the EIA study areas outside of the Port boundary would also be included in the definition of the future baseline for the Project.

5.7.15 Due to uncertainty of predicting effects based on expected future baseline conditions, a reasonable worst-case approach will be adopted. Where future committed development may introduce new environmental receptors that could be significantly affected by implementation of the Project, these will be addressed in the EIA for each Project phase. In the event that the committed development does not occur, any associated proposed mitigation could be amended at a later date to reflect the change from the assessed future baseline position.

5.8 Approach to Mitigation and Monitoring

5.8.1 The EIA and design for the Project will consider mitigation measures adhering to the principles of the mitigation hierarchy, a systematic approach used to minimise adverse effects of a project on the environment and people. The hierarchy comprises four stages, with the most desirable first:

- Avoid: design and mitigation measures to avoid the from the outset through considering carefully, for example, the project need, scale, design, location and duration;
- Prevent: taking action/s to either remove the impact at source or intervene in its pathway to prevent it affecting the receptor (e.g. alternative design options or avoidance of environmentally sensitive sites);
- Reduce: where avoidance or prevention is not possible, then mitigation is used to lessen the magnitude or significance of effects. For example, fencing off sensitive areas during construction and implementing a construction environment management plan (CEMP) to reduce the potential impacts from construction activities. Mitigation should be reliable, achievable and secured by condition, requirement or legal agreement; and
- Offset or compensate: where it is not possible to avoid or reduce a significant adverse effect, these are measures to offset or compensate the effect.

5.8.2 Priority will be given to the avoidance of effects at source, whether through the redesign of the Project or by regulating the timing or location of activities. Where it is not possible to avoid significant negative effects, opportunities will be sought to reduce the effects, ideally to the point where they are no longer significant through mitigation measures. Where it is not possible to reduce effects that are significant, opportunities for compensation will be explored.

5.8.3 Where it is not possible to compensate or replace a loss, provision of an alternative may be the next best approach, for example contributing to habitat creation or management regimes in a location outside of the eventual application boundary. This approach acknowledges that the impact cannot be avoided, and that compensation will not suffice.

5.8.4 Enhancement measures may be incorporated into the Project. Enhancement measures are considered to be over and above any avoidance, prevention, reduction, and offsetting (compensation) measures required to minimise or eliminate adverse effects of the Project.

5.8.5 Annex A of IEMA's guidance, Implementing the Mitigation Hierarchy from Concept to Construction (IEMA, 2024) classifies three types of mitigation.

- Primary (inherent or embedded): comprises measures which are an intrinsic or inherent part of the design. They will be described in either a design evolution narrative as part of Project description (**Chapter 2 – Description of Development**) or as part of the Design and Access Statement included with the Application. For example, amending the

design of a building façade to reduce the scale of solar glare and associated impacts on viewers;

- Secondary (foreseeable): comprises measures which require management and activity to achieve the anticipated outcome. These will be presented in the form of a series of management plans to be secured through the various consents sought to deliver the Project. For example, a Biodiversity Strategy that sets out how habitats and planting mitigation would be delivered and managed in the long-term; and
- Tertiary (inexorable): comprises measures that will be required regardless of any EIA assessment, as they are imposed, such as a result of legislative requirements and/or standard sectoral practices. For example, considerate contractors' practices that manage activities which have potential nuisance effects, best practice measures such as those within the relevant Guidance for Pollution Prevention (GPP) documents (NetRegs, n.d.) or applying emission controls to an industrial stack to meet the requirements of the Industrial Emissions Directive (Directive 2010/75/EU).

5.8.6 The Applicant is preparing overarching plans and strategies for the FPT programme as set out in **Table 4**, together with some Project-level management plans described in **Table 5**.

Table 4: FPT programme - Overarching Plans and Strategies

Strategy or Plan	Description
Biodiversity Strategy	The Biodiversity Strategy will set out the step-wise approach and associated principles in identifying opportunities for Net Benefit for Biodiversity. It will also set out the strategy for delivering a package of off-site compensation and enhancement measures, and capture any requirements for long-term management and monitoring. This would include options to support local and regional biodiversity initiatives.
Waste Management Plan	The Waste Management Plan will set out the strategy for how the Port will reduce, store, recycle and dispose of the waste that it generates, following the waste hierarchy to manage waste. It will consider the role of a Site Waste Management Plan and measures to minimise and reduce the volume of waste requiring treatment and disposal, including through building design and the potential for reconfiguration in the later phases.
Carbon Management Plan	The Carbon Management Plan will detail the Applicant's approach to measuring, reducing and monitoring carbon emissions following the carbon reduction hierarchy defined within the PAS 2080 specification (RICS, 2023).
Invasive Non-Native Species (INNS) Management Plan	The INNS Management Plan will define measures for the control and safe management of INNS and sets out contractor operator requirements to prepare detailed plans relating to their work area/sites and aligning to the approved INNS Management Plan.
Remediation Strategy	The Remediation Strategy developed for the Port estate will set out the steps and measures required to treat contamination that poses an unacceptable risk on receptors and ensure that the Port estate land is suitable for its intended use.
Drainage Strategy	The Port-wide Drainage Strategy will set out how the design of foul and surface water will be delivered to manage water flows and mitigate flood risks. It will explain the system of managing drainage in any areas of potential contamination, and drainage measures to integrate sustainable drainage system (SuDS) and ecological features.
Lighting Strategy	The Lighting Strategy will set out the approach for external lighting at the Port, including lighting standards, levels and requirements to ensure that detailed lighting design enhances the functionality, safety, and aesthetics of specific areas or zones within the Port whilst minimising potential environmental impacts and energy usage.

Strategy or Plan	Description
Transport Infrastructure Strategy	This document will provide the overall strategy for transport infrastructure within the Port, which shall include the integration of various transport modes, emergency access routes (including evacuation and resilience), and abnormal load planning.
Framework Construction Traffic Management Plan	This framework will set out measures for managing construction traffic to and from the Port estate. The framework will consider heavy goods vehicle holding areas, construction compounds, access controls, measures for preventing spread of Japanese Knotweed within or off-site, opportunities to maximise marine construction transport; opportunities to maximise rail-road freight interchange use, contractor off-site park and ride areas, laydown areas for materials with the Port (spreading imports/exports over a longer period through double handling) and the use of soil hospitals to remediate and reuse materials wherever possible.

Table 5: Project-level Management Plans

Plan	Description
Construction	
Construction Traffic Management Plan (CTMP)	The CTMP will set out the commitments to mitigate impacts arising from construction traffic, e.g. HGV deliveries to and from the Project. It will be prepared in accordance with the Framework CTMP developed for the Port and described in Table 5.1 above.
Active Travel Plan	The Active Travel Plan for the Project will set out commitments to mitigate impacts from construction workers travelling to/from the Project.
Adaptive Environmental Management Plan (AEMP)	The AEMP will set out the environmental measures and controls required for managing and reducing impacts arising from the Project's construction. It will establish the framework for control measures, responsibilities, actions, monitoring and reporting requirements. It will also set out the requirements for contractors to prepare detailed plans for approval that align with the approved AEMP, including but not limited to: • CEMP • Pollution Prevention Plan (including emergency spill and incident control procedures) • Air Quality Control Plans • Noise and Vibration Management Plans • Erosion and Sediment Management Plans Where necessary, the detailed plans will describe proposed monitoring of potential significant adverse effects and how the results of the monitoring will be utilised to inform subsequent remedial actions before an unacceptable impact occurs or a threshold is reached.
Operation and Maintenance	
Outline Operational Environmental Management Plan (oOEMP)	The oOEMP will define the operational environmental controls and protection measures, including best practice measures and techniques. It will also establish any specific measures identified through EIA to manage operational impacts, such as those resulting from environmental noise, emissions to air, land and water, waste generation, resource consumption including energy. Operators would be required to prepare detailed plans for approval that align with the approved oOEMP.

5.8.7 In line with IEMA Guidance, primary and tertiary measures will be taken into account prior to the assessment of environmental effects and included in the Project description and consideration of alternatives as mitigation that would be delivered as part of the Project.

5.8.8 Key secondary mitigation measures will be identified and included in the ES topic chapter relevant to the effect that it is required to prevent or reduce (for

example, ecology mitigation reported in the ES ecology chapter). Where relevant, significance is evaluated before and after mitigation (assessment of residual effects).

5.8.9 A mitigation register, summarising the committed measures, will be provided to support the ES. The register will set out who is responsible and how the proposed mitigation will be secured, with reference to planning control documents, marine licensing or other legally enforceable mechanism.

5.9 Environmental Effects

5.9.1 EIA regulations set out the framework for assessment through specification of what is to be reported in the ES. Specific reference is made to Schedule 3 of the Marine EIA Regulations and Schedule 4 of the TCPA EIA Regulations.

5.9.2 An environmental effect is a function of the 'importance', 'value' or 'sensitivity' of a receptor or resource and the 'magnitude' or 'scale' of the impact to that receptor or resource.

5.9.3 For an effect to occur there has to be a pathway between the impact and the resource or receptor.

5.9.4 The DMRB EIA methodology (LA104 (Highways England, 2020)) can be adapted for non-highways projects. While the DMRB is primarily designed for motorway/trunk road and bridge projects, its comprehensive guidelines on environmental assessment can be adapted for other types of infrastructure projects, providing detailed guidance on various aspects of environmental assessment, including scoping, impact prediction, and mitigation measures. These principles are broadly applicable and can be tailored to suit the specific requirements of non-highways major infrastructure projects, such as railways, airports, and ports. The DMRB sets out a comprehensive framework, and has been shown to be a robust tool for consistently assessing the environmental impacts of large-scale infrastructure projects.

5.9.5 General Project criteria for assessing environmental effects are presented in **Table 6** and **Table 7**. Each technical Chapter will set out their criteria in alignment with this general approach.

Table 6: Environmental value (sensitivity) and descriptions

Value (sensitivity) of receptor /resource	Typical description
Very high	Very high importance and rarity, international scale and very limited potential for substitution.
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution.
Low	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

Source: DMRB, LA 104 Environmental assessment and monitoring

Table 7: Magnitude of impact and typical descriptions

Magnitude		Description
Major	**Adverse**	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	**Adverse**	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality
Minor	**Adverse**	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	**Adverse**	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or element
No change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Source: DMRB, LA 104 Environmental assessment and monitoring

5.9.6 Account will be taken as appropriate as to whether effects are:

- direct effects – effects that are caused by activities which are an integral part of the Project;
- indirect effects – effects arising indirectly from the construction or use of a development;
- secondary effects – arising in consequence of indirect effects;
- cumulative effects – effects that result from different sources, but which affect a common receptor resulting in a greater combined effect;
- transboundary effects – effects caused by a Scheme that are experienced across a boundary;
- temporary effects – environmental effects that occur during the construction of a project would typically be temporary;
- permanent effects – permanent effects are those which are irreversible, would last for the foreseeable future or are effects considered to last greater than ten years;
- beneficial effects – effects that have a positive influence on the environment; and
- adverse effects – effects that have a negative influence on the environment.

Effect Significance Criteria

5.9.7 The output of the environmental assessment is to report the likely significance of effects within the ES, using established significance criteria. This requires an assessment of the receptor or resource's environmental value (or sensitivity) and the magnitude of the project's impacts (change). Thresholds for defining magnitude and sensitivity or receptor value are discussed in individual topic **Chapters 6-26**.

5.9.8 The approach to assigning significance of effect relies on the context of the impact, the professional judgement of competent experts and using effective consultation to ensure the advice and views of relevant stakeholders are considered. For some topics, predicted effects may be compared with quantitative thresholds and scales in determining significance. Each environmental assessment Chapter within the ES will describe the specific thresholds / criteria used to determine value/ magnitude/receptor sensitivity or value and will align within the general methodology described in this section.

5.9.9 Assigning each effect to one of five significance categories enables different issues to be placed on the same scale, to assist the decision-making process. The five significance categories are set out in **Table 8**.

Table 8: Description of the significance of effect categories

Significance	Typical descriptors of effects
Very Large	Effects at this level are material in the decision-making process.
Large	Effects at this level are likely to be material in the decision-making process.
Moderate	Effects at this level can be considered to be material decision-making factors.
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Source: DMRB, LA 104 Environmental assessment and monitoring

5.9.10 The environmental value will be assigned for each receptor identified within the individual environmental topics that have been carried forward from the Scoping exercise for further environmental assessment, along with the magnitude of impact (degree of change). The magnitude of impact and the value of the receptor (sensitivity) is combined to determine the likely significance of effect (**Table 9**).

- In reference to DMRB LA 104 (Highways England, 2020), the assessment of the significance of environmental effects will consider the following:
- the receptors/resources (natural and human) which would be affected and the pathways for such effects;
- the geographic importance, sensitivity or value of receptors/resources;

- the duration (long or short-term); permanence (permanent or temporary) and changes in significance (increase or decrease);
- reversibility – for example is the change reversible or irreversible, permanent or temporary;
- environmental and health standards (for example local air quality standards) being threatened; and
- feasibility and mechanisms for delivering mitigating measures, for example is there evidence provided that demonstrates the ability to legally deliver the environmental assumptions which are the basis for the assessment.

5.9.11 As described in DMRB LA 104, significance categories apply to positive (beneficial) or negative (adverse) effects. The greater the magnitude of impact and the higher the sensitivity or value of the receptor, the more significant the effect. For example, the consequences of a highly valued environmental resource suffering a major detrimental impact would be a significant adverse effect.

5.9.12 Where the significance is shown as being one of two alternatives, a single description would be selected based on reasoned judgement for the level of significance chosen.

5.9.13 Significant effects typically comprise residual effects that are within the moderate, large or very large categories.

Table 9: General approach for assessing significance of potential effects

Environmental value (sensitivity)	**Magnitude of potential impact (degree of change)**					
	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	**Moderate or Large**	**Large** or **Very Large**	**Very Large**
High	Neutral	Slight	Slight or **Moderate**	**Moderate** or **Large**	**Large** or **Very Large**
Medium	Neutral	Neutral or Slight	Slight	**Moderate**	**Moderate** or **Large**
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or **Moderate**
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

5.9.14 Not all the environmental topics will use the above criteria or approach and there may be differences in how significance is determined. For example, some topics do not use a matrix-based approach but instead use numerical values to identify impacts (e.g. noise and vibration) and some topics do not have agreed methods of assessment or scales of measurement for either value or sensitivity (e.g. land quality). To deliver a consistent methodology within the EIA to assess the significance of effects, each environmental discipline specialist will use the information provided above, relevant industry guidance to meet best practice, and their professional judgement.

5.9.15 Effects not deemed to be significant will not be reported in detail in the ES and will not be expected to require further mitigation. The exception to this is where the combination of multiple slight effects has the potential to lead to a significant (i.e. moderate or above) in-combination effect (described in **Chapter 27 – Cumulative Effects and In-combination Assessment**).

Assessment of Effects

5.9.16 The ES will report on direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This is in line with the requirements of the EIA Regulations.

5.9.17 The assessment of indirect effects will be considered in so far as they can be meaningfully assessed.

5.9.18 The EIA will identify cumulative effects resulting from activities associated with other development plans and projects at the Port, or in the surrounding area, or from the combination of different activities within the Project. A list of committed developments will be agreed with NPTC and NRW through consultation.

5.9.19 Details of the proposed methodology for the cumulative effects assessment are presented in **Chapter 27 – Cumulative and In-combination Effects.**

Construction

5.9.20 The identification of construction effects will be made on the basis of existing knowledge, techniques and equipment. The reasonable worst-case scenario will be applied to the likely construction methods, construction works locations (proximity to sensitive receptors based on parameter plans), the expected phasing and timing of construction activities.

5.9.21 The assessment of construction effects will assume the implementation of embedded measures in any construction design and industry standard best practice measures. The application of overarching construction plans and strategies (see **Table 4**), including the AEMP would require implementation of measures such as the use of buffer zones around sensitive habitats, the use of acoustic barriers to reduce noise levels, and spraying (damping) of stockpiles to minimise dust. This approach is to focus on effects specific to the Project, rather than generic construction effects addressed using industry standard best practice mitigation measures.

5.9.22 The ES will report on the assessment of construction effects that are likely to remain after these mitigation measures are in place.

5.9.23 Where further mitigation measures are identified, the assessment will report both effects prior to and after the application of further measures to demonstrate the further reduction in the significance of effects. There will be an explanation of how such measures would be secured.

Operation

5.9.24 The identification of effects arising from the operation and maintenance of the Project will be on the basis of existing knowledge, techniques and equipment. The reasonable worst-case' scenario will be applied to likely operational and maintenance activities, the location of specific activities to sensitive receptors (as indicated within parameter plans), and the expected phasing and timing of operational activities.

5.9.25 The assessment of operational and maintenance effects will assume the implementation of embedded design features as well as measures required by the overarching plans and strategies (see **Table 4**) including the oOEMP, and compliance with relevant legislation.

5.9.26 The ES will report on the assessment of operation effects that are likely to remain after these mitigation measures are in place.

5.9.27 Where further mitigation measures are identified, the assessment will report both effects prior to and after the application of further measures to demonstrate the further reduction in the significance of effects. There will be an explanation of how such measures would be secured.

5.10 Relationship with Other Regimes

5.10.1 Alongside the ICO Application, the Project will require separate licences or permits under other regulatory regimes and which may require consent by a different Competent Authority.

5.10.2 The anticipated suite of secondary regimes likely to apply for the Project are set out below.

Water Framework Directive

5.10.3 The Water Framework Directive (WFD) (2000/60/EC) is the strategic planning process for managing, protecting and improving the water environment. The WFD process allows consideration of potential options on an iterative basis.

5.10.4 A separate WFD assessment is proposed to be undertaken to support the application. Although the EIA and WFD process relate to different regulations, any relevant information contained within the WFD assessment will be referenced within the ES.

Habitats Regulations

5.10.5 The Conservation of Habitats and Species Regulations 2017 (as amended) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (for plans and projects beyond UK territorial waters (12 nautical miles)) (hereafter collectively referred to as the 'Habitats Regulations') provide for the designation of sites in the UK that are important for protecting certain species and habitats. The Habitats Regulations establish several stages of assessment to determine if a plan or project may affect the protected

features of a European site before a Competent Authority decides whether to undertake, permit or authorise it.

5.10.6 When assessing the Application, the competent authority(ies) under the Habitats Regulations must consider the potential for a likely significant effect (LSE) on a European site.

5.10.7 The EIA and Habitats Regulations Assessment (HRA) process are distinct from each other, as they stem from different regulations, but they also co-exist. While the outcome of the EIA as reported in the ES identifies likely significant environmental effects from a proposed development, these do not stop the decision maker from granting authorisation. Whereas significant effects resulting in Adverse Effect on Integrity (AEoI) to a European site identified through the HRA process may do so.

5.10.8 The Application will include a separate report to inform the HRA completed by the competent authority(ies). Relevant information contained within the report to inform HRA will be referenced within the EIA.

Equalities Impact Assessment

5.10.9 The assessment of impacts on equalities and the need to demonstrate compliance with the five ways of working in line with The Wellbeing of Future Generations Wales Act 2015, is a requirement for public funded projects and considered best practice for others.

5.10.10 An Equalities Statement will be submitted alongside the application to consider any potential differential or disproportionate effects on people or groups with Protected Characteristics under the Equality Act (2010), and support the decision maker in its application of the Public Sector Equality Duty (PSED).

Environmental Permitting

5.10.11 Some operational activities of the Project will be covered by the Environmental Permitting (England and Wales) Regulations 2016 (SI 2016/1154). Such activities may include discharges to surface water, waste management activities, or material storage.

5.10.12 In environmental terms, EIA and environmental permitting differ in scope. An environmental permit focuses on well-defined environmental issues around use of raw materials, control of pollution or waste. EIA and environmental permits are complementary procedures and have some similarities in the assessments.

5.10.13 The application for any necessary Environmental Permits will be undertaken by the Applicant at the relevant stage.

5.11 Proposed Structure of the Environmental Statement

5.11.1 The ES is expected to comprise the following:

- Non-technical summary;
- Volume 1 – Main ES text;
- Volume 2 – ES Figures; and
- Volume 3 – ES Appendices.

5.11.2 The topic chapters that will be in Volume 1 of the ES are anticipated to be structured in the same manner as this Scoping Report (with removal of those topics agreed to be scoped out of the EIA). Each environmental topic chapter is proposed to be structured as follows:

- introduction;
- competent expert evidence;
- legislative and policy framework;
- study area;
- existing environment;
- assessment methodology;
- likely significant effects;
- design, mitigation and enhancement measures; and
- residual effects.

5.11.3 Each Chapter would have Appendices depending on the topic's requirements, such as specific model reports, baseline data reports as well as specialist assessments drawn upon by the main Chapter. In particular:

- **Navigational Risk Assessment (NRA)** - Given the nature of the Project, an NRA will be undertaken to meet the requirements of the Port Marine Safety Code (PMSC). In reviewing the application, navigational risk will be a consideration by the Harbour Authority in its role as Statutory Harbour Authority (SHA). As part of the NRA process, a hazard identification workshop will be held with relevant navigational stakeholders for the area to identify the potential impacts associated with the Project. The NRA will determine the likely risk to navigational safety and, if necessary, establish risk control measures to reduce that risk to be 'as low as reasonably practicable'.
- **Marine Plan and Policy Conformance Assessment** - As the Project falls within the area covered by the Welsh National Marine Plan (gov.wales, 2019) a marine plan and policy conformance assessment will be required to support the application. This assessment will be undertaken to review the Project against the vision, objectives and policies of the Welsh National Marine Plan and will be informed by the information provided in the ES.

- **Environmental Lighting Impact Assessment (ELIA)** - An evaluation of the impact of proposed artificial lighting as a result of the construction and operation and maintenance of the Project. This will include information on the baseline lighting conditions within the study area and consider possible mitigation measures to reduce potential light spill into neighbouring properties and ecological receptors, upward light (which can create sky glow), and visual source intensity (glare).
- **Underwater Noise Assessment** - An evaluation of the impact of Project generated sounds from activities such as vessel movements, construction activity (such as dredging and piling) and operational activities on marine environments to consider construction and operation phases. Outcomes are used to inform assessment of marine ecological receptors.

5.11.4 Other separate reports included in the application but referred to during the completion of the EIA include:

- **Information for Habitat Regulations Assessment (IHRA)** - An HRA screening assessment (Appendix D) has been undertaken as a shadow assessment to provide information to inform the HRA undertaken by the Competent Authority (CA). The screening assessment has considered the likely significant effects of the Project alone and in combination with other plans and projects on Special Areas of Conservation (SAC) and Special Protection Areas (SPA) which could be affected. As a matter of policy Ramsar sites (wetlands of international importance) are also considered within the HRA process. Impact pathways have been identified that are likely to result in a significant effect on one or more of the qualifying features or supporting habitats of several Habitat Sites. On this basis a shadow 'Appropriate Assessment' (AA) to provide information to inform the HRA undertaken by the CA of the implications of the Project will be undertaken, to identify whether the integrity of the Habitats Sites is likely to be adversely affected by the Project. The information to support the AA will include defining mitigation that is necessary to ensure there is no adverse effect on the integrity of these sites, alone or in combination with other plans and projects. Any required mitigation would then be incorporated into the proposed Project.
- **Flood Consequence Assessment (FCA)** - required for development applications in areas at risk of flooding and to support Flood Risk Activity Permits. FCAs should provide evidence of flood risk from rivers and the sea (including risk from wave overtopping), surface water and small watercourses, groundwater and reservoirs (if relevant). Where appropriate the evidence of mitigation is included in the FCA to address any increased flood risk in another location. Any required mitigation would then be incorporated into the proposed Project. The findings of the FCA will be used to inform the Flood Risk Chapter of the ES.
- **Water Framework Directive (WFD) Compliance Assessment** - A WFD Assessment will be undertaken and a WFD compliance assessment report produced alongside the ES. This report will consider the extent to which the proposed Project could impact on the current

and future target WFD status of the waterbodies. Where potential adverse effects are identified, an assessment of these will inform what mitigation measures need to be incorporated into the design and construction methods of the proposed Project to remove or minimise the effect. The WFD Preliminary Assessment included in Appendix E covers Stage 1 and Stage 2 of the WFD Compliance Assessment.

- **Ground Condition and Land Quality Reporting**:
    - Ground Investigation Report (GIR): As part of an ongoing ground investigation, the collection of soil and groundwater samples, monitoring of groundwater and ground gases as well as investigation of underlying geology and ground conditions will be summarised in a GIR.
    - Contaminated Land Risk Assessment (CLRA): Required to consider site characteristics, sources, pathways and receptors of contamination assess concentrations of substances against appropriate assessment criteria, and.
    - Remediation Strategy: If required, a remediation strategy will be produced using the information provided with in the GIR and CLRA, to break any contaminant linkages and undertake validation of the works.

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6 Air Quality

6.1 Introduction

6.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential air quality effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

6.1.2 The effects of the Project on the following are considered:

- sensitive human health receptors; and
- sensitive ecological receptors at statutory and non-statutory designated ecology sites where the qualifying features are sensitive to air pollution.

6.1.3 Key pollutants for consideration within the air quality assessment are:

- for sensitive human health receptors:
  - nitrogen dioxide (NO_2);
  - particulate matter with an aerodynamic diameter of less than 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$);
  - dust (defined as particulate matter in the size range of 1-75 microns in diameter); and
  - sulphur dioxide (SO_2).
- for sensitive ecological receptors:
  - oxides of nitrogen (NO_x);
  - nitrogen deposition which will include the contribution of ammonia;
  - acid deposition;
  - SO_2; and
  - dust.

6.1.4 This environmental topic relates to both terrestrial and marine aspects of the Project.

6.1.5 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

6.1.6 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this **Chapter: Chapter 12 – Onshore Traffic and Transport; Chapter 13 – Terrestrial and Freshwater Ecology, Chapter 25 – Population** and **Human Health; and Chapter 27 – Cumulative Impacts**.

6.2 Relevant Legislation, Policy and Technical Guidance

6.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of air quality are detailed in **Table 10**.

Table 10: Legislation, policy and guidance relevant to air quality

Relevant legislation/policy/ guidance	Relevance to assessment
Legislation	
The Air Quality (Wales) Regulations 2000 as amended	Regulations that set the air quality objectives for Wales that, in most cases, are numerically synonymous with the limit values in EU Directive 2008/50/EC although compliance dates may differ. These regulations are relevant to the terrestrial elements of the Project.
The Air Quality Standards (Wales) Regulations 2010 as amended	These regulations implement the requirements of EU Directive 2008/50/EC. They present a framework for the regulation of air quality in the UK. These regulations are relevant to the terrestrial and marine elements of the Project.
Environment (Air Quality and Soundscapes) (Wales) Act 2024	This Act became law in Wales on 14th February 2024 to make provision for improving air quality. The Act requires Welsh Ministers to set a $PM_{2.5}$ air quality target within three years of this date. The Act is relevant to the terrestrial elements of the Project.
The Environmental Permitting (England and Wales) Regulations 2016	These provide a framework for controlling activities that could harm the environment or human health. The Act is relevant to the terrestrial and marine elements of the Project.
Environment Act 1995 as amended	Part IV of the Environment Act 1995 requires local authorities to review the quality of air within their area, assess whether air quality objectives are being met now and in the future. Where objectives are not met or are unlikely to be met an air quality management area (AQMA) should be declared and an Action Plan prepared to set out measures for improving air quality. Neath Port Talbot County Borough Council (NPTC) therefore have a duty to manage air quality within the Borough and to improve air quality within the Taibach/Margam AQMA, through the implementation of actions set out in their Air Quality Action Plan and working with organisations such as Natural Resources Wales and the Welsh Ministers. The Act is relevant to the terrestrial elements of the Project.
Section 79(1)(d) of the Environmental Protection Act 1990	The Project should ensure that no effects constitute a statutory nuisance. Statutory nuisance is defined as “fumes or gases emitted from premises so as to be prejudicial to health or a nuisance; any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance; any accumulation or deposit which is prejudicial to health or a nuisance”. The Act is relevant to the terrestrial elements of the Project.
The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 (as amended)	These regulations implement the requirements of the Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL). These regulations set out measures to control sulphur oxides and NOx emissions from ships that must be met, in order to reduce air pollution from shipping. These regulations are relevant to the marine elements of the Project.
National Policy	
Planning Policy Wales (Welsh Government, 2024)	Planning Policy Wales sets out current land use planning policy for Wales. It provides the policy framework for the effective preparation of local planning authorities’ development plans. The main policies relating to air quality of relevance to the Project are presented in Section 6.7 Air Quality and Soundscape. The policy is relevant to the terrestrial and marine elements of the Project.
Technical Advice Note (TAN) 18 Transport (Welsh Government, 2007)	Planning Policy Wales is supplemented by a series of topic-based TANs. TAN 18 Transport details the importance of good air quality, and states: “well designed and implemented traffic management can help secure planning objectives…[by]… reducing…local air pollution…”.

Relevant legislation/policy/ guidance	Relevance to assessment
Welsh National Marine Plan (Welsh Government, 2019)	The plan identifies a number of measures which would reduce the impacts of shipping on air quality. The plan is relevant to the marine elements of the Project.
Clean Air Plan for Wales: Healthy Air, Healthy Wales (Welsh Government , 2020)	The Welsh Government have also published their own 'Clean Air Plan' for Wales in 2020 to provide a framework and actions for air quality improvements within Wales. The plan is relevant to all planning applications in Wales. The policy is relevant to the terrestrial and marine elements of the Project.
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Department for Environment Food and Rural Affairs, 2007)	Provides a strategic framework for local authorities to develop local air quality strategies. NPTC has a duty to address air quality exceedances within their jurisdiction. The Project should not prejudice this duty. A revised version of the Air Quality Strategy was published in 2023, however it only applies to England. The policy is relevant to the terrestrial and marine elements of the Project.
Maritime 2050: Navigating the Future (Department for Transport, 2019)	This strategy outlines government and industry priorities and ambitions for the maritime sector. The strategy emphasises the importance of air quality in the maritime sector and discusses the development of cleaner fuels and advanced technologies to minimise air pollution from maritime operations. The strategy is relevant to the marine elements of the Project.
Clean Maritime Plan (Department for Transport, 2019)	The Clean Maritime Plan is the environmental route-map of the Maritime 2050 strategy and sets out a number of policies to reduce greenhouse gases and air pollutants emissions from shipping in parallel. It discusses clean growth opportunities for the UK to help the UK transition towards a zero-emission future for shipping, where no air quality pollutants are emitted by any types of vessels operating in UK waters or in the ship-to-shore activities required to facilitate those operations. The clean maritime plan is part of the government's Clean Air Strategy, which aims to cut down air pollution across all sectors to protect public health and the environment. The plan is relevant to the marine elements of the Project.
Local Policy	
NPTC Local Development Plan 2011-2026 (Neath Port Talbot County Borough Council, 2016)	Within the Local Plan the policies relating to air quality of relevance to the Project are Policy SP 16 'Environmental Protection', Policy EN 8 'Pollution and Land Stability' and Policy EN 9 'Developments in the Central Port Talbot Area'. These policies should be considered by developers and the local authority when assessing the impact of the Project on air quality during the planning process. The policies are relevant to the terrestrial and marine elements of the Project.
NPTC Replacement Local Development Plan 2023-2038	NPTC is currently in the process of developing a Replacement Local Development Plan which will replace their existing Local Development Plan. The plan will be relevant to the Project once adopted and relevant to the terrestrial and marine elements of the Project.
NPTC Pollution Supplementary Planning Guidance (Neath Port Talbot County Borough Council, 2016)	This guidance was adopted by NPTC in January 2016 and provides information on air pollution issues in Neath Port Talbot and relevant air quality matters that will need to be taken into consideration during the planning process. The guidance is relevant to the terrestrial and marine elements of the Project.
Clean Air for Port Talbot Short Term Action Plan 2012 (Welsh Government, 2012)	This Air Quality Action Plan covers the period 2012 to 2024 and sets out the actions required to improve air quality in Neath Port Talbot, to ensure that the 24-hour mean PM_{10} air quality objective is met. This plan has been superseded by the Air Quality Action Plan.
NPTC Draft Air Quality Action Plan 2024-2029 (NPTC, 2024)	NPTC is currently in the process of preparing a revised Air Quality Action Plan which will replace the previous version once finalised. The revised plan will cover the period 2024 to 2029. It is currently in draft format.

Relevant legislation/policy/ guidance	Relevance to assessment
Guidance and Standards	
The Local Air Environment Local air quality and soundscapes management in Wales (PG(W)(25) (Welsh Government, 2025)	The intention of this guidance document is to clarify the Welsh Government policy expectations with regards to Local Air Quality Management (LAQM) and Soundscapes. This document is also intended to be used by public authorities in conjunction with the latest expert advice on what works in practice.
Land Use Planning & Development Control: Planning for Air Quality (EPUK and IAQM, 2017)	This guidance sets out screening thresholds for traffic changes that have been used in the assessment to define the study area of the assessment. It also provides key considerations for design, good practice, air quality methodology and significance criteria that have been adopted in the assessment. The guidance is relevant to the terrestrial and marine elements of the Project.
LAQM Technical Guidance (TG22) (Defra, 2022)	This guidance contains methodologies and information on undertaking air quality assessment, including detailed methodologies and tools for assessments using dispersion modelling. The approaches set out within the guidance form the basis of the assessment approach. The guidance is relevant to the terrestrial and marine elements of the Project.
Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (IAQM, 2020)	This provides guidance on the assessment of air quality impacts on designated nature conservation sites. The guidance is relevant to the terrestrial and marine elements of the Project.
Guidance on the assessment of dust from demolition and construction (2024) (IAQM, 2024)	This provides guidance on how to assess the impacts of dust from construction activities and identify appropriate mitigation measures. The guidance is relevant to the terrestrial elements of the Project.

6.3 Engagement and Consultation

6.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

6.3.2 A meeting with the NPTC Environmental Health Officer (EHO) was held on the 6th June 2024, where terrestrial air quality in the Port Talbot area was discussed, with a particular focus on the residential areas closest to the Port. The monitoring locations for the Project-specific air quality monitoring survey were also agreed. As detailed in paragraph 6.5.177, monitoring shall be undertaken along and in the vicinity of main roads surrounding the Port where feasible and where changes in road traffic flows would be expected as a result of the Project.

6.3.3 Consultation will be undertaken with the NPTC EHO to discuss air quality matters in relation to the assessment approach and the study area once traffic data is finalised. Initial findings may also be discussed as well as any proposed mitigation measures. The most recent local authority air quality monitoring data available will also be requested prior to commencing the EIA, and will be considered as part of the assessment and reported in the Environmental Statement (ES).

6.4 Study Area

6.4.1 The study area for air quality will be determined as part of the assessment process and reported in the ES following the criteria set out below. The study area will include affected roads and consider vessel movements.

6.4.2 The study area will include terrestrial and marine areas.

Dust

6.4.3 'Dust' is a generic term which usually refers to particulate matter in the size range of 1-75 microns in diameter; the most common impacts from dust emissions are soiling and increased ambient particulate matter (particulate matter with an aerodynamic diameter of less than 10 microns (PM10)) concentrations. Dust can be mechanically transported either by wind or re-suspension by vehicles. It can also arise from wind erosion of material stockpiles and earth moving activities.

6.4.4 The proposed study area for dust impacts associated with all construction, and operation and maintenance related activities would cover human health receptors and ecological sites within the following distances from the Project, as defined in Institute of Air Quality Management (IAQM) guidance (IAQM, 2024). Beyond these distances, dust impacts are unlikely to occur.

- a 'human receptor' within:
  - 250m of the EIA Scoping Boundary; or
  - 50m of the route(s) used by construction vehicles on the public highway outside the EIA Scoping Boundary, up to 250m from the access points to/from the EIA Scoping Boundary.
- an 'ecological receptor' within:
  - 50m of the EIA Scoping Boundary; or
  - 50m of the route(s) used by construction vehicles on the public highway outside the EIA Scoping Boundary, up to 250m from the access points to/from the EIA Scoping Boundary.

Road Emissions

6.4.5 The Project has the potential to directly affect ambient concentrations of NO_2, PM_{10}, $PM_{2.5}$, ammonia and nitrogen deposition from traffic related emissions on roads within and outside the EIA Scoping Boundary. Both terrestrial human and ecological and marine ecological receptors will be considered, where applicable.

6.4.6 Roads that meet the criteria in Environmental Protection UK (EPUK) and the IAQM (EPUK and IAQM, 2017) guidance will be used for the assessment of air quality impacts on sensitive human health and ecological receptors from traffic. These criteria include:

- a change of light duty vehicles flows of more than 100 annual average daily traffic (AADT) within or adjacent to an AQMA, or with a change of 500 AADT outside of an AQMA; and/or

- a change of heavy duty vehicles (HDV) flows of more than 25 AADT within or adjacent to an AQMA or a change of 100 HDV flows outside of an AQMA.

6.4.7 Where the above criteria are met, sensitive human and ecological receptors, at locations up to 200m from an affected road where air quality impacts are likely to be greatest[10], would be assessed.

Marine Vessels Emissions

6.4.8 Marine vessels have the potential to release exhaust emissions of NOx, particulate matter (PM_{10}, $PM_{2.5}$) and SO_2. In line with TG22 guidance (Defra, 2022), the following criteria will be used to define the study area (both terrestrial human and ecological and marine ecological receptors will be considered, where applicable):

- consider relevant exposure within 250m of the berths and main areas of manoeuvring where there are more than 5,000 large ship[11] movements per year; and/or
- consider relevant exposure within 1km of these areas where there are more than 15,000 large ship movements per year.

6.4.9 It should be noted that the screening thresholds refer to shipping vessels only. There may be vessels associated with Project that are not as large as shipping vessels. However, for the purposes of the assessment, it has been conservatively assumed that all vessels associated with the Project are for shipping.

6.5 Description of the Existing Environment

Resources and Receptors

6.5.1 For air quality, the resources and receptors are sensitive human health and ecological receptors in the study area defined in Section 6.4. In line with TG22 guidance (Defra, 2022), sensitive human health receptors are locations where members of the public might be regularly exposed to pollutants and therefore will include residential dwellings, schools, hospitals and other locations of relevant exposure. In line with IAQM guidance (IAQM, 2020), sensitive ecological receptors will include those at the following statutory and non-statutory designated ecology sites where the qualifying features are sensitive to air pollutants: Ramsar sites, special areas of conservation, special protection areas, sites of special scientific interest, local wildlife sites, national nature reserves, local nature reserves and ancient woodland.

[10] These are locations that are closest to the road, roads with the largest flows, where the Project causes the greatest change in traffic or where ambient air quality is known to be poor.

[11] i.e. cross-channel ferries, roll on-roll off ships, bulk cargo, container ships, cruise liners, etc – one ship generating two movements (arrival and departure)

Data Sources

6.5.2 The baseline for air quality has been derived from the data sources set out in **Table 11.**

Table 11: Data sources

Data type	Data source
Air quality monitoring data (terrestrial)	NPTC and Associated British Ports (ABP)
Background concentrations (terrestrial and marine)	Department for Environment, Food and Rural Affairs and Devolved Administrations (Defra)

Note: Data published by ABP is independent of this project.

6.5.3 In addition, a six-month Project specific NO_2 monitoring survey undertaken in the vicinity of the Port in the terrestrial areas will be reported within the ES (locations for the monitoring are shown on Figure 6.3 in **Appendix A**). The monitoring data obtained will supplement the baseline used for the EIA and will be used to verify the detailed dispersion modelling assessment of road traffic impacts if it is required. This will improve the robustness of the air quality assessment of road traffic impacts on terrestrial and marine sensitive receptors.

6.5.4 Information on pollutants and their impacts on habitats would be obtained from the Air Pollution Information System (APIS) for terrestrial and marine ecological receptors requiring assessment and presented in the ES.

Baseline Conditions

The Port

6.5.5 The main source of air pollution in Port Talbot and the surrounding area at present relate to the pollutants emitted from the steel and iron works, including the construction (and eventual future operation of the adjacent steelworks Electric Arc Furnace), and traffic, in particular on the major roads surrounding the Port such as the M4 and A424.

6.5.6 The Port is bounded by water of Swansea Bay to the west and heavy industrial land from the adjacent Steelworks and iron works to the east and south. There are residential properties to the north of the Port, on the north side of the River Afan.

6.5.7 As a result of the potential construction activities, traffic movements and marine vessel movements, the primary focus of existing pollutant concentrations will be NO_2, PM_{10}, $PM_{2.5}$ and SO_2. Dust is also likely to be generated from construction activities however monitoring data for dust is not available and as such dust has not been considered in this section. However, PM10 is routinely adopted to monitor dust at construction sites and can provide an indication of the level of dust in the area. All other pollutants will not be influenced by the Project and are not considered further.

6.5.8 The monitoring data presented in **Table 12** to **Table 14** have been recorded in the terrestrial areas within or in the vicinity of the Port. The effects

associated with the coronavirus (Covid-19) pandemic during 2020 and 2021 when Wales was subject to full lockdowns for periods may have an influence on the monitoring data during these periods and therefore the data may not be representative of normal conditions at the monitoring sites and should be appraised with caution.

Air Quality Management Areas

6.5.9 Historic exceedances of the 24-hour PM_{10} objective[12] caused by activities at the steelworks led to the declaration of an AQMA in the Taibach/Margam area in 2000. Over this time, monitored concentrations reduced and the requirements of the objective were met, until 2023 when an exceedance was monitored at one of the automatic monitoring stations (PS2) within the AQMA. It is stated in NPTC's draft Air Quality Action Plan (NPTC, 2024) that it is unlikely that the AQMA would be considered for revocation unless it meets the daily mean PM10 air quality objective for at least three years. The AQMA is located approximately 60m to the north-east of the Port at its closest point, as shown on Figure 6.1 in **Appendix A.**

Automatic Monitoring

6.5.10 NPTC undertook automatic monitoring at four automatic monitoring sites during 2023 in the vicinity of the Port area. Three of these four automatic monitoring stations (DS1, LW1, PS2) measure PM_{10} and $PM_{2.5}$, whilst one (PT2) measures PM_{10}, $PM_{2.5}$, NO_2 and SO_2. A fifth automatic monitoring station (TW1) was previously in operation in the vicinity of the Port area until 2021 and measured PM10. All of these automatic monitoring stations except LW1 are located within the Taibach/Margam AQMA and along or adjacent to main roads. The concentrations recorded at these monitoring sites are therefore likely to be higher than that at the majority of the Port area which is located away from main roads and the AQMA. Annual mean monitoring data from these automatic monitoring stations are presented within **Table 12** over the period 2018 to 2023.

Table 12: NPTC monitoring results for NO_2, PM_{10}, $PM_{2.5}$ and SO_2

Monitoring Site ID	Monitoring Site Type	Distance to Port (km)	National Grid Reference		Year					
			X	Y	2018	2019	2020	2021	2022	2023
Annual mean NO_2 concentration (µg/m^3) (Number of hours above 200µg/m^3)										
PT2	Industrial	0.3	277388	188733	15 (0)	15 (0)	12 (0)	13 (0)	12 (0)	11 (0)
Annual mean PM_{10} concentration (µg/m^3) (Number of days above 50 µg/m^3)										
PT2	Industrial	0.3	277388	188733	23(11)	21 (12)	21 (11)	25 (33)	26 (23)	27 (31)
DS1	Industrial	2.0	278700	187387	-	22 (2)	23 (0)	25 (0)	17 (2)	19 (3)
TW1	Industrial	1.3	278196	187891	21 (9)	21 (10)	20 (7)	20 (0)	-	-
LW1	Industrial	0.07	275313	188879	21 (9)	20 (9)	21 (15)	18 (7)	19 (6)	21 (9)
PS2	Industrial	0.7	277689	188235	23 (12)	20 (8)	24 (16)	20 (3)	27 (20)	29 (**45**)

[12] NPTC Air Quality Progress Report 2023

Monitoring Site ID	Monitoring Site Type	Distance to Port (km)	National Grid Reference		Year					
			X	Y	2018	2019	2020	2021	2022	2023
Annual mean $PM_{2.5}$ concentration ($\mu g/m^3$)										
PT2	Industrial	0.3	277388	188733	10	11	11	9	8	8
DS1	Industrial	2.0	278700	187387	-	-	-	-	6	8
LW1	Industrial	0.07	275313	188879	-	-	-	-	7	7
PS2	Industrial	0.7	277689	188235	10	9	9	9	10	10
Number of 15 minute mean SO_2 concentrations above 266 $\mu g/m^3$										
PT2	Industrial	0.3	277388	188733	0	0	0	0	0	0
Number of 1 hour mean SO_2 concentrations over 350 $\mu g/m^3$										
PT2	Industrial	0.3	277388	188733	0	0	0	0	0	0
Number of 24 hour mean SO_2 concentrations over 125 $\mu g/m^3$										
PT2	Industrial	0.3	277388	188733	0	0	0	0	0	0

Source: Monitoring data for 2018-2022 has been obtained from NPTC Air Quality Progress Reports 2019, 2020, 2022 and 2023. NPTC Air Quality Progress Report for 2021 is not available online and as such SO_2 data for 2020, which is not presented in more recent versions either, has been obtained from:https://www.airquality.gov.wales/maps-data/maps
Monitoring data for 2023 has been obtained from https://www.airquality.gov.wales/maps-data/maps.

Notes: NPTC ceased PM_{10} monitoring at automatic monitoring station TW1 in March 2021.
Annual mean objectives are 40 $\mu g/m^3$ for NO_2 and PM_{10} and 20 $\mu g/m^3$ for $PM_{2.5}$
Short-term objective for NO_2 is an hourly average of 200$\mu g/m^3$ not to be exceeded more than 18 times per year.
Short-term objective for PM_{10} is a 24-hour average of 50 $\mu g/m^3$ not to be exceeded more than 35 times per year
Bold text indicates a monitored exceedance of the air quality objective
15-minute mean SO_2 objective of 266 $\mu g/m^3$ not to be exceeded more than 35 times per year
1 hour mean SO_2 objective of 350 $\mu g/m^3$ not to be exceeded more than 24 times per year
24 hour mean SO_2 objective of 125 $\mu g/m^3$ not to be exceeded more than 3 times per year

6.5.11 There were no monitored exceedances of the annual or 1-hour mean NO_2 objective recorded at the automatic monitoring station PT2 between 2018 and 2023, as shown in **Table 12**. In addition, **Table 12** shows that there were no exceedances either of the annual mean PM_{10} or $PM_{2.5}$ objectives at any of the automatic monitoring stations. There was however an exceedance of the 24-hour mean PM_{10} objective at the automatic monitoring station PT2 in 2023, although no exceedances were recorded at any of the automatic monitoring stations between 2018-2022. The locations of the automatic monitoring stations in relation to the Port are shown on Figure 6.2 in **Appendix A.**

Local Authority Diffusion Tube Monitoring

6.5.12 NPTC undertook diffusion tube monitoring of NO_2 at 26 sites during 2023, which is the year with the most recent data available. The most recent six years of data available from 2018 to 2023 from the nearest diffusion tube monitoring sites (19a, 19b, 19c and 25) are presented in **Table 13**. Diffusion tubes 19a, 19b and 19c are co-located with automatic monitoring station PT2 and is located within the Taibach/Margam AQMA. Figure 6.2 in **Appendix A** shows the location of these two monitoring sites closest to the Port.

6.5.13 **Table 13** shows that monitored concentrations are well below the annual mean NO_2 air quality objective at both sites.

Table 13: Diffusion tube monitoring for NPTC

Monitoring Site ID	Monitoring Site Type	Distance to Port (km)	National Grid Reference		Annual mean NO_2 concentration ($\mu g/m^3$)					
			X	Y	2018	2019	2020	2021	2022	2023
19a, 19b, 19c	Industrial	0.3	275452	197195	13.7	15.7	13.4	15.2	11.8	9.8
25	Roadside	0.4	272016	203941	24.1	27.7	21.5	26.6	21.2	17.6

Source: NPTC Air Quality Progress Report 2024

Notes: Local bias adjustment factor of 0.63 was used in 2023, the latest year with representative data. The data capture for the diffusion tubes in 2023 were greater than 75%.
Annual mean objective for NO_2 is 40 $\mu g/m^3$

ABP Air Quality Monitoring

6.5.14 ABP undertake air quality monitoring of NO_2, SO_2, PM_{10} and $PM_{2.5}$ at an automatic monitoring station located within the Port to the south-east of Margam Wharf, as shown on Figure 6.2 in **Appendix A**. This automatic monitoring station has been installed to monitor baseline pollutant concentrations and identify opportunities for improvements in air quality within the Port.

6.5.15 The available raw data recorded at the automatic monitoring station between 2019 and 2024 is presented in **Table 14** below as an average for each year where applicable. Caution should be taken when reviewing the data and comparing it against air quality objectives as it is in raw format and has not been ratified or annualised. Raw data presented for year 2019 and 2024 are for partial years only and should be treated with caution.

6.5.16 The raw data for NO_2 is below the annual mean objective in 2019 and 2023 but above in 2024 (although subject to change when the full year of data is available), whilst the raw data for PM_{10} and $PM_{2.5}$ is below the annual mean objectives in 2019 and 2022 to 2024.

Table 14: Automatic monitoring undertaken by ABP within the Port, south-east of Margam Wharf

Average mean concentration ($\mu g/m^3$)	Year					
	2019	2020	2021	2022	2023	2024
NO_2	21.2	Not available	Not available	-*	23.3	42.0
SO_2	-*			-*	25.3	37.2
PM_{10}	14.2			7.7	7.4	6.1
$PM_{2.5}$	2.7			2.3	5.3	4.6

Notes: 2019 data covers 14th March to 26th September 2019. 2022 data covers 23rd to 31st December 2022. 2023 data covers the entire year. 2024 data covers 1st January to 1st May 2024.
Data is in raw format and has not been annualised or bias adjusted.
*Concentration is considered to be anomalous and therefore emitted from the results.
Annual mean objectives are 40 $\mu g/m^3$ for NO_2 and PM_{10} and 20 $\mu g/m^3$ for $PM_{2.5}$
There is no annual mean objective for SO_2 and therefore comparison against the annual mean objective cannot be undertaken.

Project-Specific Monitoring Survey

6.5.17 A six-month NO_2 monitoring survey is being undertaken as part of the assessment of the Project using diffusion tubes. Monitoring is being undertaken along and in the vicinity of main roads surrounding the Port where feasible and where changes in road traffic flows would be expected as a result of the Project. The survey compliments the existing monitoring data undertaken by ABP and the local authority within and in the vicinity of the Port. The results of the monitoring survey will be used to support the baseline of the air quality assessment and where possible will contribute to dispersion model verification as required improving the robustness of the air quality assessment of road traffic impacts.

6.5.18 The locations for the monitoring are shown on Figure 6.3 in **Appendix A**. Monitoring commenced in June 2024, following agreement of locations with the NPTC Environmental Health Officer. Monitoring data from the survey will be annualised and bias adjusted in accordance with guidance issued by Defra. The results will be reported in the ES.

Kenfig Marshalling Yard and Jersey Marine Sites

6.5.19 The Kenfig Marshalling Yard Site and the Jersey Marine Site located outside of the Port will be used to deliver habitat compensation and enhancement for the Project with works as detailed in **Chapter 2 – Description of Development**. The number of vehicle movements during construction and maintenance is likely to be below the traffic screening criteria set out in paragraph 6.4.6 and the level of dust generated is likely to be minimal given the nature of the works being undertaken. As such, the Kenfig Marshalling Yard Site and Jersey Marine Site will be scoped out of the air quality assessment.

6.5.20 There may be additional or alternative locations used for the purposes of ecological mitigation and/or compensation as part of the Project. However, at this stage the Kenfig Marshalling Yard Site and land at the Jersey Marine Site have been secured to enable an early consideration of compensation requirements alongside emerging proposals for plans under the wider Future Port Talbot (FPT) Programme.

6.6 Future Baseline

6.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Air Quality Chapter of the ES would seek to explain what the environmental change, in terms of air quality, would likely be in the future if the Project were not to go ahead.

6.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

6.6.3 The approach to establishing the future baseline for air quality will be based on the latest guidance from Defra and the IAQM for undertaking the air

quality assessment. This will include the use of background pollution data in future years, which is expected to show a decline in pollutant concentrations into the future, mainly in response to cleaner vehicles and technologies, and actions in Defra's Air Quality Action Plan. Air quality is also expected to improve from more stringent measures to control sulphur and NO_x emissions from ships.

6.6.4 Dispersion modelling will also be undertaken to establish the future baseline for air quality, if required to assess road traffic impacts. The dispersion model would use future baseline traffic data provided by the Project's traffic team which will take into account existing development that is complete and operational at the time when construction of the Project commences.

6.6.5 The effect of climate change on air quality will not be assessed. There is uncertainty in how the accuracy of model predictions will be affected by climate change. In addition, given the uncertainty in future atmospheric conditions, it is not possible to specifically assess air quality using future climate conditions. However, as stated above in paragraph 6.6.3, the approach will be based on the latest guidance from Defra and the IAQM. A conservative approach will also be adopted where practicable to improve the robustness of any model predictions.

6.7 Mitigation Measures

6.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the air quality topic will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

6.7.2 This section sets out the potential controls relevant to air quality which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and experience from other projects. The list of control measures will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

6.7.3 Embedded (primary) mitigation which may be incorporated into the Project design development is likely to include:

- any appropriate mitigation measures associated with construction road traffic management measures and construction and operational road traffic and marine vessels that are identified if required as part of the EIA and through design development. Such measures may include:
  - consideration of the fuels used within vessels;
  - reviewing the construction and operational strategies to allow more deliveries via sea;
  - providing onshore electrical power to ships at berth while their engines are turned off; and

- ensuring that emissions from non-road mobile machinery meet required pollutant emission limits.

Construction Controls

6.7.4 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- ensuring that vessels comply with MARPOL, which aims to prevent and minimise pollution from ships;
- the production of a Construction Traffic Management Plan (CTMP) which will set out the measures aimed at reducing congestion and minimising the effects of additional traffic during the construction period; and
- the implementation of best practice construction measures to control dust and particulate matter emissions produced during construction activities and emissions from site plant.

6.7.5 These best practice construction measures will be included in an Adaptive Environmental Management Plan (AEMP). The mitigation incorporated within the AEMP will be informed by the latest IAQM guidance and could include prevention measures such as carrying out regular inspections, planning site layout so that machinery and dust causing activities are located away from receptors and setting out requirements for ongoing monitoring and liaison with the local community, and NPTC.

6.7.6 Required construction environmental control and protection measures will be defined in the AEMP included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP), and Air Quality Management Plans.

Operational Controls

6.7.7 Possible mitigation (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage include:

- ensuring that vessels comply with MARPOL, which aims to prevent and minimise pollution from ships;
- consideration of the location of nearby sensitive human health and ecological receptors when designing the layout of the Project, to maximise the distances between the sensitive receptors and sources of air emissions;
- designing plant in accordance with Best Available Techniques where applicable; and
- the implementation of best practice measures in order to control dust and particulate matter emissions produced from terrestrial activities during operation of the Project. The mitigation could include prevention

measures such as carrying out regular inspections, planning site layout so that machinery and dust causing activities are located away from receptors and setting out requirements for ongoing monitoring and liaison with the local community, and NPTC.

6.8 Potential Likely Significant Effects

6.8.1 The potential likely significant effects for air quality are described in **Table 15**. These take into account the expected control measures set out within Section 6.7.

Table 15: Likely significant air quality effects

Activity	Effect	Receptor
Construction		
Land preparation works, including demolition, earthworks, remediation, land reclamation and construction activities	Nuisance, loss of amenity, health and ecology effects caused by construction dust	•Human health (terrestrial) •Ecological (terrestrial)
Emissions from construction related vehicle emissions including workforce movements	•Changes in air quality as a result of increased exhaust emissions both within and beyond the EIA Scoping Boundary	•Human health (terrestrial) •Ecological (terrestrial and marine)
Emissions from construction related marine vessel movements	•Changes in air quality as a result of increased exhaust emissions both within and beyond the EIA Scoping Boundary	•Human health (terrestrial) •Ecological (terrestrial and marine)
Use of construction-stage plant and equipment, including marine plant required for the Project	•Changes in air quality as a result of emissions from the operation of construction plant	•Human health (terrestrial) •Ecological (terrestrial and marine)
Providing habitat compensation and enhancement at the Kenfig Marshalling Yard Site and Jersey Marine Site	•Changes in air quality as a result of increased exhaust emissions associated with construction vehicle movements •Nuisance, loss of amenity, health and ecology effects caused by construction dust	•Human health (terrestrial) •Ecological (terrestrial and marine)
•Operation and maintenance		
Storage of imported components, integration and commissioning, assembly and fabrication activities	•Nuisance, loss of amenity, health and ecology effects caused by dust	•Human health (terrestrial) •Ecological (terrestrial)
Emissions from Project related operational vehicle movements include workforce	•Changes in air quality as a result of increased exhaust emissions both within and beyond the EIA Scoping Boundary	•Human health (terrestrial) •Ecological (terrestrial and marine)
Emissions from Project related operation marine vessel movements to and from the Port	•Changes in air quality as a result of increased exhaust emissions both within and beyond the EIA Scoping Boundary	•Human health (terrestrial) •Ecological (terrestrial and marine)

Activity	Effect	Receptor
Operation of plant such as cranes and onsite generators used during integration and commissioning, assembly and fabrication activities, including marine plant required for the Project	•Changes in air quality as a result of emissions from the operation of plant and vessels	•Human health (terrestrial) •Ecological (terrestrial and marine)
Operation of a batching plant including the delivery of and handling of aggregate feedstocks	•Changes in air quality as a result of emissions from the operation of a batching plant	•Human health (terrestrial) •Ecological (terrestrial and marine)
Operation of platform component painting facility	•Changes in air quality as a result of emissions from painting and solvents used within the facility	•Human health (terrestrial) •Ecological (terrestrial and marine)
Onsite energy facilities	•Changes in air quality as a result of emissions from onsite energy facilities	•Human health (terrestrial) •Ecological (terrestrial and marine)
Management and monitoring of the created habitats at the Kenfig Marshalling Yard Site and Jersey Marine Site	•Changes in air quality as a result of increased exhaust emissions associated with operational vehicle movements •Nuisance, loss of amenity, health and ecology effects caused by dust	•Changes in air quality as a result of increased exhaust emissions associated with operational vehicle movements •Nuisance, loss of amenity, health and ecology effects caused by dust

6.9 Resources and Receptors Scoped Out of Assessment

6.9.1 The resources or receptors that are proposed to be scoped out of the assessment for air quality are set out within **Table 16**.

Table 16: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Construction			
Use of construction-stage plant and equipment, including marine plant required for the Project	Changes in air quality as a result of emissions from the operation of plant	Human health (terrestrial) Ecological (both terrestrial and marine)	Construction work requires the use of a range of site plant, such as concrete batching plants, excavators, dredgers, piling rigs, cranes and onsite generators. All construction plant has an energy demand, and some may result in direct emissions to air from exhaust. Guidance from the IAQM (IAQM, 2024) notes that effects from onsite exhaust emission are unlikely to be significant. Given the local nature of site plant, plant emissions are considered to have a negligible impact on local air quality, relative to road and marine vessel emissions. Guidance from IAQM (IAQM, 2024) notes that concrete batching equipment is regulated under the Environmental

Activity	Effect	Receptor	Justification for scoping out
			Permitting Regulations 2016 which would control emissions associated with this activity. Based on the above, construction plant emissions will not be assessed further within the ES. However, mitigation measures to reduce the effect of the temporary construction works on local air quality will be considered in the EIA and reported in the ES.
Providing habitat compensation at the Kenfig Marshalling Yard and Jersey Marine	Changes in air quality as a result of increased exhaust emissions associated with construction vehicle movements Nuisance, loss of amenity, health and ecology effects caused by construction dust	Human health (terrestrial) Ecological (both terrestrial and marine)	Given the nature of the works being undertaken, the number of vehicle movements during construction is likely to be below the traffic screening criteria set out in paragraph 6.4.6 and the level of dust generated is likely to be minimal.
Operation and maintenance			
Operation of plant used during integration and commissioning, assembly and fabrication, including marine plant required for the Project	Changes in air quality as a result of emissions from the operation of plant	Human health (terrestrial) Ecological (both terrestrial and marine)	Site plant could include the use of equipment such as cranes, and onsite generators. Emissions from site plant will be regulated by The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 and would meet the required pollutant emission limits. As such, effects from onsite exhaust emissions are unlikely to be significant and plant emissions will not be assessed further within the ES.
Operation of a batching plant including the delivery of and handling of aggregate feedstocks	Changes in air quality as a result of emissions from the operation	Human health (terrestrial) Ecological (both terrestrial and marine)	Batching plant is regulated under the Environmental Permitting Regulations 2016 which would control emissions associated with this activity. As such, effects from batching plant emissions are unlikely to be significant and batching plant emissions will not be assessed further within the ES.
Operation of platform component painting facility	Changes in air quality as a result of emissions from painting and solvents plants	Human health (terrestrial) Ecological (both terrestrial and marine)	These processes are likely to be subject to the Environmental Permitting Regulations and as such the emissions released by these processes will be controlled so that they are unlikely to have a significant effect on air quality. This topic has been scoped out but may be revised when more information becomes available.

Activity	Effect	Receptor	Justification for scoping out
Onsite energy facilities	Changes in air quality from as a result of emissions from onsite energy facilities	Human health (terrestrial) Ecological (both terrestrial and marine)	Backup diesel generators may be required onsite to provide heat and/or power during operation in the event that grid electricity is not available and for testing and maintenance purposes. As the operation of backup diesel generators would be intermittent and infrequent, emissions would be unlikely to cause a significant air quality effect. Emissions from backup diesel generators would be controlled under the Environmental Permitting (England and Wales) Regulations 2016 and subject to regulation by Natural Resources Wales.
Management and monitoring of the created habitats at the Kenfig Marshalling Yard Site and Jersey Marine Site	Changes in air quality as a result of increased exhaust emissions associated with operational vehicle movements Nuisance, loss of amenity, health and ecology effects caused by dust	Human health (terrestrial) Ecological (both terrestrial and marine)	Given the nature of the works being undertaken, the number of vehicle movements during operation and maintenance is likely to be below the traffic screening criteria set out in paragraph 6.4.6 and the level of dust generated is likely to be minimal.

6.10 Proposed Assessment Methodology

Dust – Construction and Operation

6.10.1 The usefulness of numerical criteria to determine effects from dust is limited, as the perception of loss of amenity or nuisance is affected by a wide range of factors such as character of the locality and sensitivity of receptors. As a result, assessment methodologies that are based on a qualitative approach are advocated. The ES will assess construction and operation dust effects in accordance with the IAQM's 'Guidance on assessment of dust from demolition and construction' (IAQM, 2024) and will cover human health receptors and ecological sites within the distances presented in paragraph 6.4.4.

Road Traffic Emissions – Construction and Operation

6.10.2 At this stage, detailed information is not available to confirm if construction or operation road traffic flows are above or below the thresholds presented in paragraph 6.4.6. Therefore, this will be reviewed as part of the ES. If flows are above the thresholds, then assessment of local air quality effects will be undertaken using the advanced dispersion model ADMS-Roads and supplemented by the following tools listed below to determine the magnitude of change of the Project.

6.10.3 This is consistent with the approach required with Defra's LAQM Technical Guidance (LAQM TG22) (Defra, 2022).

6.10.4 Tools provided by Defra will be used for the assessment. These tools include:

- the latest version of the Defra Emission Factor Toolkit;
- the latest version of the Defra NOx to NO_2 conversion; and
- the most recent Defra background pollutant maps.

6.10.5 Nationwide emission factors of NO_x and PM are taken from the European Environment Agency Computer Programme to Calculate Emissions from Road Transport (COPERT) 5.6 emission calculation tool, reflecting recent evidence on the real-world emission performance. The assessment will apply these emission factors and background concentrations which are representative of the opening year.

6.10.6 With respect to NO_x to NO_2 conversion, the model that will be used for the assessment will provide outputs for NO_x which will need to be converted to NO2 to allow comparison with the relevant air quality objectives. Defra provides a spreadsheet-based method, which is available from Defra's Air Information Resource website (Department for Environment Food and Rural Affairs, 2020), for calculating annual mean NO_x to NO_2 conversions. This method will be used within the assessment and is the most appropriate way of determining NO_2 concentrations from road NO_x contributions.

Marine Vessel Emissions – Construction and Operation

6.10.7 Changes in concentrations in NO_x, PM and SO_2 from marine vessels during construction and operation will also be assessed in the ES. The ES will provide reasonable worst-case assumptions on the marine vessels such as their number and routing. It will also be assumed for the purposes of the assessment that all marine vessels will comprise of ships. Where the criteria (Defra, 2022) presented in paragraph 6.4.8 is met, the air quality impacts from the marine vessel movements will be assessed qualitatively, due to the uncertainties associated with modelling marine vessel emissions. The qualitative assessment would focus on the distance to receptors and movements per day.

Significance Criteria

6.10.8 Changes in air quality during construction and operation could affect human health receptors and ecological receptors. Human health receptors used for the assessment will focus on residential dwellings, schools, hospitals and other locations of relevant exposure. Designated sites for ecology will also be identified where the qualifying features are sensitive to air pollutants, and where a potential change in local air quality is identified. All receptors qualifying for the air quality assessment will be determined to have a 'high' sensitivity of receptor.

Human Health

6.10.9 For human health receptors, the assessment of significance from road traffic emissions will be undertaken in accordance with the EPUK and IAQM (2017) guidance (EPUK and IAQM, 2017). This is to ensure that the descriptions of effects within the assessment will be clear, consistent and in accordance with specific air quality guidance. **Table 17** provides effect descriptors for changes in NO_2, PM_{10} and $PM_{2.5}$ concentrations as a result of the Project.

6.10.10 The magnitude and sensitivity of receptor to any concentration change identified will be considered in relation to the air quality assessment level (AQAL), which may be an air quality objective, limit value or target value or an Environment Agency Environmental Assessment Level. For the Project, the relevant AQAL have been presented in **Table 17**.

6.10.11 It is recognised in EPUK/IAQM that professional judgement is required in the interpretation of air quality assessment significance. **Table 17** is intended as a tool to help interpret the results of the air quality assessment and would therefore be employed in conjunction with professional judgement. For example, a large change at a single individual receptor does not necessarily constitute a significant effect whereas multiple moderate changes may incur a judgement of significance.

6.10.12 The EPUK/IAQM guidance states that professional judgement should take account of:

- the existing and future air quality in the absence of a development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

Table 17: Description of effects for human health receptors

Long-term average concentration at receptor in assessment year	**% Change in concentration relative to AQAL**			
	1	**2-5**	**6-10**	**>10**
75% or less of AQAL	Neutral	Neutral	Slight	Moderate
76%-94% of AQAL	Neutral	Slight	Moderate	Moderate
95%-102% of AQAL	Slight	Moderate	Moderate	Large
103%-109% of AQAL	Moderate	Moderate	Large	Large
110% or more of AQAL	Moderate	Large	Large	Large

Source: Adapted from 'Land-Use Planning and Development Control: Planning for Air Quality' 2017 guidance produced by EPUK and the IAQM

Notes: AQAL = Air Quality Assessment Level i.e. 40µg/m^3 for annual mean NO_2 and PM_{10} and 20µg/m^3 for annual mean $PM_{2.5}$. The table is only designed to be used with annual mean concentrations.
Percentage pollutant concentrations are intended to be rounded to whole numbers. For example, the '<1%' category in this table includes all changes from 0.5% to 1.4% (equivalent to an annual mean NO_2 or PM_{10} absolute concentration change of between 0.2µg/m^3 and 0.6µg/m^3). Changes of 0% (i.e. less than 0.5%) are described as neutral.
When defining the concentration as a percentage of the AQAL, use the 'do minimum' concentrations where there is a decrease in pollutant concentration and the 'do something' concentration for an increase.

Designated sites for ecology

6.10.13 For designated habitats, the determination of significant effects for nitrogen deposition, which will include the contribution of ammonia, and acid deposition will be undertaken in line with IAQM ecology guidance (IAQM, 2020).

6.10.14 In accordance with IAQM guidance, where the long-term (annual mean) change in relevant critical level or critical load is less than 1% the impacts on the designated site are considered not significant.

6.10.15 However, as stated within IAQM guidance, “a change of more than 1% in long-term process contribution does not necessarily indicate that a significant effect (or adverse effect on integrity) will occur; it simply means that the change in concentration or deposition rate cannot in itself be described as numerically inconsequential or imperceptible and therefore requires further consideration”.

6.10.16 Where the 1% threshold is exceeded and the total pollutant concentrations are less than the critical level or the nitrogen deposition rates are less than the applicable critical load, significant effects are not anticipated.

6.10.17 Where the 1% threshold is exceeded and the critical level or critical load is exceeded, the competent expert for Biodiversity will then be consulted with to confirm whether the changes at the designated site for ecology are likely to trigger a significant air quality effect.

Cumulative Effects

6.10.18 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

6.10.19 As detailed in **Chapter 27 – Cumulative and In-combination Effects**, it has been assumed that committed developments with potential to generate road traffic will be incorporated into the traffic model developed for this Project. This will allow the cumulative air quality effect of road traffic emissions from the Project with other committed developments to be assessed.

6.10.20 The potential for significant cumulative effects will be considered in the ES, in accordance with IAQM guidance (IAQM, 2024). Other developments in close proximity to the Project which will have dust generating activities happening at the same time as the Project will be considered. Reference will be made to the dust assessment prepared for the other relevant developments or if not publicly available, professional judgement will be used to assess the cumulative effect of dust.

6.10.21 The cumulative effect of marine vessel emissions will be considered by screening the cumulative vessel movements against the screening criteria presented in paragraph 6.4.8.

6.11 Assumptions and Limitations

6.11.1 The number of vehicle and vessel movements associated with the Project during construction and operation and the road traffic management measures during the construction phase are currently unknown. In scoping in construction and operational emissions from road traffic and vessels, reasonable worst-case assumptions have been made that the Project may lead to an increase in construction and operational vehicle movements exceeding the EPUK/IAQM and TG22 thresholds and thus assessment of local air quality during construction and operation is required. However, the scoping in of these topics may be revised when detailed construction and operational road traffic and vessel movement information is available. It has also been assumed that all vessel movements will be for shipping, given that the TG22 screening criteria only refers to shipping vessels.

6.11.2 It has been assumed that committed developments with potential to generate road traffic will be incorporated into the road traffic model developed for this Project. This will allow the cumulative air quality effect of road traffic emissions from the Project with other committed developments to be assessed.

6.11.3 To account for uncertainty in any dispersion modelling undertaken for the assessment of road traffic impacts, model verification will be undertaken. Verification will be carried out by comparing modelled concentrations with monitored concentrations, to identify any disparity and where required, to adjust modelled outputs.

6.11.4 Uncertainty will also be accounted for in the air quality assessment through the consideration of reasonable worst-case assessment scenarios which will consider the construction and operational phases, and the activities which would give rise to the most significant air quality impacts as a result of the Project. The Project's assessment years will be defined once additional details of the nature of the emission sources are known, so that the worst-case air quality impacts are considered.

6.11.5 It has been assumed that pollutant concentrations associated with the Project are expected to reduce over time, due to improved vehicle and emission reduction technologies. These emissions improvements will also reduce background pollutant concentrations in the future and will be accounted for in any dispersion modelling undertaken to assess road traffic impacts.

6.11.6 Energy required for the Project and water heating are assumed to be powered by electricity from the National Grid. Therefore, they are assumed not to have emissions to air with the potential exception of backup diesel generator, which would be used in emergency events and for testing and maintenance. Emissions from backup generators are unlikely to result in a significant effect on air quality and would be controlled under the Environmental Permitting (England and Wales) Regulations 2016 and subject to regulation by Natural Resources Wales. Therefore, this topic has been scoped out of the ES.

6.11.7 It has been assumed that painting and solvents plants are likely to be subject to the Environmental Permitting Regulations (UK Instruments, 2016) and as such the emissions released by these processes will be controlled so that they are unlikely to have a significant effect on air quality. This topic has been scoped out but may be revised when more information becomes available.

6.11.8 The latest air quality monitoring data available will be used for the EIA. However, it should be noted that the effects associated with the coronavirus (Covid-19) pandemic during 2020 and 2021 when Wales was subject to full lockdowns for periods may have an influence on the monitoring data during these periods. Therefore, the data may not be representative of normal conditions at the monitoring sites and should be appraised with caution.

6.11.9 Furthermore, where appropriate, published data from the Met Office, including weather station data will be incorporated into the ES.

6.12 Summary

6.12.1 The proposed scope of the assessment for air quality is contained within **Table 18**.

Table 18: Proposed scope of the Air Quality Chapter of the ES

Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Sensitive human health receptors	In	In	Scoped in due to the potential air quality effect of dust on nuisance, loss of amenity, health and ecology, as well as the potential change in air quality caused by increased exhaust emissions associated with additional road traffic and marine vessel movements.
Sensitive ecological receptors	In	In	

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7 Airborne Noise and Groundborne Vibration

7.1 Introduction

7.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential airborne noise and groundborne vibration effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

7.1.2 The effects of the Project on the following are considered:

- residential human noise and / or vibration sensitive receptors;
- non-residential human noise and / or vibration sensitive receptors; and
- ecological receptors that are sensitive to noise and / or vibration.

7.1.3 This environmental topic relates to both terrestrial and marine based emission sources of the Project. It considers receptors which are on land rather than underwater regardless of whether the source of noise is on land or on the surface of the water (for example ships and dredging operations).

7.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

7.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 12 – Onshore Traffic and Transport**.

7.1.6 Waterborne noise is considered in **Chapter 17 – Marine Ecology** and **Appendix I: Underwater Noise and Vibration**.

7.2 Relevant Legislation, Policy and Technical Guidance

7.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of airborne noise and vibration are detailed in **Table 19**. All legislation, policy and technical guidance detailed in the table below is relevant to the terrestrial and marine elements of the Project. The only exception if DMRB LA111: Noise and Vibration which is relevant to the terrestrial elements of the Project only.

Table 19: Legislation, policy and technical guidance relevant to the noise and vibration assessment

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
The Environmental Noise (Wales) Regulations 2006 (as amended 2018)	This legislation establishes guidelines for assessing and managing environmental noise in Wales, excluding noise from individual activities, domestic settings, neighbours, workplaces, transport inside vehicles, and military areas. It details the identification of noise sources, strategic noise mapping requirements, and the creation of action plans to manage noise issues, protect quiet areas, and involve public participation.
Land Compensation Act 1973	This document provides a legal framework for individuals seeking compensation for land value depreciation due to noise from public works.
Noise Insulation Regulations 1975 (as amended 1988)	This document establishes the framework for noise insulation requirements related to sources such as traffic noise from a new highway or carriageway and the construction of such. Provision of noise insulation specification for adversely impacted properties.
Well-being of Future Generations (Wales) Act 2015	This legislation mandates public bodies in Wales to pursue sustainable development by setting well-being objectives aligned with well-being goals. It outlines these well-being duties, promoting actions that contribute to the well-being goals in accordance with the sustainable development principle.
Control of Pollution Act 1974	This legislation outlines control of noise on construction sites during and prior to commencement of the works. The Act requires that 'Best Practicable Means' (as defined in Section 72) are adopted to control construction noise on any given site. It refers to the principle of 'Best Practicable Means' of mitigation. Sections 60 and 61 provide the main legislation regarding demolition and construction site noise and vibration.
The Environment (Wales) Act 2016	The Environment (Wales) Act 2016 sets out the requirement for the 'sustainable management of natural resources' together with new ways of working to achieve this.
The Wildlife and Countryside Act 1981	The Wildlife and Countryside Act, WCA is the principal mechanism for the legislative protection of wildlife in Great Britain. The WCA applies to the terrestrial environment and inshore waters (0 to 12 nautical miles) and concerns the protection of wild animals and the designation of protected areas, including Site of Special Scientific Interest (SSSIs). Potential airborne noise and vibration effects on relevant protected species under the WCA will be considered in this chapter.
National Policy	
Planning Policy Wales, Edition 12 (Welsh Government, 2024)	Addresses potential noise pollution by promoting the integration of appropriate soundscapes to reduce environmental risks and manage water resources naturally. It emphasizes the importance of creating sustainable places that are resilient to climate change and have clean air, which includes minimizing adverse impacts of noise pollution due to construction, operation and decommissioning. This Policy also sets out criteria for noise in terms of limits, type and locations.
Local Policy	
Neath Port Talbot County Borough Council, Local Development Plan 2011-2026 Pollution Supplementary Planning guidance (2016) (NPTC, 2016)	Local development plan regarding noise pollution. The guidance highlights identified Noise Action Planning Priority areas, quiet areas and noise pollution associated with ports in the context of Port Talbot's current activities and proximity to the adjacent Steelworks.

Relevant legislation / policy / guidance	Relevance to assessment
Guidance and Standards	
TAN 11: Noise (Welsh Government, 1997)	Provides guidance on minimising the adverse impact of noise through the planning system, detailing considerations for local planning authorities when drafting development plan policies and deciding on planning applications related to noise generation and sensitivity. It includes Noise Exposure Categories for residential development, measures for mitigating noise impact, and examples of planning conditions to manage noise-related issues.
Designing for Renewable Energy in Wales (Design Commission for Wales, 2023)	This document sets out the key design objectives and considerations for the sensitive development of large-scale on-shore wind and solar installations as well as ancillary development in Wales.
Pre-Assessed Areas for Wind Energy identified in Future Wales, Policy, 2021	The Strategic Search Areas identified the areas most appropriate for large scale wind farm development at the time of publication.
The Local Air Environment Local air quality and soundscapes management in Wales (PG(W)(25) (Welsh Government, 2025)	The intention of this guidance document is to clarify the Welsh Government policy expectations with regards to Local Air Quality Management (LAQM) and Soundscapes. This document is also intended to be used by public authorities in conjunction with the latest expert advice on what works in practice.
The Assessment and Rating of Noise from Wind Farms (ETSU-R-97) (Department of Trade and Industry, 1996)	The Assessment and Rating of Noise from Wind Farms, describes a framework for the measurement of wind farm noise and gives indicative noise levels calculated to offer a reasonable degree of protection to wind farm neighbours. In July 2025 a consultation on proposed updates to the technical guidance commenced.
A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise (Institute of Acoustics)	A good practice guide to the application of ETSU-R-97 produced by the Institute of Acoustics (IOA) for the assessment and rating of wind turbine noise. The guidance sets out appropriate study areas and recommends ways to collect relevant data.
BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (The British Standards Institution, 2019)	'Methods for rating and assessing industrial and commercial sound' provides guidance for assessing a new industrial sound source in mixed residential and industrial areas. It assesses the likely effects of the new sound source on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.
BS 7445-2:1991 Description and measurement of environmental noise – Part 2: Guide to the Acquisition of Data Pertinent to Land Use (The British Standards Institution, 1991)	'Description and measurement of environmental noise – Part 2: Guide to the Acquisition of Data Pertinent to Land Use'. This document lays out methods for measuring and describing environmental noise, noise prediction, and reporting requirements.
BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (The British Standards Institution, 2014)	'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' provides a methodology for predicting noise levels generated by plant and equipment associated with construction operations.
BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration (The British Standards Institution, 2014)	'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' provides guidance on the effect of vibration and the likelihood it will cause complaint and cosmetic damage to buildings.
BS 7385-2:1993 Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration (The British Standards Institution , 1993)	'Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration' describes a methodology to assess the impact of vibration on buildings, providing guidance on the effect of vibration and the likelihood of cosmetic damage to buildings.

Relevant legislation / policy / guidance	Relevance to assessment
BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings (The British Standards Institution, 2008)	'Guide to evaluation of human exposure to vibration in buildings' provides guidance on the effect of vibration on human occupants of buildings and the likelihood it will cause complaint.
BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (The British Standards Institution, 2014)	'Guidance on sound insulation and noise reduction for buildings' provides information on the design of rooms and buildings so that they have internal acoustic environments appropriate to their functions. It deals with control of noise from outside the building, noise from plant and services within it, and room acoustics for non-critical situations.
Compendium of WHO and other UN guidance on health and environment (WHO, 2024)	The compendium of World Health Organization guidelines pertinent to environmental noise set out noise levels for typical situations above which critical health effects such as annoyance may be expected to occur.
ISO 9613-2:2024 (The British Standards Institution, 2024)	'Attenuation of sound during propagation outdoors: Part 2: Engineering method for the prediction of sound pressure levels outdoors' sets out a method for calculating the rate of propagation of noise within the atmosphere over terrain.
DMRB LA111: Noise and Vibration (DMRB, 2020)	Design Manual for Roads and Bridges LA 111 Noise and Vibration provides a methodology for the assessment of noise and vibration associated with highway schemes in the UK. This method can also be used to assess the noise impact of traffic generated on existing roads by a new development.
Guidelines for Environmental Noise Impact Assessment (IEMA, 2014)	IEMA Guidelines for Environmental Noise Impact Assessment ('IEMA Guidelines') provide guidance on noise assessment in the EIA context. The guidelines define key methodologies used within the noise impact assessment process and provides advice on their limitations. They are relevant to all scales of project.

7.3 Engagement and Consultation

7.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

7.3.2 Initial consultation has been undertaken with the NPTC Environmental Health Officer (EHO) regarding noise and vibration matters in relation to the assessment approach, such as the study area and baseline. Further engagement will be undertaken as the project progresses.

7.4 Study Area

7.4.1 The study area for airborne noise and groundborne vibration is provided on Figure 7.1 in **Appendix A**. The EIA Scoping Boundary takes into account both terrestrial and marine noise and vibration sources, however, the study area for this chapter is entirely limited to the terrestrial area. For further information on waterborne noise and vibration please refer to **Chapter 17 – Marine Ecology** and **Appendix I: Underwater Noise and Vibration**.

7.4.2 For construction noise, BS 5228-1 suggests that beyond 300 metres, the prediction of noise from construction activities must be treated with caution. DMRB LA111 also states: *"A study area of 300m from the closest construction activity is normally sufficient to encompass noise sensitive receptors"*. As the construction methodology does not propose any

particularly unusual construction activities, the terrestrial noise study area for construction activity will be 300m from the EIA Scoping Boundary.

7.4.3 BS 5228-2 does not suggest a maximum distance for the assessment of vibration on potentially affected receptors. Empirical data provided in the standard however indicates that a study area of 100m from the vibration source (being on land or in the marine area) is appropriate.

7.4.4 As the operation of the Project will involve amongst other things the assembly and commissioning of wind turbines, it is necessary to assess the noise generated by this activity (refer to Section 2.8 of **Chapter 2 - Description of Development** for a full list of the Project's operation activities). Depending on the testing regime to be employed, it may be necessary to consider the turbines on test as if they are an operational wind farm, for which ETSU-R-97 and the IOA GPG would be used. The IOA GPG states the 'study area' for background noise surveys (and noise assessment) should, as a minimum, be the area within which noise levels from the proposed, consented and existing wind turbine(s) may exceed 35 dB L_{A90} at up to 10 m/s wind speed. The turbines that are proposed to be constructed and commission tested at part of the Project have a high operational power output and are taller than many onshore wind turbines. Therefore, the study area of operation and commissioning of the wind turbines is set initially at 800m from the EIA Scoping Boundary.

7.4.5 The Jersey Marine Site and Kenfig Marshalling Yard Site involve habitat enhancement works only. These would require earthworks, planting and then ongoing management and monitoring.

7.4.6 There may be additional or alternative locations used for the purposes of ecological mitigation and/or compensation as part of the Project, however at this stage land at the Kenfig Marshalling Yard Site and land at the Jersey Marine Site have been secured to enable an early consideration of enhancement requirements alongside emerging proposals for plans under the wider Future Port Talbot (FPT) Programme.

7.4.7 It is understood that works planned at Jersey Marine Site entail soft landscaping or woodland / tree works only which would generate little noise.

7.4.8 Works planned for the Kenfig Marshalling Yard Site only entails breaking of concrete slab which would be noisy and may create vibration, but the nearest residences are over 800m distant and screened by large buildings on the Kenfig Industrial Estate.

7.4.9 The Project may result in changes to traffic flows in the local road network. Therefore, using guidance provided by DMRB, LA111, routes affected by the Project, where a noise change of greater than 1dB is predicted, will be identified and will inform the final noise study area. Based on statements in the DMRB the study area would include areas within 300m of these routes. Figure 7.1 in **Appendix A** presents the noise and vibration study area for construction and operation. Vibration levels from road traffic are expected to be negligible.

7.4.10 The noise sensitive receptors (NSRs) that may be potentially adversely affected by the Project within the study area fall into four areas:

- Aberavon south-west: Receptors north of the mouth of River Afan and south of the A4241;
- Aberavon north-east: Receptors between the A4241 and the M4;
- Taibach: Receptors between the A48 and the M4 (possibly two locations); and
- south of the project near Afan Welsh Water.

7.4.11 These receptors are represented in Figure 7.2 of **Appendix A** by the proposed monitoring locations. Monitoring locations for Jersey Marine Site and Kenfig Marshalling Yard Site will be considered further within the ES.

7.5 Description of the Existing Environment

7.5.1 For the aspect of airborne noise and groundborne vibration the resources and receptors are:

- human health and ecological receptors in the study area as defined in paragraph 7.4.10, these receptors comprise of residential human noise and / or vibration sensitive receptors;
- non-residential human noise and / or vibration sensitive receptors; and
- ecological receptors that are sensitive to noise and / or vibration.

Data Sources

7.5.2 Strategic noise maps (Welsh Government, 2022) for Wales provide an indication of the current ambient noise environment from road and rail noise sources in the area.

7.5.3 Policy EN 10 of the Local Development Plan 2016 (NPTC, 2016) aims to protect areas of tranquility within urban areas, designated as ‘Quiet Areas’. The nearest Quiet Area to the development is Talbot Memorial Park, Port Talbot (EN10/7) which falls within the study area.

7.5.4 To measure the existing noise levels at the nearest NSRs, noise and vibration surveys will be conducted in accordance with BS 7445-2:1991, BS 5228-1:2009 and BS 5228-2:2009. Baseline noise measurements areas would include but not be limited to:

- Aberavon south-west: Residential Receptors north of the mouth of River Afan and south of the A4241;
- Aberavon north-east: Residential Receptors between the A4241 and the M4;
- Taibach: Residential Receptors between the A48 and the M4 (possibly two locations); and
- south of the project near Afan Welsh Water.

7.5.5 To assess the potential impact from the commissioning phase of the wind turbines, surveys may also be undertaken in accordance with the IOA GPG, with wind speeds measured at one of the proposed test turbine locations and several weeks of measurements at the receptor locations.

7.5.6 The adjacent steelworks will be contacted to investigate whether they have any measurements taken at the steelworks that could be incorporated in the study. This is to be confirmed at a later date during the EIA process.

Baseline Conditions

7.5.7 It is expected that noise from existing port activities and industrial noise from the adjacent steelworks, including the construction (and eventual future operation) of the Electric Arc Furnace (EAF), combined with traffic noise from the M4 motorway, which is elevated for much of its length in Port Talbot, are the main contributors to the baseline noise climate.

7.5.8 Strategic noise maps of Wales provide annual average noise data for some noise sources impacting the area. These indicate that noise from the A4241 and A48 roads and M4 motorway contribute to the existing noise climate. The railway running parallel to the A48 road and M4 motorway also contributes to the existing noise climate, though to a lesser extent. The largest source of industrial noise in the area emanates from the adjacent steelworks site. Heavy steel production ended in September 2024, and the last blast furnace has been closed. A planning application for a new EAF was approved in 2025, with the new furnaces expected to be constructed from summer 2025 and operational from the end of 2027 (Tata, 2024). Noise emitted by the steel works is therefore likely to change depending on the timing of future steelwork activities.

7.5.9 As per Policy EN 10 of the Port Talbot Local Development Plan, the nearest Quiet Area to the development is EN10/7, which is in the study area. EN10/8 and EN10/9 would also be assessed as noise sensitive if the study area changes such that they fall within it. These data will be supplemented by baseline noise surveys to be conducted.

Next Steps

7.5.10 A baseline noise survey will be undertaken at representative NSRs to establish the baseline pre-construction noise levels for consideration within the construction and operational noise and vibration assessment. The surveys would be undertaken for a suitable duration, representative of periods when construction would be undertaken at the nearest NSR during representative noise conditions.

7.5.11 Measurement locations and survey duration have been selected to be representative of ambient / background noise levels at the NSR and are outlined above in paragraph 7.5.4 as agreed with NPTC.

7.5.12 The baseline noise surveys would be conducted, and data processed in a way which is consistent with the requirements of:

- ETSU-R-97 & IOA GPG;
- BS 4142:2014+A1:2019;
- BS 7445-2:1991;
- BS 5228-1:2009+A1:2014; and
- BS 5228-2:2009+A1:2014.

7.5.13 As construction and operational vibration is assessed against absolute values rather than against a pre-existing baseline, no baseline vibration survey is proposed.

Future Baseline

7.5.14 As set out in **Chapter 5 – Approach to Assessment,** future baseline scenarios will be established to understand the potential situation without the Project. The airborne noise and groundborne vibration chapter of the ES would seek to explain what the environmental change, in terms of airborne noise and groundborne vibration would likely be in the future if the Project were not to go ahead.

7.5.15 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence. These changes will include the operation of haul and access roads for the Project.

7.5.16 The approach to establishing the future baseline for airborne noise and groundborne vibration is to undertake predictive noise calculations and modelling for changes to noise sources in the future (e.g. traffic noise modelling for the future year scenario without the Project).

7.6 Mitigation Measures

7.6.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for airborne noise and groundborne vibration will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

7.6.2 This section sets out the potential controls relevant to airborne noise and groundborne vibration, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

7.6.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- reducing the impact of noise from noise sources, through careful site layout and using buildings as noise barriers;
- implementation of Best Practicable Means (BPM) of noise control (such as use of noise barriers, works timings to avoid sensitive times, use of anti-vibration mountings, and planned community communications regarding works activities); and
- careful design of potential noise sources and sound power level limits (SWL) included in plant specifications.

Construction Controls

7.6.4 During construction there would be a range of measures and best practice techniques, in accordance with relevant guidance such as Annex B of BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Part 1: Noise', and Section 8 of BS 5228:2009+A1:2014 'Part 2: Vibration' put in place to avoid and reduce noise and vibration impacts as far as reasonably possible.These measures represent 'Best Practicable Means' (BPM) (as defined by section 72 of the Control of Pollution Act 1974) to manage noise and vibration emissions from construction activities These measures and techniques would be secured through approved management plans.

7.6.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- selection of the most appropriate construction techniques;
- monitoring to adapt control measures;
- use of regularly maintained equipment in good working order;
- turning off equipment when not in use; and
- limiting the hours of work for relevant high noise level activities (such as surface breaking).

7.6.6 Required construction environmental control and protection measures will be defined in an Adaptive Environmental Management Plan (AEMP) included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP), and Noise and Vibration Management Plans (NVMP).

Operation and Maintenance Controls

7.6.7 The operation and maintenance of the Project comprises noise sources arising from the FLOW facility and new harbour activities. This includes construction, commissioning, transportation, and the potential manufacture of offshore wind turbines.

7.6.8 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational and maintenance phase include:

- use of noise barriers or low noise road surfaces;
- fitting elevated noise sources such as cranes with purpose designed noise enclosures; and
- restricting the turbine integration and commissioning to the noisier parts of the day (if needed and practicable).

7.6.9 In relation to blade pitch changes to minimise noise, it is not currently known whether this is feasible during commissioning testing.

7.6.10 Noise barriers will have no appreciable effect on noise levels from wind turbines as the aerodynamic and mechanical sources of noise are elevated.

7.6.11 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) of airborne noise and groundborne vibration arising from harbour activities include:

- limitation of the number of vessels operating within the port boundary in a given time period;
- consideration of transportation routes and proximity to NSRs; and
- provision of shore-based power, where practical, for marine vessels which remain berthed for any extended period, negating any requirement for onboard power generation.

7.6.12 Operational environmental control and protection measures will be defined in an outline Operational Environmental Management Plan (oOEMP) included as part of the application. This would include best practice measures and techniques; any specific measures identified through the EIA. Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP.

7.7 Potential Likely Significant Effects

7.7.1 The potential likely significant effects for airborne noise and groundborne vibration are described in **Table 20**. These take into account the expected control measures set out within Section 7.6.

Table 20: Likely significant airborne noise and groundborne vibration effects

Activity	Effect	Receptor
Construction		
Land preparation works, including demolition, earthworks, remediation, land reclamation and construction activities	• potential changes to noise levels at receptors generated by construction plant; and • potential changes to vibration levels at receptors generated by construction plant.	Human health (terrestrial) Ecological (terrestrial)
Construction related vehicle movements New construction access and haul roads may be needed to allow traffic to reach parts of the sites that do not currently have appropriate vehicle access. Depending on the volume and nature of the vehicles and plant, these roads may be separated from the existing roads within the site to avoid conflict with operational activities that continue during the FLOW construction period. Potential significant effects may arise due to temporary construction traffic noise along these roads.	• potential changes to noise levels at receptors due to construction related vehicle movements; and • potential changes to vibration levels at receptors due to construction related vehicle movements.	Human health (terrestrial) Ecological (terrestrial)
Marine vessel movements	• potential changes to noise levels at receptors due to marine vehicle movements related to construction; and • potential changes to vibration levels at receptors due to marine vehicle movements related to construction.	Human health (terrestrial) Ecological (terrestrial)
Use of construction-stage plant and equipment, including marine plant required for the Project	• potential changes to noise levels at receptors generated by construction plant; and • potential changes to vibration levels at receptors generated by construction plant.	Human health (terrestrial) Ecological (terrestrial)
Providing habitat compensation and enhancement at the Kenfig Marshalling Yard Site and Jersey Marine Site	• potential changes to noise levels at receptors due to construction related vehicle movements; and • potential changes to vibration levels at receptors due to construction related vehicle movements.	Ecological (terrestrial)

Activity	Effect	Receptor
Operation and Maintenance		
Integration and commissioning of wind turbines. Noise sources for assembly of turbines will include fabrication activities and assembly utilising large cranes and transport vehicles.	• potential changes to noise levels at receptors generated by the operation of wind turbines during integration and commissioning.	Human health (terrestrial) Ecological (terrestrial)
Operation of plant such as cranes and onsite generators used during integration and commissioning, assembly and fabrication activities, including marine plant required for the Project	• potential changes to noise levels at receptors generated by the operation of wind turbines during commissioning; and • potential changes to vibration levels at receptors generated by the operation of wind turbines during commissioning.	Human health (terrestrial) Ecological (terrestrial)
Operational vehicle movements	• potential changes to noise levels at receptors due to operational related vehicle movements; and • potential changes to vibration levels at receptors due to operational related vehicle movements.	Human health (terrestrial) Ecological (terrestrial)
Operational marine vessel movements	• potential changes to noise levels at receptors due to marine vehicle movements related to construction; and • potential changes to vibration levels at receptors due to marine vehicle movements related to construction.	Human health (terrestrial) Ecological (terrestrial)
Operation of a batching plant including the delivery of and handling of aggregate feedstocks	• potential changes to noise levels at receptors due to operation of a batching plant.	Human health (terrestrial) Ecological (terrestrial)
Operation of platform component painting facility	• potential changes to noise levels at receptors due to operation of a platform component painting facility.	Human health (terrestrial) Ecological (terrestrial)
Onsite energy facilities	• potential changes to noise levels at receptors due to operation of onsite energy facilities.	Human health (terrestrial) Ecological (terrestrial)
Management and monitoring of the created habitats at the Kenfig Marshalling Yard Site and Jersey Marine Site	• potential changes to noise levels at receptors due to vehicle movements related to the management and monitoring of habitats.	Ecological (terrestrial)

7.8 Resources and Receptors Scoped Out of Assessment

7.8.1 The resources or receptors that are proposed to be scoped out of the assessment for airborne noise and groundborne vibration are set out within **Table 21**.

Table 21: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Construction			
Construction related vehicle movements	Potential changes to vibration levels at receptors due to construction related vehicle movements	Human health (terrestrial)	Vibration levels from road traffic are expected to be negligible
Operation			
Management and monitoring of the created habitats at the Kenfig Marshalling Yard Site and Jersey Marine Site	Potential changes to noise levels at receptors due to vehicle movements related to the management and monitoring of habitats	Ecological (terrestrial)	It is anticipated that management and monitoring of these habitats will not significantly increase the noise environment
Marine vehicle movements	Potential changes to vibration levels at receptors due to marine related vehicle movements	Human health (terrestrial)	Vibration levels from marine traffic are expected to be negligible

7.9 Proposed Assessment Methodology

Construction

7.9.1 The construction noise and vibration assessment will include the following methods:

- confirmation of likely construction methodology including plant inventories, location of construction compounds and construction programme;
- construction noise to be predicted in accordance with methodologies for static and mobile plant from BS 5228-1. These methods will be applicable to construction of the FLOW facility, haul and access roads and dredging in the harbour;
- construction vibration will be predicted and assessed in accordance with guidance from BS 5228-2; BS 6472 and BS 7385; and
- construction traffic movements and use of any haul roads including number of vehicle movements and location of routes; will be assessed using DMRB LA111 methodology.

7.9.2 Proposed assessment of significant effects during construction:

- assessment of significance of construction noise would be undertaken in accordance with BS 5228-1 Example Method 1 ‘ABC Method’ or ‘5dB change method’. The criteria for significant adverse effect are for construction noise to exceed relevant ABC thresholds for a duration of 10 consecutive days in any 15 days, or 40 days in any consecutive 6-month period (as per BS 5228-1 guidance);
- assessment of significance of construction vibration would be undertaken in accordance with BS 5228-2 guidance. The criteria for significant adverse effect are for construction vibration to exceed peak particle velocity (PPV) of 1mm/s; and
- assessment of changes in the level of traffic noise on the local road networks will be conducted using the Design Manual for Roads and Bridges (DMRB) LA111 ‘Noise and Vibration’. The magnitude of impact of traffic noise level changes for short-term construction traffic and defined in terms of significance of effect. LA111 will be used to assess the noise changes due to construction traffic on noise sensitive receptors near to haul routes and construction compounds. It will also be used to assess the significance of road modifications and related traffic flow changes on the local road networks in the EIA Scoping Boundary.

7.9.3 There is potential for adverse effects to arise. Therefore, careful consideration of construction methodology is required to ensure that any potential significant adverse effects are mitigated.

Operation and Maintenance

7.9.4 The noise emitted by the operation and maintenance of the proposed Scheme comprises a number of noise sources of different character, which will be assessed individually e.g. wind turbines assembly, integration, and commissioning, will be assessed in accordance with the limits derived in accordance with ETSU-R-97, road traffic in terms of the DMRB LA111 methodology, and noise from operational fixed plant in accordance with BS 4142. The overall combined noise emitted by the site will be assessed to a bespoke set of criteria. These assessment methodologies all require a baseline noise survey, as described in Section 7.5.4 to be conducted to establish the baseline noise conditions.

7.9.5 Elements requiring mitigation will be identified at an early stage and would be considered and applied through management plans for the construction and operational phases.

7.9.6 The operational noise assessment would include the following methods:

- operational noise from the assembly, integration, and commissioning of marine wind turbines may be assessed in accordance with methods outlined in ETSU-R-97;
- operational noise from harbour activities, industrial noise and fixed plant will be assessed in accordance with BS 4142;
- change in traffic noise in the local road network as a result of the development to be assessed in accordance with DMRB LA111; and
- change in traffic noise in the haul and access roads after construction of the development to be assessed in accordance with DMRB LA111.

7.9.7 In addition to the above, the overall combined noise levels of all operational noise sources will be assessed according to the following methodology.

7.9.8 Based on **Table 22** in the IEMA Guidelines (IEMA, 2014), **Table 23** shows the magnitude of impact of noise changes.

Table 22: IEMA guidelines noise impact description

Criteria	Impact
Façade noise levels below 50 dB $L_{Aeq,06:00\ to\ 24:00}$ or 44 dB $L_{Aeq,00:00\ to\ 06:00}$ after changes	No change
Noise changes relative to baseline less than 3 dB	Negligible
Noise changes relative to baseline 3 to 4.9 dB	Minor
Noise changes relative to baseline 5 to 9.9 dB	Moderate
Noise changes relative to baseline 10 dB or more	Major

7.9.9 Changes in noise level would be compared with the values in the table above and the Magnitude of Impact defined. This is then used to define the Significance of Effect.

7.9.10 **Table 23** provides a framework in determining the level of significance relating the magnitude of impact with the sensitivity of the receptor.

7.9.11 The EIA process requires that receptor sensitivity be defined and based on this sensitivity, the predicted Magnitude of Impact on those receptors would then be used to determine the Significance of Effect of the proposed development. The Significance of Effect to identified terrestrial sensitive receptors will be determined as part of the EIA process.

Table 23: Significance of effects

Magnitude of impact	Level of significance relative to sensitivity of receptor		
	Low	**Medium**	**High**
Major	Slight / Moderate	Moderate / Large	Large / Very Large
Moderate	Slight	Moderate / Large	Large / Very Large
Minor	Neutral / Slight	Slight	Slight / Moderate
Negligible	Neutral / Slight	Neutral / Slight	Slight
No impact	Neutral	Neutral	Neutral

Cumulative Effects

7.9.12 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

7.9.13 The airborne noise and groundborne vibration approach to the cumulative assessment for construction and operation vehicle movements will consider other developments which have the potential to increase vehicle movements on the local road network. Committed developments to be included in the traffic data are to be agreed with local highway authorities.

7.9.14 The airborne noise and groundborne vibration assessment will also consider the cumulative effects of operational noise from other committed developments in conjunction with the operational noise of the Project.

7.10 Assumptions and Limitations

7.10.1 The construction and operational assessments will be based on the best information available at the time of the ES, with the following potential assumptions, and limitations.

- The adjacent steelworks noise industrial noise levels:
  - it is assumed that adjacent steelworks as described in **Chapters 2 and 5** is considered part of the baseline noise environment;
- Commissioning and operation of wind turbines:
  - it is assumed that multiple turbines will be commissioned simultaneously during suitable wind conditions;
  - it is assumed that a commissioning schedule will be provided for the assessment of potential significant effects; and
  - it is assumed that commissioning will occur during suitable weather conditions, even if these conditions occur at night.
- Dredging:
  - it is assumed that dredging will not occur beyond the EIA Scoping Boundary;
- Marine Vessels:
  - It is assumed that marine vessels will not be equipped for connection to shore based power.

7.11 Summary

7.11.1 The proposed scope of the ES for airborne noise and groundborne vibration is contained within **Table 24**.

Table 24: Proposed scope of the airborne noise and groundborne vibration chapter of the ES

Receptor / matter	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Construction noise	In	Out	Scoped in during construction due to the potential for significant airborne noise and groundborne vibration effects from construction activities
Construction vibration	In	Out	
Construction road traffic noise	In	Out	
Road traffic vibration (construction and operation)	Out	Out	Scoped out as vibration levels from road traffic are expected to be negligible.
Operational road traffic noise	Out	In	Scoped in during operation and maintenance due to the potential for significant airborne noise and groundborne vibration effects from operation and maintenance activities
Wind turbine noise	Out	In	
Fixed plant noise	Out	In	
Marine traffic noise	In	In	Scoped in due to the potential for significant airborne noise effects from construction, operation and maintenance activities

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8 Flood Risk

8.1 Introduction

8.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential flood risk effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

8.1.2 The effects of the Project on people, property, and infrastructure at risk of flooding from the following sources are considered:

- waterbodies such as main rivers, the sea, reservoirs, and canals;
- ordinary watercourses;
- other watercourses and small waterbodies;
- groundwater body catchments; and
- drainage networks and ditches.

8.1.3 This environmental topic relates to both terrestrial and marine aspects of the Project.

8.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

8.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: Chapter **9 – Freshwater Environment, Chapter 11 – Land Quality and Hydrogeology, Chapter 13 – Terrestrial and Freshwater Ecology, Chapter 14 – Coastal Processes, Chapter 17 – Marine Ecology, Chapter 18 – Marine Water Quality and Sediment Quality,** and **Chapter 20 – Climate Change.**

8.2 Relevant Legislation, Policy and Technical Guidance

8.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of flood risk are detailed in **Table 25**.

Table 25: Legislation, policy and guidance relevant to flood risk

Relevant legislation/policy/ guidance	Relevance to assessment
Legislation	
Flood and Water Management Act 2010 (as amended)	The Flood and Water Management Act 2010 is a UK Act of Parliament that sets out the requirements for effective flood risk and coastal erosion management and promotes the use of Sustainable Drainage Systems (SuDS), both of which are considered integral for consenting. Section 6 of the Act designates certain local authorities as lead local flood authorities (LLFAs). Section 19 and 21 of the Act iterates the LLFA's duty to take appropriate steps to investigate flood events in its area and maintain a register of information on structures or features that are likely to have a significant effect on flood risk in its area. Schedule 3 of the Act requires new developments to include SuDS features that comply with national standards. The Act is relevant to both terrestrial and marine elements of the Project.
Environment (Wales) Act 2016 (as amended)	The Environment (Wales) Act 2016 clarifies the law for a number of existing environmental regulatory regimes including flood risk and land drainage. The Act also promotes the sustainable management of natural resources and requires public authorities to demonstrate the steps that will be taken to enhance biodiversity and ecosystem resilience. The Act is relevant to both terrestrial and marine elements of the Project.
The Environmental Permitting (England and Wales) Regulations 2016 (as amended)	The Environmental Permitting (England and Wales) Regulations (EPR) 2016 was enacted to set up a consolidated system to ensure environmental protection by establishing the following – permits required, regulated activities, permit management, enforcement and penalties, and public participation. Under the EPR 2016, an application for a Flood Risk Activity Permit (FRAP) (NRW, 2024) will be required if certain permanent or temporary works are undertaken – on or near a main river, flood defence structure or sea defence, or in a flood plain. These regulations are relevant to both terrestrial and marine elements of the Project.
Water Framework Directive (England and Wales) Regulations 2017 (as amended)	The Water Framework Directive (WFD) (England and Wales) Regulations 2017 provide a framework for managing the water environment in England and Wales and continue to transpose the European Union's WFD. It emphasises the need for planning applications to be aligned to flood risk management strategies, particularly in areas identified at risk of flooding. These regulations are relevant to both terrestrial and marine elements of the Project.
Land Drainage Act 1991 (as amended) and 1994	The Land Drainage Act 1991 & 1994 places responsibility for maintaining flows in watercourses on landowners. Section 25 of the Act gives the LLFA's powers to serve a notice on landowners to ensure works are carried out to maintain flow of watercourses. Section 23 of the Land Drainage Act 1991 states that an ordinary watercourse consent is required from the LLFA to carry out works on or near an ordinary watercourse (NRW, 2023). An application for a land drainage consent (NRW, 2024) may be required if works are planned on an ordinary watercourse within an Internal Drainage District (IDD). The Act is relevant to the terrestrial elements of the Project.

Relevant legislation/policy/ guidance	Relevance to assessment
National Policy	
Planning Policy Wales Edition 12 (Welsh Government, 2024)	Planning Policy Wales (PPW) aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required the Well-being of Future Generations (Wales) Act 2015 and other key legislation. PPW emphasises the need to assess and mitigate flood risk as part of planning applications, especially through the implementation of SuDS. Para 4.5.7 encourages planning authorities to ensure there is no detriment to flood defences, where spaces alongside canals or rivers are proposed. Section 6.6 outlines the different types of flooding, associated causes, and management measures to tackle these risks that affect existing developments and that would potentially affect proposed developments. Section 6.9 sets out the barriers to development presented by flood risk and how the proper assessment of those risks can facilitate development. The policy is relevant to the terrestrial and marine elements of the Project.
Technical Advice Note (TAN) 15 (Welsh Government, 2025)	TAN 15 (Development and Flood Risk) is a crucial consideration in planning decisions, as it aims to prevent new development in areas of high flood risk and provides guidance on policy objectives for the management and reduction of flood risks. This guidance provides a framework for developers to assess the potential flooding consequences of their development proposals to the development and to others elsewhere. It encourages the incorporation of SuDS to manage surface water runoff effectively. A revised TAN 15 version (Welsh Government, 2025) was published by Welsh Government in March 2025 and has superseded the previous TAN 15 (2004) guidance. The advice is relevant to the terrestrial and marine elements of the Project.
National Strategy for Flood and Coastal Erosion Risk Management (FCERM) in Wales (Welsh Government (2020)	This national strategy sets out a framework to manage the risks from flooding and coastal erosion across Wales with a longer-term, strategic view, recognising the nature of these risks with respect to the challenges of climate change. The strategy is designed to align with planning policies, including TAN 15, in order to ensure that flood risk considerations are integrated into the planning process. The strategy encourages community involvement in flood risk management, promoting resilience and awareness. Planning applications should reflect this by engaging with local communities about flood risks and management strategies. The strategy is relevant to the terrestrial and marine elements of the Project.
Local Policy	
Neath Port Talbot County Borough Council (NPTC) Local Development Plan (2011 – 2026)	The aim of the Local Development Plan (LDP) is to provide developers and the public with certainty about the planning framework for Neath Port Talbot. The following policies that are relevant to flood risk are as follows: • 3.0.2 Strategic Policy SP1 Climate Change; 3.0.5 New developments will be expected to avoid unnecessary flood risk and to meet the requirements of TAN 15: Development and Flood Risk. No highly vulnerable development will be permitted within Development Advice Map (DAM) Zone C2 and development will only be considered in areas at risk of flooding where it can be demonstrated that the site can comply with the justification and assessment requirements set out in TAN 15; • 4.0.10 Policy SRA2 Harbourside Strategic Regeneration Area; and

Relevant legislation/policy/ guidance	Relevance to assessment
	• 4.0.12 The Harbourside allocation area is affected by the risk of flooding, with significant parts identified as being within Development Advice Map Zone C. All development proposals within the Harbourside allocation will be required to demonstrate that they accord with national policy relating to flood risk as set out in TAN 15, including provision for emergency access and egress in accordance with an agreed evacuation plan. The plan is relevant to the terrestrial elements of the Project.
NPTC Replacement Local Development Plan 2023 – 2038 Preferred Strategy (NPTC, 2024)	NPTC is currently in the process of developing a Replacement Local Development Plan. While not adopted as policy it provides information and updated policies relating to flood risk which will inform the ES. Relevant policies include Policy SP2 which states developments should "Avoid development in areas identified as being at risk of flooding or that increases the risk of flooding and coastal erosion"
NPTC Local Flood Risk Management Strategy April 2025	This Local Flood Risk Management Strategy aims to reduce the risk of flooding and the social and economic damage that flooding causes, in a sustainable manner. It determines the locally significant flood risk for the area, focusing mainly on flooding from surface water, groundwater and ordinary watercourses, and helps everyone affected to understand and manage flood risk. It also considers significant interactions with main rivers and sewers. The strategy is relevant to the terrestrial elements of the Project.
Guidance and Standards	
Climate change allowances and flood consequence assessments (Welsh Government, 2021)	This Welsh Government guidance sets out the climate change allowances to be used in Flood Consequence Assessments (FCAs) submitted in support of a planning application, and to inform development plan allocations. The guidance is relevant to the terrestrial and marine elements of the Project.
Adapting to Climate Change: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales (Welsh Government, 2022)	The purpose of this Welsh Government guidance is to assist Risk Management Authorities in Wales to consider the impacts of climate change when planning and developing flood and coastal erosion risk management projects and strategies. The guidance is relevant to the terrestrial and marine elements of the Project.
Natural Resources Wales (NRW) guidance: Modelling for Flood Consequence Assessments, 2025	This NRW guidance last updated in May 2024 provides advice on completing FCAs and hydraulic modelling to support FCAs, for the purposes of a planning application or a Flood Risk Activity Permit (FRAP). The guidance is relevant to the terrestrial and marine elements of the Project.
Construction Industry Research and Information Association (CIRIA) Report C753F: The SuDS Manual, 2015	This CIRIA guidance on SuDS published in 2015 provides clear and practical advice to describe challenges faced on site, along with information on correct installation methods and work stages to support successful SuDS construction and delivery. The guidance is relevant to the terrestrial elements of the Project.

Relevant legislation/policy/ guidance	Relevance to assessment
CIRIA Report C635: Designing for exceedance in urban drainage – good practice, 2006	This CIRIA guidance provides advice for the design and management of urban sewerage and drainage systems to reduce the impacts that arise when flows occur that exceed their capacity. It includes information on the effective design of both underground systems and overland flood conveyance. It also provides advice on risk assessment procedures and planning to reduce the impacts that extreme events may have on people and property within the surrounding area. The guidance is relevant to the terrestrial elements of the Project.
DMRB LA113 Road drainage and the water environment, 2020	This guidance sets out a standardised and structured approach for assessing impacts due to flood risk, and potential mitigation measures that can be incorporated into the assessment and design, which although aimed at road schemes is considered applicable to any large infrastructure project. The guidance is relevant to the terrestrial elements of the Project.
DMRB LA104 Environmental assessment and monitoring, 2020	This guidance sets out a standardised structured approach for determining the sensitivity and magnitude of receptors that could be impacted by flood risk for the purposes of an environmental assessment, which although aimed at road schemes is considered applicable to any large infrastructure project. The guidance is relevant to the terrestrial elements of the Project.

8.3 Engagement and Consultation

8.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement.**

8.3.2 Engagement will be undertaken with Natural Resources Wales to discuss flood risk management and apply for a FRAP to work on or near a main river. Flood modelling data (Product 4, 5 and 6) will be requested and considered as part of the assessment and reported in the Environmental Statement (ES).

8.3.3 Consultation will be undertaken with NPTC as the SuDS Approving Body (SAB) and LLFA to apply for an ordinary watercourse consent to carry out works on or near an ordinary watercourse. An application for a land drainage consent may be required if works are planned on an ordinary watercourse within an Internal Drainage District (IDD).

8.4 Study Area

8.4.1 The study area for flood risk is provided on Figure 8.1 in **Appendix A**. The study area includes both terrestrial and marine areas. The EIA Scoping Boundary combines the Port and two other land parcels for ecological compensation – the Kenfig Marshalling Yard Site and Jersey Marine Site, as discussed in **Chapter 2 – Description of Developmen**t.

8.4.2 At this stage, the study area includes terrestrial and marine areas and covers a 500m radius around the EIA Scoping Boundary of the Port, The Kenfig Marshalling Yard Site and the Jersey Marine Site. This is based on professional judgement and is informed by publicly available information on flood risk (as discussed in Section 8.5 of this Chapter). The study area for this Chapter will be reviewed and refined as part of the assessment (likely

informed by hydraulic modelling and the development of an FCA) and reported in the ES as required. In this way, the full extent of any predicted impacts will be included.

8.4.3 There may be additional or alternative locations used for the purposes of ecological mitigation and/or compensation as part of the Project, however at this stage, the Kenfig Marshalling Yard Site and the Jersey Marine Site have been secured to enable an early consideration of compensation requirements alongside emerging proposals for plans under the wider FPT Programme.

8.5 Description of the Existing Environment

Resources and Receptors

8.5.1 For flood risk, the receptors are people, property and infrastructure at risk of flooding.

Data Sources

8.5.2 The baseline for flood risk has been derived from the data sources set out in **Table 26**.

Table 26: Data sources

Data type	Data source
'Recorded Flood Extents' online dataset	Natural Resources Wales (NRW) – accessed October 2025
Neath Port Talbot County Borough Council Local Flood Risk Management Strategy and Plan April 2025	NPTC
'Main Rivers' online dataset	NRW – accessed October 2025
LiDAR online dataset 1m DTM	Welsh Government – accessed October 2025
'Flood Map for Planning' – Flood Zone 2 and 3 online dataset	NRW – accessed October 2025
'Development Advice Maps' (DAM) online dataset	NRW – accessed October 2025
'Flood Defence Structures' online dataset	NRW – accessed October 2025
'Flood Map for Planning' (FMfP) – Detailed Map	NRW – accessed October 2025
'Water Framework Directive (WFD) Regulations Cycle 3 Classification' online dataset	NRW – accessed October 2025
'Future Port Talbot Flood Risk Summary - Technical Note' within the 'Masterplan: Baseline and Strategic Context (MP01) - ABP_WSSP_23_0559_MDEC-MMD-XX-XX-REP-PL-000001'	Mott MacDonald
Utilities Strategy Report (MDEC – U01)	Mott MacDonald
Water Watch Wales – Map Gallery	NRW – accessed October 2025
National River Flow Archive	UK Centre for Ecology & Hydrology (UKCEH) – accessed 2025
GeoIndex Onshore Mapping	British Geological Survey (BGS) – accessed October 2025
Cranfield Soil and Agrifood Institute – Soilscapes	Cranfield University – accessed October 2025
Our canal & river network	Canals & River Trust – accessed October 2025

Baseline Conditions

The Port

Recorded Flood Extents

8.5.3 No records of historic flooding events are indicated within the Port under the NRW Recorded Flood Extents dataset (NRW, 2025) and the Council's Local Flood Risk Management Strategy (NPTC, 2025).

Study Area Elevations

8.5.4 The levels within the Port range from approximately 0–30m above Ordnance datum (AOD) (NRW, 2023) as shown on Figure 8.2 in **Appendix A**, with lower levels owing to the presence of the coastal waterbody and higher levels relating to existing raised land.

WFD Waterbodies

8.5.5 The Port is located on the southern coast of Wales at the confluence of the two watercourses, River Ffrwdwyllt and River Afan before flowing into Swansea Bay. Both of these watercourses are included in the NRW Main Rivers dataset (NRW, 2022) and are shown on Figure 8.1 in **Appendix A.** NRW carries out maintenance works on statutory Main Rivers in Wales for the purposes of managing flood risk.

8.5.6 The River Ffrwdwyllt flows into the Port from Bryngyrnos via a culvert under the M4 and A4241 before discharging into the eastern section of the impounded dock area. The River Afan flows from Pontrhydyfen to the mouth of Swansea Bay, adjacent to the docks with some flow diverted into the northern section of the impounded dock via a dock feeder at Marcroft Weir. The River Afan and River Ffrwdwyllt catchments encompass areas of 90km2 and 20km2 respectively, with most of the catchment areas covered by woodland and grassland (UKCEH, 2025).

8.5.7 The Afan Estuary Incl. Docks transitional waterbody (docks hereafter referred to as 'impounded docks') lies within the extent of the Port. The impounded docks are fed water through the northern section by some flow diverted via a dock feeder channel from River Afan and the eastern section by Rive Ffrwdwyllt, and ultimately converges with the main flow of River Afan to discharge into Swansea Bay to the west of the study area.

8.5.8 Baglan Brook is located approximately 4km north13 of the Port, however the catchment area boundary associated with this watercourse is located approximately 0.35 km north[13] of the study area.

8.5.9 Swansea Bay is a coastal waterbody located to the west of the Port, acting as a discharge point for River Afan.

8.5.10 The Port is located within the Swansea Carboniferous Coal Measures groundwater body catchment area (NRW, 2025).

[13] This has been taken from the closest point of the EIA Scoping boundary.

8.5.11 The WFD data set (NRW, 2025) indicates that the Port is located within the Western Wales River Basin District (RBD), and identifies the following waterbodies in the study area relevant to the respective WFD datasets:

- WFD River Waterbodies Cycle 3 (2021);
- Afan – confluence with Pelenna to tidal limit (Waterbody ID: GB110058026110);
- Ffrwd Wyllt - headwaters to tidal limit (Waterbody ID: GB110058026100);
- Baglan Brook – headwaters to confluence with River Neath (Waterbody ID: GB110058026350);
- WFD Transitional Waterbodies Cycle 3 (2021);
- Afan Estuary Incl. Docks (Waterbody ID: GB541005800600);
- WFD Coastal Waterbodies Cycle 3 (2021);
- Swansea Bay (Waterbody ID: GB641008260000);
- WFD Ground Waterbodies Cycle 3 (2021); and
- Swansea Carboniferous Coal Measures (Waterbody ID: GB41002G201000).

Other Small Waterbodies

8.5.12 Arnallt Brook is a small ordinary watercourse located adjacent to the A4241. The watercourse flows from Brombil through Margam before discharging into River Ffrwdwyllt, east of the Port (NRW, 2022). This watercourse is separated from the Port by the A4241.

8.5.13 The following waterbodies have been identified within the study area at the Port and are illustrated on Figure 9.1 in **Appendix A** (relating to **Chapter 9 – Freshwater Environment**):

- WB1[14]: There are clusters of ponds to the east of Harbour Road and south of Phoenix Wharf Road. These ponds are understood to be water-filled large artificial sand-depressions associated with the adjacent steelworks. During a site visit undertaken on 11th January 2024, these ponds were noted to be linked together due to flood waters and have established surrounding vegetation, including reedbed habitat;
- WB2: A standing body of water located within the existing steelworks fenced boundary called ‘Sand Martin Bank’ which was created as an ecological feature for sand martins. This is an artificial feature adjacent to industrial activity;
- WB3: A reedbed feature within the study area with standing water located underneath and along a pipeline route north of the adjacent steelworks boundary; and

[14] WB stands for “Waterbody” as annotated on Figure 9.1 of Chapter 9 – Freshwater Environment

- WB4: Two balancing ponds located approximately 0.1km to the east of the EIA Scoping Boundary. These ponds appear to be associated with the existing steelworks.

Culverts

8.5.14 The National Flood Asset Database (NRW, 2025) provides a record of flood infrastructure (including some culverts) in Wales. The dataset is managed by NRW and LLFAs. NRW's Flood Defence Structures dataset indicates the presence of a 315m long simple culvert which appears to convey the River Ffrwdwyllt under the A4241 carriageway at the eastern extent of the Port. The dataset indicates that the culvert has screens fitted at both the upstream and downstream ends. The location of the culvert is indicated on Figure 8.1 in **Appendix A**.

8.5.15 Culverts which are not designated as flood defence structures are not included within the dataset or shown on Figure 8.1 in **Appendix A**. Given the historic/industrial nature of the study area and surrounding region, there are likely to be other culverted watercourses or drains present. Further investigation should be undertaken to verify whether there are any additional culverted watercourses or drains within or in the vicinity of the study area. This should be reported in the ES.

Tidal and Fluvial Flood Risk

8.5.16 The NRW Flood Defence Structures dataset (NRW, 2025) indicates the presence of fluvial defence walls along the River Afan and River Ffrwdwyllt in the Port as depicted on Figure 8.1 in **Appendix A**.

8.5.17 Parts of the Port lie within TAN 15: Development Advice Maps (DAM) (NRW, 2022) Zones A, B, C2, showing areas at risk of flooding from rivers and the sea for the purposes of land-use planning, as depicted in Figure 8.3 in **Appendix A**. Description of the zones with planning requirements for each of the respective zones defined as follows:

- Zone A: Considered to be at little or no risk of flooding. No constraints relating to flooding for all development types, other than to avoid increasing risk elsewhere;
- Zone B: Areas known to have been flooded in the past, evidenced by sedimentary deposits. If site levels are greater than the flood levels defined from the extreme (0.1%) flood outline, there is no need to consider flood risk further, for all development types. If not, assessments are unlikely to identify consequences that cannot be overcome or managed to an acceptable level;
- Zone C1: Areas with a chance of flooding equal to or greater than 0.1% (i.e. floodplain), which are developed and served by significant infrastructure, including flood defences. Development of all types can take place subject to application of justification test, including acceptability of consequences; and

- Zone C2: Areas of the floodplain without significant flood defence infrastructure. Only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered.

8.5.18 In relation to the above, the development types (Welsh Government, 2004) are described as follows:

- emergency services: hospitals, ambulance stations, fire stations, police stations, coastguard stations, command centres, emergency depots and buildings used to provide emergency shelter in time of flood;
- highly vulnerable development: all residential premises (including hotels and caravan parks), public buildings (e.g. schools, libraries, leisure centres), especially vulnerable industrial development (e.g. power stations, chemical plants, incinerators), and waste disposal sites; and
- less vulnerable development: General industrial, employment, commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites.

8.5.19 The NRW Flood Map for Planning (FMfP): Sea Flood Zones (NRW, 2025) as depicted on Figure 8.4 in Appendix A shows the potential extents of flooding assuming no defences are in place. This demonstrates that the majority of the Port lies in Flood Zone 3 and Flood Zone 2. The rest of the Port is located in Flood Zone 1, which means it has less than 0.1% (1 in 1,000) chance of flooding in any year. It is worth noting that the majority of the area under Flood Zone 3 is covered by waterbodies, i.e. Swansea Bay, the Afan Estuary and the Impounded Docks. The rest of the area within Flood Zone 3 comprises general industrial, employment, commercial and retail infrastructure. Flood Zone 2 displays the extents of flooding from the sea with a 0.1% to 0.5% (1 in 1,000 to 1 in 200) chance of happening in any given year, including an allowance for climate change. Flood Zone 3 displays the extents of flooding from the sea with a 0.5% (1 in 200) chance or greater of happening in any given year, including an allowance for climate change.

8.5.20 The NRW Flood Map for Planning: River Flood Zones (NRW, 2025), as depicted on Figure 8.5 in **Appendix A,** shows the potential extents of flooding assuming no defences are in place. This demonstrates that areas in the northern part of the Port lie in Flood Zone 2 and Flood Zone 3. The rest of the Port is in Flood Zone 1, which means it has less than 0.1% (1 in 1,000) chance of flooding in any year. It is worth noting that the majority of the area under Flood Zone 3 is covered by waterbodies, i.e. River Afan, River Ffrwdwyllt and the impounded docks. The rest of the area within Flood Zone 3 comprises of transport infrastructure. Flood Zone 2 displays the extents of flooding from rivers with a 0.1% to 1% (1 in 1,000 to 1 in 100) chance of happening in any given year, including an allowance for climate change. Flood Zone 3 displays the extents of flooding from rivers with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.

Surface Water Flood Risk

8.5.21 The NRW Flood Map for Planning: Surface Water and Small Water Courses Flood Zones (NRW, 2025) as depicted on Figure 8.6 in Appendix A, shows that small areas of land in the Port are in Flood Zone 2 and Flood Zone 3. These areas are likely to be low lying land around slightly elevated mounds or ponding occurring in isolated areas. The rest of the study area is in Flood Zone 1, which means it has less than 0.1% (1 in 1,000) chance of flooding in any year. Flood Zone 2 displays the extents of flooding from rivers with a 0.1% to 1% (1 in 1,000 to 1 in 100) chance of happening in any given year, including an allowance for climate change. Flood Zone 3 displays the extents of flooding from surface water and small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.

Groundwater Flood Risk

8.5.22 The British Geological Survey (BGS) GeoIndex Onshore map (BGS, 2020) indicates that the bedrock geology below the Port to be Mudstone and Strong Sandstone (Coal-bearing), and the superficial deposits ranging from fine (sandy clay or silt) to coarse (sand or sand and gravel) soils.

8.5.23 Cranfield Soilscapes (Cranfield University, 2025) identifies sand dune soils (which it describes as sandy, freely draining, lime rich soils) and loamy and clayey soils of coastal flats with naturally high groundwater in the Port. The presence of high groundwater means the Port may be at risk of ground water flooding.

Flood risk from Reservoirs and Canals

8.5.24 The NRW Flood Map for Planning (NRW, 2023) shows the north of the Port to be at risk of flooding should the Cwmwernderi Reservoir fail. It is to be noted that the map does not indicate the likelihood of a flood occurring. Reservoir flooding is extremely unlikely to happen. All large reservoirs must be inspected and supervised by reservoir Panel Engineers. As the enforcement authority for the Reservoirs Act 1975 in Wales, NRW ensures that reservoirs are inspected regularly, and essential safety work is carried out. As such, the chance of the reservoir failing and giving rise to flooding is remote.

8.5.25 Canal & River Trust online maps (Canals & River Trust, 2025) indicate that there are no canals present within the Port.

Flood Risk from Sewers and Drains

8.5.26 Utilities data provided by Welsh Water (Mott MacDonald, 2023) indicates the presence of a number of existing pumped and gravity combined sewers within the Port. Surface water sewers are identified within the residential development to the north-west of the Port, neither surface water nor foul water drainage have been identified within the extents of the EIA Scoping Boundary itself, although they may be present.

8.5.27 It should be noted that at the time of writing, the locations of the combined sewers have only been identified through asset maps.

8.5.28 Furthermore, although not mapped, there may also be private foul sewers and/or septic tanks within some of the existing industrial developments and roads on site, which could require removal or diversion as a part of the works.

Kenfig Marshalling Yard Site

Recorded Flood Extents

8.5.29 There are no records of historic flooding for the Kenfig Marshalling Yard Site within the NRW Recorded Flood Extents dataset (NRW, 2025) and the Council's Local Flood Risk Management Strategy (NPTC, 2025).

WFD Waterbodies

8.5.30 The Kenfig Marshalling Yard Site is located near the southern coast of Wales approximately 5.5km south-west of Port Talbot, where Nant Cwm Philip converges with River Kenfig before flowing into Swansea Bay. Both of these watercourses are included in the NRW Main Rivers dataset (NRW, 2022) and are shown on Figure 8.1 in **Appendix A**.

8.5.31 The River Kenfig flows into this section study area from the Kenfig Valley, running under the M4 and A4283 before discharging into Swansea Bay (NRW, 2025). Nant Cwm Philip flows from Philip Valley culverted under the M4 and A4283 before converging with River Kenfig (NRW, 2025).

8.5.32 The Eglwys Nunydd Reservoir, an artificial lake is located to the north-east of the Kenfig Marshalling Yard Site (NRW, 2025).

8.5.33 The Kenfig Marshalling Yard Site is located within the Swansea Carboniferous Coal Measures ground waterbody catchment area (NRW, 2025).

8.5.34 The WFD dataset (NRW, 2025) indicates that the Kenfig Marshalling Yard Site is located within the Western Wales RBD, and identifies the following waterbodies in the Kenfig Marshalling Yard Site relevant to the respective WFD datasets:

- WFD River Waterbodies Cycle 3 (2021);
- Kenfig – headwaters to tidal (Waterbody ID: GB110058026170);
- Nant Cwm Philip - headwaters to confluence with Kenfig (Waterbody ID: GB110058026190);
- WFD Coastal Waterbodies Cycle 3 (2021);
- Swansea Bay (Waterbody ID: GB641008260000);
- WFD Lake Waterbodies Cycle 3 (2021);
- Eglwys Nunydd Reservoir (Waterbody ID: GB31042079);
- WFD Ground Waterbodies Cycle 3 (2021); and
- Swansea Carboniferous Coal Measures (Waterbody ID: GB41002G201000).

Other Small Waterbodies

8.5.35 A complex drainage system is present to the north of the EIA Scoping Boundary within the Margam Moors Site of Special Scientific Interest (SSSI), consisting of the named ditches: Lower Mother Ditch; and Middle Mother Ditch (NRW, 2022). The Margam Moors SSSI is an agriculturally managed freshwater habitat.

8.5.36 There is a ditch (Unnamed Watercourse WCK-1, as illustrated in Figure 9.1 in **Appendix A**, relating to **Chapter 9 – Freshwater Environment**) to the south of the EIA Scoping Boundary that flows around two ponds. It is unclear if the ditch is hydrologically connected to the Kenfig River.

8.5.37 There is a ditch/drain (Unnamed Watercourse WCK-2, as illustrated in Figure 9.1 in **Appendix A**) adjacent to the EIA Scoping Boundary at the north-east edge identified during a site visit conducted in November 2024.

8.5.38 The following waterbodies have been identified within the study area at the Kenfig Marshalling Yard site and are illustrated in Figure 9.1 in **Appendix A**:

- WBK-1: A pond approximately 15m north of the EIA Scoping Boundary, adjacent to the disused railway track;
- WBK-2: An isolated pond approximately 30m north-east of the EIA Scoping Boundary and approximately 80m south of the railway line;
- WBK-3: A pond approximately 120m south of the EIA Scoping Boundary, adjacent to the railway line;
- WBK-4 & WBK-5: There are two waterbodies (WBK-4 and WBK-5) located approximately 400m south-east of the EIA Scoping Boundary, south of River Kenfig;
- There are a series of waterbodies to the west of the EIA Scoping Boundary, which for simplicity are considered as two groups;
- WBK-6: Natural shaped waterbodies part of the Kenfig Pool and Dunes National Nature Reserve (SSSI, Special Area of Conservation (SAC)). The River Kenfig downstream of the EIA Scoping Boundary flows through and around these waterbodies;
- WBK-7: Waterbodies in this cluster are likely to be artificial given their unnatural shape and orientation. The closest individual pond/lake is approximately 70m from the EIA Scoping Boundary; and
- WBK-8: Eglwys Nunydd Reservoir is partially within the study area, at its closest it is approximately 280m away from the EIA Scoping Boundary. The reservoir supply catchment is expected to be upstream of the EIA Scoping Boundary. The reservoir is separated from the EIA Scoping Boundary by the railway.

Culverts

8.5.39 NRW's Flood Defence Structures dataset (NRW, 2025) indicates the presence of two simple culvert sections which appear to convey the River Kenfig under raised land at the southern extent of the Kenfig Marshalling Yard Site. Another simple culvert is indicated to be located to the south-

east of the Kenfig Marshalling Yard Site, which appears to convey River Kenfig under railway tracks just after its convergence with Nant Cwm Philip. The location of the culverts are depicted on Figure 8.1 in **Appendix A**. Culverts which are not designated as flood defence structures are not included within the dataset or shown on Figure 8.1 in **Appendix A**.

8.5.40 Given the complex network of waterbodies in the study area and surrounding region, there may be other culverted watercourses or drains present. If it is considered necessary therefore, further investigation will be undertaken to identify any additional culverted watercourses or drains within or in the vicinity of the study area. The results of this investigation will be reported in the ES.

Tidal and Fluvial Flood Risk

8.5.41 The NRW Flood Defence Structures dataset (NRW, 2025) indicates that there are no flood defences present in the Kenfig Marshalling Yard Site.

8.5.42 Parts of the Kenfig Marshalling Yard Site lie within DAM Zones A, B, C2 (NRW, 2022), showing areas at risk of flooding from rivers and the sea for the purposes of land-use planning, as depicted on Figure 8.3 in **Appendix A**.

8.5.43 The NRW FMfP: Sea Flood Zones (NRW, 2025) as depicted on Figure 8.4 in **Appendix A** shows the potential extents of flooding assuming no defences are in place. That said, the Kenfig Marshalling Yard Site is not shown to benefit from any flood defences (NRW, 2025). This shows that parts of the Kenfig Marshalling Yard Site lie in Flood Zone 2 and Flood Zone 3. The rest of the Kenfig Marshalling Yard Site is in Flood Zone 1.

8.5.44 The NRW FMfP: River Flood Zones (NRW, 2025) as depicted on Figure 8.5 in **Appendix A** shows the potential extents of flooding assuming no defences are in place. This shows that majority of the Kenfig Marshalling Yard Site lies in Flood Zone 2 and Flood Zone 3. The rest of the Kenfig Marshalling Yard Site is in Flood Zone 1.

Surface Water Flood Risk

8.5.45 The NRW FMfP: Surface Water and Small Watercourses (NRW, 2025) as depicted on Figure 8.6 in **Appendix A**, shows that small and isolated areas accounting for negligible percentages of the Kenfig Marshalling Yard Site lie in Flood Zone 2 and Flood Zone 3. These areas are generally in the vicinity of the network of ditches in the Margam Moors SSSI. The rest of the Kenfig Marshalling Yard Site is located in Flood Zone 1.

Groundwater Flood Risk

8.5.46 The British Geological Survey (BGS) GeoIndex Onshore map (BGS, 2020) indicates that the bedrock geology below the Kenfig Marshalling Yard Site to be Mudstone and Strong Sandstone (Coal-bearing), and the superficial deposits ranging from fine (sandy clay or silt) to coarse (sand or sand and gravel) soils.

8.5.47 Cranfield Soilscapes (Cranfield University, 2025) identifies a variety of soil types in the Kenfig Marshalling Yard Site, ranging from mainly loamy and

clayey soils of coastal flats with naturally high groundwater, to freely draining slightly acid loamy soils, and sand dune soils. The presence of high groundwater means the Kenfig Marshalling Yard Site may be at risk of groundwater flooding.

Flood Risk from Reservoirs and Canals

8.5.48 The NRW FMfP: Flood Risk from Reservoirs (NRW, 2023) shows the majority of the Kenfig Marshalling Yard Site to be at risk of flooding should the Eglwys Nunydd Reservoir fail. It should be noted that the map does not indicate the likelihood of a flood occurring. Reservoir flooding is considered to be extremely unlikely to happen (NRW, 2023). All large reservoirs in the UK must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in Wales, NRW ensures that reservoirs are inspected regularly, and essential safety work is carried out. As such, the chance of the reservoir failing and giving rise to flooding is remote.

8.5.49 Canal & River Trust online maps (Canals & River Trust, 2025) indicate that there are no canals present within the Kenfig Marshalling Yard Site.

Flood Risk from Sewers and Drains

8.5.50 There is existing subsurface sewer infrastructure within the Kenfig Marshaling Yard site. Additionally, there may be sewer infrastructure present to the south of the Kenfig Marshalling Yard Site, where existing industrial developments and roads are present, which could pose a risk of flooding. These may also require removal or diversion as part of the works. Up-to-date utility data shall be obtained from Welsh Water for the Kenfig Marshalling Yard Site to inform the assessment in the ES phase.

Jersey Marine Site

Recorded Flood Extents

8.5.51 There are no records of historic flooding events within the Jersey Marine Site within the NRW Recorded Flood Extents dataset (NRW, 2025). However, flooding events in August 1768 and December 1979 due to River Neath (exact location along the course of the river is not specified) have been recorded in the Council's Local Flood Risk Management Strategy (NPTC, 2025). Highway and surface water runoff incidents due to inefficiencies in combined public sewers were also recorded in July 2007 in Briton Ferry. Another similar event relating to highway drainage issues due to runoff, culverted watercourses and intake grids was recorded in 2008 at Briton Ferry.

WFD Waterbodies

8.5.52 The Jersey Marine Site is located near the southern coast of Wales approx. 8km north-west of Port Talbot, through which the River Neath flows before discharging into Swansea Bay. The River Neath is included in the NRW main rivers dataset (NRW, 2022) and is shown on Figure 8.1 in **Appendix A**.

8.5.53 Within the Jersey Marine Site there are two artificial waterbodies, Tennant Canal, which flows along the western extent of the Jersey Marine Site, and Neath Canal, which flows along the eastern extent (NRW, 2025). Both the canals are linked at Aberdulais, however within the study area there is no direct link between them as they are separated by River Neath.

8.5.54 The Jersey Marine Site is located within the Swansea Carboniferous Coal Measures ground waterbody catchment area (NRW, 2025).

8.5.55 The WFD data set (NRW, 2025) indicates that this section of the study area is located within the Western Wales RBD and identifies the following waterbodies in the Jersey Marine Site relevant to the respective WFD datasets:

- WFD Canal Waterbodies Cycle 3 (2021):
- Tennant Canal (Waterbody ID: GB71010013);
- Neath Canal (Waterbody ID: GB71010012);
- WFD Transitional Waterbodies Cycle 3 (2021);
- Neath Estuary (Waterbody ID: GB541005800700);
- WFD Ground Waterbodies Cycle 3 (2021); and
- Swansea Carboniferous Coal Measures (Waterbody ID: GB41002G201000).

Other Small Waterbodies

8.5.56 A site visit in November 2024 identified an unnamed watercourse to the west of the EIA Scoping Boundary (illustrated as WCJM-1 in Figure 9.1 in **Appendix A**, relating to **Chapter 9 – Freshwater Environment**), assumed freshwater, draining into the Glen-y-Wren Canal.

8.5.57 Several unnamed ditches that appear to drain into the Tennant Canal are located within the study area, north of the EIA Scoping Boundary (NRW, 2022).

8.5.58 The following waterbodies have been identified within the study area at the Jersey Marine Site and illustrated on Figure 9.1 in **Appendix A**:

- WBJM-1: there is a pond located approximately 25m north of the EIA Scoping Boundary, where the access road crosses the Tennant Canal;
- WBJM-2 & WBJM-3: there are several ponds to the west of the Tennant Canal, one larger pond (WBJM-2) and several smaller water ponds in a cluster (WBJM-3). The closest pond is approximately 60m from the EIA Scoping Boundary, and the furthest is approximately 200m; and
- there is a historic reservoir within the Study Area, to the south of the EIA Scoping Boundary. Following the site visit in November 2024, this was confirmed to be disused with no water present.

8.5.59 The following waterbodies have been identified outside the study area:

- WBJM-4: there is an isolated pond approximately 1km from the EIA Scoping Boundary.

Culverts

8.5.60 The National Flood Asset Database (NRW, 2025) indicates that there are no culverts present within the Jersey Marine Site.

8.5.61 Culverts which are not designated as flood defence structures are not included within the dataset. Given the complex network of waterbodies in the Jersey Marine Site and surrounding region, there are likely to be other culverted watercourses or drains present. Further investigation should be undertaken to verify whether there are any additional culverted watercourses or drains within or in the vicinity of the Jersey Marine Site. This should be reported in the ES.

Tidal and Fluvial Flood Risk

8.5.62 The NRW Flood Defence Structures dataset (NRW, 2025) indicates that there are no flood defence structures present in the Jersey Marine Site.

8.5.63 Parts of the Jersey Marine Site lie within TAN 15: Development Advice Maps (DAM) (NRW, 2022) Zones A, B, C2, showing areas at risk of flooding from rivers and the sea for the purposes of land-use planning, as depicted on Figure 8.3 in **Appendix A**.

8.5.64 The NRW FMfP: Sea Flood Zones (NRW, 2025) as depicted on Figure 8.4 in **Appendix A** shows the potential extents of flooding assuming no defences are in place, noting the Jersey Marine Site is not shown to benefit from any flood defences. This shows that large parts of the Jersey Marine Site lie in Flood Zone 3 and Flood Zone 2. The rest of the Jersey Marine Site is in Flood Zone 1.

8.5.65 The NRW FMfP: River Flood Zones (NRW, 2025) as depicted on Figure 8.5 in **Appendix A** shows that large parts of the Jersey Marine Site adjacent to the River Neath lie in Flood Zone 3 and Flood Zone 2, respectively. The rest of the Jersey Marine Site is in Flood Zone 1.

Surface Water Flood Risk

8.5.66 The NRW FMfP: Surface Water and Small Water Courses (NRW, 2025) as depicted on Figure 8.6 in **Appendix A**, shows that small areas of the Jersey Marine Site lie in Flood Zone 2 and Flood Zone 3. Some of these areas appear to be covered by the Tennant and Neath Canals and the ditches possibly connected to River Neath. The rest of the Jersey Marine Site is in Flood Zone 1.

Groundwater Flood Risk

8.5.67 The British Geological Survey (BGS) GeoIndex Onshore map (BGS, 2020) indicates that the bedrock geology below the Jersey Marine Site comprises Mudstone and Strong Sandstone (Coal-bearing), and the superficial deposits present range from fine (sandy clay or silt) to coarse (sand or sand and gravel) soils.

8.5.68 Cranfield Soilscapes (Cranfield University, 2025) identifies a variety of soil types in the Jersey Marine Site, ranging amongst the following:

- loamy and clayey floodplain soils with naturally high groundwater;
- freely draining acid loamy soils over rock;
- slowly permeable seasonally wet acid loamy and clayey soils;
- loamy and clayey soils of coastal flats with naturally high groundwater;
- sand dune soils; and
- blanket bog peat soils.

8.5.69 The presence of high groundwater means the Jersey Marine Site may be at risk of groundwater flooding.

Flood risk from Reservoirs and Canals

8.5.70 The NRW Flood Map for Planning (NRW, 2023) shows part of the Jersey Marine Site along the course of River Neath to be at risk of flooding should the Ystradfellte Reservoir fail. Additionally, the area to the north-west of the Jersey Marine Site is shown to be at risk of flooding should the BP Llandarcy North Site Reservoir fail. It is to be noted that the map does not indicate the likelihood of a flood occurring. Reservoir flooding is extremely unlikely to happen. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in Wales, NRW ensures that reservoirs are inspected regularly, and essential safety work is carried out. As such, the chance of the reservoir failing and giving rise to flooding problem is remote.

8.5.71 Canal & River Trust online maps (Canals & River Trust, 2025) indicate that there are no canals present within the study area. As mentioned in Section 8.5.53, there are two artificial canals present within the Jersey Marine Site that are not managed by the Canal and River Trust – Tennant Canal and Neath Canal (NRW, 2025).

Flood risk from Sewers and Drains

8.5.72 There may be sewers present to the south of the Jersey Marine Site, where existing industrial, residential and commercial developments and highway infrastructure are present, which may pose a risk of flooding. Up-to-date utility data shall be obtained from Welsh Water for the Jersey Marine Site to inform the assessment in the ES phase.

Summary

8.5.73 **Table 27** identifies potential receptors within the study area.

Table 27: Identified receptors

Source	Distance from the study area	Attribute	Potential receptors
The Port			
River Afan	Within study area	• Main River; and • Confluence with Pelenna to tidal limit (watercourse ID: GB110058026110).	• People, property and infrastructure at risk of flooding from River Afan.
River Ffrwdwyllt	Within study area	• Main River; and • Headwaters to tidal limit (watercourse ID: GB110058026100).	• People, property and infrastructure at risk of flooding from River Ffrwdwyllt.
Afan Estuary Incl. Docks	Within study area	• Impounded docks fed by flow from River Afan and River Ffrwdwyllt; and • Transitional waterbody (waterbody ID: GB541005800600).	• People, property and infrastructure at risk of flooding from Afan Estuary Including Docks.
Baglan Brook	Catchment is located 0.35km to the north-east of the study area (watercourse is located 4km to the north-east)	• River; and • Headwaters to confluence with River Neath (watercourse ID: GB110058026350).	• People, property and infrastructure at risk of flooding from Baglan Brook.
Arnallt Brook	Adjacent to the study area (eastern boundary)	• Ordinary watercourse; and • Discharges into River Ffrwdwyllt.	• People, property and infrastructure at risk of flooding from Arnallt Brook.
Swansea Bay	Within study area	• Discharge point for River Afan; and • Coastal waterbody (waterbody ID: GB641008260000).	• People, property and infrastructure at risk of flooding from Swansea Bay.
Cwmwernderi Reservoir	5km to the north of the study area	• Although located 5km away from the study area, north of study area at risk in the unlikely event of the reservoir failing.	• People, property and infrastructure at risk of flooding from Cwmwernderi Reservoir.
Swansea Carboniferous Coal Measures ground waterbody catchment/ associated aquifer	Covers study area	• Loamy and clayey soils of coastal flats identified with naturally high groundwater; and • Ground waterbody catchment (waterbody ID: GB41002G201000).	• People, property and infrastructure at risk of flooding from groundwater/ associated aquifer.
Existing drainage network	Within the study area	• Combined sewers within the study area; • Surface water and foul water sewers north-west of the study area; and	• People, property and infrastructure at risk of flooding from sewers.

Source		Distance from the study area	Attribute	Potential receptors
			• No surface water or foul water sewers within the EIA Scoping Boundary extents itself.	
Other small waterbodies	WB1	Within study area	• Large artificial water-filled sand-depressions.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WB2	Within study area	• An artificial standing waterbody created as an ecological feature.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WB3	Within study area	• A reedbed feature with standing water located underneath a pipeline route.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WB4	Within study area	• Two artificial balancing ponds.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WB5	0.75km to the north-west of the study area	• Three artificial aesthetic ponds.	• People, property and infrastructure at risk of flooding from other small waterbodies.
Kenfig Marshalling Yard Site				
Nant Cwm Philip		Within the study area	• Main River; and • Headwaters to confluence with Kenfig (waterbody ID: GB110058026190).	• People, property and infrastructure at risk of flooding from Nant Cwm Philip.
River Kenfig		Within the study area	• Main River • headwaters to tidal (waterbody ID: GB110058026170).	• People, property and infrastructure at risk of flooding from River Kenfig.
Swansea Bay		Within the study area	• Discharge point for River Kenfig; and • Coastal waterbody (waterbody ID: GB641008260000).	• People, property and infrastructure at risk of flooding from Swansea Bay.
Eglwys Nunydd Reservoir / WBK-8		Within the study area	• Artificial lake; and • Lake waterbody (waterbody ID: GB31042079).	• People, property and infrastructure at risk of flooding from Eglwys Nunydd Reservoir.
Swansea Carboniferous Coal Measures ground waterbody catchment/ associated aquifer		Within the study area	• Loamy and clayey soils of coastal flats identified with naturally high groundwater.	• People, property and infrastructure at risk of flooding from groundwater/ associated aquifer.
Potential existing drainage network		Within the study area	• Sewers may be present to the south of the study area, where existing industrial developments and roads are present.	• People, property and infrastructure at risk of flooding from sewers.

Source		Distance from the study area	Attribute	Potential receptors
Other small waterbodies	WCK-1	Within study area	• Watercourse identified during site visit, small drain/ditch.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WCK-2	Within study area	• Watercourse associated with WBK3&4.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	Margam Moor Ditches	Within the study area	• Ditch network within Margam Moors SSSI.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	Ponds part of Kenfig Pool and Dunes NNR	Within the study area	• Water filled, ponds, SSSI.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBK-1	Within the study area	• Water filled pond.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBK-2	Within the study area	• Water filled pond.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBK-3	Within the study area	• Water filled pond.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBK-4&5	Within the study area	• Water filled ponds.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBK-6	Within the study area	• Ponds classified within Kenfig Pool and Dunes National Nature Reserve.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBK-7	Within the study area	• Artificial, water filled.	• People, property and infrastructure at risk of flooding from other small waterbodies.
Jersey Marine Site				
River Neath (including Neath estuary)		Within the study area	• Main river.	• People, property and infrastructure at risk of flooding from River Neath.
Tennant Canal		Within the study area	• Artificial Canal; and • Canal Waterbody (waterbody ID: GB71010013).	• People, property and infrastructure at risk of flooding from Tennant Canal.

Source		Distance from the study area	Attribute	Potential receptors
Neath Canal		Within the study area	• Artificial Canal; and • Canal Waterbody (waterbody ID: GB71010012).	• People, property and infrastructure at risk of flooding from Neath Canal.
Ystradfellte Reservoir		35km to the north-east of the study area	• Although located 35km away from the study area, part of study area at risk in the unlikely event of the reservoir failing.	• People, property and infrastructure at risk of flooding from Ystradfellte Reservoir.
BP Llandarcy North Site Reservoir		1.8km to the north-west of the study area	• Although located 1.8km away from the study area, area adjacent to the (north-western boundary of the study area is at risk in the unlikely event of the reservoir failing.	• People, property and infrastructure at risk of flooding from BP Llandarcy North Site Reservoir.
Swansea Carboniferous Coal Measures ground waterbody catchment area		Within the study area	• Variety of soil types identified with some of them having naturally high groundwater.	• People, property and infrastructure at risk of flooding from groundwater/ associated aquifer.
Potential existing drainage network		Within the study area	• Sewers likely to be present within the study area, where existing industrial, residential and commercial developments and highway infrastructure are present.	• People, property and infrastructure at risk of flooding from sewers.
Other small waterbodies	WCJM-1	Within the study area	• Watercourse supplied by an unknown freshwater spring connected to marine backwater.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	Ditches	Within the study area	• Draining into the Tennant Canal.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBJM-1	Within the study area	• Water filled, artificial, pond.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBJM-2 & WBJM-3	Within the study area	• Water filled pond.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	WBJM-4	0.5km west of the study area	• Water filled, isolated, pond.	• People, property and infrastructure at risk of flooding from other small waterbodies.
	Disused reservoir	Within the study area	• Disused reservoir, confirmed dry at site visit in November 2024.	• People, property and infrastructure at risk of flooding from other small waterbodies.

Additional Baseline Data Required

8.5.74 The following additional baseline data required is expected to be available at the ES phase and will be reported in the ES as a result:

- further investigation in the form of a Preliminary Drainage Assessment and a Publicly Available Specification 128 (PAS128) survey should be undertaken to verify whether there are any additional culverted watercourses or drains within or in the vicinity of the Project that could impact potential receptors. They should also be used to detect and verify the presence of any underground utilities;
- a Flood Consequences Assessment (FCA) should be undertaken which includes the assessment of the potential constraints posed by all sources of flood risk for the Project. The FCA may be supported by hydraulic modelling if deemed necessary following review of the existing NRW modelling data and subject to the final Project proposals. This would capture any additional receptors in the EIA that could be at risk of flooding, and to apply mitigation measures to ensure they are not impacted;
- any outcomes from coastal modelling such as tidal water levels should be considered from **Chapter 14 – Coastal Processes** and reported on in the FCA if deemed to impact flood risk; and
- further site investigation is recommended to confirm groundwater table levels prior to works commencing on-site.

8.6 Future Baseline

8.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The flood risk chapter of the ES would seek to explain what the environmental change, in terms of flood risk to receptors and flood extents, would likely be in the future if the Project were not to go ahead.

8.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

8.6.3 The approach to establishing the future baseline for flood risk will be using the same data sources used to establish the baseline conditions as stated in **Table 26**. This will include considering all the sources of flood risk and other site-specific factors such as geology and topography. Legislation and Local/National policies and plans will be considered as set out in **Table 25** and is not expected to have any impact on baseline conditions. Climate change predictions will need to be in line with latest climate change allowances published by NRW at that time (as defined by the UK Climate Projections (UKCP18)).

8.7 Mitigation Measures

8.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for flood risk will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

8.7.2 This section sets out the potential controls relevant to flood risk, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

8.7.3 Embedded mitigation (primary mitigation) measures which may be incorporated into the Project design development are likely to include:

- construction of protection revetments and upgrades to existing main breakwater (as discussed in **Chapter 2 – Description of Development**);
- sequential approach to the layout and design of the Project, whereby vulnerable uses are to be located on parts of the site at lower probability and residual risk of flooding where possible;
- flood protection measures, such as raising land above predicted flood levels and define designated areas of refuge;
- provision of flood storage compensation to mitigate the risk of increasing the flood risk to others over the people and property during the lifetime of the Project;
- use of flood resistance and resilience measures to help manage residual flood risks;
- sustainable drainage strategy in consultation with the SuDS Approval Body (SAB), which adopts a hierarchical approach to drainage design that promotes the most sustainable approach, including the use of multi-functional green infrastructure. The sustainable drainage strategy would not increase flood risk impact off-site; and
- services connections including new utilities connections for foul water and surface drainage to prevent localised flooding by allowing for potential increase in volume and runoff.

Construction Controls

8.7.4 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- required construction environmental control and protection measures should be defined in an adaptive environmental management plan (AEMP) included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP), Emergency Response Plans, and Flood Management Plans; and
- during construction there would be a range of measures and best practice techniques, in accordance with relevant guidance such as Construction Industry Research and Information Association (CIRIA) guidance (Lancaster J W, 2004) and Works and maintenance in or near water: GPP5 (NRW, NIEA, and SEPA, 2018), put in place to mitigate impacts on and from flood risk as far as reasonably practicable.

8.7.5 These measures and techniques would be secured through approved management plans. It is expected that the following types of measures and best practice techniques would be included within the approved plans:

- measures to address short-term risks to both construction workers and off-site flood risk receptors (people and property) in line with industry standard best practice measures which may include:
  - principles of working method statements included in the CEMP if appropriate to cover environmentally safe working practices on-site with respect to flood risk, such as the use of temporary flood defences and dewatering management provisions; and
  - emergency preparedness training.
- siting of construction compounds and equipment to avoid areas of high flood risk;
- flood compensatory storage; and
- construction stage drainage strategy principles such as drainage routes/storage to manage potential increase in runoff from construction compounds.

Operational Controls

8.7.6 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the operational stage include:

- a Flood Emergency Plan to be produced to include details of actions to be taken by operatives in the event of a forecast or actual flood. This could include an evacuation plan with access and egress routes for parts of the Project as required/appropriate, covering all operational phase activities;
- operational environmental control and protection measures should be defined in an outline Operational Environmental Management Plan (oOEMP) included as part of the application. This would include best practice measures and techniques, any specific measures identified through EIA. Operators would be required to prepare relevant detailed plans (such as a Flood Emergency Plan) for approval that accords with the approved oOEMP. In relation to flood risk the types of measures within the oOEMP are expected to include but not be limited to:
  - defining safe access and egress routes;
  - requirement to define site specific actions in the event of a forecast or actual flood;
  - requirements for awareness talks and training in relation to emergency responses and evacuation plans;
  - requirements for site audits and monitoring to inform preventative actions such as unblocking of gullies; and
  - registering with flood warning services.

8.7.7 For any aspects of the Project subject to the Environmental Permitting Regulations (EPR) (such as discharge to surface water or ground, flood risk, solvent emissions) under the permit there should be a requirement to develop a written management system which would include plans and procedures describing measures to avoid, reduce and eliminate potential environmental impacts associated with the activities covered by the permit. It is expected that the potential later phase of development that could introduce manufacturing and may require an environmental permit.

8.7.8 The plans developed under the written management system are expected to include measures for the control of emissions such as waste water and drainage as well as the inclusion of plans in relation to emergency response, contingency, and accident prevention and management (including flooding) (gov.uk, 2023).

8.8 Potential Likely Significant Effects

Construction

8.8.1 The potential likely significant effects for flood risk for the construction phase are described in **Table** . These take into account the expected control measures set out within Section 8.7 of this Chapter.

Table 28: Potential likely significant effects for each receptor group for the construction phase

Activity	Effect	Receptor
The Port		
Reprofiling of terrestrial ground – earthworks and levelling Marine dredging, reclamation works and piling works	Possible change to flood extents. People, property and infrastructure could be at risk of flooding.	People, property and infrastructure
Temporary construction compounds, unvegetated surfaces and hard standing ground	Reduced and/or locally displaced recharge to the aquifer due to increased impermeable surfaces. People, property and infrastructure could be at risk of flooding.	People, property and infrastructure
Temporary construction compounds, unvegetated surfaces and hard standing ground Construction activities Dewatering (e.g. from piling, earthworks and foundation construction) Utility services diversion works	Increased area of impermeable surfaces, potentially resulting in increased rainfall runoff and increased discharge to sewers, with subsequent increased release to surface waters. Increased discharge of foul drainage, leading to insufficient capacity of existing sewers, causing an increase in frequency of sewer flooding. Dewatering during construction could cause an increase in frequency of flooding. Temporary limitation of capture of runoff through existing drainage systems, potentially resulting in increased runoff. People, property and infrastructure could be at risk of flooding.	People, property and infrastructure
Construction activities	Potential for direct loss or indirect effects including runoff and/or increased volume of discharge of surface water runoff, resulting in localised flooding. People, property and infrastructure could be at risk of flooding.	People, property and infrastructure
Kenfig Marshalling Yard Site		
Selected vegetation removal	Potential for increased runoff, resulting in localised flooding.	People, property and infrastructure
Planting	Potential for decreased runoff, reducing risk of localised flooding.	People, property and infrastructure
Jersey Marine Site		
Selected vegetation removal Seasonal pond creation and installation of enhancement features as well as any fencing/boundary treatments.	Potential for increased run-off and/or changes to the flood plain, resulting in localised flooding.	People, property and infrastructure
Planting	Potential for decreased runoff, reducing risk of localised flooding.	People, property and infrastructure

Operation and Maintenance

8.8.2 The potential likely significant effects for flood risk for the operation and maintenance phase are described in **Table 29**. These take into account the expected control measures set out within Section 8.7 of this chapter.

Table 29: Potential likely significant effects for each receptor group for the operation and maintenance phase

Activity	Effect	Receptor
The Port		
New infrastructure and reclaimed land	Loss of flood storage. Potential change to flooding extents. Potential increase in discharge from drainage systems and release into surface waters.	People, property and infrastructure
New infrastructure	Potential for subsequent change in fluvial flooding extents (flow being backed up along River Ffrwdwyllt) due to decrease in floodplain area. People, property and infrastructure could be at risk of flooding.	People, property and infrastructure
Improved main breakwater	Limiting overtopping as a result of improvements, thereby reducing risk of tidal inundation. People, property and infrastructure could be at risk of flooding.	People, property and infrastructure
Increased area of impermeable surfaces Implementation of sustainable urban drainage	Reduced and/or locally displaced recharge to the aquifer. Potential increase in recharge to the aquifer.	People, property and infrastructure
Implementation of sustainable urban drainage Increased area of impermeable surfaces and hard standing ground (includes new roads, car parking, buildings and landscaping) Increased capacity of new sewer systems	Potential decrease in run-off, therefore leading to decrease in frequency of sewer flooding. Potential increase in runoff, resulting in collection of rainfall runoff in drainage systems, with subsequent release to surface waters. This would lead to potential increase in frequency of sewer flooding. Potential decrease in frequency of sewer flooding.	People, property and infrastructure
Operational activities	Given the proximity to the operational area, potential increase in volume of discharge of surface water runoff resulting in localised flooding.	People, property and infrastructure
Kenfig Marshalling Yard Site		
Increased green area	Potential for decreased runoff, reducing risk of localised flooding.	People, property and infrastructure
Jersey Marine Site		
Increased green area	Potential for decreased runoff, reducing risk of localised flooding.	People, property and infrastructure

8.9 Resources and Receptors Scoped Out of Assessment

8.9.1 No receptors are proposed to be scoped out of the assessment for flood risk for the construction and operation and maintenance phase.

8.10 Proposed Assessment Methodology

Construction and Operation

8.10.1 The classification of effects would be determined using the principles of the guidance and the criteria set out in DMRB LA113 – Road drainage and the water environment (DMRB, 2020). The significance of effects would be determined using the significance matrix set out in Table 32, DMRB LA104 – Environmental assessment and monitoring (DMRB, 2020), as stated in Section 5.9 of **Chapter 5 – Approach to Assessment**. Although this assessment methodology was developed for road projects, it provides a robust and complete framework for the assessment of flood risk that is considered suitable and applicable for other types of projects, including large infrastructure projects such as this Project.

8.10.2 The criteria for determining the sensitivity of receptors that could be impacted by flood risk during the construction and operation phases of the Project are described in **Table 30**.

Table 30: Scale for Evaluating the Sensitivity (Value) of Receptors

Receptor Value (Sensitivity)	Flood Risk Receptors Typical Examples
Very High (very high importance and rarity, international scale and very limited potential for substitution)	Emergency services: hospitals, ambulance stations, fire stations, police stations, coastguard stations, command centres, emergency, depots and buildings used to provide emergency shelter in time of flood.
High (high importance and rarity, national scale, and limited potential for substitution)	Highly vulnerable development: all residential premises (including hotels and caravan parks), public buildings (e.g. schools, libraries, leisure centres), especially vulnerable industrial development (e.g. power stations, chemical plants, incinerators), and waste disposal sites.
Medium (medium or high importance and rarity, regional scale, limited potential for substitution)	Less vulnerable development: general industrial, employment. commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites.
Low (low or medium importance and rarity, local scale)	Water compatible development including: Boatyards, marinas and essential works required at mooring basins, development associated with canals, flood defences and management infrastructure, open spaces (excluding equipped play areas) and hydro renewable energy.
Negligible	Very low importance and rarity, local scale

Source: Adapted from DMRB LA113 – Road drainage and the water environment, using professional judgement and available national guidance on flood risk, namely TAN 15.

8.10.3 The criteria for determining the magnitude of impact with respect to flood risk during the construction and operation phases of the Project are described in **Table 31**. It is to be noted that the magnitude of change can be positive (beneficial) as well as negative (adverse).

Table 31: Scale for Evaluating the Magnitude with respect to Flood Risk

Magnitude of Impact	Typical Description	Flood Risk Typical Examples
Major	Adverse: Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.	• Change in flood risk resulting in potential loss of life or major damage to property and infrastructure; and • Increase in peak flood level (>100mm).
	Beneficial: Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.	• Measurable decrease in surface water discharge or increase in flood storage from baseline to provide significant local betterment; and • Creation of flood storage and decrease in peak flood level (>100mm).
Moderate	Adverse: Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.	• Change in flood risk resulting in potential for moderate damage to property and infrastructure; and • Increase in peak flood level (>50mm).
	Beneficial: Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.	• Measurable decrease in surface water discharge or increase in flood storage from baseline to provide moderate local betterment; and • Creation of flood storage and decrease in peak flood level (>50mm).
Minor	Adverse: Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.	• Change in flood risk resulting in potential for minor damage to property and infrastructure; and • Increase in peak flood level (>10mm).
	Beneficial: Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.	• Measurable decrease in surface water discharge or increase in flood storage from baseline to provide minor local betterment; and • Creation of flood storage and decrease in peak flood level (>10mm).
Negligible	Adverse: Very minor loss or detrimental alteration to one or more characteristics, features or elements	• No measurable increase in surface water discharge or decrease in flood storage from baseline to provide any betterment; and • Negligible change to peak flood level (lesser than or equal to +/-10mm).
	Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements	• No measurable decrease in surface water discharge or increase in flood storage from baseline to provide any betterment.
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction	

Source: DMRB LA113 – Road drainage and the water environment, Highways England.

8.10.4 Subsequent to identifying an appropriate receptor sensitivity and magnitude of impact using **Table 30** and **Table 31**, the likely significance category and overall significance of effects risk would be assessed by using the matrix set out in **Table 32** (in line with **Chapter 5 – Approach to Assessment**) along with professional judgment to consider site specific factors that may be of relevance. Since the magnitude of impact evaluation includes positive and negative effects, the significance categories subsequently include both. The descriptions of the significance categories are outlined in **Table 33** (also within Section 5.9 of **Chapter 5 – Approach to Assessmen**t).

Table 32: Significance matrix

		Magnitude of impact				
		No change	**Negligible**	**Minor**	**Moderate**	**Major**
Environmental value (sensitivity)	**Very high**	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Source: DMRB LA104 – Environmental assessment methodology, Highways England.

Table 33: Significance categories and typical descriptions

Significance category	**Typical description**
Very large	Effects at this level are material in the decision-making process.
Large	Effects at this level are likely to be material in the decision-making process.
Moderate	Effects at this level can be considered to be material decision-making factors.
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Source: DMRB LA104 – Environmental assessment methodology, Highways England.

Assessments

8.10.5 A FCA will be undertaken which includes assessing the possible impact on flood risk elsewhere. This should demonstrate compliance with TAN 15 and demonstrate that there should be no increase in flood risk as a result of the Project, including accounting for climate change over the lifetime of the Project.

8.10.6 A Drainage Impact Assessment will be undertaken to present the impact of changes to site impermeable areas on its drainage regime. The purpose of this assessment should be to identify the storage and treatment solutions for site runoff, as well as indicating how SuDS techniques should be incorporated into the site drainage design and how exceedance events should be managed. It should also be used to demonstrate a measurable decrease in surface water discharge or increase in flood storage from the baseline to provide significant local betterment.

Cumulative Effects

8.10.7 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

8.10.8 The cumulative assessment for flood risk will consider other committed developments being constructed at the same time as the Project, where the effects from construction related activities such as increased area of impermeable surfaces have the potential to overlap. This will be assessed during the ES phase once the other proposed developments are known and understood.

8.11 Assumptions and Limitations

Assumptions

- The current (2004) version of TAN 15 (Welsh Government, 2004) references the NRW Development Advice Maps (DAM). Three development advice zones are described on the maps, which are attributed different planning actions. The Welsh Government undertook a consultation on proposed further amendments to the TAN 15 in 2023 (Welsh Government, 2023) and it was recently advised that an updated version is likely to be enforced before March 2025. The consultation version of updated TAN 15 (Welsh Government, 2021) introduces ‘Flood Zones’ as depicted in the ‘Flood Map for Planning’ (FMfP), which would replace the DAM.
- It is assumed the NRW ‘Flood Map for Planning’ (FMfP) is suitable for the purpose of EIA Scoping. The FMfP includes information to indicate how climate change is predicted to affect flood risk extents over the next century. The NRW website confirms that the FMfP currently has no official status for planning purposes but may be used as the ‘best available information’ on flood risk for informing planning advice. The detail of how the FMfP should be used by the updated TAN to direct development via planning policy and guidance will be confirmed within the ES.

- It is assumed the information to inform foul and surface water drainage is suitable for the purpose of EIA Scoping. Utilities data provided by Welsh Water indicates the presence of a number of existing pumped and gravity combined sewers within the Port. While it indicates the presence of existing surface water sewers within the residential development to the north-west of this section of the study area, neither surface water nor foul water drainage have been identified within the extents of the Project itself, although they may be present. It should be noted that at the time of writing, the location of the combined sewers have only been identified through asset maps. The locations of utilities within the Port are expected to be confirmed via site utility survey of the site. These are expected to be available for review at the assessment and ES reporting stage.
- It is assumed that there may be sewers present within the Jersey Marine Site and the Kenfig Marshalling Yard Site, where existing industrial, residential and commercial developments and highway infrastructure are present, which could require removal or diversion as part of the works. Up-to-date utility data shall be obtained from Welsh Water to inform the assessment in the ES phase.
- It is assumed that an Outline CEMP would be developed as part of the AEMP during the construction phase which would include a Flood Management Plan.
- Latest climate change allowances published by NRW would be applied in the FCA (as defined by the UK Climate Projections (UKCP18)).
- The Drainage Impact Assessment should be based on a Surface Water Drainage Strategy which should be designed to meet the requirements set out in the Welsh Governments' Statutory Standards for Sustainable Drainage Systems which provide a hierarchy for the destination of runoff.
- Reasonable worst-case assumptions would be applied to the surface water runoff flow.

Limitations

8.11.1 When accessing the 'National Flood Asset Database' online via the 'DataMapWales' portal, the website relays the following limitations:

- the database does not include/show all flood infrastructure or any coastal erosion/protection assets which are managed/maintained by LLFAs and NRW;
- the database shows the indicative location of underground culverts for general guidance only; and
- due to the underground nature and history of many culverts, the indicative locations may not be accurate, complete, or up to date.

8.12 Summary

8.12.1 The proposed scope of the assessment for flood risk is contained within **Table 34**.

Table 34: Proposed scope of the flood risk chapter of the ES

Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or not
The Port			
People, property and infrastructure	Scoped in	Scoped in	Credible impact pathways as a result of the Project from multiple sources, including potentially fluvial, tidal, surface water, artificial waterbodies (including reservoirs and canals), groundwater and sewers.
Kenfig Marshalling Yard Site			
People, property and infrastructure	Scoped in	Scoped in	Credible impact pathways as a result of the Project from multiple sources, including potentially fluvial, tidal, surface water, artificial waterbodies (including reservoirs and canals), groundwater and sewers.
Jersey Marine Site			
People, property and infrastructure	Scoped in	Scoped in	Credible impact pathways as a result of the Project from multiple sources, including potentially fluvial, tidal, surface water, artificial waterbodies (including reservoirs and canals), groundwater and sewers.

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9 Freshwater Environment

9.1 Introduction

9.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential freshwater environment effects in relation to the construction, operation and maintenance of the Project (see Chapter 5 – Approach to Assessment). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and mitigated for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

9.1.2 The effects of the Project on the following are considered:

- water environment receptors above mean high water springs (MHWS), incorporating freshwater parameters such as water quality, hydrology and geomorphology.

9.1.3 This environmental topic relates to the terrestrial aspects of the Project, as defined in **Chapter 2 – Description of Development**.

9.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

9.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 8 – Flood Risk**; **Chapter 11 – Land Quality and Hydrogeology**; **Chapter 13 – Terrestrial and Freshwater Ecology**; **Chapter 14 – Coastal Processes**; **Chapter 17 – Marine Ecology**; **Chapter 18 – Marine Water Quality and Sediment Quality**; and **Chapter 20 – Climate Change**.

9.2 Relevant Legislation, Policy and Technical Guidance

9.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of the terrestrial elements of the Project for the freshwater environment are detailed in **Table 35**.

9.2.2 As the water environment receptors used to assess the freshwater environment are above MHWS, Marine License and Harbour Revision Order (HRO) legislation is not considered relevant for this Chapter and is not considered in the table below.

Table 35: Legislation, policy and guidance relevant to the freshwater environment

Relevant legislation/policy/ guidance	Relevance to assessment
Legislation	
Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	These regulations aim to protect inland and coastal waters and prevent deterioration of aquatic ecosystems, including groundwaters. A key aim of the Water Framework Directive (WFD) is to achieve 'good' ecological status for all waterbodies by 2015, with a secondary aim to gradually reduce the release of pollutants which may pose significant risks to the aquatic ecosystems. The environmental objectives of the WFD are implemented through actions described in the River Basin Management Plans (RBMPs). The WFD (2000/60/EC) regulations[15] require all members to consider a single system of water resource management through characterisation, protection and enhancement of water resources considered within the context of a river basin district (RBD). Within England and Wales, 11 RBDs have been identified, including three cross-border RBDs, one of which crosses the borders of England and Scotland. The 2017 Regulations require 'the appropriate agency' (Natural Resources Wales in Wales) to prepare RBMPs for each RBD, for the approval of 'the appropriate authority'.
The Water Resources Act 1991	An Act to consolidate enactments relating to the National Rivers Authority and the matters in relation to which it exercises functions, with amendments to give effect to recommendations of the Law Commission.
Land Drainage Act 1991	The Land Drainage Act 1991 requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. The riparian owner must accept the natural flow from upstream but need not carry out work to cater for increased flows resulting from some types of works carried out upstream, for example a new housing development. If a riparian owner fails to carry out his responsibilities under the Land Drainage Act, or if anyone else causes a watercourse to become blocked or obstructed, the county and district councils have powers of enforcement by serving a notice under the Act. If this is ignored, the council concerned may carry out the necessary works itself and then recharge the person responsible for the full cost incurred.
Land Drainage Act 1994	This Act amends the Land Drainage Act 1991 in relation to the functions and duties of internal drainage boards and local authorities. It makes particular provision for duties with respect to Sites of Special Scientific Interest (SSSI).
National Policy	
Water Strategy for Wales	A strategy to set out how water resources should be managed to support the communities, nature and businesses.
Environment Strategy for Wales (2006)	A strategy to set out a long-term strategy for the environment of Wales, including management of water resources, and minimising pollution to water resources.

[15] The WFD (2000/60/EC) is originally European legislation. Whilst the UK has left the European Union (EU), the WFD was transposed into UK law and still applies.

Relevant legislation/policy/ guidance	Relevance to assessment
Local Policy	
Neath Port Talbot Local Development Plan, 2016	The following policies have been identified as relevant to the freshwater environment for the Project: • Policy EN7 Important Natural Features; • Policy SP16 Environmental Protection; • Policy EN8 Pollution and Land Stability; and • Policy BE1 Design. A Replacement Local Development Plan (RLDP) (2023-2038) is currently being prepared. The Preferred Strategy was published in December 2024.
Western Wales River Basin Management Plan	To protect and improve the water environment for the wider benefits to people and wildlife. RBMPs are required under the Water Environment (WFD) (England and Wales) Regulations 2017.
Neath Port Talbot Environment Strategy (2008-2026)	The purpose of the strategy is to provide the 'framework within which to achieve an environment that is clean, healthy and thriving, has improving economic prosperity and is valued by resident, businesses and visitors alike.
Guidance and Standards	
Technical Advice Note 15: Development and Flood Risk (2025)	This guidance advises on development and flood risk. Consideration of fluvial impacts and runoff from new development are relevant to freshwater environment.
Highways England, Design Manual for Roads and Bridges (DMRB) LA113	There is no standard EIA methodology guidance for the assessment of the likely significant effects on the freshwater environment from developments of this type. The classification and significance of effects would be determined using the principles and criteria in this guidance.
Highways England, DMRB LA104	This guidance outlines the significance matrix to be used in the assessment.

9.3 Engagement and Consultation

9.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

9.3.2 Engagement will be undertaken with Natural Resources Wales and other stakeholders to discuss water quality monitoring for the freshwater environment. Baseline water quality data will be considered as part of the assessment and reported in the Environmental Statement (ES).

9.4 Study Area

9.4.1 The study area for the freshwater environment is provided in Figure 9.1 in **Appendix A**. The study area is entirely limited to the terrestrial aspects of the Project and covers a 1km radius around the EIA Scoping Boundary, based on professional judgement on the assumption that 1km would be sufficient for contaminants to be dispersed. There are no freshwater

features downstream of the study area; coastal and transitional features downstream are assessed within **Chapter 17 – Marine Ecology**, and **Chapter 18 – Marine Water Quality and Sediment Quality**. The study area will be kept under review throughout the assessment and may be extended where there are sensitive features (protected areas) that could be affected by contaminants transported downstream of the works via surface waterbodies.

9.5 Description of the Existing Environment

Resources and Receptors

9.5.1 For the freshwater environment, the resources and receptors are:

- watercourses (such as the River Afan, River Kenfig[16], and River Ffrwdwyllt);
- waterbodies (such as ponds, seasonal ponds, protected waterbodies); and
- protected areas (such as Kenfig National Nature Reserve).

Data Sources

9.5.2 The current baseline for the freshwater environment has been derived from the data sources set out in **Table 36**.

Table 36: Freshwater environment baseline data sources

Data type	Data Source
Main River, watercourses, surface waterbodies	DataMapWales, Natural Resources Wales (Data Map Wales, 2024)
Protected areas	DEFRA Magic Map (2024)
Waterbody information for the Tawe to Cadoxton Catchment	Water Watch Wales (Cycle 3, 2019), Natural Resources Wales (Welsh Government, n.d) (Water Watch Wales, 2024)
Information on watercourse and water bodies as contained within the Tawe to Cadoxton Management Catchment Summary	Western Wales River Basin Management Plan (RBMP)
Information on the study area from primary survey	Site walkover notes 11th January 2024 Site walkover notes 5th November 2024 (Jersey Marine Site and Kenfig Marshalling Yard Site)

[16] For consistency rivers are named throughout this chapter in accordance with WFD naming conventions for river waterbodies e.g., Afon Cynfig is referred to in this chapter as the River Kenfig, as it lies in the 'Kenfig – headwaters to tidal WFD' waterbody.

Baseline Conditions

9.5.3 The baseline identifies potential receptors for the terrestrial aspects of the Project, and considers the range and interactions of processes which will influence surface water and meet the WFD objectives.

9.5.4 Figure 9.1 in **Appendix A** shows the identified watercourses and waterbodies within the study area. Figure 9.2 in **Appendix A** shows WFD river, canal and lake waterbodies and WFD waterbody catchments within the study area.

The Port

Watercourses

9.5.5 The Port is located on the southern coast of Wales at the confluence of two watercourses, River Ffrwdwyllt and River Afan before flowing into Swansea Bay. Both of these watercourses are Main Rivers designated by Natural Resources Wales (NRW) and located within the study area.

9.5.6 River Ffrwdwyllt is a designated WFD river waterbody (Ffrwd Wyllt – headwaters to tidal limit (GB110058026100)) and flows from Bryngyrnos, culverted under the M4 and A4241 before discharging into the eastern section of the impounded docks area. There are no recorded Q95 levels[17] for this watercourse. The impounded docks are not tidally influenced.

9.5.7 The River Afan is designated as a WFD river waterbody approximately 410m upstream from the EIA Scoping Boundary (Afan – confluence with Pelenna to tidal limit (GB110058026110)). The River Afan flows from Pontrhydyfen to the mouth of Swansea Bay, adjacent to the docks with some flow diverted into the northern section of the impounded dock via a dock feeder at Marcroft Weir. The closest flow monitoring station is located approximately 2.4km upstream from the Port (58012 – Afan at Marcroft Weir) with a recorded Q95 level of 0.899m^3/s.

9.5.8 Baglan Brook is located approximately 4km north of the Port and is designated as a WFD river waterbody (Baglan Brook – headwaters to conf with River Neath (GB110058026350), however the catchment associated with this watercourse is located approximately 0.35km north of the Port. The catchment is separated from the Port by the River Afan, as such, it is not considered for there to be a credible pathway between the Port and this receptor. Therefore, Baglan Brook is not considered further.

9.5.9 The baseline conditions of the identified WFD river waterbodies are shown in **Table 37**. A WFD assessment has been undertaken for the Project, see **Appendix E.**

[17] Q95 (the 5th percentile flow): The flow in cubic metres per second which was equalled or exceeded for 95% of the flow record.

Table 37: WFD baseline conditions (the Port Study Area)

River waterbody name	Ffrwd Wyllt – headwaters to tidal limit	Afan – confluence with Pelenna to tidal limit
ID	GB110058026100	GB110058026110
Type	River	River
Hydromorphological designation	Heavily modified	Natural
Overall status	Moderate	Good
Ecological status	Moderate	Good
Chemical status	High	High

9.5.10 Arnallt Brook is a small Ordinary Watercourse located approximately 150m outside the EIA Scoping Boundary, and within the Study Area. It flows parallel to the A4241 Brombil through Margam before discharging into River Ffrwdwyllt. This watercourse is separated from the Port by the A4241, as such it is not considered for there to be a credible pathway from the Port to this receptor. Therefore, Arnallt Brook is not considered further.

9.5.11 Given the industrial nature of the Study Area, it is assumed there are multiple smaller streams and a road drainage network associated with drainage within the adjacent steelworks.

Waterbodies

9.5.12 The following waterbodies ('WB') have been identified within the EIA Scoping Boundary and illustrated in Figure 9.1 of **Appendix A**:

- WB1[18]: There is a cluster of ponds to the east of Harbour Road and south of Phoenix Wharf Road. These ponds are understood to be water-filled large artificial sand-depressions associated with the adjacent steelworks. During a site visit undertaken on 11 January 2024, these ponds were linked together due to flood waters and had established surrounding vegetation, including reedbed habitat;
- WB2: A standing body of water located within the existing steelworks fenced boundary called 'Sand Martin Bank' which was created as an ecological feature for sand martins. This is an artificial feature adjacent to industrial activity; and
- WB3: A reedbed feature with standing water located underneath and along a pipeline route associated with the existing steelworks.

9.5.13 The following waterbodies have been identified outside the EIA Scoping Boundary, but within the Study Area:

- WB4: Two balancing ponds located approximately 0.1km east of the EIA Scoping Boundary. These ponds appear to be associated with the existing steelworks. As WB4 is located outside of the EIA Scoping

[18] WB stands for "Waterbody" as annotated on Figure 9.1 of Appendix A

Boundary and is believed to be artificial, it is not considered to be hydrologically connected to the Project and is not considered further; and

- WB5: Three waterbodies associated with Neath Port Talbot Hospital located approximately 0.75km north-west from the EIA Scoping boundary. These waterbodies are separated from the EIA Scoping boundary by the A4241. These waterbodies are not considered to be hydrologically connected to the Project area and are therefore not considered further.

Water Quality

9.5.14 A water quality monitoring survey commenced in February 2024 to inform the assessment. Monitoring locations are shown on Figure 9.3 in **Appendix A**. These were monitored over a twelve-month period and will provide information on the water quality baseline conditions of the watercourses and waterbodies identified within the EIA Scoping Boundary.

Freshwater Protected Areas

9.5.15 No freshwater protected areas were identified within the Study Area.

Kenfig Marshalling Yard Site

9.5.16 This section considers the baseline for the area of the EIA Scoping Boundary concerning the Kenfig Marshalling Yard Site.

Watercourses

9.5.17 The Kenfig Marshalling Yard Site is located south-east of the Port between Eglwys Nunydd Reservoir and the River Kenfig.

9.5.18 The River Kenfig is located adjacent to the southern boundary of the Kenfig Marshalling Yard EIA Scoping Boundary as shown on Figure 9.1 in **Appendix A**. The River Kenfig is a designated WFD river waterbody (Kenfig – headwaters to tidal (GB110058026170)) which flows under the M4, discharging at the coast. The watercourse is designated as a coastal waterbody immediately downstream of the EIA Scoping Boundary, this is assessed in **Chapter 18 – Marine Water Quality and Sediment Quality**. Although the watercourse is designated as coastal within Swansea Bay WFD waterbody (GB641008260000), it is above mean high water springs (MHWS) and may be partially freshwater. Therefore, the downstream River Kenfig and the Kenfig National Nature Reserve (NNR) which it flows through are considered precautionarily as receptors within this Chapter.

9.5.19 Nant Cwm Philip joins the River Kenfig approximately 0.9km upstream of the EIA Scoping Boundary. This watercourse is designated as a WFD surface waterbody (Nant Cwm Philip – headwaters to conf with Kenfig (GB110058026190)).

9.5.20 The baseline conditions of these WFD waterbodies are shown in **Table 38**.

Table 38: WFD baseline conditions for river waterbodies (Kenfig Marshalling Yard Site)

Waterbody name	Kenfig – headwaters to tidal	Nant Cwm Philip – headwaters to conf with Kenfig
ID	GB110058026170	GB110058026190
Type	River	River
Hydromorphological designation	Natural	Natural
Classification (Cycle 3, 2021)		
Overall status	Moderate	Poor
Ecological status	Moderate	Poor
Chemical status	High	High

9.5.21 There is a complex drainage system to the north of the EIA Scoping Boundary consisting of the named ditches; Lower Mother Ditch, and Middle Mother Ditch. These form part of Margam Moors (SSSI), see section on Freshwater Protected Areas from paragraph 9.5.27.

9.5.22 There is a ditch (WCK-1) to the south of the EIA Scoping Boundary that flows around two ponds. It is unclear if the ditch is hydrologically connected to the Kenfig River.

9.5.23 There is a ditch/drain (WCK-2) adjacent to the EIA Scoping Boundary at the north-east edge of the site identified during the site visit.

Waterbodies

9.5.24 Within the EIA Scoping Boundary, no waterbodies have been identified during a desk study and subsequent site visit (November 2024).

9.5.25 The following waterbodies have been identified within the EIA Study Area and illustrated in Figure 9.1, **Appendix A**:

- WBK-1: A pond approximately 15m north of the EIA Scoping Boundary, adjacent to the disused railway track;
- WBK-2: An isolated pond approximately 30m north-east of the EIA Scoping Boundary and approximately 80m south of the railway line;
- WBK-3: A pond approximately 120m south of the EIA Scoping Boundary, adjacent to the railway line. The pond is not identified as being hydrologically connected to the River Kenfig;
- WBK-4 & WBK-5: There are two waterbodies (WBK-4 and WBK-5) located approximately 400m south-east of the EIA Scoping Boundary, south of the River Kenfig. These waterbodies are adjacent to a watercourse that has the potential to be hydrologically connected to the River Kenfig;
- there are a series of waterbodies to the west of the EIA Scoping Boundary, which for simplicity are considered as two groups:
    - WBK-6: Natural shaped waterbodies part of the Kenfig Pool and Dunes National Nature Reserve. The River Kenfig downstream of the EIA Scoping Boundary flows through and around these waterbodies. At this location, the River Kenfig is designated as a

coastal WFD Waterbody. However, where the River Kenfig is above the mean high tide it may be partially freshwater; and

- WBK-7: Waterbodies in this cluster are likely to be artificial given their unnatural shape and orientation. These are not visibly connected hydrologically to the EIA Scoping Boundary or River Kenfig. The closest individual pond/lake is approximately 70m from the EIA Scoping Boundary.

- WBK-8: Eglwys Nunydd Reservoir is partially within the Study Area, at its closest it is approximately 280m away from the EIA Scoping Boundary. This is a WFD lake waterbody Eglwys Nunydd Reservoir (GB31042079) and its baseline conditions are in **Table 39**. The reservoir supply catchment is expected to be upstream of the EIA Scoping Boundary. The reservoir is separated from the EIA Scoping Boundary by the railway.

Table 39 WFD baseline conditions for Eglwys Nunydd Reservoir (Kenfig Marshalling Yard Site)

Waterbody name	Eglwys Nunydd Reservoir
ID	GB31042079
Type	Lake
Hydromorphological designation	Artificial
Overall	Moderate
Ecological	Moderate
Chemical	High

Water Quality

9.5.26 It is anticipated that monitoring of off-site compensation area will be undertaken to provide information on the water quality baseline conditions of the watercourses and waterbodies identified within the EIA Scoping Boundary. Anticipated monitoring locations for the off-site compensation areas are shown on Figure 9.3 in **Appendix A**.

Freshwater Protected Areas

9.5.27 Margam Moors (SSSI) is within the EIA Scoping Boundary. This is an agriculturally managed freshwater habitat[19].

9.5.28 Kenfig Pool and Dunes National Nature Reserve (SSSI, Special Area of Conservation (SAC)) is adjacent to the EIA Scoping Boundary, this is a predominately coastal site.

9.5.29 Eglwys Nunydd Reservoir (SSSI) is upstream of the EIA Scoping Boundary.

[19] CYNGOR CEFN GWLAD CYMRU (ND) Site of Special Scientific Interest Citation, Neath Port Talbot, Margam Moors.

Jersey Marine Site

9.5.30 This section considers the baseline for the area of the EIA Scoping Boundary concerning the Jersey Marine Site.

Watercourses

9.5.31 The Jersey Marine Site is located north-west of the Port. The site is bounded by the tidal reach of the River Neath Estuary to the east and the Tennant Canal to the west. The River Neath Estuary is a transitional WFD Waterbody and is assessed in **Chapter 18 – Marine Water Quality and Sediment Quality.**

9.5.32 Tennant Canal (GB71010013) is a designated WFD canal waterbody located within the EIA Scoping Boundary. It originates from the Neath Canal at Aberdulais and flows alongside the River Neath and Neath Canal to the Neath Estuary where it diverts across Crymlyn Bog into Swansea Bay.

9.5.33 The tidal River Neath flows alongside the eastern EIA Scoping Boundary. As this river is saline, it is assessed in **Chapter 18 – Marine Water Quality and Sediment Quality**. The Glan-y-Wern Canal connects the tidal River Neath and Tennant Canal. This is also saline and is assessed in **Chapter 18 – Marine Water Quality and Sediment Quality**.

9.5.34 The Neath Canal (GB71010012) is located within the Study Area. The Neath Canal is a designated WFD canal waterbody that originates in Glyneath. The Tennant and Neath Canals are linked at Aberdulais but within the Study Area there is no direct link between them as they are separated by the Neath Estuary.

9.5.35 Baglan Brook – headwaters to conf with River Neath (GB110058026350) is a WFD river waterbody, which is located within the Study Area, approximately 1km from the EIA Scoping Boundary. It discharges into the Neath Estuary. There is no direct hydrological connection with the EIA Scoping Boundary.

9.5.36 The baseline conditions of the identified WFD canal waterbodies are shown in **Table 40**. A WFD assessment has been undertaken for the Project, see **Appendix E**.

Table 40: WFD baseline conditions for canal and river waterbodies in the Study Area (Jersey Marine Site)

River waterbody name	**Tennant Canal**	**Neath Canal**	**Baglan Brook**
ID	GB71010013	GB71010012	GB110058026350
Type	Canal	Canal	River
Hydromorphological designation	Artificial	Artificial	Heavily Modified
Classification (Cycle 3, 2021)			
Overall status	Moderate	Moderate	Moderate
Ecological status	Moderate	Moderate	Moderate
Chemical status	High	High	High

9.5.37 Within the EIA Scoping Boundary there are no watercourses identifiable through the desk-based study. However, a site visit in November 2024 identified an unnamed watercourse (WCJM-1), assumed freshwater, draining into the Glen-y-Wren Canal.

9.5.38 Within the Study Area there are several unnamed ditches within 100m of the EIA Scoping Boundary that appear to drain into the Tennant Canal.

9.5.39 The watercourses directly discharging to the River Neath Estuary are assumed to be coastal, thus are not assessed further here.

9.5.40 It is assumed there may be additional smaller ditches within the Study Area associated with industrial areas and/or road drainage.

Waterbodies

9.5.41 Within the Study Area, there are waterbodies associated with, and hydraulically connected to, the River Neath Estuary which is a coastal waterbody, thus these are assessed in C**hapter 18 – Marine Water Quality and Sediment Quality**.

9.5.42 The following WB have been identified within the EIA Study Area and illustrated on Figure 9.1 in **Appendix A**:

- WBJM-1: There is a pond located approximately 25m north of the EIA Scoping Boundary, where the access road crosses the Tennant Canal. There does not appear to be a hydrological connection between the pond and the EIA Scoping Boundary. Due to its proximity to the access road for the Jersey Marine Site it has been precautionarily considered as a receptor;
- WBJM-2 & WBJM-3: There are several ponds to the west of the Tennant Canal, one larger pond (WBJM-2) and several smaller water ponds in a cluster (WBJM-3). The closest pond is approximately 60m from the EIA Scoping Boundary, and the furthest is approximately 200m. If these ponds are hydrologically connected to the Tennant Canal, there is the potential impacts on these receptors;
- WBJM-4: There is an isolated pond near the boundary of the Study Area, approximately 1km from the EIA Scoping Boundary. As there is no hydrological connection to the EIA Scoping Boundary and due to distance from the site, this is not considered further; and
- there is a historic reservoir within the Study Area, to the south of the EIA Scoping Boundary. Following the site visit in November 2024, this was confirmed to be disused with no water present and therefore this is not considered further.

Water Quality

9.5.43 It is anticipated that monitoring of off-site compensation area will be undertaken to provide information on the water quality baseline conditions of the watercourses and waterbodies identified within the EIA Scoping Boundary. Anticipated monitoring locations for the off-site compensation areas are shown on Figure 9.3 in **Appendix A.**

Freshwater Protected Areas

9.5.44 Within, and downstream of, the Study Area lies Crymlyn Bog and Pant-y-Sais (RAMSAR, SSSI, Nature Reserve, SAC). At its closest proximity Crymlyn Bog/Pant-y-Sais is approximately 400m from the EIA Scoping Boundary. However, the Tennant Canal separates them from the EIA Scoping Boundary. Thus, there is unlikely to be a hydrological connection between Crymlyn Bog and Pant-y-Sais and the Jersey Marine Site.

9.5.45 Crymlyn Burrows (SSSI) lies just outside the Study Area 1km away from the EIA Scoping Boundary.

Next Steps

9.5.46 A water quality monitoring survey commenced in February 2024 to inform the assessment. Monitoring locations are shown on Figure 9.3 in **Appendix A**. These were monitored over a twelve-month period, subject to review with Natural Resources Wales, and will provide information on the water quality baseline conditions of the watercourses and waterbodies identified within the EIA Scoping Boundary.

9.5.47 It is anticipated that monitoring of off-site compensation areas will be undertaken to provide information on the water quality baseline conditions of the watercourses and waterbodies identified within the EIA Scoping Boundary. Anticipated monitoring locations for the off-site compensation areas are shown on Figure 9.3 in **Appendix A.**

Summary

9.5.48 **Table 41** identifies the freshwater environment receptors and their attributes to be considered as part of the assessment and reported in the ES.

Table 41: Identified freshwater receptors (the Port)

Site	Receptor Type	Receptor	Distance from Project	Attribute
Port	Watercourse	River Ffrwdwyllt	Within the EIA Scoping Boundary	Main river WFD river waterbody (Ffrwd Wyllt – headwaters to tidal limit (GB110058026100))
		River Afan	Within the EIA Scoping Boundary	Main river WFD river waterbody (Afan – confluence with Pelenna to tidal limit (GB110058026110)) Q95 Levels: 0.899m^3/s
		Drainage network	Within the EIA Scoping Boundary	Assumed associated with the existing adjacent steelworks.
		Road drainage network	Within the EIA Scoping Boundary	Assumed associated with road network within EIA Scoping Boundary

Site	Receptor Type	Receptor	Distance from Project	Attribute
	Waterbody	WB1	Within the EIA Scoping Boundary	Water filled, artificial sand depressions
		WB2 (Sand Martin Bank)	Within the EIA Scoping Boundary	Ecological, artificial feature
		WB3	Within the study area	Reedbed habitat
		WB4	0.1 km east	Artificial, balancing ponds
	Protected areas	No receptors identified	Within the study area	N/A
Kenfig Mashalling Yard Site	Watercourses	The River Kenfig	Within the EIA Scoping Boundary	Kenfig – headwaters to tidal (GB110058026170)
		Nant Cwm Philip	Within the EIA Study Area, approximately 0.9km upstream of EIA Scoping Boundary	Nant Cwm Philip – headwaters to conf with Kenfig (GB110058026190)
		WCK-1	Within Study Area, approximately 100m south of EIA Scoping Boundary	Watercourse identified during site visit, small drain/ditch
		WCK-2	Within Study Area, approximately 100m south of EIA Scoping Boundary	Watercourse associated with WBK3&4, unclear if hydrologically connected to the River Kenfig
		Margam Moors Ditches	Within the EIA Scoping Boundary	Ditch network within Margam Moors SSSI
		Road drainage network	Within the EIA Scoping Boundary	Assumed associated with road network within EIA Scoping Boundary
		Ponds part of Kenfig Pool and Dunes NNR	Within the Study Area, approximately 25m from EIA Scoping Boundary	Water filled, ponds, SSSI

Site	Receptor Type	Receptor	Distance from Project	Attribute
	Waterbody	WBK-1	Within the Study Area, approximately 15m from EIA Scoping Boundary	Water filled pond
		WBK-2	Within the Study Area, approximately 90m from EIA Scoping Boundary	Water filled pond
		WBK-3	Within the Study Area, approximately 120m from EIA Scoping Boundary	Water filled pond
		WBK-4&5	Within the Study Area, approximately 400m from EIA Scoping Boundary	Water filled ponds
		WBK-6	Within the Study Area, approximately 600m from EIA Scoping Boundary	Ponds classified within Kenfig Pool and Dunes National Nature Reserve
		WBK-7	Within the Study Area, approximately 100m from EIA Scoping Boundary	Artificial, water filled
		WBK-8	Within the Study Area, approximately 280m from EIA Scoping Boundary	Eglwys Nunydd Reservoir (GB31042079) Artificial, water filled
	Protected areas	Margam Moors	Within the EIA Scoping Boundary	Ditch network SSSI
		Kenfig Pool and Dunes National Nature Reserve	Within the Study Area	Water filled, ponds SSSI, SAC
		Eglwys Nunydd Reservoir	Within the Study Area	Reservoir, SSSI

Site	Receptor Type	Receptor	Distance from Project	Attribute
Jersey Marine Site	Watercourse	Tennant Canal	Within the EIA Scoping Boundary	WFD Canal waterbody - Tennant Canal (GB71010013)
		Neath Canal	Within the EIA Study Area	WFD Canal waterbody - Neath Canal (GB71010012)
		WCJM -1	Within the EIA Scoping Boundary	Watercourse supplied by an unknown freshwater spring connected to marine backwater.
		Road drainage network	Within the EIA Scoping Boundary	Assumed associated with road network within EIA Scoping Boundary.
		Ditches	Within Study Area	Draining into the Tennant Canal
	Waterbody	WBJM-1	Within the Study Area approximately 25m from EIA Scoping Boundary	Water filled, artificial, pond
		WBJM-2 & WBJM-3	Within the Study Area approximately 60m from EIA Scoping Boundary	Water filled pond
		WBJM-4	Within the Study Area approximately 1km from Scoping Boundary	Water filled, isolated, pond
		Marine Ponds	Within Study Area >400m from Scoping Boundary	Ponds to the east of the River Neath
		Reservoir	Within Study Area approximately 230m from EIA Scoping Boundary	Disused reservoir. Confirmed dry November 2024.
	Protected areas	Crymlyn Bog and Pant-y-Sais	Within the Study Area approximately 400m from EIA Scoping Boundary	Low lying fen environment Separated from EIA Scoping Boundary by railway line

9.6 Future Baseline

9.6.1 As set out in **Chapter 5 – Approach to Assessment,** future baseline scenarios will be established to understand the potential situation without the Project. The Freshwater Environment Chapter of the ES would seek to explain what the environmental change, in terms of water quality, would likely be in the future if the Project were not to go ahead.

9.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

9.6.3 The approach to establishing the future baseline for the freshwater environment will be based on WFD standards within the context of updated RBMP cycles. For the freshwater environment this will include consideration of freshwater parameters such as water quality, hydrology and geomorphology in the future baseline scenario.

9.6.4 It should be noted that due to planned remediation works (which will be subject to a separate application) for the sand and gravel pits, the future baseline as detailed within **Chapter 5 – Approach to Assessment**, several existing waterbodies within the Port will not be present at the start of construction. Suitable compensatory habitat will be created elsewhere before Project commencement. The following receptors WB1, WB2 and WB3 (Figure 9.1, **Appendix A**) are therefore scoped out for further assessment.

9.7 Mitigation Measures

9.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the freshwater environment will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

9.7.2 This section sets out the potential controls relevant to the freshwater environment, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

9.7.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- incorporation of Sustainable Drainage Systems (SuDS) as part of the drainage design to restrict runoff, taking into account impacts due to climate change;
- avoidance of permanent structures within watercourses;
- provision of scour protection to reduce the risk of bank erosion;
- consideration of water environment constraints for location of any pipeline, service foundations and outfalls, and surface water drainage proposals;
- design of suitable compensation habitat (within the EIA Scoping Boundary where possible) for any waterbodies directly impacted as a result of the Project; and
- design that allows operation within the threshold of permitted limits.

Construction Controls

9.7.4 During construction there would be a range of measures and best practice techniques, in accordance with relevant guidance such as Construction Industry Research and Information Association (CIRIA) guidance (Kwan et al, 2023) (H Masters-Williams et al, 2001) and Works and maintenance in or near water:GPP5 (NRW, NIEA, and SEPA,, 2018), put in place to avoid impacts on the freshwater environment as far as reasonably practicable. These measures and techniques would be secured through approved management plans.

9.7.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- management of any dewatering activities in accordance with any regulatory specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour;
- measures to prevent runoff from construction areas such as the use of cut off drains, avoiding vegetation removal right up to the banks of watercourses, minimising the areas of land that are disturbed/cleared, avoiding stockpiling of material close to the banks of watercourses, use of silt fencing or coir rolls on gentle slops installed at levelled contours to control runoff;
- measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits;
- provision of areas for the safe storage and handling of potentially contaminating materials including fuels and oils;
- preconstruction surveys for invasive species to understand specific controls to avoid risk of spreading invasive species; and
- surface water monitoring during construction to facilitate adaptive management if deterioration is detected.

9.7.6 Required construction environmental control and protection measures will be defined in an Adaptive Environmental Management Plan (AEMP) included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP), Pollution Prevention Plan (including emergency spill and incident control procedures), and Erosion and Sediment Management Plans.

9.7.7 A specific site Invasive Non-Native Species (INNS) Management Plan would define measures for the control and safe management of INNS which will accord with the approved AEMP. Similar to the above contractors would be required to prepare detailed plans relating to the area within which they are working that aligns with the approved INNS Management Plan. This is discussed further in **Chapter 13 - Terrestrial and Freshwater Ecology.**

Operational Controls

9.7.8 Operational environmental control and protection measures will be defined in an outline Operational Environmental Management Plan (oOEMP) included as part of the application. This would include best practice measures and techniques, any specific measures identified through the EIA. Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP.

9.7.9 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage include:

- measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits;
- provision of areas for the safe storage and handling of potentially contaminating materials including fuels and oils;
- requirements for awareness talks and training in relation to water pollution prevention; and
- requirements for site audits and monitoring to inform preventative actions.

9.7.10 For aspects of the Project subject to the Environmental Permitting Regulation (EPR) (such as discharge to surface water or ground, water abstraction, and water use licences) under the permit there will be a requirement to develop a written management system which would include plans and procedures describing measures to reduce or avoid potential environmental impacts associated with the activities covered by the permit. It is expected that the further port development phase to incorporate the manufacturing of FLOW foundation components would require an environmental permit.

9.7.11 The plans developed under the written management system are expected to include measures for the control of emissions such as waste water and drainage as well as the inclusion of emergency response and pollution prevention plans.

9.7.12 On the basis that the operation of the Project would be in accordance with oOEMP and in accordance with any permits, no other mitigation is considered necessary to prevent significant effects.

9.8 Potential Likely Significant Effects

9.8.1 The potential likely significant effects for the freshwater environment are described in **Table 42**. These take into account the expected control measures set out within Section 9.7.

Construction

9.8.2 This section considers the potential significant effects related to the Construction of the Project.

The Port

9.8.3 This section considers the potential significant effects for the area of the EIA Scoping Boundary concerning the Port.

Watercourses

9.8.4 During the construction phase there is the potential for impacts to surface water quality from runoff. Uncontrolled surface water runoff from areas of land under construction can contain a range of contaminants which can then be washed into watercourses and waterbodies.

9.8.5 Construction activities with the potential to result in contaminant laden runoff include demolition of existing buildings, excavation, construction of new buildings and surfacing as well as land clearance and stockpiling of materials.

9.8.6 In addition, there may be temporary dewatering activities that have the potential to introduce contaminants into watercourses as well as result in physical damage from scour at the discharge point.

9.8.7 In this location the receptors are the River Afan and the River Ffrwdwyllt. Despite the tidal influence on the River Afan in this location, contaminants entering the watercourse do not have the potential to be transported upstream to freshwater receptors, due to Marcroft Weir located 300m upstream of the EIA Scoping Boundary, which acts as a physical barrier and would prevent contaminants from travelling further upstream.

9.8.8 At this stage, the only known in-channel working will be for the construction on the tidal reach of the River Afan, which is considered in **Chapter 18 – Marine Water Quality and Sediment Quality**.

9.8.9 There is the potential for increased impermeable surfacing (due to the presence of construction compounds and/or change in road layout) to increase volumes and alter the flow paths of surface water runoff. This may result in a change in volume discharging into the surrounding watercourses.

9.8.10 Any in-channel works or works adjacent to the watercourse have the potential to introduce INNS into the watercourse. An increase in organic matter within a watercourse has the potential to adversely impact the water quality and result in a deterioration in aquatic species.

9.8.11 Given the above, River Afan, River Ffrwdwyllt, the existing drainage network associated with the adjacent steelworks and the existing road drainage network are scoped in for the construction phase.

9.8.12 Given the potential adverse impacts to water quality identified above, there is a potential to cause deterioration of the two surface water WFD waterbodies (Ffrwd Wyllt – headwaters to tidal limit (GB110058026100) and Afan – confluence with Pelenna to tidal limit (GB110058026110)) identified within the EIA Scoping Boundary. As such, a WFD compliance assessment has been undertaken and will inform the assessment.

Waterbodies

9.8.13 As discussed in Section 9.6, WB1, WB2 and WB3 are scoped out for the construction phase.

9.8.14 WB4 and WB5 are not considered to be hydrologically connected to the area of land required for the Project, and therefore can be scoped out for further assessment.

Kenfig Marshalling Yard Site & Jersey Marine Site

9.8.15 This section considers the potential significant effects for the area of the EIA Scoping Boundary concerning the Kenfig Marshalling Yard Site and Jersey Marine Site, hereafter referred to as 'off-site compensation areas'.

9.8.16 The design for the off-site compensation areas is not finalised but is likely to include removal of existing hardstanding, transfer of soils and creation of new habitats including new freshwater features.

Watercourses

9.8.17 The general potential construction risks associated with creation of new habitats including new freshwater features are outlined below.

9.8.18 As there is no hydrological connection from the EIA Scoping Boundaries of the off-site compensation areas to WFD river and canal waterbodies, the movement of fine sediment and suspended solids is likely limited to surface runoff during rainfall events. This has the potential to contaminate runoff to adjacent watercourses or surface water drainage networks and reduce water quality. During construction, an Environmental Action Plan (EAP), CEMP and/or method statement is recommended to manage pollution risk and potential release of sediment.

9.8.19 The activities that could generate the movement of fine sediment and suspended solids are outlined below:

- creation of new ponds and scrapes may require excavation techniques which risks the release of fine sediment and suspended solids;
- changes to land use may have temporary minor localised impacts through the use of heavy-duty construction equipment; and
- construction works adjacent to the watercourse have the potential to introduce INNS into the watercourse. An increase in organic matter within a watercourse has the potential to adversely impact the water quality and result in a deterioration in aquatic species.

9.8.20 As the full extent of construction works is yet to be determined, all watercourses within the off-site compensation area Study Areas are scoped in.

9.8.21 Impacts from construction of off-site compensation areas to WFD waterbodies (river and canal) are considered within the WFD compliance assessment (**Appendix E**).

Waterbodies

9.8.22 As the full extent of construction works is yet to be determined, all waterbodies within the off-site compensation Study Areas are scoped in.

Protected areas

9.8.23 As the full extent of construction works is yet to be determined, all protected areas within the off-site compensation Study Areas are scoped in.

Operation and Maintenance

9.8.24 This section considers the potential significant effects related to the operation and maintenance of the Project.

The Port

Watercourses

9.8.25 The operation of the Project will include the movement of vehicles and equipment on port access roads and other operational areas, as well as the required maintenance of these roads and areas. These activities present a source of contaminants that can build up on impermeable surfaces and when mixed with rain water, the contaminated runoff can be washed into surface water drainage networks or directly into waterbodies resulting in pollution of the receiving body.

9.8.26 The contaminants in runoff can be numerous including but not limited to include solids, hydrocarbons (diesel, petroleum, lubricating oil leaks, and grease), heavy metals (especially copper and zinc, but also cadmium, iron, lead and chromium in lesser amounts), oxides of nitrogen, sulphates, rubber, asbestos, tyre wear deposits (including lead, zinc, and hydrocarbons), and compounds used for de-icing.

9.8.27 The levels of contaminants in runoff are often worse after long periods of dry weather followed by more intense storms. The effects of climate change may therefore mean that impacts are more severe with receiving bodies subject to higher contaminant loads.

9.8.28 Pollutants in runoff can result in both short- and long-term impacts, including steady deterioration of water quality, and shorter more acute impacts. Both can result in sub-lethal and lethal impacts on aquatic life.

9.8.29 Contaminants within site runoff therefore have the potential to have an adverse effect on the water quality of the receiving watercourses (River Afan and River Ffrwdwyllt).

9.8.30 Given the above, River Afan, River Ffrwdwyllt, the existing drainage network associated with the existing steelworks and the existing road drainage network are scoped in for operation.

9.8.31 Given the potential adverse impacts to water quality identified above, there is a potential to cause deterioration of the two WFD river waterbodies identified within the EIA Scoping Boundary. As such, a WFD compliance

assessment (**Appendix E**) has been undertaken and will inform the assessment.

Waterbodies

9.8.32 As discussed in Section 9.6, replacements for WB1, WB2 and WB3 will be provided before commencement of the Project. These would be considered new receptors. Depending on the location of these waterbodies, there is a potential for contaminated surface water runoff to lead to long-term degradation of water quality.

9.8.33 Therefore, the replacement waterbodies (depending on the design progress) are scoped in for operation.

9.8.34 WB4 and WB5 are not considered to be hydrologically connected to the land required for the operation of the Project, and therefore can be scoped out of further assessment.

Kenfig Marshalling Yard Site & Jersey Marine Site

Watercourses

9.8.35 Operational activities for the off-site compensation areas are likely to be limited to habitat maintenance. Maintenance activities within the EIA Scoping Boundary will include habitat curation and adjustments. These activities are likely to be of a smaller scale than those needed for construction and are unlikely to impact the receptors. Thus, there are no anticipated adverse impacts to the freshwater environment associated with operation in the off-site compensation areas. There is the potential for positive impacts on the surrounding receptors due to presence of the off-site compensation areas.

9.8.36 However, until the full operational scope and maintenance of the off-site compensation areas is determined, all watercourses within the off-site compensation Study Areas are conservatively scoped in for operation.

Waterbodies

9.8.37 While maintenance activities are not expected to cause significant effects on the receptors identified, until the full operational scope and maintenance of the off-site compensation areas is determined, all waterbodies within the off-site compensation Study Areas are conservatively scoped in.

Protected areas

9.8.38 While maintenance activities are not expected to cause significant effects on the receptors identified, until the full operational scope and maintenance of the off-site compensation areas is determined, all waterbodies within the off-site compensation Study Areas are conservatively scoped in.

Summary

9.8.39 **Table 42** provides a summary of the likely significant freshwater environment effects relevant to the terrestrial elements of the Project.

Table 42: Likely significant freshwater environment effects

Site	Activity	Effect	Receptor
Construction			
Port	Plant / vehicle activity adjacent to a watercourse / waterbody	Deterioration of water quality due to uncontrolled contaminated surface water runoff entering watercourses/waterbodies. Potential to introduce INNS into the watercourse/ waterbodies.	River Afan River Ffrwdwyllt WB3 Drainage network Road drainage network.
	Construction of pontoon	Damage to riverbanks and riparian features. Changes to flow conditions, resulting in changes to morphology of the watercourse.	River Afan
	In-channel working during construction	Changes to flow conditions, resulting in changes to morphology of the watercourse. Disturbance to fish and other aquatic species.	River Afan
	Construction of impermeable surfacing	Changes to flow volume discharging into receiving watercourses/waterbodies.	River Afan River Ffrwdwyllt WB3 Drainage network Road drainage network
Kenfig Marshalling Yard Site & Jersey Marine Site	Construction of scrapes and ponds including excavation of sediment	Deterioration of water quality due to an increase in fine silt and sediment in surface water runoff entering watercourses/ waterbodies.	Tenant Canal Neath Canal River Kenfig Nant Cwm Phillips WCK-1 to WCK-2 WCJM-1 Ditches Road drainage networks WBK-1 to WBK-8 WBJM-1 to WBJM-4 Crymlyn Bog and Pant-y-Sais Margam Moors Kenfig National Nature Reserve Eglwys Nunydd Reservoir
	Changes to land use	Deterioration of water quality due to an increase in fine silt and sediment in surface water runoff entering watercourses/ waterbodies.	
	Plant/vehicle activity adjacent to a watercourse / waterbody	Deterioration of water quality due to an increase in fine silt and sediment in surface water runoff entering watercourses/waterbodies. Potential to introduce INNS into the watercourse/ waterbodies.	
Operation and Maintenance			
Port	Movement of vehicles adjacent to watercourses / waterbodies	Deterioration of water quality due to uncontrolled contaminated surface water runoff entering watercourses/ waterbodies	River Afan River Ffrwdwyllt WB3 Drainage network Road drainage network Replacement ponds
Kenfig Marshalling Yard Site & Jersey Marine Site	Maintenance activities including tree felling, cutting, dredging of aquatic environments etc	Deterioration of water quality due to an increase in fine silt and sediment in surface water runoff entering watercourses/ waterbodies.	Tenant Canal Neath Canal River Kenfig Nant Cwm Phillips WCK-1 to WCK-2 WCJM-1 Ditches Road drainage networks

Site	Activity	Effect	Receptor
	Presence of compensation areas	Potential beneficial impact	WBK-1 to WBK-8 WBJM-1 to WBJM-4 Crymlyn Bog and Pant-y-Sais Margam Moors Kenfig National Nature Reserve Eglwys Nunydd Reservoir

9.9 Resources and Receptors Scoped Out of Assessment

9.9.1 The resources or receptors that are proposed to be scoped out of the assessment for the freshwater environment are set out within **Table 43**.

Table 43: Resources and receptors scoped out of assessment

Site	Receptor	Justification for scoping out
Construction		
Port	Baglan Brook	Baglan Brook catchment is separated from the Study Area by River Afan, as such is not considered to have a credible impact pathway.
	Arnallt Brook	Arnallt Brook is separated from the Study Area by the A4241, as such is not considered to have a credible pathway.
	WB1	WB1, WB2, WB3 assumed to be impacted or destroyed as part of the remediation for the sand/gravel pits (future baseline) and suitable compensatory habitat will be created elsewhere before Project commencement.
	WB2	
	WB3	
	WB4	WB4 is considered to be a sufficient distance from the Study Area as to not have a credible impact pathway.
	WB5	WB5 is separated from the Study Area by River Afan, as such is not considered to have a credible pathway.
Operation and Maintenance		
Port	Baglan Brook	Baglan Brook catchment is separated from the Project by River Afan, as such is not considered to have a credible impact pathway.
	Arnallt Brook	Arnallt Brook is separated from the Project by the A4241, as such is not considered to have a credible pathway.
	WB1	WB1, WB2, WB3 assumed to be impacted or destroyed as part of the remediation for the sand/gravel pits (future baseline) and suitable compensatory habitat will be created elsewhere before Project commencement.
	WB2	
	WB3	
	WB4	WB4 is considered to be a sufficient distance from the Project as to not have a credible impact pathway.
	WB5	WB5 is separated from the Project by River Afan, and as such is not considered to have a credible pathway.

9.10 Proposed Assessment Methodology

9.10.1 As discussed in **Chapter 5 – Approach to Assessment**, the approach to assigning significance of effect relies on the context of the impact, the professional judgement of competent experts and using effective consultation to ensure the advice and views of relevant stakeholders are considered. For the freshwater environment, there is no standard EIA methodology guidance for the assessment of the likely significant effects from developments of this type. Therefore, based on professional judgement and experience of other similar schemes, a qualitative

assessment[20] of the likely significant effects on freshwater receptors would be undertaken.

9.10.2 To inform the assessment, a water quality monitoring programme will be carried out prior to construction (to establish baseline conditions). This programme will be extended during construction, and post-construction.

9.10.3 The classification of effects would be determined using the principles of the guidance and the criteria set out in DMRB LA113 – Road drainage and the water environment, with the omittance of drainage criteria. The significance of effects would be determined using the significance matrix set out in Table 3.7 of DMRB LA104 – Environmental assessment and monitoring. Although this assessment methodology was developed for road projects, this method is considered suitable for use for the Project.

9.10.4 **Table 44** sets out the criteria that will be used to identify the importance[21] of the receptors.

Table 44: Estimating the importance of freshwater environmental receptors

Importance	Typical criteria	Typical examples
Very high	Nationally significant attribute of high importance	• Watercourse having a WFD classification shown in a RBMP and Q95 >1. 0m^3/s; and • Site protected/designated under EC or UK legislation (Special Area of Conservation (SAC), Special Protection Area (SPA), SSSI, Ramsar site, salmonid water)/ Species protected by EC legislation LA 108 [Ref 1.N] (2007/60/EC, 'Assessment and Management of Flood Risks Directive').
High	Locally significant attribute of high importance	• Watercourse having a WFD classification shown in a RBMP and Q95 <1. 0m^3/s; and • Species protected under EC or UK legislation LA 108 [Ref 1.N].
Medium	Of moderate quality and rarity	• Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m^3/s.
Low	Lower quality	• Watercourses not having a WFD classification shown in a RBMP and Q95 <0.001m^3/s.

Source: (Design Manual for Roads and Bridges, LA113, 2024)

9.10.5 **Table 45** sets out the criteria that will be used to assess the magnitude of the impacts.

[20] This qualitative assessment follows DMRB LA113 – Road drainage and the water environment guidance with the omittance of the quantitative Highways England Water Risk Assessment Tool (HEWRAT) drainage assessment. (Design Manual for Roads and Bridges, LA113, 2024).

[21] Whilst other disciplines may consider 'receptor sensitivity', the freshwater environment considers 'receptor importance' because the availability of dilution means that there can be a difference in the sensitivity and importance of a waterbody. For example, a small drainage ditch of low conservation value and biodiversity with limited socio-economic attributes would be very sensitive to impacts, whereas an important regional scale watercourse that may have conservation interest is considered less sensitive due to its size and ability to assimilate discharges and physical effects. All controlled waters in Wales are protected by law from being polluted.

Table 45: Estimating the magnitude of an impact on an attribute

Magnitude	Typical criteria	Typical examples
Major adverse	Results in loss of attribute and/or quality and integrity of the attribute	• Loss or extensive change to a fishery; • Loss of regionally important public water supply; • Loss or extensive change to a designated nature conservation site; and • Reduction in waterbody WFD classification.
Moderate adverse	Results in some measurable change in attributes, quality or vulnerability	• Partial loss or change in productivity of a fishery; • Degradation of regionally important public water supply or loss of major commercial / industrial / agricultural supplies; and • Contribution to reduction in waterbody WFD classification.
Minor adverse	Results in some measurable change in attributes, quality or vulnerability	• Minor effects on water supplies or conditions of the watercourse.
Negligible	Results in some measurable change in attributes but of insufficient magnitude to affect the use or integrity	• The proposed project is unlikely to affect the integrity of the water environment.
Minor beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring	• Contribution to the improvement in watercourse conditions, but is not likely to result improvement in WFD classification.
Moderate beneficial	Results in moderate improvement of attribute quality	• Contribution to improvement in waterbody WFD classification.
Major beneficial	Results in major improvement of attribute quality	• Removal of existing polluting discharge or removing the likelihood of polluting discharges occurring to a watercourse; and • Improvement in waterbody WFD classification.
No change		• No loss or alteration of characteristics features or elements; no observable impact in either direction.

Source: (Design Manual for Roads and Bridges, LA113, 2024)

9.10.6 **Table 46** sets out the criteria that will be used to assess the significance of effect.

Table 46: Significance Matrix

		Magnitude of impact				
		No change	**Negligible**	**Minor**	**Moderate**	**Major**
Environmental value (Importance)	**Very high**	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Source: (DMRB LA104 - Environmental assessment and monitoring, 2024)

Cumulative Effects

9.10.7 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

9.10.8 The cumulative assessment for the freshwater environment will consider other committed developments being constructed at the same time as the Project, where the effects from discharges to the freshwater environment during construction or operation have the potential to overlap. This will be assessed in the ES.

9.11 Assumptions and Limitations

9.11.1 The baseline will be identified from a desk-based study, site visits that were undertaken on the 11 January 2024 and 5 November 2024, a WFD assessment, and from water quality monitoring results. No other assessments have been carried out.

9.11.2 The environmental baseline developed for the EIA is supported by a twelve-month water quality monitoring programme which commenced in February 2024.

9.11.3 No drainage information has been provided to inform the baseline for this EIA Scoping Chapter. Given the industrial nature of the existing port and the existing steelworks, it is assumed there is a road drainage network within the study area. Further investigation will be undertaken to understand the nature of the existing drainage network within the study area. Findings from this survey will be used to inform the baseline reported in the ES.

9.11.4 Due to planned remediation for the sand and gravel pits, several existing waterbodies will no longer be present at the start of the project (future baseline). It is assumed that suitable compensatory habitat will be created elsewhere before Project commencement.

9.12 Summary

9.12.1 The proposed scope of the assessment for freshwater environment is contained within **Table 47**.

Table 47: Proposed scope of the Freshwater Environment Chapter of the ES

Site	Matter / Receptor	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Port	River Afan	In • Water quality; • Damage to riparian vegetation/ features; • In-channel works; and • WFD waterbody.	In • Water quality; and • WFD waterbody.	In: Watercourse is adjacent to study area
	River Ffrwdwyllt	In • Water quality; and • WFD waterbody.	In: • Water quality; and • WFD waterbody.	In: Watercourse is adjacent to study area
	WB1	Out: Future baseline	Out	Out: WB1, WB2, WB3 assumed to be impacted or destroyed as part of the remediation for the sand/gravel pits (future baseline) and suitable compensatory habitat will be created elsewhere before project commencement. The replacement ponds have been scoped in
	WB2	Out: Future baseline	Out	
	WB3	Out: Future baseline	Out	
		Replacement Ponds	N/A – ponds will be created during construction as compensation habitat for the destruction of WB1 and WB2.	In: As above
	WB4	Out	Out	Out: WB4 is considered to be a sufficient distance from the Project as to not have a credible impact pathway
	WB5	Out	Out	Out: WB5 is separated from the Project by River Afan, as such is not considered to have a credible impact pathway
	Arnallt Brook	Out	Out	Out: Arnallt Brook is separated from the Project by the A4241, as such is not considered to have a credible impact pathway.
	Baglan Brook	Out	Out	Out: Baglan Brook catchment is separated from the Project by River Afan, as such is not considered to have a credible impact pathway.
Kenfig Marshalling Yard Site Jersey Marine Site	Watercourses	In	In	All watercourses scoped in until design is confirmed.
	Waterbodies	In	In	All waterbodies scoped in until design is confirmed.

Chapter 9 References

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10 Terrestrial Historic Environment

10.1 Introduction

10.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential terrestrial historic environment effects in relation to the construction, operation and maintenance of the Project (see Chapter 5 – Approach to Assessment). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

10.1.2 The historic environment is defined within the Planning Policy Wales: Technical Advice Note 24 (Welsh Government , 2017) as:

"All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed."

10.1.3 The effects of the Project on the following are considered on the terrestrial historic environment:

- designated historic assets including World Heritage Sites, scheduled monuments, listed buildings, registered historic parks and gardens, and conservation areas designated as such under the relevant legislation (Welsh Government, 2023); and
- non-designated historic assets which may consist of, or be a combination of an archaeological site, a historic building or area, historic park and garden, registered historic landscapes, and historic battlefields identified by plan-making bodies as having a degree of heritage significance meriting consideration in planning decisions but which do not meet the criteria for designated historic assets (Welsh Government, 2023).

10.1.4 This environmental topic relates to terrestrial aspects of the Project, with marine and intertidal historic environment aspects being covered separately in **Chapter 16 – Marine Historic Environment**.

10.1.5 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

10.1.6 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 7 – Airborne Noise and Groundborne Vibration; Chapter 16 – Marine Historic Environment;** and **Chapter 21 – Landscape, Seascape and Visual Amenity.**

10.2 Legislation, Policy and Guidance Position

10.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of terrestrial historic environment are detailed in **Table 48**.

Table 48: Legislation, policy and guidance relevant to terrestrial historic environment

Relevant legislation/policy/ guidance	Relevance to assessment
Legislation	
Historic Environment (Wales) Act 2023	This act improves the accessibility of Welsh law by combining listed building and scheduled monument legislation in one place. It is published in both Welsh and English. The act came into force on 4 November 2024 and supersedes the 2016 Historic Environment Act. This act consolidates several others, including the Historic Environment (Wales) Act 2016, the Ancient Monuments and Archaeological Areas Act 1979, the Planning (Listed Buildings and Conservation Areas) Act 1990 and the Planning (Listed Buildings and Conservation Areas) (Wales) Regulations 2012. The Act brings together the principal legislation for the conservation of the historic environment in Wales.
National Policy	
Planning Policy Wales (PPW) Edition 12 (Welsh Government , 2024)	The PPW is a core planning policy document and sets out the national framework for planning policy. Section 6.1 pertains to the historic environment.
Planning Policy Wales Technical Advice Note (TAN) 24: The Historic Environment (Welsh Government , 2017)	The PPW is supported by the TAN 24 which sets out clearly how the Welsh planning system considers the historic environment during development plan preparation and decision making on planning applications and consents, including listed building consent and scheduled monument consent.
Local Policy	
Neath Port Talbot County Borough Council – Local Development Plan (2011-2026) (Neath Port Talbot Council , 2016)	Adopted in January 2016, this document sets out policies for the future development of Neath Port Talbot. Section 5.5 sets out the culture and heritage policies.
Neath Port Talbot County Borough Council – Replacement Local Development Plan Preferred Strategy 2023-2038 (Neath Port Talbot Council, 2024)	NPTC are currently in the process of developing a Replacement Local Development Plan. While not adopted as policy, it provides information and updated policies related to the historic environment. Relevant policies include Policy SP15: Historic Environment.
Guidance and Standards	
Conservation Principles for the Sustainable Management of the Historic Environment in Wales (Cadw (Cof Cymru), 2011)	This is the primary guidance document for work relating to the Historic Environment in Wales. It sets out how the significance of the historic environment should be understood.
Heritage Impact Assessment in Wales (Cadw (Cof Cymru), 2017a)	This document sets out the general principles to consider when planning changes to historic assets and applying for listed building, conservation area and scheduled monument consent.
Setting of Heritage Assets in Wales (Cadw (Cof Cymru), 2017c)	This document explains what setting is, how it contributes to the significance of a historic asset and why it is important.
Managing Historic Character in Wales (Cadw (Cof Cymru), 2017b)	This document explains why it is important to recognise historic character and use it as an evidence base for conservation, regeneration and planning work.

Relevant legislation/policy/ guidance	Relevance to assessment
Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) ((Glamorgan Gwent Archaeology (GGA), No date)	This document aims to provide guidance to allow HER users to submit data in a format that can be easily integrated into the now-statutory regional HERs, taking into account the need for certain project types to supply Welsh translations for certain fields in accordance with new legislation.
Archaeology and Planning in South East Wales. Notes and Guidance (Cadw (Cof Cymru) and Welsh Archaeological Trusts, 2022)	This document provides guidance on archaeological reporting and fieldwork, including the different types of surveys and excavations, when working in South East Wales.
A Research Framework for the Archaeology of Wales (IFA Wales/Cymru, 2008)	These documents outline the research frameworks by period for Wales which identify key questions that should be asked in any archaeological investigation related to that period and area.
Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA), 2014)	This guidance seeks to define good practice for the execution and reporting of desk-based assessment in line with the regulations of Chartered Institute for Archaeologists (CIfA), in particular the Code of conduct.
Principles of Cultural Heritage Assessment by the Institute of Environmental Management and Assessment (IEMA), the Institute for Historic Building Conservation (IHBC) and CIfA (IEMA, IHBC and CIfA, 2021)	This publication provides a useful set of guiding principles to supplement existing guidance and provide a consistent framework for cultural heritage impact assessment in a variety of settings.
Design Manual for Roads and Bridges (DMRB) LA 104: Environmental Assessment and Monitoring (DMRB, 2020a)	This document sets out the requirements for environmental assessment of projects, including reporting and monitoring of significant adverse environmental effects.
DMRB LA 106 – Cultural Heritage Assessment (DMRB, 2020b)	This document sets out the requirements for assessing and reporting the effects on cultural heritage as part of the environmental assessment process of construction, operation and maintenance projects.

10.3 Engagement and Consultation

10.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

10.3.2 Consultation will be undertaken with Cadw, Heneb (Glamorgan-Gwent Archaeology (GGA)), and the Local Planning Authority (LPA) Conservation Officer to discuss terrestrial historic environment matters in relation to the assessment approach and the study area. Initial findings may also be discussed as well as any proposed mitigation measures.

10.4 Study Area

10.4.1 The study area for terrestrial historic environment is 1km from the EIA Scoping Boundary and is presented in Figures 10.1, 10.2 and 10.3 in **Appendix A**. The study area is entirely limited to the terrestrial area. The setting of marine historic assets within the 1km study area is covered in **Chapter 16 – Marine Historic Environment**.

10.4.2 There may be additional or alternative locations used for the purposes of ecological mitigation and/or compensation as part of the Project, however at this stage land at the Kenfig Marshalling Yard Site and land at the Jersey Marine Site have been secured to enable an early consideration of compensation requirements alongside emerging proposals for plans under the wider FPT Programme.

10.4.3 There are three separate areas covered by the EIA Scoping Boundary for the Terrestrial Historic Environment. Each of the below areas has a study area 1km from the relevant EIA Scoping Boundary. These are:

- Existing port of Port Talbot (the Port);
- Kenfig Marshalling Yard Site; and
- Jersey Marine Site.

10.4.4 The 1km study areas are considered appropriate and proportionate for scoping to collate information on historic assets which have the highest potential to be affected by the Project. It allows for consideration of assets which may be physically impacted by the Project as well as an assessment of the settings of historic assets and potential to changes within these settings appropriate for scoping.

10.4.5 It is understood that historic assets beyond the 1km study areas may be affected by the Project through changes to their setting resulting in an impact on their heritage value. Historic assets outside of the 1km study areas will be considered for inclusion within the historic environment baseline of the ES, based on professional judgement guided by a Zone of Theoretical Visibility (ZTV). The ZTV is a tool which facilitates an understanding of the impact of any changes to setting brought about by the intervisibility between the Project and assets. Further detail on how the ZTV has been developed is provided in **Chapter 21 – Landscape, Seascape and Visual Amenity**.

10.5 Description of the Existing Environment

Resources and Receptors

10.5.1 For terrestrial historic environment the resources and receptors are:

- designated historic assets including World Heritage Sites, scheduled monuments, listed buildings, registered historic parks and gardens, and conservation areas designated as such under the relevant legislation (Welsh Government, 2023); and
- non-designated historic assets which may consist of, or be a combination of an archaeological site, a historic building or area, historic park and garden, registered historic landscapes, and historic battlefields identified by plan-making bodies as having a degree of heritage significance meriting consideration in planning decisions but which do not meet the criteria for designated historic assets (Welsh Government, 2023).

Data Sources

10.5.2 The baseline for terrestrial historic environment has been derived from the data sources set out in **Table 49**.

Table 49: Data sources

Data type	Data Source
Designated historic assets including listed buildings, scheduled monuments, registered historic parks and gardens, registered battlefields, conservation areas, World Heritage Sites, and registered historic landscapes.	National Historic Assets of Wales (Cadw (Cof Cymru), 2024e).
Non-designated terrestrial historic assets including non-designated archaeological sites, find spots and buildings.	Heneb (GGA) Historic Environment Record (HER) database and the National Monuments Record for Wales (NMRW) as held by the RCAHMW (Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), 2024). The NMRW may record many of the same assets as the HER, but HER entries are preferred with NMRW entries supporting them.
Previous archaeological events.	Heneb (GGA) HER database.

Baseline Conditions

10.5.3 Historic assets are identified in this document and the associated mapping (Figures 10.1 and 10.2 in **Appendix A**) using specific reference numbers. Listed buildings and scheduled monuments are identified in this document by their number assigned by Cof Cymru, with a prefix of LB for listed building and GM for scheduled monuments. This is to denote “Gwalchmai”, which is the Welsh term for scheduled monument. Reference numbers relate to listing unless prefixed by GGAT, whereby this denotes their HER entry. Those solely numerical identifications relate to RCAHMW references.

10.5.4 In order to assist with the identification of designated and non-designated historic assets with the potential to be impacted by the Project, the designated and non-designated sections below have been separated under the headings of each area within the EIA Scoping Boundary.

10.5.5 A full list of terrestrial historic assets recorded within the study area are in the Gazetteer in **Appendix F**.

10.5.6 All previous archaeological events recorded within the study area are shown in Figure 10.3, in **Appendix A** and included within the Gazetteer in **Appendix F**.

Designated Historic Assets

The Port

10.5.7 There are 30 designated historic assets recorded within the terrestrial element of the EIA Scoping Boundary and study area as shown in Figure 10.1, in **Appendix A**. These comprise the following:

- three Grade II* listed buildings comprising the Church of St Theodore (LB 14160), Ebenezer Chapel (LB 14174) and War Memorial (LB 23256);
- 26 Grade II listed buildings comprising medieval/post-medieval churches, post-medieval chapels, bridges, a harbour house, watchtower and court, a cinema, lodges, war memorials and a milepost; and
- Grade II listed Talbot Memorial Park Registered Historic Park and Garden (PGW(Gm)45(NEP)).

10.5.8 Of the 30 designated historic assets, the following three are located within the EIA Scoping Boundary as shown in Figure 10.1, **Appendix A**:

- Grade II listed Harbour Watch-Tower (LB 23155). This is a probable mid-19th century watch-tower which pre-dates the redevelopment of the docks between 1894-1898. It is a two-storey octagonal tower built of stone with battlemented parapets. The listing description states that it is a 'well preserved shell';
- Grade II listed Former Harbour House (LB 23154). This is a 19th century building in a Tudor-Gothic style. It is conveniently located between the new dock (opened in 1898) and the old, medieval dock at Port Talbot and occupies a central position on the wharfside; and
- Grade II Plate-Girder Bridge (LB 22852; LB 23153). This three-arch plate-girder bridge was constructed in 1903 following the major redevelopment of the Port Talbot docks in the late 1890s. It was the main access to the docks from Aberavon and the west side of the Afon (River) Afan. The bridge was formerly a two-carriageway road bridge but has now been pedestrianised. There are two list entries as the asset falls within the Sandfields East and Margam Moors communities.

10.5.9 The below listed buildings are not located within the EIA Scoping Boundary but are located close by and may experience changes to setting during the construction and operation and maintenance of the Project:

- the Grade II listed Harbour Court (LB 23152) is recorded c. 45m north-west of the EIA Scoping Boundary. The asset was built as the general offices of the Port Talbot Steel Company in the early 20th century. It has since been converted to a Magistrates Court in 1988. The building is Neo-Georgian in style and is comprised of red brick in stretcher bond with pale stone dressing; and
- the Grade II listed Talbot Memorial Park Registered Historic Park and Garden (PGW(Gm)45(NEP)) is recorded c. 205m north-east of the EIA Scoping Boundary. The park is a well preserved small town public park created in the memory of Emily Charlotte Talbot, who was the heiress and later owner of Margam Castle (Cadw (Cof Cymru), 2024c). The park was opened in 1926 after her death in 1918.

Kenfig Marshalling Yard Site

10.5.10 There are eight designated historic assets recorded within the terrestrial element of the EIA Scoping Boundary and study area as shown in Figure 10.1, **Appendix A**. These comprise the following:

- two scheduled monuments comprising the Kenfig Castle & Medieval Town (GM042) and Ty'n-y-Cellar Standing Stone (GM179); and
- six Grade II listed buildings comprising post-medieval agricultural buildings and the Morfa Bach Access bridge.

10.5.11 None of the above assets are recorded within the EIA Scoping Boundary.

Jersey Marine Site

10.5.12 There are 24 designated historic assets recorded within the terrestrial element of the EIA Scoping Boundary and study area as shown in Figure 10.1, Appendix A. These comprise the following:

- three scheduled monuments comprising the Briton Ferry Dock Entrance (GM445), Llandarcy Round Cairn (GM291) and Gelli-Bwch Round Cairn (GM290);
- one Grade II* listed building, the Dock walls and gate between inner dock and outer basin at Briton Ferry Docks (LB 23299);
- 19 Grade II listed buildings comprising post-medieval churches, post-medieval chapels and industrial buildings associated with the docks; and
- the Llandarcy Village Conservation Area (CA) (WAL/NPT/3).

10.5.13 None of the above assets are recorded within the EIA Scoping Boundary.

10.5.14 The closest assets to the EIA Scoping Boundary comprise:

- the grade II listed River Lock and attached bridges at Red Jacket Pill (LB 23074), recorded c. 12m to the south of the EIA Scoping Boundary. This barge lock was constructed in 1817-1818 and is comprised of coursed rubble stone with large dressed coping stones. The deck is reportedly missing from the bridge and is covered in vegetation; and
- the Grade II listed Weir on East side of Tennant Canal at Red Jacket Pill (LB 23077), recorded c. 24m to the north-west of the EIA Scoping Boundary. The canal that the weir is contained within was constructed between 1820-24. Traffic was carried on the canal until the 1930s. The weir is approximately 5m long and is comprised of dressed sandstone and some stonework.

10.5.15 The Llandarcy Village CA is recorded c. 915m north-west of the Jersey Marine Site. The settlement was built between 1918-22 and was designed as a garden village. It comprised 250 houses and flats to house the workers of the former oil refinery adjacent to the village. The houses and flats were constructed in an 'arts and crafts' style (Neath Port Talbot County Borough Council , 2019).

Non-Designated Historic Assets

The Port

10.5.16 There are 178 non-designated historic assets recorded by the HER and NMRW within the study area as shown in Figure 10.2, Appendix A. These include the site of a castle, industrial works, churches and chapels, a

Roman Road, and post-medieval buildings. Of these 178 historic assets, 18 are recorded within the EIA Scoping Boundary. These include:

- World War II battery, destroyed by explosives in 1971 during the construction of a new harbour (GGAT09021w);
- post-medieval Bridge (GGAT10870m) now destroyed;
- post-medieval footbridges, (GGAT10914m; GGAT10913m) now destroyed;
- post-medieval Lighthouse, Port Talbot Docks (GGAT04726w) now destroyed;
- post-medieval Navigation Light (GGAT10778m), condition unknown;
- post-medieval Pilot's Rest Inn (GGAT03125w), condition unknown;
- post-medieval Rifle Range (GGAT03126w) now destroyed;
- post-medieval crane (GGAT10804m), now destroyed;
- post-medieval Revetment, Aberavon (GGAT10805m), condition unknown;
- post-medieval Tanks, North Bank (GGAT10868m), condition unknown;
- post-medieval Structure, Crown Preserved (GGAT10869m), condition unknown;
- post-medieval embankments (GGAT10962m, GGAT10777m, GGAT10800m), condition unknown;
- Signal Post (GGAT10779m), now destroyed;
- Findspot, Aberavon Docks (GGAT00731w); and
- polygon (GGAT07352w), which the HER gives no further information about other than it is destroyed.

10.5.17 Further east (c. 650m from the EIA Scoping Boundary) is the non-designated Margam Mountain Registered Historic Landscape (HLW (WGl/MGl) 2) (Cadw (Cof Cymru), 2024a). This asset is not located within the EIA Scoping Boundary but may experience changes to setting resulting from the Project. This area is dominated by the steep southern flanks of Margam Mountain. Historically this mountain was a strategic location which controlled early routes to West Wales, including the main Roman road linking the Roman forts of Cardiff and Neath.

Kenfig Marshalling Yard Site

10.5.18 There are 28 non-designated historic assets recorded by the HER and NMRW within the study area as shown in Figure 10.2, **Appendix A**. These include the Kenfig medieval borough, Kenfig Castle, various domestic and agricultural buildings, a Roman Road and a WWII crash site. Of these 28 historic assets, two are recorded within the EIA Scoping Boundary:

- Margam Sorting Sidings Signal Box (421807) which is of modern date. It is recorded as being derelict and vandalised but extant. However, aerial imagery does not show the building as being extant; and
- Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1). This landscape comprises an area of littoral dunes formed by accumulations of wind-blown sand. The archaeological potential of the dunes is considered to be extremely high, with

occupation and activity from the prehistoric through to the medieval period being evident.

Jersey Marine Site

10.5.19 There are 178 non-designated historic assets recorded by the HER and NMRW within the study area as shown in Figure 10.2, Appendix A. These include a medieval motte, sites of chapels, a copper works, Bronze Age cairns, post-medieval infrastructure such as canals, locks and wharfs. Therefore, of the 178 assets recorded within the study area, five assets are recorded within the EIA Scoping Boundary:

- The site of Red Jacket Pill Copper Works (407229; GGAT01070.32w);
- The Tennant Canal river lock (34539; 34541; GGAT01070.02w);
- The Tennant Canal (GGAT01070.0w; GGAT01070.32w);
- Post-medieval coalpit at a colliery (GGAT03146w); and
- The site of Earlswood House (GGAT07735w);

Historic Environment Baseline

10.5.20 The following section provides a brief description of the terrestrial historic environment baseline within the EIA Scoping Boundary and study area, including the three areas of the Port, Jersey Marine Site and Kenfig Marshalling Yard Site. Where relevant, assets that lie outside of the study area have been included to provide context.

Prehistoric (up to AD 43)

10.5.21 There are no terrestrial historic assets recorded within the EIA Scoping Boundary of prehistoric date, although there is some evidence for a Neolithic and Bronze Age presence recorded in the marine environment (see **Chapter 16 – Marine Historic Environment**).

10.5.22 On a hill c. 400m west of the Jersey Marine Site are two Bronze Age cairns (GGAT00641w; GGAT00640w; GM290). One is in poor condition due to it being cut by a small rectangular building, which is in a ruinous condition (GGAT00640w). A further round cairn is recorded c. 940m north of Jersey Marine Site (GGAT01537w; GM291).

10.5.23 Approximately 900m east of Kenfig Marshalling Yard Site is the Ty'n Cellar standing stone (307341; GGAT00789w). Several other standing stones have been found in the wider landscape (outside of the study area) and were commonly used as way markers along roads (Cadw (Cof Cymru), 2024d).

10.5.24 In the Margam Mountains to the south-east of the Port are several Iron Age hillforts that are designated as scheduled monuments. The closest is Pen-y-Castell (GM098) c. 3km north-east of the EIA Scoping Boundary, which is situated atop a small hill and overlooks Port Talbot.

10.5.25 The evidence from the historic environment baseline does not suggest extensive prehistoric occupation within the EIA Scoping Boundary. There is

evidence within the study areas; however, this is contained to hills and near ancient trackways/Roman roads.

Roman (AD 43 – AD 410)

10.5.26 The Roman Conquest of Wales began in AD 48 and ended from AD 383 with the abandonment of the region (Davies, 2007). The Port, Kenfig Marshalling Site and Jersey Marine Site all lie within land associated with the Silures tribe.

10.5.27 There is a Roman Road c. 130m north of the Port EIA Scoping Boundary (RR60c-05a). It passes in a north-west/south-east direction along Talbot Road. A further Roman Road (RR60c-06) passes c. 300m east of the Port EIA Scoping Boundary and 1km east of Kenfig Marshalling Yard Site. There are two Roman Roads that pass c. 845m east (RR60c-06) and c. 625m south of the Jersey Marine Site (RR60d-04).

10.5.28 There is a possible site of a Roman fort recorded c. 756m south-east of the Kenfig Marshalling Yard Site (410002). At the Jersey Marine Site, there are two coin hoards of Roman date recorded c. 325m (GGAT02923w) and 790m (GGAT00606w) to the north-west, as well as the site of a potential bridge c. 88m to the south (GGAT00637w).

10.5.29 Approximately 595m north-east of the EIA Scoping Boundary is the Margam Mountain Registered Historic Landscape (HLW (WGl/MGl) 2) (Cadw (Cof Cymru), 2024a). Historically this mountain was a strategic location which controlled early routes to West Wales, including the main Roman road linking the Roman forts of Cardiff and Neath mentioned above (RR60c-05a).

10.5.30 The evidence from the historic environment baseline does not suggest extensive Roman occupation within the EIA Scoping Boundary. Kenfig Marshalling Yard Site has occupational activity within its study area; however, this is concentrated to the south-east away from the EIA Scoping Boundary.

Early Medieval and Medieval (AD 410 – AD 1539)

10.5.31 The settlement at the port of Port Talbot grew out of the medieval borough of Aberafan, which likely had early medieval origins, and the surrounding communities of Baglan, Cymafan, Bryn and Margam. Margam lies over 1km to the south-east of the Port and is most noted for its Cistercian Abbey. It was founded in 1147 by Robert of Gloucester and subsequently dissolved by King Henry VIII in 1536. The dissolution of Margam Abbey may have resulted in economic decline for Aberafan, with less people visiting and using the harbour (Toulmin-Smith, 1964) (see **Chapter 16 – Marine Historic Environment**). This would have likely had a negative impact on the local economy of the Port.

10.5.32 Within the study area at the Port, there are four early medieval cross slabs/stones (GGA00675w, c. 700m north of the EIA Scoping Boundary and GGA00723w, c. 560m north of the EIA Scoping Boundary), including

one within the EIA Scoping Boundary (GGA00728w) and another recorded c. 50m north-west of the EIA Scoping Boundary (GGA00727w). These two latter assets are likely associated with the site of a medieval chapel (05277w) which lies partially within the EIA Scoping Boundary. A further medieval chapel dedicated to St Thomas (GGA00729w) is recorded c. 590m north-west of the EIA Scoping Boundary. This site was identified after a piscina (shallow basin associated with churches (National Churches Trust, 2024)) was recorded during the demolition of a farmstead called The Croft. This demonstrates that there was likely a religious presence at the Port in the early medieval and medieval period.

10.5.33 Approximately 260m south of the Jersey Marine Site is the site of Hen Gastell (401406). This comprises the site of a possible castle built by Morgan ap Caradog ab Iestyn, the Welsh Lord of Afan in the second half of the 12th century (Wilkinson, 1995). Excavations in 1991-1992 ahead of the construction of the M4 revealed that the site had been occupied from the first half of the 6th century AD. The castle lay in a strategic position overlooking the Neath Estuary and the Briton Ferry crossing c. 250m north-east of the castle (GGAT08842w; GGAT00637w).

10.5.34 A further castle (300455; GGAT00148m) and medieval town (15335; GGAT00082m; GGAT02250m) is recorded c. 680m and 790m south-east of the Kenfig Marshalling Yard Site. There is also a record for the site of St Thomas' Chapel (GGAT01062m) and a guildhall (GGAT01063m) c. 370m south-west of the Kenfig Marshalling Yard Site. However, the location of these assets is not exact. The medieval town of Kenfig (15335; GGAT00082m; GGAT02250m) was reportedly a thriving coastal town established in the 12th century (Spurgeon, 2001). It existed up until the 16th century, after which it was buried by the expanding sand dunes.

10.5.35 The evidence from the historic environment baseline suggests extensive medieval occupation within the study areas for the Port, Kenfig Marshalling Yard Site and Jersey Marine Site. There is potential for associated or residual activity dating to the medieval period to extend into all three areas within EIA the Scoping Boundary.

Post-Medieval and Industrial (1539 – 1899)

10.5.36 The major industrial development of the Port began in 1770 when the English Copper Company set up works at Taibach, a community within the district of the Port (Port Talbot Historical Society, 2024). This was followed by the Margam Tinplate works in 1820. This expansion of industry led to the redevelopment of the medieval harbour (see **Chapter 16 – Marine Historic Environment**). By the end of the 19th century, iron, steel and coal were now the main local export, overtaking copper exports.

10.5.37 See **Chapter 16 – Marine Historic Environment** for more detail on the post-medieval development of the port.

10.5.38 Within the western section of the Jersey Marine Site is the site of the Red Jacket Copper Works, also recorded as Ynys-y-gerwyn rolling and tin mills (407229; GGAT07097w). Limited information is available on the HER about

this asset. However, historic OS maps from 1888-1915 (National Map Library of Scotland (NLS), 2024) show that the copper works comprises a large irregular shaped building with three smaller, square buildings to the east. It is bound by the Neath Estuary and the Tennant Canal (413601; GGAT01070.32w; 01070.0w) with the Cape Copper Works and the Briton Ferry Chemical Works (GGAT03145w) to the immediate north. There is also quarrying activity recorded within this area (GGAT01848w).

10.5.39 In the south of the Jersey Marine Site is the site of Earlswood House (GGAT07735w) and the Earlswood Colliery (GGAT03146w). There is limited information about the house and colliery recorded on the HER. The colliery is marked as disused on OS mapping from 1888-1915. The eastern bank of the Afon Nedd to the east of the Jersey Marine Site is dominated by industrial buildings, including the Cambrian Coke Works (419706; GGAT03648w), Briton Ferry Iron Works (309213; GGAT01742w), Victoria Plate Works (419707; GGAT03645w) and the Earlswood Tin Plate Works (GGAT03598w).

10.5.40 At the Kenfig Marshalling Yard Site, the area was undeveloped during the late 19th and early 20th century. The line of the Great Western Railway is recorded to the immediate east, which is still in use today. The Afon Kenfig (Cynffig) originally passed east-west through the Kenfig Marshalling Yard Site; however, this was later redirected around some access trackways along the boundary of the area.

10.5.41 The evidence from the historic environment baseline suggests extensive post-medieval occupation within the EIA Scoping Boundary area. Post-medieval activity will likely have removed and/or truncated any earlier archaeological remains within previously developed areas.

Modern (1900 – Present)

10.5.42 The modern development of the Port was still closely tied to the development of the port, with more detail found in **Chapter 16 – Marine Historic Environment**.

10.5.43 The Grade II listed Talbot Memorial Park Registered Historic Park and Garden (PGW(Gm)45(NEP)), c. 205m north-east of the EIA Scoping Boundary (Cadw (Cof Cymru), 2024c) is a well preserved small town public park created in the memory of Emily Charlotte Talbot, heiress, and later owner, of Margam Castle. Emily was the daughter of Christopher Rice Mansel Talbot. Both the father and daughter were industrialists and contributed greatly to the improvement of railways and development of the docks and other industry at the Port (for further information see **Chapter 16 – Marine Historic Environment**). The park was opened in 1926 after her death in 1918 and is situated on the north side of the Ffrwd Wyllt Afon, with St. Theodore's Church to the north. The main entrance to the park is marked by a Tudor archway with gothic side entrances and a low wall with iron railings, which is also flanked by octagonal stone piers. Other features include a war memorial and a band stand. The area surrounding the band stand is very vegetated, while to the north is a more open area comprising sports facilities and pitches.

10.5.44 There are two non-designated historic assets of modern date recorded within the EIA Scoping Boundary. These comprise a coast artillery battery (GGA09021w) and a rifle range (GGA03126w). During the Second World War, raids were undertaken in Neath and the Port in August 1940 and May 1941. These raids resulted in property damage and loss of life. Despite the steel works being located at the Port, there is no reference to munitions or military vehicles or aircraft being built at the Port. The closest munitions factory seems to have been at Bridgend, c. 16.45km south-east of the EIA Scoping Boundary (BBC , 2014).

10.5.45 Modern changes within the Jersey Marine Site comprise the removal of the Red Jacket Copper Works, Earlswood House and colliery and the construction of the A483, A48 and M4. Construction for the A483 road is visible on an aerial photo from May 1949 (NLS, 2024). The rest of the Jersey Marine Site is largely unchanged.

10.5.46 The Kenfig Marshalling Yard Site is occupied by a railway yard in the mid-20th century, recorded as Margam Marshalling Yard/Margam Hump Yard (401297). It was opened in 1960 as a sorting yard and covered an area of 178 acres. It handled a maximum capacity of 4,500 wagons, but rarely exceeded 2,500 wagons. The yard was closed in 1980 and the site completely closed in 1987. There were also around five small buildings within the EIA Scoping Boundary associated with the function of the railways, one of which is the Margam Sorting Sidings Signal Box (421807). This asset was demolished between 2009-2013. The rest of the railways and buildings were demolished between 2013-2020.

10.5.47 Outside of the Kenfig Marshalling Yard Site, c. 150-200m to the east and west are some ridge and furrow earthworks visible on aerial imagery (ESRI World Imagery, 2024).The Eglwys Nunydd Reservoir (414947) is also recorded within the wider area. This was built in 1963 to serve the British Steel Works at Margam.

10.5.48 The evidence from the historic environment baseline suggests extensive modern occupation within the Port and Kenfig Marshalling Yard Site. Modern activity will likely have removed and/or truncated any earlier archaeological remains within previously developed areas.

Historic Landscape

10.5.49 All landscape is historic. A register of historic landscapes is kept by Cadw. These do not have statutory protection but have been considered as receptors for the purposes of the ES. In addition, the following outlines the historic landscape of the study area.

The Port

10.5.50 The EIA Scoping Boundary is urban in character, with the harbour and docks being surrounded by the existing steelworks and industrial and commercial development. This development is interspersed by green space mainly comprising scrubland, open grassland and landscaped green spaces. The built development continues into the wider area outside of the

EIA Scoping Boundary, with the area to the north, east and south-east being dominated by residential development within the Port, Taibach and Margam. To the south, the existing steelworks continues to extend along the coastline. Further to the east the landscape opens up towards the Margam Mountains, and comprises areas of open grass hills and wooded valleys. This is also reflected in the Historic Landscape Character (HLC) data provided by the HER for the EIA Scoping Boundary, which characterises the area as a mixture of industrial and marginal land, with urban development to the north.

Kenfig Marshalling Yard Site

10.5.51 Kenfig Marshalling Yard Site currently occupies the former site of a railway yard. Remnants of railway lines can be seen on aerial imagery (ESRI World Imagery, 2024). Other areas within the EIA Scoping Boundary comprise scrubland and access tracks. The EIA Scoping Boundary partially covers the Merthyr Mawr, Kenfig & Margam Burrows (HLW (MGI) 1) (Cadw (Cof Cymru), 2024e). This is an area of littoral sand dunes that accumulated during the 13-15th centuries. The majority of the EIA Scoping Boundary is characterised by the HLC as industrial (Natural Resources Wales (NRW), 2004) and comprising the historic line of the South Wales Main Line (Great Western and Port Talbot Railways) and Newlands Loop Rail Corridor (Glamorgan Gwent Archaeology (GGA), 2024).

Jersey Marine Site

10.5.52 The Jersey Marine Site occupies an area along the western bank of the Afon Nedd. The majority of the area is undeveloped grassland with large areas of woodland. Historically this area was dominated by 19th century industrial works such as the Red Jacket Copper Works and other tin, steel and copper works on the eastern bank of the Afon Nedd. There is a large road network comprising the A48, A483 and M4 within the EIA Scoping Boundary. The EIA Scoping Boundary covers four separate HLC areas. These comprise water and wetland (NRW, 2004), built environment (NRW, 2004), marginal land (NRW, 2004) and industrial (NRW, 2004).

10.6 Future Baseline

10.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The terrestrial historic environmental chapter of the ES would seek to explain what the environmental change, in terms of terrestrial historic environment, would likely be in the future if the Project were not to go ahead.

10.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

10.6.3 The approach to establishing the future baseline for terrestrial historic environment will include consulting national and local plans, national datasets, including Cadw's buildings at risk register.

Climate Change

10.6.4 As a coastal location, the biggest factor in the evolution of the baseline is likely to be the threat of climate change. For the historic environment in Wales, this is likely to involve:

- increased rainfall;
- more frequent extreme weather events;
- increasing temperatures;
- rising seas; and
- shifting coasts.

10.6.5 For terrestrial historic assets the impact of these changes may include:

- an increase in building decay from repeated saturation and an increase in moss and algae;
- damage to built historic assets from high winds or storms;
- damage to external building fabric from extreme high or low temperatures;
- damage from erosion in coastal settings;
- increased salt decay to the fabric of built historic assets;
- an increase in coastal erosion and flooding resulting in the loss of coastal archaeological deposits; and
- salt water ingress inland to sensitive archaeological deposits changing conditions for preservation.

10.6.6 Further information is available in **Chapter 8 – Flood Risk** and **Chapter 20 – Climate Change** of this EIA Scoping Report.

10.7 Mitigation Measures

10.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for terrestrial historic environment will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

10.7.2 This section sets out the potential controls relevant to the terrestrial historic environment which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

10.7.3 Further mitigation for historic assets of archaeological interest may be developed as part of the iterative archaeological process following the

surveys undertaken as part of the assessment for the ES. These may involve a programme of archaeological works.

Design Measures

10.7.4 The Project design will seek to avoid potential effects on historic assets, if at all possible, before seeking to minimise or mitigate for any unavoidable effects through a well-developed mitigation strategy.

10.7.5 Terrestrial historic environment design objectives shall be developed for the project in accordance with national, regional and local policies as well as in discussion with the client and stakeholders. The historic environment design objectives should provide a clear statement of how the project, through avoidance, minimisation, mitigation and offsetting, is expected to contribute to the value of, or the understanding and dissemination of, the historic environment resource, and how this is to be achieved, monitored and validated. This should be guided by the appropriate research framework (IFA Wales/Cymru, 2008).

10.7.6 Embedded mitigation (primary mitigation) will be incorporated into the Project design development is likely to include:

- avoidance and/or minimisation of impact to historic assets and archaeological remains through redesign where possible;
- use of minimal or sympathetic design to reduce changes within the settings of historic assets or landscapes;
- reduction in degradation of the settings of historic assets or landscapes through measures such as screening or landscaping;
- management of noise and vibration in the vicinity of historic assets;
- establish the potential for unknown archaeological remains through the desk and field-based investigation where required;
- preservation by burial of terrestrial archaeological remains; and
- exploring the opportunities for community engagement about the historic environment.

10.7.7 Cross topic discussions including with noise, traffic and transport to understand the potential change in the setting of historic assets due to the construction and operation and maintenance of the Project will be undertaken and additional, embedded mitigation may be proposed.

10.7.8 Cross topic discussions including with landscape and the project design team will also take place to enable sympathetic design to minimise the potential impacts;

10.7.9 Consultation with key heritage stakeholders, such as CADW, Heneb (GGA), and the local planning authority Conservation Officer may be undertaken whilst further information will be obtained from Cof Cymru and RCAHMW.

Construction Controls

10.7.10 Mitigation measures during construction will be determined by surveys undertaken during the compilation of the ES.

10.7.11 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- where historic assets or archaeological remains cannot be avoided ensuring their investigation, recording, reporting and archiving;
- establishment of an Archaeological Management Plan (AMP) updated regularly to ensure best practice investigation of historic assets and archaeological remains;
- installation of physical protection measures to avoid harm to historic assets;
- temporary removal of historic assets for reinstatement following the completion of construction works, where appropriate;
- the use of noise fencing or maintenance of access routes to a historic asset to maintain its viability;
- monitoring of vibration and noise on built historic assets; and
- monitoring of excavation, which may include terrestrial archaeological monitoring.

Operational and Maintenance Controls

10.7.12 There is no anticipated mitigation required for operation and maintenance regarding terrestrial archaeological remains, however possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operation and maintenance stage for built historic assets include:

- installation of physical protection measures should the operation and maintenance of the site or site traffic pose a risk to identified historic assets;
- permanent relocation of historic assets should the operation and maintenance of the site or site traffic pose a risk to identified historic assets;
- planting of trees and other vegetation screening to reduce change to the settings of assets as a result of operational and maintenance impacts such as visual intrusion from turbines , light and noise pollution; and
- the integration of selected historic assets into the Project with possible conservation works (as appropriate) to enhance positive effects on the historic environment.

10.8 Potential Likely Significant Effects

10.8.1 The potential likely significant effects for the terrestrial historic environment include those described in **Table 50**. These take into account the expected control measures set out within section 10.7.

Table 50: Likely significant Terrestrial Historic Environment effects

Activity	Effect	Receptor
Construction		
Presence of construction machinery, traffic and construction work compounds including lighting	Temporary changes to the settings of historic assets.	Listed Buildings Llandarcy Village Conservation Area (WAL/NPT/3) Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)
Increase in noise, vibration and dust generated during construction	Temporary changes to the settings of historic assets.	Listed Buildings Llandarcy Village Conservation Area (WAL/NPT/3) Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)
Diversion or alteration of existing services and installation of new services	Temporary changes to the settings of historic assets.	Listed Buildings Llandarcy Village Conservation Area (WAL/NPT/3) Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)
Permanent demolition of non-designated built historic assets to accommodate the Project	Permanent removal/total loss of a non-designated built heritage asset(s).	Non-Designated Historic Buildings
Excavation, ground disturbance and compaction	Permanent removal/total loss of non-designated historic assets of known and unknown archaeological remains.	Known non-designated archaeological sites (recorded on the HER) Unknown non-designated archaeological sites
Operation and Maintenance		
Presence of new and modification of existing infrastructure	Permanent changes to the settings of historic assets.	Listed Buildings Llandarcy Village Conservation Area (WAL/NPT/3) Non-designated historic buildings Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)
Alteration in ground water levels	Affecting the preservation of waterlogged, terrestrial archaeological remains, which may result in partial or total loss.	Known non-designated archaeological sites (recorded on the HER) Unknown non-designated archaeological sites
Operation and maintenance lighting, including from vehicles and vessels	Permanent changes to the settings of historic assets.	Listed Buildings Llandarcy Village Conservation Area (WAL/NPT/3) Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)
Noise pollution from the Project and as a result of increased traffic levels	Permanent changes to the settings of historic assets.	Listed Buildings Llandarcy Village Conservation Area (WAL/NPT/3) Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)
Visual intrusion from the integration and commissioning of the wind turbines	Permanent and temporary changes to the settings of historic assets	Listed Buildings

10.8.2 Any physical impacts to the fabric of a listed building also have the potential to result in a significant effect and would require listed building consent to be agreed in advance of construction works.

10.8.3 There is the potential for further significant effects as a result of the Project. There is also potential for less than significant effects as a result of the Project, allowing assets to be scoped out of the assessment. However, without detailed assessment of the setting of historic assets in the study area this cannot be ascertained and will from part of the detailed assessment during the ES, site walkover and production of the Desk Based Assessment (DBA) (outlined in more detail in paragraph 10.11.3).

10.8.4 There are no anticipated operational and maintenance effects on below ground terrestrial archaeology as a result of the Project, as it is assumed any present would have been removed during the construction phase.

10.9 Resources and Receptors Scoped Out of the Terrestrial Historic Environment Assessment

10.9.1 The resources or receptors that are proposed to be scoped out of the assessment for terrestrial historic environment are set out within **Table 51**. This includes those which are proposed to be assessed within **Chapter 16 – Marine Historic Environment**.

Table 51: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Construction and operation and maintenance activities	Temporary and permanent changes to non-registered historic landscape	Non-registered historic landscapes the Port and Kenfig Marshalling Yard Site	The Port and Kenfig Marshalling Yard Site are industrial in nature and predominantly date to the post-medieval/Modern period. Changes to these areas will be in keeping with the overarching historic landscape character of the non-registered historic landscape.
Construction and operation and maintenance activities	Temporary and permanent changes to non-registered historic landscape	Non-registered historic landscapes Jersey Marine Site	The Jersey Marine Site is predominantly marginal land. The proposed habitat compensation and remediation works will be in keeping with the historic landscape character of the non-registered historic landscape.
Construction and operation and maintenance activities	Temporary and permanent changes to registered historic landscape due to a physical change	Merthyr Mawr, Kenfig & Margam Burrows Registered Historic Landscape (HLW (MGI) 1)	The Project is not located within the registered historic landscapes. It will therefore, not physically alter these landscapes.
Construction and operation and maintenance activities	Temporary and permanent changes to setting	Historic assets outside the 1km study area.	Due to the existing built environment it is considered that the Project will not result in changes to the setting of historic assets beyond the 1km study area.

Activity	Effect	Receptor	Justification for scoping out
Excavation, ground disturbance and compaction during construction activities	Permanent removal/total loss and physical impact of marine historic assets	Marine designated and non-designated historic assets	In **Chapter 16 – Marine Historic Environment** of the EIA Scoping Report.
Construction and operation and maintenance activities	Permanent and temporary changes to the setting of historic assets	Marine designated and non-designated built historic assets	In **Chapter 16 – Marine Historic Environment** of the EIA Scoping Report.

10.10 Proposed Assessment Methodology

10.10.1 The ES will be supported by a detailed historic environment DBA which will form the baseline and will be included as a technical appendix. Early consultations will be undertaken with relevant historic environment stakeholders to inform the contents, conclusions and recommendations of the DBA.

Baseline

10.10.2 The proposed study area for the DBA will comprise an inner (1km radius), and outer study area. The inner study area will include all assets (as defined in Table 52below). The radius of the outer study area will depend on the ZTV and detailed design of the Project. This will involve a selection process based on the setting of the historic asset and its sensitivity to change. This selection process will be recorded in the baseline of the ES. Only those assets selected will be considered for further assessment.

10.10.3 Both the ES and the DBA will utilise the following sources:

- Cof Cymru – National Historic Assets of Wales for data on listed buildings, scheduled monuments, registered historic parks and gardens, registered battlefields, conservation areas, World Heritage Sites, and registered historic landscapes (Cadw (Cof Cymru), 2024e);
- Heneb (GGA) HER database for terrestrial historic monument records and archaeological events;
- the NMRW as held by RCAHMW for non-designated archaeological sites, find spots and buildings (Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), 2024);
- site walkovers and setting assessments, where possible;
- an inspection of geological maps and historic BGS borehole data relevant to the study areas;
- a review of material published from previous archaeological surveys and investigations;
- an inspection of cartographic evidence and aerial photographs for the land use history of the study areas;
- an inspection of historic maps and other documents relevant to the Project that are available at archives, if required;
- an inspection of LiDAR data, if available; and
- a review of Ground Investigation (GI) and Unexploded Ordnance (UXO) outputs.

10.10.4 It is anticipated that an archaeological deposit model will be developed utilizing the GI results.

10.10.5 Non-intrusive or minimally intrusive surveys will be undertaken as appropriate to further determine the potential for and extent of any unknown archaeological features. The surveys to be considered include terrestrial geophysical survey, geoarchaeological survey, metal detector and fieldwalking survey and drone survey, as appropriate to the environment.

10.10.6 If appropriate, further intrusive investigation should be considered based on the results of the previously identified minimally and non-intrusive surveys.

Assessment

10.10.7 The assessment methodology will be informed by DMRB, LA106 Cultural heritage22 assessment guidance (published January 2020) (DMRB, 2020b). The methodology will also be informed by the DMRB, LA104 Environmental assessment and monitoring (published 2020) (DMRB, 2020a). According to DMRB, significance of effect upon the historic environment resource is assessed according to the value of the historic asset correlated with the magnitude of change. The proposed assessment criteria for value and magnitude as set out in **Table 52** and **Table 53** below have been adapted from DMRB. They outline how to assign value (sensitivity) and the magnitude of impact. While the DMRB is specifically for roads and bridges, the assessment methodology is considered to be standard practice and is widely used across the industry for various types of development.

10.10.8 The heritage value (sensitivity) of historic environment receptors will be based on **Table 52** below. Assessment of value is based on a combination of designated status, guidance provided by Cadw and professional judgement. It takes into account the Secretary of State for the Department of Culture, Media and Sport's non-statutory criteria for the scheduling of ancient monuments (Historic England , 2024); assessment criteria adopted by Historic England as part of its Monuments Protection Programme (Historic England, 1988-1990) (in lieu of Welsh equivalent guidance) and the Secretary of State's Principles of Selection Criteria for Listed Buildings (Department for Digital, Culture, Media & Sport, 2018).

10.10.9 It is also recognised that on occasion historic assets can have a lower or higher than normal value within a local context. This will be identified through the appropriate period/location guidance within the Research Framework for the Archaeology of Wales (IFA Wales/Cymru, 2008). The assessment of value will therefore take into account the component of the asset that is being affected and the ability of the site to absorb change without compromising the understanding or appreciation of the resource.

[22] The term 'cultural heritage' is interchangeable with the term 'historic environment'.

Table 52: Criteria for assessing value (sensitivity)

Value	Typical criteria
Very High	Very high importance and rarity, international scale and very limited potential for substitution. These include World Heritage Sites, assets of acknowledged international importance, assets that can contribute significantly to acknowledged international research objectives.
High	High importance and rarity, national scale, and limited potential for substitution. Scheduled monuments, Grade I, II* and II Listed Buildings, Registered Historic Parks and Gardens, and Conservation Areas where the asset and its setting retain evidential, aesthetic and communal, and historic value which contributes to their significance. Non-designated monuments, sites or landscapes that can be shown to have specific nationally important qualities and assets that can contribute significantly to national research objectives.
Medium	Medium importance and rarity, regional scale, limited potential for substitution. Non-designated Historic Parks and Gardens, Registered Historic Landscapes, Conservation Areas and Historic Battlefields where the asset and its setting retain less evidential, aesthetic, communal and/or historic value which contributes to a lesser extent of their significance. Non-designated sites of regional importance identified through research or survey, monuments or sites that can be shown to have important qualities in their fabric or historical association.
Low	Low or medium importance and rarity, local scale. Non-designated assets – buildings, structures, monuments, or archaeological sites with a local importance for education or cultural appreciation, and which add to local archaeological and historic research. Very badly damaged assets that are of such poor quality that they cannot be classed as high or medium, historic parks and gardens of local interest
Negligible	Very low importance and rarity, local scale. Heritage resources identified as being of little historic, evidential, aesthetic and communal value, resources whose importance is compromised by poor preservation or survival or by contextual associations to justify inclusion into a higher grade.

Source: Adapted from DMRB – LA 104 (DMRB, 2020a)

10.10.10 The magnitude of impact on the historic environment, will be assessed in accordance with the criteria outlined in **Table 53**.

Table 53: Magnitude of change

Major	Adverse	Total loss or fundamental alteration to a historic asset's significance or setting. Addition of new features that substantially and detrimentally alter the setting of a historic asset.
	Beneficial	Changes that are extremely beneficial to the heritage value of the asset. Comprehensive changes to the setting of the asset which greatly reveal and enhance its heritage significance.
Moderate	Adverse	Partial loss or alteration to a historic asset or its setting. Addition of new features that form largely inconspicuous elements in the setting of a historic asset to the extent that its significance is slightly impacted.
	Beneficial	Changes that are beneficial to the heritage significance of the asset. Changes that result in the setting of the asset being noticeably enhanced and improving the ability to understand the asset and its historic context and setting.
Minor	Adverse	Minor loss of an element of a historic asset or its setting. Addition of new features that form largely inconspicuous elements in the setting of a historic asset to the extent that its significance is slightly impacted.
	Beneficial	Changes that have a limited benefit to the heritage significance of the asset. Changes to the setting of the asset which have a slight beneficial impact on heritage significance and enhance the ability to understand the asset its historic context and setting.
Negligible	Adverse	Very minor loss of elements of a historic asset or its setting. Addition of new features that do not alter the setting of a historic asset.
	Beneficial	Very minor enhancements to the historic asset or its setting that help slightly better reveal to the asset's heritage value.
No change	Adverse	No change to the historic asset.

Source: Adapted from DMRB – LA 104 (DMRB, 2020a)

10.10.11 The magnitude and value will then be combined to determine the overall significance of effect. The matrix for determining the overall significance of effect is shown in Table 9 in **Chapter 5 – Approach to Assessment** of this EIA Scoping report. The effects may be either adverse or beneficial. The guidance defines a significant effect as 'residual effects that are within moderate, large or very large categories. This may result from the removal of assets or changes to their settings.

Cumulative Effects

10.10.12 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

10.10.13 The cumulative assessment for the terrestrial historic environment will consider other proposed developments known at the time the ES is prepared that have potential to give rise to additional impacts and effects on terrestrial historic assets. The potential effects of these other developments will be assessed against the findings of the Terrestrial Historic Environment chapter in the ES, to determine whether the effects of the Project have potential to have greater or lesser significance due to the cumulative impacts of both.

10.11 Assumptions and Limitations

Assumptions

10.11.1 The key assessment assumptions in relation to Terrestrial Historic Environment are summarised below:

- where any designated or non-designated historic asset are recorded within the EIA Scoping Boundary, it has been assumed that a "worst-case" scenario is that they will be removed, resulting in total loss, unless the design is adapted to avoid this loss; and
- where changes to setting result in an impact to the heritage value of any designated or non-designated historic asset, a balanced professional judgement will be made on the impact assuming a "worst-case" scenario.

Limitations

10.11.2 The key assessment limitations in relation to Terrestrial Historic Environment are summarised below:

- designated asset data used in this report is up to date as of September 2024. Non-designated asset data was acquired from the HER in September 2024;
- information provided by the HER can be limited because it depends on previous opportunities for research, fieldwork and discovery. Where

nothing of historic interest is shown in a particular area, this can be down to lack of targeted research or investigation rather than the genuine absence of sub-surface archaeological deposits;
- databases are limited in their ability to predict new sites and the information from the HER will be a starting point for further research rather than as a definitive list. Where there is an absence of data, professional judgement will be used to reach informed decisions regarding the historic environment;
- no survey or in-depth consultation has taken place at this stage as such there is limited information as to the presence, nature or absence of archaeological assets within the study area and EIA Scoping Boundary;
- this EIA Scoping Report does not constitute a DBA; however, the production of a full DBA will be required to inform the baseline of the ES; and
- the methodology for the ES and DBA has not been agreed through consultation with key stakeholders. Early and ongoing consultation will be undertaken with the relevant historic environment stakeholders as part of the ES and DBA.

Uncertainties

10.11.3 The key assessment uncertainties in relation to Terrestrial Historic Environment are summarised below:

- the specific nature, extent, date, degree of preservation and significance of known and unknown archaeological remains is difficult to predict without appropriate invasive investigation. The uncertainty in predicting impacts and effects upon such resources is inherent in all such studies and should be stressed; and
- the current understanding of the extent and survival of archaeological remains within the study area is based on data relevant to the assessment which has been selected according to professional judgement.

10.12 Summary

10.12.1 The proposed scope of the assessment for terrestrial historic environment is contained within **Table 54**.

Table 54: Proposed scope of Terrestrial Historic Environment Chapter of the ES

Receptor / Matter	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Designated terrestrial historic assets (including listed buildings and conservation areas)	Scoped in	Scoped in	There may be potential effects on the heritage value of designated historic assets from the construction and operation and maintenance of the Project.
Non-designated terrestrial historic assets (including archaeological sites, historic buildings and registered historic landscapes)	Scoped in	Scoped in	There may be potential effects on the heritage value of non-designated historic assets from the construction and operation and maintenance of the Project.
Non-registered historic landscapes	Scoped out	Scoped out	The overarching historic character of the Port, Kenfig Marshalling Yard Site and Jersey Marine Site will not change.
Terrestrial historic assets outside the 1km study area.	Scoped out	Scoped out	Due to the existing built environment it is considered that the Project will not result in changes to the setting of historic assets beyond the 1km study area.
Marine designated and non-designated historic assets	Scoped out	Scoped out	Covered in **Chapter 16 – Marine Historic Environment** of the EIA Scoping Report
Marine designated and non-designated built historic assets	Scoped out	Scoped out	Covered in **Chapter 16 – Marine Historic Environment** of the EIA Scoping Report

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11 Land Quality and Hydrology

11.1 Introduction

11.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential Land Quality and Hydrogeology effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

11.1.2 The effects of the Project on the following are considered:

- Geology, including geological designations;
- Hydrogeology (including groundwater quality);
- Soil; and
- Contaminated land.

11.1.3 This environmental topic relates to both terrestrial and marine aspects of the Project.

11.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

11.1.5 The assessment presented in this Chapter has linkages with the following environmental factors which should be considered when reading this Chapter: **Chapter 8 – Flood Risk; Chapter 9 – Freshwater Environment;** and **Chapter 23 – Materials and Waste**.

11.2 Relevant Legislation, Policy and Technical Guidance

11.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of Land Quality and Hydrogeology are detailed in **Table 55**.

Table 55: Legislation, policy and guidance relevant to Land Quality and Hydrogeology

Relevant legislation/policy/ guidance	Relevance to assessment
Legislation	
Environmental Protection Act 1990 Part 2A	This is the legal framework for dealing with contaminated land in Wales. For land to be determined as "contaminated land" under Part 2A there must be an unacceptable risk to a sensitive receptor. Part 2A should only be used where no appropriate alternative solution exists. A project consented under the TCPA cannot be determined as contaminated land under Part 2A of EPA 1990. These regulations are relevant to the terrestrial elements of the Project.
National Policy	
Planning Policy Wales Edition 12	Section 3.56 of Planning Policy Wales (PPW) encourages planning authorities and developers to work together to develop previously developed land taking account of risks arising from residual contamination. Section 6.9 discusses understanding the barriers to development presented by residual contamination and how the proper assessment of those risks can facilitate development. The preferred means for ensuring land contamination is safely dealt with is the planning system. Geological features of the landscape are considered in terms of the value the geological formation has to the landscape setting. These regulations are relevant to the terrestrial elements of the Project.
Technical advice note (TAN) 5: nature conservation and planning	Planning Policy Wales is supplemented by a series of topic-based TANs. TAN 5 details the importance of geological conservation and states "This TAN provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation".
Local Policy	
Neath Port Talbot Council Local Development Plan 2011-2026 (Neath Port Talbot County Borough Council, 2016)	The Neath Port Talbot County Borough Council (NPTC) Local Development Plan (LDP) sets out several policies relevant to environmental protection, ground conditions and pollution. These policies support LDP Objectives 2 (Health), 16 (Environmental Protection) and 17 (Minerals). The key policies are summarised below: Strategic Policy SP16 Environmental Protection: air, water and ground quality will be protected and where feasible improved via a) ensuring that proposals have no significant adverse effects and do not significantly increase pollution levels; b) giving preference to the development of brownfield sites over greenfield sites where appropriate, and c) ensuring that developments do not increase the number of people exposed to significant levels of pollution. Policy EN8 Pollution and Land Stability: proposals which would pose an unacceptable risk to health will not be permitted, including surface and groundwater pollution, air, noise and light pollution, contamination and land instability. Proposals which may exacerbate existing problems will not be acceptable unless mitigation measures are included. Strategic Policy SP17 Minerals: a proportionate contribution to meeting national, regional and local demand for a continuous supply of minerals will be made while balancing the impact of development on the environment and communities. The LDP also sets out the following policies relevant to environmental protection and geodiversity: Policy SP15: Important habitats, species and sites of geological interest will be protected, conserved and enhanced. There are twenty Sites of Special Scientific Interest (SSSIs) within the county borough including four which are designated for geological reasons. Policy EN6: Development proposals that would affect Regionally Important Geodiversity Sites (RIGS) will only be permitted where they conserve or enhance the natural heritage importance, or the development could not be reasonably located elsewhere. There are twenty Sites of Special Scientific Interest (SSSIs) within the county borough including four which are designated for geological reasons. This local policy is relevant to the terrestrial elements of the Project.

Relevant legislation/policy/ guidance	Relevance to assessment
NPTC Replacement Local Development Plan 2023 – 2038 Preferred Strategy (NPTC, 2024)	NPTC is currently in the process of developing a Replacement Local Development Plan. While not adopted as policy it provides information and updated policies relating to environmental protection, ground conditions and pollution including policies SP13: Minerals and SP18: Environmental Protection
Guidance and Standards	
Land Contamination Risk Management (LCRM) Environment Agency	Overarching guide to the assessment of contamination applicable in Wales. This guidance is relevant to the terrestrial and marine elements of the Project.
Development of Land Affected by Contamination: a guide for developers Welsh Local Government Association (WLGA) & Natural Resources Wales (NRW) Ver 4 Sept 23	Outlines information required by local planning authorities to determine planning applications and discharge any conditions associated with contaminated land. This guidance is relevant to the terrestrial elements of the Project.
Design Manual for Roads and Bridges (DMRB) LA109	Provides a framework for assessing and managing effects associated with geology and soils and effects from contamination on human health, surface water and groundwater. Guidance sets out requirements for reporting effects of highways projects but can be adopted to assess effects from other development projects. This guidance is relevant to the terrestrial elements of the Project.
Design Manual for Roads and Bridges (DMRB) LA113	Provides a framework for assessing and managing effects associated with surface water, groundwater and flooding. Guidance sets out requirements for reporting effects of highways projects but can be adopted to assess effects from other development projects. This guidance is relevant to the terrestrial elements of the Project.

11.3 Engagement and Consultation

11.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in Chapter 4 – Consultation and Engagement.

11.3.2 Consultation will be undertaken with NPTC and other stakeholders to discuss matters relating to contaminated land once the ground investigation data is finalised. The ground investigation report (GIR) and contaminated land risk assessment (CLRA) will be submitted to the appropriate approving authority alongside the remediation strategy and any validation of the works.

11.4 Study Area

11.4.1 The study area for Land Quality and Hydrogeology is provided on Figure 11.1 in **Appendix A**.

11.4.2 The DMRB LA109 Geology and Soils Revision 0 provides guidance on the assessment of the potential impact of road schemes on geology and soils, and the constraints existing site conditions can impose on the proposed Project. DMRB LA113 Road drainage and the water environment Revision 1 provides guidance on the assessment of effects to controlled waters. The DMRB is intended for use on schemes which involve highways construction, operation, improvement or maintenance. While the Project is not a highways scheme, the DMRB provides a method of assessment of

significance which is considered appropriate for adaptation for use on other projects for the purposes of an EIA.

11.4.3 LA109 Geology and Soils states the study area shall be identified on a project by project basis. The study area is inclusive of all locations where physical works and ground disturbance would take place during the construction and operational phases. The study area comprises the EIA Scoping Boundary for the existing Port, the Kenfig Marshalling Yard Site, the Jersey Marine Site and a 250m buffer.

11.4.4 A 250m buffer has been chosen based on professional judgement, encompassing the area over which the Project could be reasonably expected to have an effect. With respect to geology and soils this generally only relates to the areas anticipated to be directly disturbed by proposed physical works and ground disturbance. However, consideration of a 250m buffer is necessary to address the presence of potential off-site contamination sources which have the potential to migrate on-site and any sensitive off-site receptors which may feasibly be affected by the migration of contaminants off-site, as well as effects on aquifers and source protection zones (SPZs).

11.5 Description of the Existing Environment

11.5.1 For the aspect of Land Quality and Hydrogeology, in line with DMRB LA109 and LA113 guidance, the resources and receptors are:

- geology – effects on bedrock geology and superficial deposits including geological designations and sensitive/valuable designated features. The effects on mineral safeguarding areas and resources are assessed in Chapter 23 – Materials and Waste;
- hydrogeology – effects on aquifers and SPZs;
- soil – effects on soil resources; and
- contaminated land – effects from contamination on human health, surface water and groundwater.

Data Sources

11.5.2 The baseline for Land Quality and Hydrogeology has been derived from the data sources set out in **Table 56**.

Table 56: Data sources

Data type	Data Source
Existing reporting	Geo-Environmental Baseline Report (MDEC-G01) (Mott MacDonald July 2023)
Geological mapping	British Geological Survey Sheet 247 Swansea (1:50,000) Bedrock and Drift
Geological mapping	British Geological Survey National Grid Series Sheet SS78NE (1:10,560) Bedrock and Drift
Geological mapping	British Geological Survey GeoIndex Onshore
Geological mapping	British Geological Survey GeoIndex Offshore
Geological mapping	British Geological Survey Lexicon of Named Rock Units
Protected area mapping	NRW Find protected areas of land and sea online mapping
Public sector online data platform	Data Map Wales
Historic mapping	National Library of Scotland Side-by-Side Map Viewer

Baseline Conditions

The Port

11.5.3 The existing environmental baseline for the Port is shown in **Table 57**.

Table 57: Baseline conditions for the Port

Aspect	Description
Geology (within the study area, inclusive of a 250m buffer)	Made Ground: pre-existing land surface is raised by artificial deposits.
	Superficial: • marine beach deposits: intertidal zone deposits consisting mainly of sands with subsidiary gravels, silt, clay and peat; • storm beach deposits: low rounded ridge of coarse materials (gravel, cobbles and boulders); • blown sand: sand; and • tidal flat deposits: unconsolidated sediment, mainly mud and/or sand and peat. There are no recorded superficial deposits within the Tidal Harbour, Impounded Docks and associated Approach Channel Route. However fine-grained sediments are expected to be present deposited by water flowing into the Impounded Dock from the land and through the inflow of sediment-laden seawater when the Impounded Dock gates are opened. Peat has been recorded at variable depths within the tidal flat deposits generally less than one meter in thickness.
	Bedrock: • South Wales Middle and Lower Coal Measures Formation: Grey, coal-bearing mudstones/siltstones, with seatearths and minor sandstones
Hydrogeology	Superficial: • secondary A aquifer (Blown sand); and • secondary Undifferentiated (Marine Beach and Tidal Flat Deposits).
	Bedrock: • secondary A (South Wales Middle and Lower Coal Formation: Moderately productive aquifer. Regional, cyclic multi-layered aquifer with moderate yields from sandstones and many springs. Mine water quality poor but elsewhere reasonable).
	There are no SPZs or industrial groundwater abstractions within the study area.
	Groundwater within the superficial deposits is expected to flow towards the sea with flow being to the north into the Impounded Docks from Phoenix Wharf, swinging round

Aspect	Description
	to the west towards the Tidal Harbour. Groundwater within the deeper Coal Measures is expected to flow towards the sea. There is likely to be a degree of mixing between seawater and groundwater along the coastal fringe.
Geological designations and sensitive / valuable designated features	The Port is not within a geological SSSI area and no geological SSSIs or RIGS have been identified within the study area. The Port is not located within a nitrate vulnerable zone. All groundwater bodies are designated as drinking water protected areas in Wales; however, given the proximity to the sea, there are no abstractions for drinking water within the Study Area.
Hydrology	The Project is located at the confluence of two NRW main rivers; River Ffrwdwyllt and River Afan. There are multiple smaller streams assumed to be associated with the adjacent steelworks Steel drainage system. Given the industrial nature of the Port, it is assumed there is also a road drainage network within the existing steelworks.
	Abstractions: • There are permitted surface water abstractions from the Impounded Docks which supply water to the adjacent steelworks for cooling water.
Soil	According to Data Map Wales, the agricultural land classification is a mixture of Grade 3b, Grade 4, Grade 5, non-agricultural and urban. There is no Best and Most Versatile (BMV) land within the study area.
Landfill records	According to Data Map Wales there are no active or historical landfills within the study area.
Contamination	A ground investigation and report specific to the Project is underway at the time of writing. Once the current ongoing ground investigation has been completed a Ground Investigation Report (GIR) will be prepared detailing the ground conditions encountered and assessing the significance of any contamination present on sensitive receptors. The locations of historical ground investigations within the Port are shown on Figure 11.2 in **Appendix A**. A review of historical ground investigation reports has been completed as part of the Geo-Environmental Baseline Report in **Appendix G**. Potential sources of contamination have been identified to include, but are not necessarily limited to: • Made Ground and residual contamination associated with extensive infilling and land reclamation which likely used waste materials from nearby industrial areas; • potential for contaminants such as asbestos, metals, inorganics, phenols, polyaromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), and Japanese Knotweed; • residual contamination associated with historical land uses, particularly copper works, coal transportation, metal refining works, impounded dockland, rail, steel works including tin plating; and • potential for contaminated sediments within the Tidal Harbour and Impounded Dock containing hydrocarbons and metals which could become mobile during dredging activities.

Source: BGS GeoIndex, DataMapWales

11.5.4 The historical developments within the study area for the Port largely comprise industrial and dockland developments, with rail, coal tips and sand pits. A summary of the main historical land uses is provided within the Geo-Environmental Baseline Report in **Appendix G** and summarised in **Table 58**.

Table 58: The Port historical developments summary

Date	Historical developments
1885-1915	The present-day Tidal Harbour was an undeveloped intertidal area. Mapping shows a breakwater some 335m long along the northern boundary of the Port aligning with the present-day breakwater. Mapping shows the present-day area around the current Phoenix Wharf to be tidal flats. Breakwater within the outer harbour area shown to be present with a lighthouse. Railway lines, docks, coal tips and wharves mapped in the present-day impounded dock area. Entrance channel, lock and Impounded Dock constructed between 1885 and 1900 and replaced a smaller lock structure present on 1885 mapping. Impounded Docks present on 1885 mapping. Mapping shows extension of the 335m breakwater, extending by a further 300m. Railway lines running to the south of the Phoenix Wharf. Crown Preserved Coal Works and railway within the area around the current Phoenix Wharf. Sand pit within the Sand Quarry area. Sections of Impounded Docks infilled for use as railway sidings as part of the Port Talbot Dock Railway.
1892-1914	Crown Preserved Coal Works and railway within the area around the current Phoenix Wharf. Sand pit within the Sand Quarry area. Sections of Impounded Docks infilled for use as railway sidings as part of the Port Talbot Dock Railway.
1937-1961	Metal Refining Works replaces the Crown Preserved Coal Works and addition of Phoenix Briquetting Works within the present-day LanzaTech area. Steel Ceiling Factory replaces the Metal Refining Works within the present-day Phoenix Wharf East, with ponds, stockpiles and warehouses. Expansion of railway sidings within the present-day Logistics Zone indicative of land reclamation.
1944-1973	Liquid Oxygen Plant with additional buildings replace the warehouses within the area around the current Phoenix Wharf.
1980-1982	The tidal harbour is first recorded on mapping in its present-day arrangement. Expansion of railway sidings within the outer harbour (present-day Logistics zone) shows entire Port of Port Talbot area lying onshore and above high tide line. Conveyor system within the present-day Logistics Zone likely associated with transporting raw materials from the harbour to the steel works site. Site clearance of the present-day Phoenix Wharf area, including removal of ponds and stockpiles leaving only the main factory building.
1999-2009	Electricity substation within the present-day Phoenix Wharf area. Structures historically mapped within the present-day impounded dockland area have been removed.
2013-2014	Construction of a wind turbine and telecommunications mast within the present-day Logistics Zone measuring 0.2ha in area.

Source: Information from NLS Side by Side viewer

Kenfig Marshalling Yard Site

11.5.5 The existing environmental baseline for the Kenfig Marshalling Yard Site is shown in **Table 59**.

Table 59: Baseline conditions for Kenfig Marshalling Yard Site

Aspect	Description
Geology (within the study area, inclusive of a 250m buffer)	Made Ground: Landscaped ground mapped within areas of hardstanding and railway sidings. Made Ground is anticipated to underly much of the Kenfig Marshalling Yard Site and be varied in composition and contain inclusions of anthropogenic material. Historical alignment of the River Kenfig is anticipated to have been infilled with Made Ground the composition of which is unknown.
	Superficial • blown sand: Sand; • tidal Flat Deposits: Clay, silt and sand; and • glaciofluvial Deposits: sand and gravel with lenses of silt, clay or organic material.
	Bedrock; • South Wales Lower Coal Measures: Grey, coal-bearing mudstones / siltstones, with seatearths and minor sandstones; and • Mercia Mudstone Group – Mudstones and subordinate siltstones.
Hydrogeology	Superficial; • secondary A (blown sand); and • secondary undifferentiated (Tidal Flat Deposits).
	Bedrock; • secondary A (South Wales Lower Coal Measures); and • secondary B (Mercia Mudstone Group).
	There are no SPZs within the study area;
	Abstractions: • Solo Laundry & Linen Services Ltd, Kenfig Industrial Estate SA7 0AJ SS 79850 83200 groundwater abstraction within South Wales Lower Coal Measures.
	Groundwater flow within the superficial deposits is expected to move towards the River Kenfig and is expected to provide baseflow to the River. The deeper Coal Measures aquifer is likely to flow towards the sea to the west.
Geological designations and sensitive / valuable designated features	The Kenfig Marshalling Yard Site is not within a geological SSSI area and there are no RIGS identified within the study area. The Kenfig Marshalling Yard Site intersects with two Biological SSSIs; Kenfig SSSI immediately to the south and Margam Moors SSSI immediately to the north. The Eglwys Nunydd Reservoir SSSI is located within the study area, 280m north-east of Kenfig Marshalling Yard. The Kenfig Marshalling Yard is not located within a nitrate vulnerable zone. All groundwater bodies are designated as drinking water protected areas in Wales; however there are no abstractions for drinking water within the Study Area.
Hydrology	River Kenfig (Main River) flows along the Kenfig Marshalling Yard Site southern/south-western boundary to the west and into Swansea Bay, approximately 1km to the west.
	Eglwys Nunydd Reservoir is located approximately 280m to the north-east of the Kenfig Marshalling Yard Site at its nearest distance.
	Several drains are mapped within the Kenfig Marshalling Yard Site immediately to the east of the existing railway sidings. Numerous field drains / ditches are mapped immediately north-west of Kenfig Marshalling Yard Site, which are associated with Margam Moors.
Soil	According to Data Map Wales, the agricultural land classification is a mixture of Grade 3b, Grade 5 and non-agricultural. There is no Best and Most Versatile (BMV) land.
Landfill records	According to Data Map Wales, there is a historic Inert Landfill (Gerald Davies Limited, SS 79500, 83700) 250m north-east of Kenfig Marshalling Yard Site. There is one authorised landfill site 250m south-east of Kenfig Marshalling Yard Site (Castle Meadow Landfill, SS 79693, 82867) taking non-biodegradable wastes, permit status effective but operational status closed. According to BGS GeoIndex, Margam Landfill is mapped as an area of Made Ground immediately west of Kenfig Marshalling Yard Site.

Aspect	Description
Contamination	Potential sources of contamination have been identified to include, but are not necessarily limited to: • Made Ground and residual contamination associated with infilling and land reclamation which likely used waste materials from nearby industrial areas, such as the infilling of the historical alignment of the River Kenfig; and • residual contamination associated with historical landfills.

Source: BGS GeoIndex, DataMapWales

11.5.6 The Kenfig Marshalling Yard Site has remained undeveloped until the mid-20th century. The River Kenfig was diverted to its present-day alignment to the south of the site, where previously it bisected the southern half of the area in an east to west direction. **Table 60** summarises the historical developments within the study area for Kenfig Marshalling Yard Site.

Table 60: Kenfig Marshalling Yard Site historical developments summary

Year	Historical developments
1876-1877	Rough grassland with reed/scrub vegetation. The River Kenfig bisected the southern half of the Kenfig Marshalling Yard Site flowing in an east to west direction, with the rough grassland north of the river also containing sand pits/dunes. An area of woodland encroached onto the northern half of the site from the east. The northern area of the site is mapped as agricultural fields, separated by field drains/ditches.
1884-1885	No significant change in land use.
1899	Previous area of woodland now mapped as wood and brushwood, part of the 'Sand Plantation' which is mainly located immediately off-site to the east.
1900	No significant change in land use.
1918	
1921	
1941	The railway siding coming off the South Wales Main Line railway to the east has extended and expanded to two sidings.
1938-1952	No significant change in land use.
1953-1964	Significant development - much of the Kenfig Marshalling Yard Site is now occupied by railway sidings and associated areas of hardstanding and buildings. The sidings are connected to the South Wales Main Line railway to the south-east of Kenfig Marshalling Yard Site. Within the northern area of the Kenfig Marshalling Yard, the sidings reconnect with the South Wales Main Line railway and the Port Talbot Railway. Agricultural fields are no longer present. River Kenfig has been diverted to its present-day alignment (along the south and south-western boundary of Kenfig Marshalling Yard Site), no longer bisecting the southern half of the area.
1964-1965	No significant change in land use.
1969	
1982-1988	
1964-1986	
1980-1983 partial coverage	
1990 partial coverage	Many of the railway sidings in the central area of the Kenfig Marshalling Yard Site have been dismantled.
1990-1993	Much of the Kenfig Marshalling Yard Site is identified as 'dismantled railway' due to the removal of railway sidings. The locations of the remaining sidings and associated hardstanding and buildings appear to be in their present-day extents.

Year	Historical developments
1992 partial coverage	No significant change in land use.
1999	
2000 (aerial photo) partial coverage	
2003 - 2016	
2023	Remaining buildings associated with the historical railway sidings are now mapped as having been removed.

Source: Information from NLS Side by Side viewer

Jersey Marine Site

11.5.7 The existing environmental baseline for the Jersey Marine Site is shown in **Table 61**.

Table 61: Baseline conditions for the Jersey Marine Site

Aspect	Description
Geology (within the study area, inclusive of a 250m buffer)	Made Ground: Worked ground – including 'artificial deposits' and 'void'
	Superficial: • localised till deposits; • tidal flat deposits: clay, silt and sand; and • blown sand: sand.
	Bedrock: • Pennant Sandstone Formation: sandstone with thin mudstone / siltstone and seatearth interbeds.
Hydrogeology	Superficial: • secondary A: Blown sand; and • secondary undifferentiated: Tidal Flat Deposits.
	Bedrock: • secondary A: Pennant Sandstone Formation.
	There are no SPZs or groundwater abstractions within the study area.
Geological designations and sensitive / valuable designated features	The Jersey Marine Site is located immediately adjacent to the Earlswood Road Cutting and Ferryboat Inn Quarries Geological SSSI. There are no RIGS identified within the study area. It is not located within a nitrate vulnerable zone. All groundwater bodies are designated as drinking water protected areas in Wales; however, there are no abstractions for drinking water within the Study Area.
Hydrology	The River Neath (NRW Main River) flows along the eastern limit of the Jersey Marine Site.
	The Tennant Canal flows adjacent to the western limit of the Jersey Marine Site. The Jersey Canal is within the study area to the east of the River Neath and east of the site. An unnamed watercourse flows along the northern limit of the Jersey Marine Site.
	There are four unnamed ponds within the study area.
Soil	According to Data Map Wales, the agricultural land classification is a mixture of 3b, Grade 4, Grade 5, non-agricultural. There is a localised area of Best and Most Versatile (BMV) land within the study area, Grade 2.
Landfill records	According to Data Map Wales, there is a historical landfill within the Jersey Marine Site; Briton Ferry Waste Tip (SS 273100, 194700), waste category not recorded.
Contamination	Potential sources of contamination have been identified to include, but are not necessarily limited to: • residual contamination associated with historical landfills.

Source: BGS GeoIndex, DataMapWales

11.5.8 The historical development of the Jersey Marine Site is summarised in **Table 62**.

Table 62: Jersey Marine Site historical development summary

Year	Historical developments
1885-1903	Copper works, grassland, salt marsh mapped within the Jersey Marine. River Neath and Jersey Canal present and same alignment as present-day. Coal pits mapped within the Jersey Marine Site.
1888-1915	Briton Ferry Chemical Works immediately north of the Jersey Marine Site. Red Jacket Pill and tramway labelled on the northern limit of the Jersey Marine Site. Red Jacket Copper Works (disused). Earls Wood and Earlswood House, Earlswood Tin Plate Works Earlswood Colliery (Disused) are labelled within the Jersey Marine Site. Briton Ferry Ironworks on the southern limit of the Jersey Marine Site.
1899-1906	Previous industries labelled within the Jersey Marine Site now absent. Vale of Neath railway line in location of present-day rail line mapped on western limit of Jersey Marine Site. Road mapped in present-day location of Fabian Way on southern limit of the Jersey Marine Site.
1903-18	Land within Jersey Marine Site labelled Briton Ferry, with Briton Ferry Road Station (rail) on the western limit of the Jersey Marine Site.
1919-1923	No significant change in land use.
1929-1934	
1934-1937	
1937-1961	First mapping of the A483 with road cutting.
1945-1965	Briton Ferry Chemical Works immediately north of the Jersey Marine Site now labelled as Chemical Works.
1944-1973	Area within Jersey Marine Site mapped as agricultural fields. Briton Ferry Chemical Works now labelled as Gas Works
2014 - Present	Aerial imagery shows no changes in land use

Source: Information from NLS Side by Side viewer, ESRI UK

Next steps

11.5.9 At the time of writing, an ongoing ground investigation will provide information on the ground conditions and include gas and groundwater monitoring to enable the full determination of long-term risks from contamination to human, environmental and structural/utilities receptors. The results of the ground investigation will be used to inform a GIR and contaminated land risk assessment (CLRA) and following this a remediation strategy (if required) to break any identified contaminant linkages. The GIR and CLRA would be submitted to NPTC. The remediation strategy and any validation of the works undertaken would be agreed with the relevant parties.

11.6 Future Baseline

11.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project.

11.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

11.6.3 The approach to establishing baseline conditions for land quality and hydrogeology will be based on the extrapolation of currently available data including government policy, other planning applications and climate change data including projected rainfall and groundwater levels.

11.7 Mitigation Measures

11.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the Land Quality and Hydrogeology topic will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

11.7.2 This section sets out the potential controls relevant to land quality and hydrogeology which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and experience from other projects. The list of control measures will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

11.7.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- remediation of any significant contamination;
- retention of site soils where possible; and
- reuse of site soils within and outside of the Project where possible.

11.7.4 Any effects on the Project from residual contamination will be managed during design. Once completed, a development must be suitable for its intended use and so any contaminant linkages identified that could pose a significant risk to a sensitive receptor must form part of remedial action.

Construction Controls

11.7.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage are detailed below.

11.7.6 Required construction environmental control and protection measures will be defined in an adaptive environmental management plan (AEMP) required in support of the Project. Under this plan contractors would be required to prepare detailed plans that accord with the AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP), Soil Management Plans (SMP), and a Pollution Prevention Plan (PPP) (including emergency spill and incident control procedures). The CEMP, SMP and PPP will address risks associated with construction to potential receptors.

11.7.7 Potential risks to both construction workers and off-site human receptors will be managed to prevent exposure to any residual contaminants that may be present. Measures such as dust suppression and preventing mobilisation of residual contaminants will be documented in contractors' method statements, reflecting the guidance within the CEMP to ensure environmentally safe working practices. During construction, the CEMP will also effectively minimise any potential adverse environmental effects on receptors such as soils and groundwater.

11.7.8 Excavations below ground level may require dewatering of runoff waters, perched waters or groundwaters from the underlying superficial/bedrock aquifers. If required, this water will be managed on-site through the use of appropriate treatment prior to discharge in line with any land drainage consent/environmental permits granted before commencement of such activities. Relevant measures within the Guidance for Pollution Prevention: Works and Maintenance in or Near Water (GPP5) (NRW, NIEA, and SEPA, 2018), would be used to minimise the potential for accidental spillages. The extent of any temporary dewatering is not expected to be significant as most development will be above ground. It is likely that any groundwater that is abstracted will be discharged to land adjacent, or to the Impounded Dock or Tidal Harbour under a permit.

11.7.9 It is not anticipated that there will be significant construction at depth below the water table and as such, no effects on groundwater flow are anticipated. At the Port some infrastructure such as large cranes are likely to be piled. The extent of any piling is anticipated to be limited and is not expected to affect groundwater flow.

11.7.10 Construction activities will not directly introduce contaminants to the marine environment and good practice measures noted above, such as those described in Guidance for Pollution Prevention: Works and Maintenance in or Near Water (GPP5) (NRW, NIEA, and SEPA, 2018), would be used to minimise the potential for accidental spillages. The potential risk of spillages would be minimised through the application of environmental best practice management measures specified in the CEMP and documented in contractors' working methods.

Operational Controls

11.7.11 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the operational stage are detailed below.

11.7.12 Operational environmental control and protection measures will be defined in an outline operational environmental management plan (oOEMP) required in support of the Project. This would include best practice measures and techniques and any specific measures identified through EIA. Operators would be required to prepare detailed plans that accord with the oOEMP. In relation to Land Quality and Hydrogeology the types of measures within the oOEMP are expected to include but not be limited to:

- measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits;
- provision of areas for the safe storage and handling of potentially contaminating materials including fuels and oils;
- requirements for awareness talks and training in relation to materials storage and handling, spill response, and pollution prevention; and
- requirements for site audits and monitoring to inform preventative actions.

11.7.13 Aspects of the Project such as dewatering will be subject to the Environmental Permitting (England and Wales) Regulations 2016 (EPR). Under the permit there will be a requirement to develop a written management system which would include plans and procedures describing measures to avoid, reduce and eliminate potential environmental impacts associated with the activities covered by the permit.

11.7.14 The plans developed under the written management system are expected to include measures for the control of emissions such as wastewater and surface water drainage as well as the inclusion of other plans such as those regarding waste management, emergency response and pollution prevention.

11.7.15 On the basis that the operation of the Project would be consented and operated in accordance with any permits no other mitigation is considered necessary to prevent significant effects.

11.8 Potential Likely Significant Residual Effects

11.8.1 Taking into account the expected control measures set out within Section 11.7, there are not considered to be any potential likely significant residual effects.

11.9 Resources and Receptors Scoped Out of Assessment

11.9.1 The resources or receptors that are proposed to be scoped out of the assessment for land quality and hydrogeology are set out within **Table 63**.

Table 63: Resources and receptors scoped out of assessment.

Activity	Effect	Receptor	Justification for scoping out
Construction			
Use of construction plant and equipment required for the Project involving permanent removal or sterilisation of bedrock geology.	Degradation of geologically designated sites within the study area.	Geology	There are no geological resources that could be affected by the Project as proposed. The underlying geology is covered by a mantle of Made Ground and it is considered highly unlikely that any geological resource will be exposed as a result of this Project. Due to the nature of the works at the Jersey Marine Site as environmental compensation no significant effects are envisaged associated with the Earlswood Road Cutting and Ferryboat Inn Quarries Geological SSSI.

Activity	Effect	Receptor	Justification for scoping out
Construction stage dewatering following excavations and impact on water quality or quantity.	Degradation of groundwater resources	Hydrogeology	There are no groundwater abstractions. Groundwater flow within the superficial and bedrock aquifers is unlikely to be affected by the Project. Any temporary dewatering will be regulated under the Environmental Permitting regime.
Permanent removal of high-quality site soils during site construction.	Degradation of soil resources.	Soils	There is no Best and Most Versatile (BMV) land within the Port and Kenfig Marshalling Yard Site. There is a localised area of BMV land at the Jersey Marine environmental compensation area. The nature of the proposed development at Jersey Marine is solely for environmental compensation, therefore no significant effects are envisaged.
Soil deterioration and consolidation may occur due to poor storage and handling or due to vehicle movements and loading.	Degradation of soil resources.	Soils	Soil will be managed via a Soil Management Plan, preventing soil deterioration as a result of the construction of the Project.
Contact of construction and maintenance workers with potentially contaminated soils, leachates or ground gases.	Significant health impact from exposure to contaminants	Human health	Any residual contamination that is assessed as having the potential for a significant effect on site users or neighbours will be remediated to break the contaminant linkage. Severing of contaminant linkages is a requirement of the TCPA which requires a development to be rendered suitable for use. Once a contaminant linkage is broken, there can be no significant effect.
Creation of contamination pathways / driving down of contaminants during GI	Pollution of controlled waters.	Controlled waters	Good practice measures will be adhered to such as GPP5 and measures specified in the CEMP. Severing of contaminant linkages is a requirement of the TCPA which requires a development to be rendered suitable for use.
Operation and maintenance			
Movement of vehicles adjacent to controlled waters (fresh water and marine)	Pollution of controlled waters.	Controlled waters	Best practice measures will be outlined in an operational environmental management plan (oOEMP), including provision of plant nappies, drip trays, spill kits and areas of safe storage. Provided that the Project is consented and operated in accordance with required permits, no other mitigation is considered necessary to prevent significant effects.
Use of construction plant and equipment during manufacturing of floating foundation structures within the Port.	Contamination of soils, groundwater and surface water.	Soils, controlled waters	On the basis that the Project is consented and operated in accordance with required permits, no other mitigation is considered necessary to prevent significant effects.

Activity	Effect	Receptor	Justification for scoping out
Management and maintenance of environmental compensation areas	Degradation of geologically designated sites, compaction of soil, disturbance to controlled waters	Earlswood Road Cutting and Ferryboat Inn Quarries Geological SSSI (Jersey Marine Site only), Soils, controlled waters	Given the nature of the works at the Jersey Marine Site as environmental compensation, no significant effects are envisaged associated with the Earlswood Road Cutting and Ferryboat Inn Quarries Geological SSSI. Best practice measures in relation to soil management and prevention of pollution measures will be adhered to as outlined in paragraph 11.7.12, therefore it is considered no other mitigation is necessary to prevent significant effects.

11.10 Proposed Assessment Methodology

11.10.1 The EIA Scoping assessment of potential likely significant effects has determined that there are no likely significant effects assuming the Project is developed in accordance with statutory requirements and best practice, and therefore Land Quality and Hydrogeology receptors are scoped out of further assessment.

11.10.2 At this stage, a ground investigation is underway at the time of writing, and a report (GIR) specific to the Project will be produced on completion of these investigations, detailing the results.

Cumulative Effects

11.10.3 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

11.10.4 The cumulative assessment for land quality and hydrogeology will consider other committed developments being constructed at the same time as the Project, where effects from construction related activities such as piling work interacting with bedrock geology, groundwater and residual contamination have the potential to overlap.

11.11 Assumptions and Limitations

11.11.1 It is assumed that committed developments within the vicinity of the Project will be undertaken in accordance with legislation and statutory controls to ensure there are no significant residual contaminant linkages which may interact with the Project.

11.11.2 The Project will be brought forward and completed in accordance with statutory controls and best practice to ensure the completed Project is suitable for its intended use with no significant residual contaminant linkages remaining.

11.12 Summary

11.12.1 The proposed scope of the assessment for land quality and hydrogeology is contained within **Table 64**.

Table 64: Proposed scope of the Land Quality and Hydrogeology Chapter of the ES

Receptor	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Geology	Out	Out	There are no geological SSSIs that could be affected by the Project as proposed.
Hydrogeology	Out	Out	There are no abstractions from groundwater that could be affected by the Project. The Project, as proposed, will have no effect on groundwater flow or resources.
Soil	Out	Out	There are no significant soil resources present at the Port. Existing soil resources at the Kenfig Marshalling Yard Site and Jersey Marine Site will not be affected by the Project as proposed.
Effects on human health	Out	Out	The Project must be rendered suitable for use in accordance with planning policy. As such there cannot be any significant contaminant linkages remaining once the site is developed. During construction the potential for effects on human health will be managed through adoption of best practice in accordance with the OEMP. The Project will be operated within the requirements of relevant environmental permitting controls. As such, there will be no significant effects during operation.
Effects on controlled waters	Out	Out	The Project must be rendered suitable for use in accordance with planning policy. As such there cannot be any significant contaminant linkages remaining once the site is developed. During construction the potential for effects on controlled waters will be managed through adoption of best practice. The Project will be operated within the requirements of relevant environmental permitting controls. As such, there will be no significant effects during operation.

11.12.2 It is envisaged that relevant determining authority will impose planning conditions on the Project such that a complete assessment of the risk from residual contamination is made in accordance with statutory requirements and best practice.

Chapter 11 References

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12 Onshore Traffic and Transport

12.1 Introduction

12.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential onshore traffic and transport effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed, and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

12.1.2 The likely significant onshore traffic and transport effects during construction and operation of the Project on pedestrians, cyclists, road vehicle drivers and passengers, and other road users and communities impacted by traffic-related severance.

12.1.3 This environmental topic relates to terrestrial aspects of the Project. and covers the following onshore transport modes:

- operational vehicle movements;
- construction vehicle movements;
- public transport (buses); and
- active modes (walking/cycling) adjacent to the public highway.

12.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

12.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 6 - Air Quality**, **Chapter 7 - Airborne Noise and Groundborne Vibration**, **Chapter 20 - Climate Change**, **Chapter 23 - Materials and Waste**, and **Chapter 27 - Cumulative and In-combination effects**.

12.2 Relevant Legislation, Policy and Technical Guidance

12.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of onshore traffic and transport are detailed in **Table 65**. These all relate to terrestrial elements of the project.

Table 65: Legislation, policy and guidance relevant to onshore traffic and transport

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Active Travel (Wales) Act 2013	Active travel refers to walking and cycling for 'purposeful journeys to a destination, or in combination with public transport'. To minimise the generation of private car journeys associated with the development, it will be necessary to demonstrate provision for safe movement of active modes to and within the site.
National Policy	
Planning Policy Wales (PPW)-Transport, Edition 12, 2024	Section 4.0.0 within PPW outlines the Active and Social theme of the planning policy including transport. The section sets out the following: • It advises integrated planning and transport strategies are achieved. • It encourages sustainable transport is implemented to achieve the goals of the Well-being of Future Generations (Wales) Act 2015. • It notes the Active Travel (Wales) Act 2013 to encourage active travel within new developments. • It highlights the importance of good availability to public transport to make developments sustainable. • It encourages the use of Ultra Low Emission Vehicles therefore the design of new development should consider the implementation of electric vehicle charging infrastructure. • It refers to the Road Traffic Reduction Act 1997 and Road Traffic Reduction (National Targets) Act 1998. The development plan must include appropriate traffic management policies. • It sets out the requirement for a transport assessment under TAN18: Transport. This will help to assess the impacts of the development.
Llwbr Newydd: The Wales National Transport Strategy 2021	This document sets out a transport strategy for decarbonisation and to support the Welsh National well-being goals as set out in the Well-being of Future Generations (Wales) Act 2015. The following priorities are of direct relevance: • Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure. • Support interventions that shift freight from road to rail and water based transport. • Invest in projects that deliver more sustainable port infrastructure and contribute to the decarbonisation of the sector. • Identify opportunities for future economic development such as offshore renewable energy and innovations in decarbonisation.
Local Policy	

Neath Port Talbot Local Plan 2011-2026 (adopted 2016)	The following policies are relevant to traffic and transport:
	• Policy TR2: Design & Access of New Development
	• Policy TR3: Safeguarding of Redundant Railway Infrastructure
	• Policy TR4: Safeguarding Freight Facilities, including:
	  ○ TR4/1 Port Talbot Tidal Harbour
	  ○ TR4/2 Port Talbot Docks
	  ○ TR4/3 Existing and Potential Wharfs
	  ○ TR4/4 Existing Rail Connections

NPTC Replacement Local Development Plan 2023 – 2038 Preferred Strategy (NPTC, 2024)	NPTC is currently in the process of developing a Replacement Local Development Plan. While not adopted as policy, it provides information and updated policies relating to traffic and transport. This include SP7: Sustainable Transport which states development "must be in accordance with Sustainable Transport Hierarchy and be supported by appropriate transport infrastructure"

Relevant legislation / policy / guidance	Relevance to assessment
Guidance and Standards	
TAN18 (Technical Advice Note) - Transport (2007)	Sets out the requirements for Transport Assessment, Environmental Assessment and Mitigation (where necessary) of environmental impacts linked to development in Wales. It emphasises the importance of sustainable transport systems, promoting accessibility, reducing the need for travel, and encouraging the use of public transport, walking, and cycling. TAN18 also addresses the design of developments to support these goals, the management of parking, and the coordination of regional transport plans to ensure cohesive and efficient transport infrastructure.
IEMA Guidelines	The 2023 Environmental Assessment of Traffic and Movement sets out guidance for undertaking EIA for developments. It sets out example traffic and movement related impacts which have been used as part of the scoping.

12.3 Engagement and Consultation

12.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

12.3.2 No specific consultation regarding onshore traffic and transport components of the Project has been undertaken to date. Future consultation with NPTC will be required to agree on assumptions for traffic and transport conditions, including any modelling assumptions. Some future consultation with key stakeholders such as businesses operating within the study area will be required as the Project is developed to confirm future baseline conditions.

12.4 Study Area

12.4.1 The study area for onshore traffic and transport is provided in Figure 12.1 in **Appendix A**. The study area is entirely limited to the terrestrial area.

12.4.2 The study area will include site access points to the Port and Talbot Wharf and the existing and proposed roads within the EIA Scoping Boundary. The study area will also include key junctions on the A4241 (Harbour Way / Harbourside Road), Water Street and the A48 connecting to the M4 at junctions 38 and 41. The location of the study junctions are shown in Figure 12.1, in **Appendix A**.

12.4.3 These junctions have been identified as they will form the primary road access routes to the Port for construction and operational traffic and are connected by road links where a significant effect is likely.

12.5 Description of the Existing Environment

12.5.1 For the aspect of onshore traffic and transport, the resources and receptors are:

- Drivers and passengers
- Pedestrians and cyclists

Data Sources

12.5.2 The baseline for onshore traffic and transport has been derived from the data sources set out in **Table 66**.

Table 66: Data sources

Data type	Data Source
Traffic count data	Department for Transport (DfT) traffic count data for strategic road links LanzaTech (Project Dragon) Transport Assessment
Geospatial data of existing highway network (including active travel provision, bus stop locations and routings)	OpenStreetMap NPTC Active Travel Network Map (ATNM)
Active travel and recreational users	Strava heatmaps accessed August 2024

Baseline Conditions

The Port

12.5.3 There are two onshore areas within the EIA Scoping Boundary at the Port as follows:

- Talbot Wharf accessed via Riverside Road (connecting to the A4241); and
- Port accessed via North Road (connecting to Harbour Way, A4241)

12.5.4 The location of the access points to these areas is shown in Figure 12.1, **Appendix A.**

12.5.5 Talbot Wharf comprises a triangular section of land bounded by the River Afan to the west and the Impounded Dock to both the south and east. There is currently mixed-use development comprising several community activities including the Sea Cadets, YMCA and Afan Boat Club.

12.5.6 As shown in Figure 12.1 **Appendix A** the ABP land at Talbot Wharf is accessed from Riverside Road via a controlled keycode electric vehicular access security gate to prevent entry by the general public.

12.5.7 Riverside Road and Talbot Wharf currently lack any dedicated provision for pedestrian and cycle movements.

12.5.8 The Port is accessed from the A4241 Harbour Way via North Road (also used by the steelworks). A single-carriageway port road runs through the site, parallel to the Impounded Dock and Tidal Harbour. The port roads are designed mainly for low-speed industrial and freight traffic. Access is currently provided to:

- Heidelberg Materials;
- Weldlec Limited; and
- Welsh Water treatment works.

12.5.9 Some of these businesses are being relocated in the near future. Those which are likely to remain operational within the study area at the time of

the future baseline will be confirmed prior to work on the EIA being undertaken.

12.5.10 Harbour Way (A4241) is a dual carriage Peripheral Distributor Road (PDR) for the Port and provides a direct connection to the Port from the M4 junction 38 (2.5km to the south-east). It is subject to a 40mph speed limit. All movements to and from the Port pass through a dedicated security gate

12.5.11 A short section of shared use path is provided between this junction of North Road and Harbour Way to the next roundabout to the south along the PDR, enabling active travel access to the Taibach residential area via a road-under-rail bridge (Central Road). The shared use path is discontinued beyond the roundabout on the southern section of Harbour Way connecting to the M4 junction 38.

12.5.12 To the north of the junction of North Road and Harbour Way, the PDR is also dualled with a shared use path, providing access to Llewellyn's Road, North Bank Road, Riverside Road (connecting to Talbot Wharf), Harbourside Business Park and Port Talbot Parkway Railway Station. This section of Harbour Way forms part of the NCN4 cycle route.

12.5.13 A footbridge is provided across Harbour Way in proximity to the Riverside Road junction, accommodating active travel movements between NCN4 (A4241) and NCN887 (linking Port Talbot to the Afan Forest Park).

12.5.14 There are no PRoWs through or near the Port site.

Kenfig Marshalling Yard Site

12.5.15 Vehicle access to the Kenfig Marshalling Yard Site is currently provided via a gated, private road at the southern edge of the Kenfig Industrial Estate, to the south-east of the yard site. Access is also provided via a gated, private road to the south-east of the yard site, off B4283 Water Street, immediately south of where the B4283 crosses the South Wales Main Line.

12.5.16 Along the western edge of the site is PRoW 5/93.PT/1, 5/93.PT/2 and 5/WCP/1. At its northern end, PRoW 5/93.PT/1 connects into Heolcae'r-Bont. At its southern end, PRoW 5/93.PT/2 connects into the private road leading to and from the Kenfig Industrial Estate.

12.5.17 The Kenfig Marshalling Yard site is shown in Figure 12.1, **Appendix A**.

Jersey Marine Site

12.5.18 Vehicle access to the Jersey Marine Site is currently provided via a secondary road through the Wales and West Utilities site to the west of M4 junction 42, which itself is access via B4290 New Road.

12.5.19 There are no PRoW or other active travel facilities through or near the site.

12.5.20 The Jersey Marine Site is shown in Figure 12.1, **Appendix A**.

Next Steps

12.5.21 Traffic surveys will need to be undertaken in 2025 to establish baseline conditions. Further details on surveys that are required are contained in Section 12.10.

12.6 Future Baseline

12.6.1 As set out in **Chapter 5 – Approach to Assessment,** future baseline scenarios will be established to understand the potential situation without the Project. The onshore traffic and transport chapter of the ES would seek to explain what the environmental change is, in terms of the effect of traffic and transport conditions on pedestrians, cyclists, drivers and their passengers, and nearby communities would likely be in the future if the Project were not to go ahead.

12.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence.

12.6.3 The approach to establishing the future baseline for onshore traffic and transport is contained in Section 12.10. This will primarily consider scaling baseline traffic conditions to reflect expected changes in the future baseline and modelling the effect of these impacts on identified receptors. These scaled changes will be in line with industry standard guidance.

12.6.4 Levelling Up Funding (LUF) has been secured by NPTC to restore and reopen 'Newbridge' for pedestrians and cyclists across the River Afan. This should improve access by active modes between Talbot Wharf and the adjacent Sandfields residential area. This LUF scheme also includes proposals for active travel upgrades to Riverside Road, improving connections to Talbot Wharf and to the train station and town centre. Liaison with NPTC will be required to confirm which years this scheme could reasonably be considered as part of the future baseline.

12.7 Mitigation Measures

12.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the aspect of onshore traffic and transport will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

12.7.2 This section sets out the potential controls relevant to onshore traffic and transport which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

12.7.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- retention of existing wharves or installation of temporary wharves to facilitate movement of materials by sea;
- new roads within the Port to be provided at a level to accommodate sea level rise;
- proposed active travel route adjacent to the new site access road;
- requirements for fleet vehicle and staff vehicle charging infrastructure;
- develop internal active travel routes, including appropriate access controls and attractive/direct routes to encourage use of sustainable modes;
- ensure that on-site provision of active travel routes connects to any existing off-site active travel networks; and
- improvements to existing PRoWs, where appropriate.

12.7.4 Depending on the volume and nature of vehicles and plant, construction accesses and haul roads may need to be separated from the existing roads within the Port to avoid conflict with any ongoing operational port activities that continue during the Project construction period.

Construction Controls

12.7.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction phase include:

- preference to transport materials by sea wherever possible (in particular construction aggregates and large components), to minimise HGV movements on the road network;
- use of temporary access controls for users of PRoW and footways to maintain safe access for non-motorised road users;
- temporary speed restrictions on routes used for construction vehicle access to mitigate against perceived or actual changes to road safety as a result of increased HGV movements;
- public information provision mechanisms to give advance notice of any temporary changes to local traffic conditions to facilitate construction, such as temporary road closures and diversions;
- traffic management strategies (such as measures to spread arrivals/departures of HGVs through the day);
- routing strategies for HGVs to use the most appropriate roads to avoid sensitive receptors and residential areas where possible; and
- use of banksmen and other controls to manage the movement of construction vehicles at site access points.

12.7.6 A Construction Traffic Management Plan (CTMP) will be prepared to identify how both construction traffic vehicles and site personnel movements can be safely accommodated at the access points to the site,

on the local highway and on the strategic network, and on footways and PRoW. A Framework Construction Traffic Management Plan (fCTMP) will be prepared as part of the application.

12.7.7 Required construction measures will be defined in the fCTMP and included as part of the application. Under this plan contractors would be required to prepare detailed Construction Traffic Management Plans (CTMP) for approval that accord with the approved fCTMP.

Operational and Maintenance Controls

12.7.8 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational phase include:

- preference to transport materials by sea wherever possible (including large components associated with wind turbines) to minimise disruptive HGV movements on the road network;
- discouraging single occupancy vehicle movements by the workforce to minimise the impact of worker commuting on the local road network;
- incentivising active travel through inclusion within the Port of high-quality walking and cycling facilities to enable more workers to travel to the site by sustainable means;
- identify opportunities for multi-modal access to site, including for those arriving by rail at Port Talbot Parkway or bus (Port Talbot Bus Station) for last mile access to enable more workers to travel to the site by sustainable means;
- identification of HGV routing strategies to avoid sensitive receptors or AQMAs where possible. Identify this routing strategy will be communicated and understood; and
- employment of a site travel plan coordinator to implement operational travel plans to encourage, monitor and manage sustainable travel to and from the site.

12.7.9 Required measures will be defined within a Site Travel Plan included as part of the application. Under this plan eventual tenants and operators within the Port would be required to prepare detailed plans relative to their operations for approval that accord with the approved Site Travel Plan.

12.8 Potential Likely Significant Effects

12.8.1 The potential likely significant effects for onshore traffic and transport that were identified using the methodology for onshore traffic and transport set out in the IEMA Guidelines for Environmental Assessment of Traffic and Movements are described in **Table 67.** These take into account the expected control measures set out within Section 12.7 Mitigation Measures.

Table 67: Likely significant onshore traffic and transport effects

Activity	Effect	Receptor
Construction plus Integration and commissioning of wind turbines in port	Road vehicle driver and passenger delay	Drivers and passengers
Construction plus, Integration and commissioning of wind turbines in port	Road users and pedestrian safety	Drivers, passengers, pedestrians and cyclists
Construction plus, Integration and commissioning of wind turbines in port	Hazardous loads/large loads	Drivers, passengers, pedestrians and cyclists
Integration and commissioning of wind turbines in port	Severance of communities	Drivers, passengers, pedestrians and cyclists
Integration and commissioning of wind turbines in port	Fear and intimidation on and by road users	Drivers, passengers, pedestrians and cyclists
Integration and commissioning of wind turbines in port	Pedestrian/Cyclist delay	Pedestrians and cyclists
Integration and commissioning of wind turbines in port	Pedestrian/Cyclist amenity	Pedestrians and cyclists

12.9 Resources and Receptors Scoped Out of Assessment

12.9.1 The resources or receptors that are proposed to be scoped out of the assessment for onshore traffic and transport are set out within **Table 68**. No effects or receptors have been scoped out for the operation and maintenance phase (Integration and commissioning of wind turbines).

Table 68: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Construction	Severance of communities	Drivers, passengers, pedestrians and cyclists	Construction traffic routing will be via the trunk road (M4) and Harbour Way (A4241), the Peripheral Distributor Road (PDR). This avoids impacts on the residential or commercial areas with the settlement of Port Talbot.
Construction	Fear and intimidation on and by road users	Drivers, pedestrians and cyclists	Construction vehicle routing via M4 junction 38 and Harbour Way to the site entrance uses a section of road without a footway / cycleway so there will not be impacts on active travellers. The route is lightly trafficked and so the additional HGV movements should not result in fear / intimidation of other vehicular users.
Construction	Pedestrian/ Cyclist delay	Pedestrians and cyclists	Construction traffic routing will avoid NCN route 4 and will not result in delay to active travellers
Construction	Pedestrian/ Cyclist amenity	Pedestrians and cyclists	Construction traffic routing will avoid NCN route 4 and will not result in delay to active travellers

12.10 Proposed Assessment Methodology

12.10.1 The following baseline conditions in relation to onshore traffic and transport will be established through review of the existing data sources and by undertaking traffic surveys:

- existing traffic flows to and from the Project site, classified by vehicle type and time of movement;

- existing traffic flows on the surrounding highway network classified by vehicle type and time of movement;
- Personal Injury Collision (PIC) data for the study area to identify trends or groupings;
- existing active travel provision linking the site to the surrounding areas;
- existing public transport provision in terms of routes, frequencies and capacities; and
- any sensitive receptors in proximity of the site, likely to be impacted by increases in traffic movements.

12.10.2 Traffic surveys will be undertaken and the results will be used to inform the baseline for the assessment. Potential effects of the Project related vehicle movements associated with the construction, operation and maintenance will be assessed during the following years:

- Phase 1 construction (approximately 4 years), which will assess the year for which there are peak vehicle movements for construction;
- Phase 1 operation (approximately 9 years), which will assess year 1 and year 10 of operations for Phase 1;
- Construction of future phase(s) (with Phase 1 still in operation), which will assess the year for which there are peak vehicle movements for construction for future phases; and
- Future Phase(s) operation (combining with Phase 1 operations), which will assess year 1 and year 10 of operations for future phases.

12.10.3 Taking into account the phased nature of the development the assessment will develop assessment scenarios relevant to these phases that are included in the assessment years (Phase 1 Construction, Phase 1 Operations, and the construction and operation of future phases). This will be completed in consultation with the local highways stakeholders, NPTC and South Wales Trunk Road Agent.

Baseline Data Collection

Approach to traffic counts

12.10.4 Classified manual turning counts will be commissioned for a weekday during a neutral[23] month covering the AM period 07:00-09:30 and PM period 16:00-18:30. The date of these surveys will be agreed with the Local Highway Authority, being cognisant of the changes in operation at the steelworks (due to the transition to electric arc furnaces, currently expected to be operational by the end of 2027). More detail on the electric arc furnaces and how these are considered in the future baseline is provided in **Chapter 5 – Approach to Assessment**.

23 A period outside of school holidays and public holidays, months such as April, May, September and October.

12.10.5 It is proposed that surveys will be undertaken for the following junctions on the public highway network (shown in Figure 12.1, **Appendix A**) to determine highway link flows:

1. M4 junction 41 (not including mainline)
2. A48/A4241/Water Street
3. A4241/Harbourside Road
4. A4241/Harbour Way/N Bank Road
5. A4241/Riverside Road/Dock Road/Water Street
6. Water Street/Corporation Road
7. A4241 Harbour Way/Llewellyn's Rd/Oakwood Road
8. A4241 Harbour Way/North Road
9. A4241 Harbour Way/TATA Academy
10. A4241 Harbour Way/A48
11. M4 junction 38 (not including mainline)
12. A48/M4 northbound on-slip (junction 39)

12.10.6 In addition, 24-hour Automatic Traffic Counts (ATC) surveys are proposed for the main access to the Port (via North Road) and Talbot Wharf access (via Riverside Road) over a 7-day period. Further ATC sites will be agreed with the Local Highway Authority as required.

Existing data

12.10.7 In addition to the traffic surveys, the following existing data sources will be used to determine the baseline:

- DfT Traffic Count data (M4/A48 links);
- STATS19 Personal Injury Collision data (to be obtained from NPTC);
- Site visit to local highway network immediately prior to the assessment being undertaken; and
- Audit of bus routes including timetables, bus stop locations and routings.

Approach to assessment

12.10.8 The assessment will be based on the IEMA 'Environmental Assessment of Traffic and Movement' guidelines (July 2023). The assessment will only consider highway links where the traffic flows are likely to have a significant environmental effect. In the IEMA guidelines, this means any location where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%) compared to the future baseline year flows or by 10% should the highway link be considered to be of high sensitivity.

12.10.9 Assumptions will be agreed with the Local Highway Authority on the magnitude, time of movement, origin and destination of vehicular Project traffic trips prior to the commencement of the assessment. These will be assigned to the road network within the study area using a spreadsheet model to identify the percentage impact on each traffic link during

construction and operation (based on the assessment years identified below).

12.10.10 Using industry standard practice, TEMPro/NTEM traffic growth factors will be applied to the surveyed 2025 Baseline flows to determine future baseline flows in the assessment years. NTEM are DfT long-term forecasts of traffic growth linked to demographic and economic trends. TEMPro is the name of the software that presents the NTEM datasets for local areas.

12.10.11 The Environmental Impact Assessment (EIA) will be supported by a comprehensive Transport Assessment (TA) which will be submitted as a stand-alone supporting document to the planning application and be fully scoped through the pre-application process. This will consider potential net impact in flows and junction operation resulting from the reduction in workforce at the steelworks and new jobs associated with FPT. These assumptions around future baseline conditions, including the number of workers on site, will represent a reasonable, worst-case assumption for traffic flows to and from the site.

12.10.12 The following construction and operational impacts will be assessed qualitatively based on the survey data and other data sources:

- Road vehicle driver and passenger delay;
- Road users and pedestrian safety; and
- Hazardous loads/large loads.

12.10.13 The following impacts will be assessed qualitatively for operation only. The reason these have not been scoped out for operation is that commuting trips are likely to use various routes to access the site, whereas for construction, routing will be via the M4 junction 38 and Harbour Way.

- Severance of communities;
- Fear and Intimidation;
- Pedestrian/Cyclist Delay; and
- Pedestrian/Cyclist Amenity.

12.10.14 The significance of effects will be identified through considering receptor sensitivity and the magnitude of impact. The assessment will follow 2023 IEMA Environmental Assessment of Traffic and Movement guidance where relevant, with professional judgement to support any gaps in this guidance.

12.10.15 **Table 69** sets out indicative Receptor Sensitivity Assumptions.

Table 69: Receptor Sensitivity Descriptions

Location	Driver and Passengers Sensitivity	Pedestrian and Cyclist Sensitivity
Private estate road	Very Low	N/A
Other Class Road	Low	Medium
B Road	Medium	Low
Motorway or A Road	High	N/A

12.10.16 The location that each receptor is assessed within reflects the quality of the facility and the number of users likely to be affected. The magnitude of impact will be considered through a combination of available quantitative data i.e. relative change in HGV flows, and qualitative analysis.

12.10.17 **Table 70** sets out indicative magnitudes of impact description.

Table 70: Magnitude Descriptions

Effect Magnitude	Impact magnitude (Severance, Fear and intimidation, Road Safety, Delay, Pedestrian/Cycle Amenity, Hazardous Loads/Large Loads)
High beneficial	90%+ decrease in traffic or HGV volumes (peak hour)
Medium beneficial	60-90% decrease in traffic or HGV volumes (peak hour)
Low Beneficial	30-60% decrease in traffic or HGV volumes (peak hour)
Negligible	Less than 30% change in traffic or HGV volumes (peak hour)
Low Adverse	30-60% increase in traffic or HGV volumes (peak hour)
Medium Adverse	60-90% increase in traffic or HGV volumes (peak hour)
High Adverse	90%+ increase in traffic or HGV volumes (peak hour)

12.10.18 The significance of effect will be determined by considering the magnitude of impact against the sensitivity of the receptor, as shown in **Table 71**.

Table 71: Significant Effects Matrix

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

12.10.19 In addition to the assessment outlined above, a cumulative effects assessment will be undertaken to consider any further transport related impacts that may arise due to the combination of the construction of the Project with the effects of the construction and operation of other committed development schemes within the surrounding area.

Construction

12.10.20 The Project will not be built in a single construction phase to its maximum capacity and functionality. The temporal distribution of construction jobs is not finalised.

12.10.21 There will be a need to establish construction compound(s) within the ABP Port Talbot estate to include vehicle parking and plant storage, connected by new construction accesses and haul roads to areas without existing appropriate vehicle access.

12.10.22 Construction activities will vary by construction phase and are likely to comprise:

- Construction of new haul roads through the site;
- Refurbishment of the carriageway of the site access;
- New active travel routes for pedestrians and cyclists;
- New and upgraded ancillary roads within the site;
- Onshore movement of materials to site and removal of waste from site;
- Onshore movement of construction workers to and from the site; and
- Temporary construction accesses and compounds (to include parking) as required.

12.10.23 Receptors within the vicinity of the site which may be sensitive to the impacts from traffic generated as a result of those construction activities include:

- Existing and proposed users of the site; and
- People travelling past the site (by all modes).

12.10.24 Construction materials and plant will be transported by sea wherever possible. Any road-based freight movements to the Port are able to access the M4 at Junction 38 directly via Harbour Way, avoiding residential areas or roads where pedestrians and cyclists will be looking to cross.

12.10.25 As a result of the impacts on sensitive receptors from traffic generated by likely construction activities, the following construction impacts are proposed to be scoped in:

- Road vehicle driver and passenger delay;
- Road users and pedestrian safety; and
- Hazardous loads/large loads.

12.10.26 The following construction impacts are proposed to be scoped out:

- Severance – construction traffic routing will be via the trunk road (M4) and Harbour Way (A4241), the PDR. This avoids impacts on the residential or commercial areas with the settlement of Port Talbot;
- Fear and Intimidation – construction vehicle routing via M4 junction 38 and Harbour Way to the site entrance uses a section of road without a footway / cycleway so it is very unlikely that there will be impacts on active travellers. The route is lightly trafficked and so the additional HGV movements should not result in fear / intimidation of other vehicular users;
- Pedestrian/Cyclist Delay – construction traffic routing will avoid NCN route 4 and will not result in delay to active travellers; and
- Pedestrian/Cyclist Amenity - construction traffic routing will avoid NCN route 4 and will not result in delay to active travellers.

Operation and Maintenance

12.10.27 Operational activities will vary dependent on the stage of the Project operations and are likely to comprise:

- Onshore movement of freight to and from the site;
- Onshore movement of workers for the purpose of commuting;
- Onshore movement of workers within the Port (as part of their work duties); and
- Onshore movement of materials within the Port.

12.10.28 Receptors within the vicinity of the Port which may be sensitive to these impacts from traffic generated as a result of those activities include:

- Existing and proposed users of the site; and
- Those travelling past the Port (by all modes).

12.10.29 It is anticipated that all personnel movement to the site will be via onshore transport. Many vehicular trips accessing the Port from areas to the south and east will be able to use junction 38 of the M4 to directly access the Port via Harbour Way. Some operation and maintenance staff trips are likely to use local roads to access the Port, so all potential impacts as listed during operation will be considered further as part of the assessment and reported within the ES.

12.10.30 As a result of the impacts on sensitive receptors from traffic generated by likely operational activities, the following operational effects are proposed to be scoped in for assessment:

- Road vehicle driver and passenger delay;
- Road users and pedestrian safety;
- Hazardous loads/large loads;
- Severance of communities;
- Fear and Intimidation on and by road users;
- Pedestrian/Cyclist delay; and
- Pedestrian/Cyclist amenity.

Cumulative Effects

12.10.31 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

12.10.32 Major developments near to the study area that will impact the movement of vehicles on the road network, pedestrians and cyclists on the active travel network (such as PRoWs and shared use paths), and public transport will be taken into account in the future baseline and Project scenarios. This will include consideration of changes to trip generation on the transport network and physical changes to the transport network.

12.11 Assumptions and Limitations

12.11.1 At the present time, the volume of construction traffic which will need to access the site throughout the construction stages is not finalised. It is also not known how these will overlap with potential construction trips associated with LanzaTech (Project Dragon) and the steelworks electric arc furnaces (subject to these developments proceeding). Once more certainty is available on the construction activities and phasing, the study area will be reviewed and adapted to account for this as required.

12.11.2 As described in Section 2.6 (Assumptions and Limitations) of the Description of Development, construction of Phase 1 is currently expected to last for 4 years. An assessment year for construction will be determined once further work has been completed for the staging/phasing of these activities. It will be the 'peak' year in terms of the highest forecast magnitude of road-based traffic trips. This would then need to be repeated for construction of future phases and last for an appropriate period of time..

12.11.3 The assessment scenarios to be taken forward within the EIA will be discussed with local highways stakeholders.

12.11.4 At this stage, a final operator for the Project has not been identified and so there are limitations related to the available information on the operational characteristic. For example, the total numbers of workers, shift patterns, skill level required for workers, quantity of deliveries of components by road, sea (and rail) are not currently known.

12.11.5 The FLOW WTG components and the floating substructures (either assembled or in components parts) are too large to be transported by road, and will all be brought in by sea. This will minimise the need for abnormal loads on the surrounding highway network.

12.12 Summary

12.12.1 The proposed scope of the assessment for onshore traffic and transport is contained within **Table 72**.

Table 72: Proposed scope of the onshore traffic and transport chapter of the ES

Matter	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Road vehicle driver and passenger delay	Scoped in	Scoped in	Impact on vehicles on surrounding road network expected as a result of both construction and operations.
Road user and pedestrian safety	Scoped in	Scoped in	Impact on perceived and actual safety for road users and pedestrians on surrounding road network expected as a result of both construction and operations.
Hazardous/large loads	Scoped in	Scoped in	Hazardous/large loads are expected to be transported to and from the site during construction and operations.
Severance of communities	Scoped out	Scoped in	During construction routing will be determined for HGVs in CTMP to avoid sensitive receptors and residential areas, utilising Harbour Way to access the M4 at junction 38.

Matter	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Pedestrian and cyclist user delay and amenity	Scoped out	Scoped in	During construction routing will be determined for HGVs in CTMP to avoid sensitive receptors and residential areas, utilising Harbour Way to access the M4 at junction 38.
Fear and intimidation on and by road users	Scoped out	Scoped in	During construction routing will be determined for HGVs in CTMP to avoid sensitive receptors and residential areas, utilising Harbour Way to access the M4 at junction 38.
Road user and pedestrian safety	Scoped out	Scoped in	During construction routing will be determined for HGVs in CTMP to avoid sensitive receptors and residential areas, utilising Harbour Way to access the M4 at junction 38.

Chapter 12 References

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13 Terrestrial and Freshwater Ecology

13.1 Introduction

13.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential terrestrial and freshwater ecology effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and mitigated for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

13.1.2 The Study area encompasses marine as well as terrestrial habitats and so the approach to biodiversity assessment as a whole should consider all of these elements. However, for ease of assessing effects, the marine ecology assessment is covered separately in Chapter 17 – Marine Ecology. The Impounded Dock, although predominantly comprising freshwater, is intertidal and is therefore part of the marine ecology scope.

13.1.3 Assessment of effects on birds covers both the terrestrial and marine environment and is included in **Chapter 24 – Ornithology**.

13.1.4 The effects of the Project on the following are considered:

- designated sites;
- habitats; and
- protected and notable species.

13.1.5 In line with Planning Policy Wales 12 (2024) (Welsh Government, 2024) (PPW), the Project will be seeking to deliver an overall Net Benefit for Biodiversity (NBB) which is defined as taking “a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks”, with ecologists encouraged to take a whole system approach incorporating biodiversity, ecosystem resilience and ecosystem services (CIEEM, 2024). For this reason, NBB is a core objective of the Project with relevance across several EIA factor assessments.

13.1.6 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

13.1.7 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 9 – Freshwater Environment**; **Chapter 17 – Marine Ecology**; **Chapter 20 – Climate Change**; **Chapter 24 – Ornithology**; and **Chapter 25 – Population and Human Health** (in respect of wellbeing and access to nature).

13.2 Relevant Legislation, Policy and Technical Guidance

13.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of terrestrial and freshwater ecology are detailed in **Table 73**.

Table 73: Legislation, policy and guidance relevant to the Terrestrial and Freshwater Ecology assessment

Relevant legislation/policy/ guidance	Relevance to assessment (terrestrial and freshwater aspects only)
Legislation	
The Environment (Wales) Act 2016	This document sets out that public bodies including Local Authorities are required to seek to maintain and enhance biodiversity and promote the resilience of ecosystems in Wales so far as consistent with the exercise of their functions (the "Section 6 Duty"). In addition, under Section 7, a list of species and habitats of 'principal importance' (henceforth referred to as 'Priority Habitats' and 'Priority Species') to the conservation of biodiversity in Wales was drawn up which acts as an aid to guide public bodies in implementing their duty. This is relevant to assessing ecological receptors and designing mitigation and compensation in Wales.
The Wellbeing of Future Generations (Wales) Act 2015	This document places a duty on Local Authorities in Wales to achieve seven well-being goals, the aim of which is to improve the social, economic, environmental and cultural well-being of Wales. Integrating biodiversity with all wellbeing goals should be targeted but in particular the goal for "A Resilient Wales" aims to achieve "A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example, climate change)." This is relevant to designing NBB and considering ecology in the context of wider environmental factors .
The Conservation of Habitats and Species Regulations 2017 (as amended)	These are the main pieces of legislation regarding the protection of species and habitats in Wales. This legislation affords protection to sites designated for nature conservation interest, including Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSI), as well as affording protection to certain plants and animal species. Ramsar sites are wetlands of international importance and are treated the same as SACs and SPAs.
The Wildlife and Countryside Act 1981 (as amended)	
The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended)	Invasive non-native species (INNS) in the UK are regulated via a combination of Schedule 2 of this Order and also Section 14/Schedule 9 of the 1981 Act. The list of invasive species in Schedule 2 were removed from Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) as an amendment in 2019 so both pieces of legislation should be referenced but the offences and requirements are consistent between the two.
The Wild Mammals Act 1996	The Wild Mammals (Protection) Act 1996 sets out a requirement to protect all wild mammals from any activity which, amongst other offences, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering. This is relevant to the assessment to ensure appropriate safeguards to burrowing mammals are considered during construction works, particularly to protect from crushing or asphyxiation.

Relevant legislation/policy/ guidance	Relevance to assessment (terrestrial and freshwater aspects only)
National Policy	
Planning Policy Wales 12 (2024) (Welsh Government, 2024)	Planning Policy Wales (PPW) was updated in 2024 to include more clarity and increased emphasis on the importance of biodiversity and ecosystem resilience. In particular, this includes: • any development should deliver a net benefit for biodiversity and promote resilience in ecosystems; • new development should evidence the implementation of the step-wise approach (avoidance, minimisation, mitigation, compensation on-site, compensation off-site and enhancement at every phase). This should be evidenced in a Green Infrastructure Statement; • in delivering a net benefit for biodiversity, the DECCA framework (Diversity, Extent, Condition, Connections and Adaptability of Ecosystems) should be applied to demonstrate the resilience of ecosystems through the relevant attributes; • PPW also places considerable weight on the importance and protection of peatlands and of irreplaceable habitats, unless there are significant material considerations (in respect of peatland) or "wholly exceptional" circumstances; and • in addition, PPW is clear that well-being improvements, addressing the consequences of climate change and considering sequestration of carbon should also be central to any protection, maintenance and enhancement strategy for ecosystem resilience.
Technical Advice Note 5 (TAN 5): Nature Conservation and Planning (Welsh Government, 2009)	Additional guidance on designations is included in TAN5 which should be read alongside national policy. Technical Advice Note (TAN) 5 relates to nature conservation and planning (Welsh Assembly Government 2009) and provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. TAN 5 provides advice for local planning authorities on: • the key principles of positive planning for nature conservation; • nature conservation and Local Development Plans; • nature conservation in development management procedures; • development affecting protected internationally- and nationally-designated sites and habitats; and • development affecting protected and Priority Habitats and species.
Local Policy	
Neath Port Talbot County Borough Council (NPTC) Local Development Plan 2011-2026 (Adopted January 2016) (Neath Port Talbot Council, 2024) NPTC Replacement Local Development Plan 2023 – 2038 Preferred Strategy (NPTC, 2024) NPTC Local Development Plan 2011-2026 Biodiversity and Geodiversity Supplementary Planning Guidance (May 2018) (Neath Port Talbot County Borough Council, 2018) NPTC Local Development Plan 2011-2026 Landscape and Seascape Supplementary Planning Guidance (May 2018) Biodiversity Duty Plan (2020 – 2023) (Neath Port Talbot County Borough Council, 2018) NPTC draft Green Infrastructure Strategy (reviewed in draft) The State of Nature and Nature Recovery Action Plan for Neath Port Talbot (2023) (Neath Port Talbot Local Nature Partnership, 2023)	Together these documents set out the importance and protection afforded to local non-statutory sites, Priority Habitats and species and also important natural features (such as woodland, trees and ponds), as well as identifying priorities for nature conservation and enhancement. Most notably the draft Green Infrastructure Strategy and Nature Recovery Action Plans set out key biodiversity targets and priority areas for habitat creation and/or targeted ecological enhancement. These are being reviewed as an ongoing exercise with NPTC ecologists to identify relevant opportunities for the Project.

Relevant legislation/policy/ guidance	Relevance to assessment (terrestrial and freshwater aspects only)
Guidance and Standards	
Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland –2nd edition (Chartered Institute of Ecology and Environmental Management, 2018)	The guidelines developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) aim to promote good practice in Ecological Impact Assessment (EcIA) relating to terrestrial, freshwater, coastal and marine environments in the UK and Ireland (CIEEM, 2018).
Design Manual for Roads and Bridges (DMRB) LA108 Biodiversity (Highways England, 2020)	This guidance sets out a standardised and structured approach for ecological impact assessment, which although aimed at road schemes is considered applicable to any large infrastructure project and so has been applied in the methodology for EIA assessment in this Chapter.
BS42020:2013 – Biodiversity: Code of Practice for Planning and Development (BSI Standards, 2013)	This document sets out biodiversity standards and guidance on surveys, assessment and mitigation in the UK.
Relevant Industry Survey Standards	Relevant industry standards will be followed for species-specific survey and assessment. These are listed in Appendix H which sets out the proposed survey scope in the technical note entitled “Proposed Scope of Ecological Surveys 2024 – for NPTC Review” (dated April 2024). This scope has been agreed with NPTC ecologists. Survey guidance in respect of Ornithology and Marine Ecology is set out in **Chapter 24 – Ornithology** and **Chapter 17 – Marine Ecology** of this EIA Scoping Report respectively.

13.3 Engagement and Consultation

13.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 - Consultation and Engagement**.

13.3.2 Specific consultation in relation to terrestrial and freshwater ecology has been undertaken as follows:

- The scope of ecological surveys has been agreed with NPTC (as set out in **Appendix H**);
- meetings have been held with the NPTC ecology team to discuss survey and assessment scope, including those at the Jersey Marine Site and Kenfig Marshalling Yard Site, as well as collaboratively review progress and compensation proposals;
- a briefing session has been held with Natural Resources Wales (NRW) to discuss the proposed scope of survey, assessment and proposed compensation site improvements; and
- specific meetings have been held with the NPTC ecology team on the *Orobanche picridis* survey and mitigation proposals in respect of the Ground Investigation works.

13.3.3 Further consultation will take place with NPTC ecologists and NRW regarding baseline field survey results and proposed mitigation measures and compensation in relation to terrestrial and freshwater ecology. Consultation with non-statutory stakeholders may also be required on the scope of any mitigation, compensation and enhancement delivery.

13.4 Study Area

13.4.1 The study area for terrestrial and freshwater ecology is provided on Figure 13.1 in **Appendix A**. As shown in Figure 13.1, the ecology survey area includes all of the terrestrial elements of the EIA Scoping Boundary and additional areas to the north. It was agreed with NPTC that for this Project the study area for habitat and protected species surveys could be limited to the terrestrial area but extends to include certain areas under ABP ownership outside of the EIA Scoping Boundary (e.g. north of the Impounded Dock). No buffer has been applied outside of the ABP ownership boundary with the exception of the River Afan, where otter and bat surveys have been completed. This is justified in **Appendix H.**

13.4.2 Current guidance on Ecological Impact Assessments (EcIA) (CIEEM, 2018), which is relevant to undertaking ecology chapters of EIA, recommends that all ecological features that occur within a 'Zone of Influence' (ZoI)[24] for a proposed development are investigated. The ZoI includes:

- areas directly within the land take for the Project and access;
- areas which will be temporarily affected during construction;
- areas likely to be impacted by hydrological disruption; and
- areas where there is a risk of pollution and noise disturbance during construction and/or operation.

13.4.3 The ZoI is variable depending on the ecological receptors affected. The size of survey areas is determined by considering the potential ZoI for each receptor. **Table 74** summarises the study area used for ecological receptors. Those of relevance specifically to birds and marine are included in **Chapter 24 – Ornithology** and **Chapter 17 – Marine Ecology** respectively.

Table 74: Study areas used for this assessment

Ecological information	Study area
Sites locally, nationally or internationally designated for their habitat value or for non-mobile species	EIA Scoping Boundary and within 5km (see Figure 13.2 in **Appendix A**) or those within 200m of a major road anticipated to be affected by increased traffic volumes exceeding 1,000AADT (as identified in **Chapter 6 – Air Quality**)
Sites designated for their international importance with bats, otter or other mobile species as a qualifying feature[25]	EIA Scoping Boundary and within up to 30km (see Figure 13.2 in **Appendix A**) where these are connected via Functionally Linked Land (see Habitats Regulations Assessment; **Appendix D**).
Desk study records (for protected and notable species)	Ecology survey area (Figure 13.1 in **Appendix A**) and within 5km buffer
Phase 1 Habitat Survey	Within ecology survey area for the Port (Figure 13.1 in **Appendix A**) and within the EIA scoping boundary for the Jersey Marine Site and Kenfig Marshalling Yard Site.

[24] Note that the ZoI depicts a distance within which effects are identified as most likely. This does not equate to a certainty of effects within this distance, nor does it preclude the possibility of effects outside the ZoI.

[25] Bridges (DMRB) LA115 guidance in respect of Habitats Regulations Assessment (HRA) has been used as a guide distance, which applies a precautionary 30km in respect of designations with bats. Within this buffer, an assessment of functional linkage has been undertaken on a case-by-case basis, as summarised in the HRA.

Ecological information	Study area
Protected species evidence	Within the ecology survey area boundary for the Port (Figure 13.1 in **Appendix A**) (plus the River Afan for otter and bats). Certain surveys were also completed for the EIA Scoping Boundary for the Jersey Marine Site and the Kenfig Marshalling Yard Site.

13.4.4 The assessment of international designations is included in the Report to Inform a Habitats Regulations Assessment (HRA) (included within **Appendix D**), which sets out the process of assessing functionally linked land within the ZoI to ascertain potential impact pathways.

13.4.5 It was agreed with NPTC ecologists that no survey work will be proposed outside of the existing ABP Estate Boundary, except for the adjacent River Afan. This is based on the rationale that, with the exception of the coast which is being surveyed for marine ecology, the other surrounding land use is from the active stockpile areas of the existing steelworks (which support minimal vegetation other than that included in the survey scope and for which habitats present are heavily disturbed), residential development (separated by the River Afan) and roads. These are not considered particularly sensitive to indirect disturbance, whilst there is already existing baseline noise and lighting disturbance from the current land use.

13.4.6 Survey work of select receptors as well as an assessment of habitats present is also proposed to ascertain a high-level baseline ecological value of off-site terrestrial ecology compensation sites; namely at Jersey Marine Site and Kenfig Marshalling Yard Site. These are to inform any potential ecological constraints to habitat improvement works, to ascertain suitability of the compensation sites to act as receptors for species translocation or as appropriate compensation for on site receptors, and to guide priorities for habitat management to deliver a net benefit for biodiversity. This survey work is also restricted to the Jersey Marine and Kenfig Marshalling Yard Site boundaries. This is considered sufficient to obtain a baseline to inform enhancement measures.

13.5 Description of the Existing Environment

Resources and Receptors

13.5.1 For Terrestrial and Freshwater Ecology the receptors are:

- designated sites;
- habitats; and
- protected and notable species.

Data Sources

13.5.2 Data sources reviewed for terrestrial and freshwater ecology include:

- data obtained from South and East Wales Biodiversity Records Centre (SEWBReC) from within 5km of the ABP estate;

- Multi Agency Geographical Information for the Countryside (MAGIC) (DEFRA, 2024);
- Natural Resources Wales (NRW) (Natural Resources Wales, 2024);
- Joint Nature Conservation Committee (JNCC) (Joint Nature Conservation Committee, 2024);
- existing ecological reports completed for the LanzaTech site (planning application reference P2023/0858) and those produced for The Applicant within the EIA Scoping Boundary (including surveys for bats, birds and *Orobanche picridis*);
- a Port-wide Japanese knotweed (*Reynoutria japonica*) management plan produced by ExCal (2022); and
- incidental species reports and local knowledge passed on verbally from the local angling society.

Baseline Conditions

The Port

13.5.3 A suite of ecological survey work has been undertaken on parts of the Port, both formally (notably from the LanzaTech site planning application) and informally. In addition, surveys have been completed in 2024 to establish the ecological baseline for the terrestrial areas of the Port extent of the EIA Scoping Boundary (see **Appendix H**).

13.5.4 An initial assessment of international ecological designations that could be affected by the Proposed Development (the ZoI for which is variable) is set out within the Report to Inform a HRA Screening (see **Appendix D**). This report has been referenced below.

13.5.5 On the basis of the known ecological baseline, including from the most recent 2024 survey work (where analysis is complete), the key designations, habitats and species present or potentially present and of relevance to the EIA Scoping Report in respect of the ecology survey area of the Port are summarised in **Table 75**. Statutory designated sites are illustrated in Figure 13.2, **Appendix A** and non-statutory designated sites are illustrated in Figure 13.3, **Appendix A**.

Table 75: Terrestrial and Freshwater Ecology baseline summary

Ecology Receptor	Summary
Designated Sites	
Statutory designated sites within 5km	A number of national and international statutory designated sites are present within the ZoI of the ABP Site Boundary. Notably these include: • Kenfig SAC, National Nature Reserve (NNR) and Local Nature Reserve (LNR) - located approximately 4.2km south-east; • Margam Moors SSSI - located approximately 3km south-east; • Eglwys Nunydd Reservoir SSSI – located approximately 3.5km south-east; • Crymlyn Burrows SSSI – located approximately 4.4km north-west; and • Earlswood Road Cutting and Ferryboat Inn Quarries SSSI – located approximately 5km north.
Non-statutory designations	A total of 28 non-statutory designations are present within 5km from the Port extent part of the EIA Scoping Boundary. The closest of these include: • The Neath Port Talbot Watercourses Site of Importance for Nature Conservation (SINC) located within the EIA Scoping Boundary; • Lower River Afan Estuary SINC adjacent to the EIA Scoping Boundary; • Little Warren SINC adjacent to the EIA Scoping Boundary; and • Harbourside Law Courts SINC located within the EIA Scoping Boundary.
Other Designations	A number of more distant internationally designated sites are present up to 30km from the Project. These are included in the Report to Inform a HRA Screening (**Appendix D**). The ZoI for these designations is variable and has been described in the Report to Inform a HRA Screening. However, these include: • Cefn Cribwr Grasslands SAC (and various associated component SSSIs) – located 9.6km south-east [scoped in for air quality effects due to proximity to major roads]; • Limestone Coast of Southwest Wales SAC [scoped in for bats]; and • Carmarthen Bay Estuaries SAC [scoped in for otter].
Priority and Notable Habitats	
Open Mosaic Habitat on Previously Developed Land (OMHPDL)	The majority of the Port extent of the EIA Scoping Boundary can broadly be classed as OMH, with a range of vegetation successional stages represented by a mosaic of bare ground, early ephemeral species, grassland and pockets of scrub. These areas are known to be valuable for invertebrates for which a high diversity has been recorded.
Reedbed	Wetlands dominated by stands of common reed (Phragmites australis) located north of Impounded Dock and within Phoenix Wharf East (part of the LanzaTech site). Also, smaller areas of reeds associated with waterbodies south of the dock (in the sand quarry area). The reedbeds are associated with a range of plant species and likely to provide important habitat for many species.
Wet woodland	Wet woodland is present within the ecology survey area, centred at Talbot Wharf, and is classified as a Priority Habitat.
Coastal Saltmarsh	There are four small areas of saltmarsh vegetation within the ecology survey area. Three areas are associated with the eastern bank of the River Afan and a fourth isolated areas located along the western side of the sea wall. This species of this habitat match the Priority Habitat description and the areas of saltmarsh.
Coastal sand dunes	Dune grassland and coastal grassland habitats identified within the ecology survey area may fit the classification criteria for the Priority Habitat Coastal Sand Dunes.

Ecology Receptor	Summary
Protected and Notable Species	
Oxtongue broomrape (*Orobanche picridis*)	This plant is protected under Schedule 8 of the 1981 Act and the meta-population within the ecology survey area is one of only four known populations in the UK. Surveys in June 2024 by national experts identified multiple populations of O. picridis within the ecology survey area. Particularly high concentrations of O. picridis were found at Margam Wharf in the north-east and within the grassland along the western shoreline. Of particular note was the significant population associated with the south-western sand dunes, bordering the intertidal zone, where specimens were noted for their health, vigour and genetic diversity. Margam Wharf also supported largely O. picridis where it was evident it dominated the more common O. minor. The survey also identified variants of O. picridis across the site, with a rare yellow form of O. picridis found within Margam Wharf and suspected F1 hybrids of O. picridis x O. minor identified within multiple locations in the ecology survey area.
Basil thyme (*Clinopodium acinos*)	This plant is a Section 7 Priority Species considered very rare in Wales and classified as 'Vulnerable' in The Vascular Plant Red Data List for Great Britain 2005 (Cheffings, 2005). Previously, this species has been recorded in the railway sidings area to the south of the LanzaTech site in 2021. During the Phase 1 habitat and botanical surveys undertaken between May and July 2024, basil thyme was recorded as locally common in several areas of the grasslands throughout the ecology survey area.
Prickly Saltwort (Salsola kali)	This plant is a Section 7 Priority Species classified as 'Vulnerable' in The Vascular Plant Red Data List for Great Britain 2005 (Cheffings, 2005). During the Phase 1 habitat and botanical surveys undertaken between May and July 2024, prickly saltwort was recorded in low numbers in the dune habitats at two locations within the ecology survey area.
Other notable plants	Of the 454 plant species recorded within the ecology survey area during the Phase 1 habitat and botanical surveys undertaken between May and July 2024, 43 are listed as rare, scarce or declining. These include species of spike-rushes, orchids, broomrapes, eyebrights, among others.
Bryophytes	A total of 102 bryophyte species were found during the surveys undertaken in May 2024. While the site does not support any legally protected bryophytes, three species of conservation concern were recorded: • Lobed Threadwort Cephaloziella integerrima (Nationally Rare and UK IUCN Red List Endangered) in grassland at Talbot Wharf and Finger Quay; • Scarce Redshank Ceratodon conicus (Nationally Rare) on boulders / rocky substrate to the east of the Sounder Triangle; and • Many-flowered Leskea Pylaisia polyantha (Nationally Scarce) on trees at Phoenix Wharf. The combined areas occupied by Cephaloziella integerrima and Ceratodon conicus qualify under Criterion 3.2 of the SSSI selection criteria for bryophytes.
Fungi	Surveys undertaken in October and November 2024 recorded 11 indicator fungal species, referred to as CHEGD fungi (Clavariaceae, Hygrophoraceae, Entolomataceae, Geoglossaceae, and Dermoloma and related genera). The grassland and brownfield habitats supported low numbers of CHEGD species, likely due to their recently formed and disturbed nature. The dune habitat supported four species of dune-specialist fungi, including H.conica var conicoides and Melanoleuca friesii. Due to the restricted distribution of sand dunes and associated specialist fungi.

Ecology Receptor	Summary
Bats - Roosting	A number of buildings across the ABP estate and potentially a small number of trees have potential to support roosting bats. Survey work to date by RPS in 2023 recorded one day roost of common pipistrelle (Pipistrellus pipistrellus) within the Site. Foraging and commuting bats could use habitats across the site, notably the waterbodies and railway line features. Survey work completed by RPS in 2022 in the west of the EIA Scoping Boundary (within the disused sand quarry, the reclamation area and the south) recorded low levels of bat activity, dominated by common pipistrelle (80.82% of calls from static detectors placed seasonally) along with noctule (14.1% of total calls) and soprano pipistrelle (4.3%) largely in the southern extent of the reclamation area. Other species recorded in low numbers within the EIA Scoping Boundary include Nathusius' pipistrelle (*Pipistrellus nathusii*), Brown long-eared bat (*Plecotus auritus*), lesser horseshoe bat (*Rhinolophus hipposideros*) and Myotis species. Survey work completed in 2024 is being analysed.
Bats – Foraging and Commuting	
Other burrowing common mammals	Badger considered unlikely to be present (see **Appendix H**). Common mammal burrows confirmed, attributable to rabbit (*Oryctolagus cuniculus*).
Otter	No signs of otter recorded in 2021. Suitable habitats present across and adjacent to the EIA Scoping Boundary including small woodland parcels, scrub, semi-improved grassland, freshwater waterbodies/watercourses and the Impounded Dock habitat. Commuting and foraging otter likely with holt creation opportunities limited to the River Afan, dock feeder and woodland parcels, where suitable features exist. Survey work in 2024 for otter has confirmed use of the Port by otter for foraging and commuting. Analysis of camera traps is underway to ascertain presence/absence of holts.
Birds	A total of 165 bird species were returned from SEWBReC, of which 158 are priority species. 54 of those species were recorded during the breeding bird surveys, all of which are priority species. A total of 69 notable breeding bird species records were returned by the BTO data report, with 36 of them recorded during the breeding bird surveys. Overall, a total of 49 priority species and 36 notable species were recorded during the breeding bird surveys within the ecology survey area. 32 species were confirmed breeding birds, 16 as probable breeding birds, 11 as possible breeding birds and 17 were present.
Amphibians	A number of freshwater waterbodies are present within the ecology survey area, notably in the sand quarry area, which have suitability for breeding amphibians. Survey work in 2024 did not record any presence of great crested newt (Triturus cristatus) (GCN) but did confirm populations of smooth (*Lissotriton vulgaris)* and palmate newt.
Reptiles	The site is known to support at least three species of reptile including grass snake (*Natrix natrix*), common lizard (*Zootoca vivipara*) and slow-worm (*Anguis fragilis*) with a large number of individuals known to be translocated from the LanzaTech site to a receptor within the disused sand quarry. The OMHPDL habitats across the remaining EIA Scoping Boundary are suitable and likely supported existing populations of reptiles such that the combined population sizes across the entire Project are likely to be significant.
Invertebrates	The site has potential to support a range of common and notable invertebrates. Open mosaic habitat is known to be good for invertebrates. Survey work of the disused sand quarry and Phoenix Wharf West was undertaken in 2021 by David Gibbs which recorded 317 species of invertebrate including six nationally scarce species and important in the local context. The most notable area surveyed was the disused sand quarry. Update surveys in 2023 of Margam Wharf, Phoenix Wharf West and the LanzaTech site recorded 268 invertebrate species including 17 considered of conservation concern. This notably included presence of *Phytomyza orobanchia*, a rare fly associated within the *Orobanche picridis* population using Margam Wharf. Numerous other locally significant species have been recorded including include small blue butterfly (*Cupido minimus*). Survey work is underway for this group (previous survey was restricted to late spring and summer only).

Ecology Receptor	Summary
Invasive Species	
Japanese knotweed (Reynoutria japonica)	Japanese knotweed is extensive within the LanzaTech site, eastern extent of Phoenix Wharf and Talbot Wharf. Smaller stands are located on the Finger Quay, at the eastern extent of Llewellyn's Quay, centre of the disused sand quarry, and western and eastern extents of Phoenix Wharf East. Japanese knotweed is an INNS listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). A management plan has been prepared by specialist contractors and treatment commenced in 2023.
Other invasive plant species	Other invasive species recorded across the ecology survey area include Japanese rose (*Rosa rugosa*); Himalayan cotoneaster (*Cotoneaster simonsii*); wall cotoneaster (*Cotoneaster horizontalis*); Himalayan balsam (*Impatiens glandulifera*); montbretia (*Crocosmia x crocosmiiflora*); and curly waterweed (*Lagarosiphon major*).

Source: Mott MacDonald, 2024

13.5.6 Analysis of the 2024 baseline surveys is still ongoing, notably in respect of bats and otter. The 2024 results have not been included in the baseline at this stage to allow time for analysis and quality assurance verification. It is considered unlikely any additional species-groups will be added to those already identified in **Table 75** above.

13.5.7 The survey methodology for the ecological surveys, including survey scope, timings and guidance followed, is included in **Appendix H.**

13.5.8 The Impounded Dock and the adjacent River Afan are both tidal and therefore are assessed as part of **Chapter 17 - Marine Ecology**, with the exception of otter which is covered in this Chapter and birds which are covered in **Chapter 24 – Ornithology** within this EIA Scoping Report.

13.5.9 Ecology has also influenced methodologies of other Chapters within this EIA Scoping Report, notably **Chapter 21 – Landscape, Seascape and Visual Amenity** where the lighting assessment will include points for ecological receptors, **Chapter 6 – Air Quality** where air quality assessment considers ecological designations, **Chapter 20 – Climate Change** where carbon and climate will be discussed and **Chapter 25 – Population and Human Health** where wellbeing assessments will be considered and how this links to NBB. The latter is described below.

Kenfig Marshalling Yard Site

13.5.10 The Kenfig Marshalling Yard Site is the former Margam Railway Sidings, as shown on Figures 1.3 and 1.4 in **Appendix A**. It covers an area of approximately 24ha and comprises a mosaic of habitats including dune slack vegetation, lowland fen, reedbed, naturally regenerating grassland, coastal grassland and areas of ephemeral vegetation alongside areas of dense and scattered scrub, woodland and hardstanding.

13.5.11 In terms of designations, Kenfig Marshalling Yard Site is well connected to areas of ecological value, being effectively adjacent to Kenfig SAC and SSSI and Margam Moors SSSI, as well as another locally important restoration site (Morfa Tip). In addition, Eglwys Nynydd Reservoir SSSI is located approximately 280m north-east.

13.5.12 Existing survey information is available for this land in the form of a Phase 1 Habitat Survey and target note descriptions in 2023 undertaken by RPS on behalf of the Applicant.

13.5.13 As the proposed works at Kenfig Marshalling Yard Site comprises of habitat creation, enhancement and ongoing management, a full suite of ecological baseline surveys have not been proposed. Instead, surveys have focused on key ecological receptors considered likely to be a focus of any potential compensation requirements, translocations or requiring targeted enhancements. This has been agreed with NPTC ecologists. The following surveys have been undertaken in respect of Kenfig Marshalling Yard Site:

- review of any biological records from within 2km of the site (from SEWBREeC);
- an updated walkover to map any habitat changes and record a representative species list;
- a bryophyte survey by a specialist bryologist to assess presence of any notable bryophytes but also suitability of the land at Kenfig Marshalling Yard Site to support any translocated bryophytes if required;
- an *Orobanche picridis* survey by a specialist to identify presence / likely absence of this species and also assess suitability to support introduction/translocation of this plant if required;
- a walkover by an ornithologist to assess habitat suitability and likely interest;
- invertebrate surveys comprising six visits between April and September by an experienced entomologists to collect invertebrate samples using a range of techniques; and
- reptile surveys comprising up to seven visits to ascertain presence/likely absence of reptiles.

13.5.14 The analysis of this survey work has confirmed the presence of common lizard, slow-worm and grass snake within Kenfig Marshalling Yard Site. Surveys have also confirmed absence of *Orobanche picridis* but did confirm the presence of its host plant and suitability for the species.

13.5.15 The bryophyte survey identified 90 species, including two species of conservation concern large hook-moss (*Drepanocladus lycopodioides*) and chalk hook-moss (*D. sendtneri*). Large hook-moss was recorded to be restricted to a small area of mature dune slack habitat on part of the former Margam Railway Sidings which is starting to succeed into woodland due to a lack of management. Both of these species are Nationally Scarce and listed as ‘Endangered’ on the IUCN Red List of bryophytes in Wales. Large hook-moss is also listed as ‘Endangered’ on the IUCN Red list of bryophytes in Britain and is listed on Section 7 of the 2016 Act.

13.5.16 In addition, from previous survey records, the presence of GCN at Kenfig Marshalling Yard Site is already known. For this reason, additional survey work was not proposed in 2024. The site also has potential to support numerous other species including bats, small mammals and common

amphibians. These will be considered as part of any enhancement design and planning of works.

13.5.17 Invasive species are known to be present, including Japanese knotweed. Consideration will be given to presence of these species in the assessment and design of enhancements.

Jersey Marine Site

13.5.18 Jersey Marine Site covers an area of approximately 24ha, as shown in Figure 1.3 in Appendix A. It largely comprises a mixture of grassland, scrub and woodland habitats (including ancient woodland). In addition, some areas of remnant heath are present and a large area of saltmarsh in the north-east.

13.5.19 In terms of designations, the closest designation is the geological SSSI Earlswood Road Cutting and Ferryboat Inn Quarries SSSI which is located along the margins of this site. For ecological designations, Jersey Marine Site is located approximately 400m east of both Pant-y-Sais SSSI and Crymlyn Bog SAC and approximately 1km north of Crymlyn Burrows SSSI. It is also located in close proximity to a network of locally designated Sites of Importance for Nature Conservation (SINCs).

13.5.20 Existing survey information is available for this land in the form of a Phase 1 Habitat Survey and ecological baseline assessment from 2023 undertaken by RPS on behalf of The Applicant as well as reptile surveys undertaken in 2023 which confirmed presence of very low numbers of common lizard (*Zootica vivipara*).

13.5.21 As the proposed works at the Jersey Marine Site comprise habitat creation, enhancement and ongoing management, a full suite of ecological baseline surveys have not been proposed. Instead, surveys have focused on key ecological receptors considered likely to be a focus of any potential compensation requirements, translocations or requiring targeted enhancements. This has been agreed with NPTC ecologists. The following surveys are proposed in respect of the Jersey Marine Site:

- A review of any biological records from within 2km of the site (from SEWBReC);
- an updated walkover to map any habitat changes and record a representative species list;
- a bryophyte survey by a specialist bryologist to assess presence of any notable bryophytes but also suitability of the site to support any translocated bryophytes if required;
- a walkover by an ornithologist to assess habitat suitability and likely interest; and
- a fungi survey to ascertain presence of any notable fungi.

13.5.22 The bryophyte and fungi surveys completed in 2024 did not identify any priority or notable species.

13.5.23 In addition, it is noted that the site also has potential to support species such as bats, badger (*Meles meles*), otter (*Lutra lutra*) and dormouse

(*Muscardinus avellanarius*). These species along with birds, invertebrates and other notable receptors will be considered as part of the habitat enhancement design, whilst if required any further surveys needed to inform mitigation during completion of works would be undertaken at the appropriate phase.

Next Steps

13.5.24 The Port: This baseline will be updated with the most up to data which is still being analysed (e.g. for bats and otter) as well as any winter survey work. Any additional surveys completed will be included and considered in the ES.

13.5.25 Kenfig Marshalling Yard Site: Invertebrate surveys at Kenfig Marshalling Yard are ongoing and so the future baseline will be updated as these results are received and this will be used to refine the assessment and design. As the proposed works at Kenfig Marshalling Yard Site comprise habitat creation, enhancement and ongoing management to compensate for anticipated habitat loss within the Port, more comprehensive baseline surveys are not proposed but certain species surveys may be needed to inform mitigation and licensing (e.g. great crested newt surveys). Where surveys are needed for mitigation only, this is not considered to change the assessment scope.

13.5.26 Jersey Marine Site: As the proposed works at Jersey Marine Site. comprise habitat creation, enhancement and ongoing management to compensate for anticipated habitat loss within the Port of Port Talbot, a full suite of ecology surveys has not been completed. However, surveys may be required to inform mitigation including dormouse surveys and assessments of trees for bat roosting potential. This will be used to also inform the EIA Scoping.

Environmental and Social Baseline Conditions and NBB

13.5.27 To fully understand how to deliver NBB, any proposed enhancement should recognise and integrate wider environmental and social benefits such as carbon sequestration, climate resilience and social and wellbeing. The methodology for collecting the baseline data for these is included in relevant other Chapters of this EIA Scoping Report. To inform the strategy for NBB, the following baseline information will be considered:

- **Carbon sequestration:** A baseline assessment of the carbon sequestration, storage and release rates of on-site habitats will be established using pragmatic, robust methodologies. Particular consideration of peat soils on the Port extent of the EIA Scoping Boundary will be included. This is detailed in **Chapter 20 – Climate Change** of this EIA Scoping Report. This will be used to inform the baseline, consideration of impacts and the Project design to increase carbon sequestration by the natural environment where possible;
- **Climate resilience:** A climate baseline and future climate projections for the site will be established in order to assess climate risks to the

NBB elements of the design and the associated climate resilience measures required for any design, immediate aftercare and long-term management plan. Consideration of NBB has been included in **Chapter 20 – Climate Change** of this EIA Scoping Report; and

- **Social and wellbeing:** The current uses of the land within the EIA Scoping Boundary will be recognised in developing the NBB strategy, in particular the existing access to nature from workplaces as well as any public use of the Site. There is currently limited public access to much of the land within the EIA Scoping Boundary for any recreational use, save for the local angling society (which uses Finger Quay) and some fishing and Sea Cadet use on Talbot Wharf. However, there are a number of businesses present who currently have access to nature from their workplace. This is detailed in **Chapter 26 – Socio-economics** of this EIA Scoping Report.

13.6 Future Baseline

13.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Terrestrial and Freshwater Ecology Chapter of the ES would seek to explain what the environmental change, in terms of terrestrial and freshwater ecology, would likely be in the future if the Project were not to go ahead.

13.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

13.6.3 Climate change is likely to mean changes in future weather patterns, with warmer temperatures, sea level rise, seasonal rainfall changes and more extreme events. This will most likely have an effect on ecological networks and habitats across the Study area. **Chapter 20 – Climate Change** would consider these potential changes and these would be accounted for as part of the assessments for Terrestrial and Freshwater Ecology.

13.6.4 The future baseline would be assessed through an updated ecology walkover survey and, if considered necessary, updated baseline ecology surveys. For ecology, the future baseline would take into account any works preceding the construction of FLOW which would alter the habitat baseline through habitat removal, species translocations and habitat compensation and enhancement works at each of the Kenfig Marshalling Yard Site and Jersey Marine Site.

13.6.5 It is also relevant to consider the natural future baseline of any retained habitats. The active nature of the Port extent of the EIA Scoping Boundary is such that there is some ongoing disturbance which coupled with soil conditions and the exposed coastal location provides a suitable environment for open mosaic habitat communities. As with any open mosaic habitat, this is transitory in nature and will eventually develop into scrub through natural succession. However, depending on the exposure, soil conditions and rabbit grazing, parts of the Site will develop more quickly than others. It is also relevant to note that should the Japanese

knotweed control cease or be unsuccessful for any reason then this species would likely spread to occupy a much larger area than currently in place. This is a consideration for the future baseline.

13.7 Mitigation Measures

13.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the terrestrial and freshwater ecology topic will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

13.7.2 An assessment will be made as part of the EIA process which will be informed by the baseline ecological surveys, the on-site mitigation and compensation and anticipated impacts. It will also be informed by stakeholder engagement. This assessment will determine the level of off-site mitigation, compensation and enhancement required and whether compensation sites in addition to Jersey Marine Site and Kenfig Marshalling Yard Site may be needed, and how these should be designed.

13.7.3 An FPT Overarching Biodiversity Strategy as mentioned in Section 2.5 of **Chapter 2 – Description of Development** is proposed for all works within the Port of Port Talbot, which will set out the vision and principles, objectives and proposed measures to assess and deliver Net Benefits for Biodiversity in any development as part of FPT. This will cover principles to incorporate biodiversity into design, proposed mitigation safeguards which recognise the distribution of ecology across the entire Port, and a strategy for identifying and delivering off-site ecology compensation and enhancement (both through habitat creation/enhancement and through non-land based measures such as community engagement).

Design Measures

13.7.4 Mitigation which may be incorporated into the Project design is likely to include:

- Safeguarding of ecological features, habitats, connectivity and function for protected species through avoiding or minimising key areas on site;
- Inclusion of sensitive lighting design, which is discussed within **Chapter 21 – Landscape, Seascape and Visual Amenity**;
- Inclusion of ecological on-site compensation through landscaping and habitat creation embedded into the masterplan and infrastructure (e.g. modular biodiversity units, Sustainable Urban Drainage Systems (SuDS), brown roofs, etc); and
- Dedicated Off-site Mitigation, Compensation and Enhancement. Once all on-site options have been exhausted and compensation is still required, off-site compensation would be included. For this Project, it is acknowledged that off-site compensation is integral to the biodiversity strategy given the baseline ecological value, the scale of potential

impacts and the limited space within the Project footprint to deliver strategic or significant compensation on-site alongside the Project. It is anticipated that the off-site compensation will comprise a package of measures including some habitat creation alongside other potential measures to be confirmed (but could include community engagement, research and survey to further the local body of research and/or investment in management of existing ecological areas in the wider landscape). The following compensation sites have already been purchased by the Applicant and habitat creation and enhancement at these compensation sites and are included in the EIA Scoping Boundary. These will form a major part of the biodiversity mitigation, compensation and enhancement strategy:

- Jersey Marine Site: This land has potential for grassland, scrapes, saltmarsh and woodland improvements, benefiting a wide range of habitats and species. Notably, the site is a suitable receptor for reptile translocation, subject to improvements; and
- Kenfig Marshalling Yard Site: This site comprises a mosaic of brownfield habitats with sufficient proximity to the coast to also support coastal specialists (including potentially *Orobanche picridis*), as well as scattered scrub and reedbed. This site provides scope for habitat creation (on existing hardstanding areas) and enhancement, as well as safeguarding in the long-term an ecologically valuable area which without management intervention would undergo succession into scrub and woodland.

Construction Controls

13.7.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction phase include:

- embedded measures in the construction programming to avoid key periods for notable species or design working measures to minimise potential impacts (e.g. implementing best practice pollution safeguards);
- during construction it is anticipated that appropriate safeguards (e.g. buffers, timing of works, ecological supervision, sensitive lighting, etc) would be set out in an Adaptive Environmental Management Plan (AEMP) which would include safeguards for bats, birds, burrowing mammals, otters, etc; and
- translocations are likely to be required for certain species. The details of these will depend on the future baseline but could include translocation strategies for reptiles, *Orobanche picridis* and bryophytes.

13.7.6 Required construction environmental control and protection measures will be defined in an Adaptive Environmental Management Plan (AEMP) included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP) to include detailed ecology protection measures and would be compatible

with any species-specific strategies or protected species licences if required (e.g. for *Orobanche picridis*).

13.7.7 A specific site Invasive Non-Native Species (INNS) Management Plan would define measures for the control and safe management of INNS which will accord with the approved site wide INNS Strategy. Similar to the above contractors would be required to prepare detailed plans relating to the area within which they are working that aligns with the approved site wide INNS Strategy.

Operational and Maintenance Controls

13.7.8 The FPT Overarching Biodiversity Strategy as mentioned in Section 2.5 of **Chapter 2 – Project Description** serves as the main mechanism for securing embedded mitigation, compensation and enhancement measures. This strategy would be included in the application. Under this strategy it is expected that detailed habitat management and monitoring plans (HMMP) would be prepared for the Project. These would align with the requirements of the approved strategy.

13.7.9 Any on site operational environmental control and protection measures identified for the Port would also be defined in an outline Operational Environmental Management Plan (oOEMP) included as part of the application. This would include best practice measures and techniques, any specific measures identified through the EIA. Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP. This plan would complement but not duplicate requirements of the Biodiversity Strategy.

13.7.10 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operation phase include:

- safeguards for retained habitats and species under future maintenance regimes and management plans
- on site monitoring of retained habitats to understand extent and condition and to inform changes to maintenance and management practices
- coordination with adjacent sites to understand opportunities for collaboration in relation to habitat connectivity and data sharing
- continued monitoring and control of INNS in accordance with approved detailed INNS Management Plan.

13.7.11 For aspects of the Project subject to protected species licensing there will be a requirement to develop a written method statements and monitoring plans which would include plans and procedures describing measures to reduce or avoid potential impacts associated with the activities covered by the licence. Monitoring commitments and associated management actions may extend into the operation and maintenance phase(s) of the Project.

13.8 Potential Likely Significant Effects

13.8.1 The potential likely significant effects for terrestrial and freshwater ecology for the Port extent of the EIA Scoping Boundary are described in **Table 76**. These take into account the expected control measures, such as those set out within paragraph 13.7.5 where there is certainty on the requirement and details of these (e.g. legal requirement to safeguard protected species). Where safeguard measures will be included within an AEMP but these are not yet written or approved, the effect has been left as a potential significant effect at this phase.

Table 76: Potential Likely significant Terrestrial and Freshwater Ecology effects

Activity	Effect	Receptor
Construction		
Dredging	Changes to water and sediment quality	Otter (as a result of fish prey being affected).
Change in land use/ permanent land take	Large areas of habitat loss including loss of priority and notable habitats and ecosystems of value for numerous protected and notable species.	All terrestrial and freshwater ecological receptors within the EIA Scoping Boundary (e.g. Priority Habitats, *Orobanche picridis*, notable bryophytes and other plants, reptiles, amphibians, bats, otter and invertebrates.
Change in land use / permanent land take	Habitat fragmentation – reducing habitat connectivity across the site for protected and notable species.	As above
Change in land use / permanent land take	Habitat losses and damage, as well as removal of soils (including subsurface peat), could result in loss of carbon sequestration and storage from habitats across the Site. This will be assessed as part of Chapter 20 – Climate Change, but is cross referenced in this Terrestrial and Freshwater Ecology Chapter of the EIA Scoping Report to inform the assessment of how NBB is being delivered.	Habitats (carbon)
Change in land-use / permanent land take	Removal of invasive plant species (and a source of spread offsite)	On and off-site habitats to which Japanese knotweed and other INNS of plants could spread
Demolition of buildings and tree removal	Destruction/loss of bat roosts if present.	Bats
Temporary land-take	It is assumed at this phase that temporary land take could result in the same effects as those identified above for permanent with the exception that open mosaic habitats could re-establish in the long-term.	All ecological receptors within the EIA scoping boundary (e.g. Priority Habitats, *Orobanche picridis*, notable bryophytes and other plants, reptiles, amphibians, bats, otter and invertebrates.
Increased traffic movements (outside of the EIA Scoping Boundary)	Increased vehicle movements could lead to air quality impacts from nitrogen deposition on designations within 200m of major roads. This impact pathway is considered in more detail in Chapter 6 – Air Quality of this EIA Scoping report.	Ecological designations including Kenfig SAC and SSSI and Cefn Cribwr Grasslands SAC and SSSI. See **Chapter 6 – Air Quality**.

Activity	Effect	Receptor
Integration and commissioning of turbines	In the absence of survey information and defined operational requirements, collision risk for bats cannot be conclusively ruled out at this phase, particularly given the baseline survey has recorded use of the Site by noctule bats which are a species which fly at greater heights above the ground.	Bats
Construction works (notably piling but also use of machinery)	Disturbance from increased noise and vibration (above and below the water), which is assessed within Chapter 7 – Airborne Noise and Groundborne Vibration.	Bats and otter
Construction activities (notably groundworks, vehicle movements and use of machinery)	Spread of INNS of plants in the absence of mitigation and before completion of any control measures currently underway (e.g. for Japanese knotweed).	INNS (including Japanese knotweed) and any habitats / species outcompeted by invasive species.
Construction activities	Retained habitats and ecosystems present could be affected by degradation from construction encroachment, vehicle tracking, dust, pollution, run-off and hydrological changes, as well as from the reduced connectivity or bolstering effect from permanent habitat loss in the surrounding landscape. This could also result in reduced ecosystem and climate resilience. This is assessed within **Chapter 6 – Air Quality** and **Chapter 20 – Climate Change**.	This could affect Priority Habitats including Open Mosaic Habitats on Previously Developed Land and Reedbed. Protected species associated with these habitats could be affected directly or indirectly (through habitat composition changes).
Lighting	Disturbance to nocturnal species	Bats, otter and invertebrates
Operation and Maintenance		
Dredging	Changes to water and sediment quality	Otter (as a result of fish prey being affected).
Operation and maintenance activities	Retained habitats and ecosystems present could be affected by degradation from construction encroachment, vehicle tracking, dust, pollution, run-off and hydrological changes, as well as from the reduced connectivity or bolstering effect from permanent habitat loss in the surrounding landscape. This could also result in reduced ecosystem and climate resilience. This is assessed within Chapter 6 – Air Quality and Chapter 20 – Climate Change.	This could affect Priority Habitats including Open Mosaic Habitats on Previously Developed Land and Reedbed. Protected species associated with these habitats could be affected directly or indirectly (through habitat composition changes).
Lighting/skyglow	Disturbance to nocturnal species	Bats, otter and invertebrates

13.8.2 Potential likely significant effects for terrestrial and freshwater ecology are also anticipated for the Jersey Marine compensation site and Kenfig Marshalling Yard compensation site, where habitat creation and enhancement will result in beneficial effects in terms of new habitats created, habitat enhancement and improved condition through favourable management, improved habitat connectivity within and out with the compensation sites given their location in the landscape and increased resilience to climate change.

13.8.3 These beneficial impacts will be taken into consideration as part of the EIA alongside any adverse impacts within the Port of the EIA Scoping Boundary.

13.9 Resources and Receptors Scoped Out of Assessment

13.9.1 The resources or receptors that are proposed to be scoped out of the assessment for terrestrial and freshwater ecology are set out within **Table 77**.

Table 77: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Increased construction and operational traffic	Collision risk	All protected/notable species	The Port is already well used by vehicles moving along existing roads, such that species present are likely habituated to vehicle movement. Given the baseline context, it is considered unlikely that increased construction traffic would lead to significant changes in collision risk to species present.
Port Operation	Increased noise disturbance	All protected/notable species	The Project is not considered to result in significant increases to baseline noise levels. Where these are likely, the existing species present on site are tolerant to noise and therefore not considered likely to be adversely affected.
Construction activities (notable groundworks, vegetation clearance, vehicle movements and operation of machinery)	Direct killing and injury to protected and notable species	All protected species (notably burrowing mammals, bats, reptiles and amphibians).	Safeguarding these species is a legal requirement so there can be certainty at this phase that the necessary pre-works mitigation and safeguards will be implemented.

13.10 Proposed Assessment Methodology

13.10.1 The criteria for determining the value and sensitivity of ecological receptors has been undertaken in line with DMRB LA108 (Highways England, 2020) (although this is not a linear or highway scheme, this guidance provides a very thorough and applicable framework for assessing large infrastructure projects which is transferable to this Project), this is also justified within **Chapter 5 – Approach to Assessment** of this EIA Scoping Report. The CIEEM Guidelines for Ecological Impact Assessment (EcIA) (Chartered Institute of Ecology and Environmental Management, 2018) were also referred to.

13.10.2 This assessment approach applies during construction and operational phases.

13.10.3 The assessment process is described below. Data sources for this will include (but not be limited to):

- the baseline ecological surveys and desk study information;
- baseline and modelling outputs of predicted changes in lighting, noise and air quality assessments on and off-site, these are discussed within **Chapter 21 – Landscape, Seascape and Visual Amenity**, **Chapter 7 – Airborne Noise and Groundborne Vibration** and **Chapter 6 – Air Quality** in this EIA Scoping Report;
- climate modelling predictions which are discussed within **Chapter 20 – Climate Change** of this EIA Scoping Report; and
- assessments of soil conditions including carbon stores in soils and habitats, as well as presence of any peatland.

13.10.4 The assessment of air quality impacts will follow the methodology set out in **Chapter 6 – Air Quality**, in respect of off-site designations.

13.10.5 Professional judgement will be applied in the interpretation of the baseline (as ecology surveys are only ever a “snapshot”) and in the application of proportionate assessment of likely effects. In this regard, the below assessment framework will be followed, applying guidance from CIEEM (2018) (Chartered Institute of Ecology and Environmental Management, 2018) and following DMRB LA108 (Highways England, 2020).

13.10.6 Assessments will take into account construction and operation and maintenance phases of the Project. It is also recognised that advance habitat creation works in off-site compensation sites may run in tandem with construction work such that any assessment will have to consider the shifting ecological baseline on site (e.g. assessments must consider the lifetime of the Project as a whole and cannot be undertaken as a snapshot of any one phase in time).

Identification and Assessment of Ecological Receptors

13.10.7 For ecology, assessment of conservation importance includes consideration of the following:

- designation of the site;
- rarity of the species or habitats;
- presence of Red Data Book (RDB) or endemic species;
- presence of diverse assemblages of plants or animals;
- plant communities typical of natural/semi-natural habitats;
- habitat diversity; and
- connectivity and presence of large populations of animals which are uncommon or threatened in a wider context.

13.10.8 Taking the above into account, DMRB LA108 (Highways England, 2020) guidance assesses the level of importance (rather than sensitivity) of ecological receptors in terms of their geographic scale (International, UK or National, Regional, County or Local). In effect, this is equivalent to the assessment of receptor sensitivity, in that receptors of International

importance are equivalent to 'Very high' sensitivity, UK or National is effectively 'high', etc. Features of site value only have been assessed as 'less than local'.

13.10.9 In line with this approach, each baseline ecological receptor (or resource) will be assigned a geographic level of importance, with reference to the descriptions summarised in **Table 78** below (summarised from DMRB LA108 (Highways England, 2020)) and using professional judgement.

Table 78: Scale for evaluating the importance of ecology receptors

Biodiversity Resource Importance	Description
International	Very high importance and rarity, international scale and very limited potential for substitution. Examples of this include: • internationally designated sites (SACs, SPAs, Ramsar sites, etc); • sites proposed for international designation (cSACs or pSACs); • Biogenetic Reserves, World Heritage Sites (where recognised specifically for their biodiversity value) and Biosphere Reserves; • undesignated sites which meet the published selection criteria for international designation; and • resident or regularly occurring populations of species which can be considered at an international level where: i. the loss of these populations would adversely affect the conservation status or distribution of the species at an international scale; ii. the population forms a critical part of a wider population at this scale; or iii. the species is at a critical phase of its life cycle at an international scale.
UK or National	High importance and rarity, national scale, and limited potential for substitution. Examples of this include: • national designated sites (SSSIs, NNRs, National Parks, Marine Protection Areas (MPAs) or Marine Conservation Zones (MCZs); • undesignated sites which meet the published selection criteria for national designation; • habitats and species listed in the relevant statutory list of priority species and habitats (i.e. Section 7 of the Environment (Wales) Act 2016); • areas of irreplaceable habitats (including ancient woodland, ancient or veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen); • undesignated habitats which meet the definition of the above habitats; and • resident or regularly occurring populations of species which can be considered at an international, UK or national level where: i. the loss of these populations would adversely affect the conservation status or distribution of the species at a national scale; ii. the population forms a critical part of a wider population at this scale; or iii. the species is at a critical phase of its life cycle at a national scale.
Regional	High or medium importance and rarity, regional scale, limited potential for substitution. Examples of this include: • regionally important non-statutory designated sites (including heritage coasts); • areas of habitats identified (including for restoration) in regional plans or strategies; and • resident or regularly occurring populations of species which can be considered at an international, UK or national level where: i. the loss of these populations would adversely affect the conservation status or distribution of the species at a regional scale; ii. the population forms a critical part of a wider population at this scale; or iii. the species is at a critical phase of its life cycle at a regional scale. • species identified in regional plans or strategies.

Biodiversity Resource Importance	Description
County	Low or medium importance and rarity, county or other unitary authority (i.e. borough or district) scale. Examples of this include: • statutory and non-statutory wildlife or nature conservation sites designated at a county (or equivalent) level (including Local Wildlife Sites (LWSs), Local Nature Conservation Sites (LNCSs), Local Nature Reserves (LNRs), Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and County Wildlife Sites (CWSs)); • areas of habitats identified in county or equivalent authority plans or strategies (such as local Biodiversity Action Plans); and • resident or regularly occurring populations of species which can be considered at an international, UK or national level where: i. the loss of these populations would adversely affect the conservation status or distribution of the species at a county (or equivalent) scale; ii. the population forms a critical part of a wider population at this scale; or iii. the species is at a critical phase of its life cycle at a county (or equivalent) scale.
Local	Low importance and rarity, local scale. Examples of this include: • local level designated sites (including all of those listed above for county level); • areas of habitat considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal or genetic exchange; and • populations/communities of species considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal or genetic exchange.
Less than local	This level of importance is not specifically included in the DMRB LA108 guidance but represents common and/or widespread habitats or species considered of value at the site level only. Loss of these features is unlikely to affect the local population status or conservation significance.

Source: Summarised and adapted from DMRB (2019) LA108 Table 3.9

Magnitude of Impact

13.10.10 The magnitude of impact is determined by the predicted deviation from the baseline conditions and the scale of the effect. In line with CIEEM (2018) (Chartered Institute of Ecology and Environmental Management, 2018) guidance, this takes into account: extent; magnitude; duration; frequency and timing; and reversibility of effects. A distinction is also recognised between:

- habitats – where effects on extent, structure and function of the habitat, as well as distribution and species composition, need to be considered.
- species – where effects on abundance and distribution of that species need to be considered.

13.10.11 Taking the above into consideration, the criteria for determining magnitude of impact (or level of effect) will be undertaken in line with DMRB LA108 (Highways England, 2020) and is summarised in **Table 79**.

Table 79: Scale for evaluating the magnitude of impact

Magnitude (or Level) of Impact	Typical Description
Major	Permanent/irreversible damage or improvement to a biodiversity resource; and The extent, magnitude, frequency, and/or timing of an impact negatively/positively affects the integrity or key characteristics of the resource.
Moderate	Temporary/reversible damage or improvement to a biodiversity resource; and The extent, magnitude, frequency, and/or timing of an impact negatively/positively affects the integrity or key characteristics of the resource.
Minor	Permanent/irreversible damage or improvement to a biodiversity resource; and, The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible	Temporary/reversible damage or improvement to a biodiversity resource; and, The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
No change	No observable impact, either positive or negative

Source: Summarised from DMRB (2019) LA108 (Highways England, 2020)

Significance of Effect

13.10.12 Subsequent to identifying an appropriate receptor sensitivity and magnitude of impact using **Table 78** and **Table 79**, the likely significance category and overall significance of effects will be assessed by using the matrix provided within **Table 80** along with professional judgement to consider site specific factors that may be of relevance. This matrix is consistent with that included in **Chapter 5 – Approach to Assessment** (**Table 9**) but the headings have been tailored to the ecological assessment descriptions.

Table 80: Scale for evaluating the significance category with respect to effects on ecology receptors – effects can be adverse or beneficial

Resource Importance	Level of Impact				
	No Change	**Negligible**	**Minor**	**Moderate**	**Major**
International or European Importance	Neutral	Slight	Moderate or large	Large or very large	Very large
UK or National Importance	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
Regional Importance	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
County or equivalent authority Importance	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
Local Importance	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Source: Adapted from DMRB (2019) LA108 Biodiversity (Highways England, 2020)

13.10.13 Effects are identified as neutral, slight, moderate, large or very large; adverse or beneficial.

13.10.14 For the purposes of this assessment, effects of Moderate, Large or Very Large Adverse or Beneficial will be considered to be significant. However, negligible or minor effects could contribute to in-combination or cumulative effects, which will be assessed separately.

Assessment of Net Benefit for Biodiversity

13.10.15 In line with PPW (Welsh Government, 2024) the assessment of net benefits for biodiversity is a qualitative assessment and comprises the following:

- Evidencing the Step-Wise Approach: Evidence will be provided that the step-wise approach has been followed in respect of all ecology receptors and impacts, which includes consideration at each step of what ecology enhancement can be delivered. It is anticipated this would take the form of a table provided in a Green Infrastructure Statement or equivalent document; and
- Using the DECCA Framework: The DECCA (diversity, extent, condition, connectivity and adaptability of ecosystems) will be used to assess each receptor and the enhancements proposed to determine whether these deliver a viable and meaningful long-term ecological benefit. This will be provided as part of a matrix in the Green Infrastructure Statement and/or an Ecological Mitigation, Compensation and Enhancement Strategy. Although this is anticipated to be a qualitative assessment, areas of Priority Habitats affected will be included and a rationale against each ecology receptor of how a net benefit for biodiversity is being provided at an appropriate scale, proportionate to the site and impacts.

13.10.16 It is envisaged that the above will be referenced in the ES Chapter but the approach to delivering NBB will be set out in an Overarching Biodiversity Strategy to accompany the application. Demonstration of use of the step-wise approach and DECCA will be included a Green Infrastructure Statement.

Cumulative Effects

13.10.17 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

13.10.18 In combination effects will be assessed to ensure interaction with other disciplines is considered. For terrestrial and freshwater ecology this notably includes air quality, water quality, landscape, transport, climate, carbon and social disciplines. This is already cross referenced where relevant in this Chapter.

13.10.19 Cumulative effects will consider developments that could lead to a cumulative adverse effect on ecological receptors. The assessment methodology for this will follow the same methodology and guidance outlined for effects within the EIA Scoping Boundary. Effects of designated

sites, habitats and species will be considered in the geographic context for which the receptor has been identified as important and with consideration to relevant zones of influence and potential impact pathways. Effects are most likely to result from cumulative impacts to designated sites which lie outside of the EIA Scoping Boundary (e.g. from cumulative traffic and air quality increases) or on mobile receptors such as bats or otter which could be affected by more landscape scale changes and/or disturbance.

13.11 Assumptions and Limitations

13.11.1 The key assessment assumptions and limitations are summarised below:

- at time of writing the baseline ecological surveys and analysis were underway. A reasonable “worst case” assumption has been made that any receptors undergoing survey need to be scoped in and could be affected by works. Once surveys are completed, survey results will refine the list of important ecological receptors and clarify any impact pathways that can be scoped out;
- there are limitations in the ecology baseline data recording that are relevant to the EIA, namely that surveys are only ever a snapshot of activity and desktop records can by their nature be *ad-hoc* and so can be used for presence but not absence of species;
- a marine mitigation and compensation site (or sites) will be required which will also require a terrestrial ecology baseline assessment to inform proposals and may have terrestrial and freshwater ecology adverse and/or beneficial impacts. This cannot be assessed at this stage but the methodology for assessing any new compensation site will be in line with that included in this Chapter;
- in the absence of certainty around effects such as traffic movements and potential air quality effects on designations outside of the EIA Scoping Boundary in general, a precautionary approach has been taken to scoping these in at this phase in line with **Chapter 6 – Air Quality**;
- it has been assumed in the assessment of impact pathways that the turbines will be tested for up to 1 week and that the bases will be floating in the harbour for up to 2 weeks maximum. The time of year and frequency of testing is not confirmed.

13.12 Summary

13.12.1 The proposed scope of the assessment for terrestrial and freshwater ecology is contained within

13.12.2 **Table** 81.

Table 81: Proposed scope of the Terrestrial and Freshwater Ecology Chapter of the ES

Receptor or Matter	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Statutory Designations	In	In	Impact pathways are present.
Non-statutory Designations	In	In	Impact pathways are present.
Habitats	In	In	Priority Habitats known to be present on site and impact pathways present.
Bryophytes	In	In	Potential for bryophytes on site given habitats present. Impact pathways present.
Orobanche picridis	In	In	Species known to be present on site and impact pathways present.
Basil Thyme	In	In	Species known to be present on site and impact pathways present.
Prickly Saltwort	In	In	Species known to be present on site and impact pathways present.
Other Notable Plants	In	In	Potential for other notable plants to be present on site
Fungi	In	In	Species known to be present on site and impact pathways present.
Badger	Out	Out	Species assessed as unlikely to be present based on habitats present and lack of any incidental sightings on any previous survey work/by site personnel.
Bats – Roosting	In	In	Species known to be present in one building and potential of other buildings to support roosting bats. Impact pathways present.
Bats – Foraging and Commuting	In	In	Site known to be used by foraging bats and impact pathways present.
Dormouse	Out	Out	Species assessed as unlikely to be present based on habitats present, connectivity and records.
Otter	In	In	Species known to be present locally and suitable habitats present. Impact pathways present.
Other Burrowing Mammals	In	In	Species known to be present on site and impact pathways present.
Amphibians	In	In	Suitable habitat present to support notable and common amphibians (including great crested newt). Impact pathways present.
Reptiles	In	In	Known presence of three reptile species present on site. Impact pathways present.
Invertebrates	In	In	Suitable habitat for notable and common invertebrates, notably the mosaic of coastal and brownfield areas. Impact pathways present.
Japanese Knotweed	In	In	Known to be present across the site which could affect works.
Other invasive species	In	In	A number of invasive plant species are already known to be present and potential for other invasive species across the site. Impact pathways present.

Chapter 13 References

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14 Coastal Processes

14.1 Introduction

14.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential effects on coastal processes in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment)**. It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions and sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and mitigated for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters to be scoped out of the assessment.

14.1.2 The effects of the Project on the following are considered:

- local coastline;
- sandbank features around 10 km south of the Port; and
- existing approach channels around Swansea Bay (e.g. to Port Talbot, Swansea and River Neath).

14.1.3 This environmental topic relates to marine aspects of the Project.

14.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

14.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 8 – Flood Risk, Chapter 13 – Terrestrial and Freshwater Ecology, Chapter 15 – Commercial and Recreational Fisheries, Chapter 16 – Marine Historic Environment, Chapter 17 – Marine Ecology, Chapter 18 - Marine Water and Sediment Quality, Chapter 19 – Navigation and Marine Transport, and Chapter 24 – Ornithology.**

14.2 Relevant Legislation, Policy and Technical Guidance

14.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of coastal processes are detailed in **Table 82**.

Table 82. Legislation, policy and guidance relevant to the coastal processes assessment

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Marine and Coastal Access Act (MCAA) 2009	The MCAA provides the legal mechanism to help ensure clean, healthy, safe, productive, and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. The MCAA 2009 established a marine licensing and enforcement regime under which the Welsh Ministers are the appropriate licensing authority and enforcement authority. The majority of these licensing functions are delegated to Natural Resources Wales (NRW).
The Conservation of Habitats and Species Regulations 2017 (as amended)	The outcomes of the physical processes assessment will inform the Habitat Regulations Assessment (HRA) for the following key potential effects/pathways: • changes to benthic habitats and species as a result of sediment deposition during piling, and capital/maintenance dredging and disposal activities; • indirect changes to seabed habitats and species as a result of changes to hydrodynamic and sedimentary processes due to new quay wall and reclamation, and capital/maintenance dredging and disposal activities; • changes in water and sediment quality during piling, and capital/maintenance dredging and disposal activities; and • indirect changes to seabed habitats for fish as a result of changes to hydrodynamic and sedimentary processes due to capital/maintenance dredging and disposal activities. An initial assessment of relevant designated sites within the Zone of Influence of the Site is set out within the EIA Scoping Report to Inform a HRA Screening (**Appendix D**).
The Water Framework Regulations, which implement the European WFD (2000/60/EC)	The Water Framework Directive (2000/60/EEC) (WFD) establishes a framework for the management and protection of Europe's water resources. The overall objectives of the WFD is to achieve "good ecological and good chemical status" in all inland and coastal waters by 2021, unless alternative objectives are set or there are grounds for time limited derogation. In terms of physical processes, "Good ecological status/potential" has regard to hydromorphological elements. The Good ecological status/potential assessment also considers biological and physicochemical quality elements, and specific pollutants. "Good chemical status" has regard to a series of priority substances and priority hazardous substances.
The Waste (England and Wales) Regulations 2011, which implement Directive 2008/98/EC on waste (WFD)	The Regulations set out the measures required for the prevention of, production and management of waste. This describes the purpose of a waste prevention program with waste prevention measures and makes reference to monitoring by appropriate authorities using qualitative or quantitative benchmarks. It also outlines the waste hierarchy which ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill). For any dredging project, the in situ characteristics of the material (physical and chemical), the method and frequency of dredging (and any subsequent processing), determines its characteristics in the context of securing a consent that is in compliance with the waste hierarchy. This understanding is central to the consideration of management options for dealing with dredged material in light of the requirements of the Regulations. Where prevention of the dredging is not possible, then the volume to be dredged should be minimised, and options for the re-use of the material, recycling and other methods of recovery must be considered in the first instance. In the context of re-use and recycling of dredge material this could include engineering uses, agricultural and product uses, environmental enhancement or post treatment of the dredge material to change its character with a view to determining a potential use. Should no practical and cost-effective solutions be identified, only then can options for the disposal of the dredged material be considered. These include marine disposal in licensed deposit sites or land-based disposal in terrestrial landfill.

Relevant legislation / policy / guidance	Relevance to assessment
Well-being of Future Generations (Wales) Act 2015	The Well-being of Future Generations (Wales) Act is concerned with improving the social, economic, environmental and cultural well-being of Wales. It requires public bodies to consider the long-term issues, work better with people and communities and each other, look to prevent problems and take a more joined-up approach.
Environment (Wales) Act 2016 (as amended)	The Environment (Wales) Act 2016 sets out the legislative framework to promote the 'Sustainable Management of Natural Resources in Wales'. It delivers against Welsh Government Programme for Government commitment to introduce new legislation for the environment. The 2016 Act also requires that public bodies must seek to maintain and enhance biodiversity in the exercise of their functions and in doing so promote the resilience of ecosystems, so far as consistent with the proper exercise of their functions (see Chapter 3).
National Policy	
UK Marine Policy Statement as required by Section 44 of the Marine and Coastal Access Act 2009	The MPS is the framework for preparing marine plans and taking decisions affecting the marine environment. The MPS also sets out the general environmental, social, and economic considerations that need to be taken into account in marine planning and provides guidance on the pressures and impacts that decision makers need to consider when planning for and consenting development in the UK marine areas. Section 2.6.8 of the MPS is relevant to the Physical Processes assessment. In particular, paragraph 2.6.8.4 states, amongst other things, that - "Marine plan authorities should be satisfied that activities and developments will themselves be resilient to risks of coastal change and flooding and will not have an unacceptable impact on coastal change...". In addition, paragraph 2.6.8.6 notes that the impacts of climate change throughout the operational life of a development should be taken into account in assessments, and that any geomorphological changes that an activity or development has on coastal processes, including sediment movement, should be minimised and mitigated.
UK Marine Strategy (Defra, 2019))	The aim of the UK Marine Strategy is effectively to protect the marine environment across the UK. The Strategy sets out a comprehensive framework for assessing, monitoring and taking action to achieve the UK's shared vision for clean, healthy, safe, productive and biologically diverse seas It aims to achieve good environmental status of marine waters by 2020 (followed by a six-year review) and to protect the resource base upon which marine-related economic and social activities depend. The Strategy constitutes the vital environmental component of future maritime policy, designed to achieve the full economic potential of oceans and seas in harmony with the marine environment.
Welsh National Marine Plan (Welsh Government, 2019)	The Welsh National Marine Plan is the first marine plan for Wales and represents that start of a process to shape seas to support economic, social, cultural and environmental objectives. The plan was prepared and adopted under the MCAA 2009 for the purposes of Section 51 of the MCAA and in accordance with the UK MPS. The following marine plan policies are of particular relevance to the physical processes topic: • Policy SOC_08 Resilience to coastal change and flooding: Proposals should demonstrate how they are resilient to coastal change and flooding over their lifetime; • Policy SOC_09 Effects on coastal change and flooding: Proposals should demonstrate how they: avoid significant adverse impacts upon coastal processes; and minimise the risk of coastal change and flooding; Proposals that align with the relevant Shoreline Management Plan(s) and its policies are encouraged; and • Policy SOC_11 Resilience to climate change: Proposals should demonstrate that they have considered the impacts of climate change and have incorporated appropriate adaptation measures, taking into account Climate Change Risk Assessments for Wales. Proposals that contribute to climate change adaptation and/or mitigation are encouraged.

Relevant legislation / policy / guidance	Relevance to assessment
Planning Policy Wales 12 (2024) (Welsh Government, 2024)	PPW was updated in 2024 and includes: • any development should deliver a net benefit for biodiversity and promote resilience in ecosystems; • new development should evidence the implementation of the step-wise approach (avoidance, minimisation, mitigation, compensation on-site, compensation off-site and enhancement at every stage).
Local Policy	
Neath Port Talbot County Borough Council (NPTC) Local Development Plan (2011-2026)	The NPTC Local Development Plan (2011-2026) guides future development, providing a clear vision for the County Borough setting out where, when, and how much new development can take place over the next 15 years (2011-2026). A Replacement Local Development Plan (RLDP) (2023-2038) is currently being prepared. The aim is to provide developers and the public with certainty about the planning framework for Neath Port Talbot.
Guidance and Standards	
Technical Advice Note (TAN) 14 (Welsh Government, 1998)	TAN 14 'Coastal Planning' was published in March 1998 by the Welsh Assembly Government (WAG) and gave guidance to planning authorities in Wales on the considerations to be given for proposed developments in coastal zones. This has since been incorporated into the December 2025 update to TAN 15 ('Development and Flood Risk') (see Chapter 8 Flood Risk).

Guidance on best practice for marine and coastal physical processes baseline survey and monitoring requirements to inform EIA of major development projects (NRW, 2018))	The purpose of this EIA Scoping Report is to provide guidance on marine, coastal and estuarine physical processes EIA baseline survey.
	
	The Guidance advises on monitoring requirements for major development projects, namely:
	• port and harbour developments;
	• aggregate extraction;
	• power stations (including nuclear);
	• offshore wind;
	• other renewable energy developments including:
	  ○ tidal range;
	  ○ tidal stream;
	  ○ wave; and
	• sub-sea cables (especially where they make landfall).

14.3 Engagement and Consultation

14.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 - Consultation and Engagement**.

14.3.2 No specific engagement and consultation has been undertaken to date for the scoping exercise.

14.3.3 The approach to considering the assessment of coastal processes will be discussed with NRW prior to commencement of the assessment.

14.4 Study Area

14.4.1 The initial study area for Coastal Processes is provided in Figure 14.1 in **Appendix A.** The study area is wholly within the marine area (i.e. below MHWS).

14.4.2 The study area is the area over which potential direct and indirect effects of the Project may occur during construction and operation. The decommissioning phase is not included, as described in **Chapter 2 – Description of Development**. The direct effects on coastal processes are

those confined to within the marine footprint of the Project i.e. the reclaim, dredge and disposal of dredge material (if required). Indirect effects are those that may arise due to wider changes in the local and regional flow and sedimentary regime and any change to the study area morphology as a result of the Project.

14.4.3 The defined study area for the coastal processes impact assessment will be informed by the results of the numerical modelling during the assessment phase. In this way, the full extent of any predicted impacts will be included in the EIA. At this stage, the study area is taken as being the near-field region within the Tidal Harbour and the far-field region covering the remainder of Swansea Bay. In this way, the assessment will cover the marine footprint of the Project as well as the associated zone of influence. These extents will be refined, as necessary during the EIA and will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

14.5 Description of the Existing Environment

Resources and Receptors

14.5.1 For Coastal Processes the resources and receptors are:

- local coastline;
- sandbank features to the south of the Port; and
- existing approach channels around Swansea Bay (e.g. to Port Talbot, Swansea and River Neath).

14.5.2 In addition to the above, the wider assessment of the changes to coastal processes would be slightly different to those adopted for other environmental topics, since it will also assess changes to hydrodynamic and sedimentary processes (which would be considered ‘pathways’, rather than ‘receptors’). This is included since changes to these coastal processes pathways could subsequently impact receptors in other topic chapters. This is explained further in Section 14.10.

Data Sources

14.5.3 The baseline for Coastal Processes has been derived from the data sources set out in **Table 83**.

Table 83: Data sources

Data Type	Data Source
Hydrodynamic data (water levels, flows, waves)	• Project-specific datasets, including those already collected and from ongoing survey campaigns across the study area (collected between January 2023 and April 2025); and • Existing datasets held by The Applicant and third parties, incl. National Tide and Sea Level Facility (NTSLF) Mumbles Tide Gauge (covers 1988 to present), British Oceanographic Data Centre (BODC), Channel Coastal Observatory (CCO).

Data Type	Data Source
Bathymetric/topographic data	• Bathymetric and topographic survey data collected by The Applicant within the study area, along with repeat bathymetric surveys conducted throughout the wider study area by The Applicant (between July 2022 and May 2024); and • Existing datasets held by The Applicant and third parties, incl. bathymetric elevation data (from 2017 and 2018), DataMap Wales (composite LiDAR elevation data), Admiralty Marine Data Portal (bathymetric survey data).
Sediment data	• Sediment quality data was collected by ABPmer during the Ground Investigations in 2024; • Project-specific sediment data collected within the Tidal Harbour and the approaches within Swansea Bay (range of datasets collected between January 2023 and November 2024); and • Site-specific marine sediment samples (collected in November 2024) within the boundaries of the Project marine infrastructure works area for particle size analysis (PSA).
Numerical modelling tools	• Numerical modelling tools developed specifically for the Project and covering the assessment of hydrodynamic, wave and sediment transport impacts for the proposed works (marine infrastructure construction and potential for dredging and disposal).
Existing reports	• Various ABPmer reports covering project work for The Applicant (and third-party publicly available reports) in and around the Port Talbot/Swansea region.
Other data	• Data relevant to the study, including Environment Agency Coastal Flood Boundary datasets for extreme events; UK Climate Projections (UKCP18) for influence of future climate change.

14.5.4 A desk-based study (informed by available data sources) will be undertaken to inform the baseline characterisation regarding coastal processes on which the subsequent impact assessment will be based.

Baseline Conditions

General Setting

14.5.5 Swansea Bay is a shallow tidal embayment formed in the central region of the Bristol Channel through wave action and tidal inundation during the Holocene marine transgression. The seaward limit of Swansea Bay is generally taken between two hard Carboniferous Limestone points; Mumbles Head in the west and Porthcawl Point located on the eastern side of Swansea Bay, approximately southeast of Mumbles Head.

14.5.6 Swansea Bay is partially separated from the deeper waters along the Central Bristol Channel by the linear sandbank, Scarweather Sands (around 10 km to the south of Port Talbot). There are measurable differences in the hydrodynamic and sediment regime from the more exposed channel into the more sheltered bay, demonstrating a process divide for these elements.

Tides and Water Levels

14.5.7 The hydrodynamics of Swansea Bay are the result of the interaction between:

- the tidal dynamics of the Bristol Channel which are in turn influenced by the bathymetry and coastal geometry;
- the wave climate, both swell and more localised wind waves;
- meteorological forcing effects, for example, surface wind stress and inverted barometric effects causing either a rise or fall of water levels; and
- density current effects, as a result of temperature and salinity fluctuations which nearer the shoreline are affected by the freshwater inputs to the Bay.

14.5.8 The tidal characteristics through the Bristol Channel are determined by a progressive tidal wave which increases in amplitude as the channel narrows into the Severn Estuary. As this progressive wave moves past the shallow side-embayment of Swansea Bay, the tidal behaviour changes into a standing wave, expressed by near coincident times of high water at both Swansea and Port Talbot.

14.5.9 Swansea Bay experiences a hyper-tidal range (i.e. greater than 6 m), with a mean spring tidal range of between 8.46 m (Mumbles Head) and 8.60 m (Port Talbot). In contrast, the mean neap tidal range within the bay is around 4 m, still considerably greater than spring tidal ranges experienced in most locations elsewhere in the UK. **Table 84** summarises key tidal levels across Swansea Bay for locations at Mumbles Head, Swansea and Port Talbot. Values are expressed in metres relative to Chart Datum (mCD).

Table 84: Key tidal levels across the study area

Tidal level		Mumbles Head (mCD)	Swansea (mCD)	Port Talbot (mCD)
Highest Astronomical Tide	HAT	10.50	10.40	10.70
Mean High Water Springs	MHWS	9.50	9.50	9.70
Mean High Water Neaps	MHWN	7.20	7.20	7.30
Mean Sea Level	MSL	5.22	5.11	5.41
Mean Low Water Neaps	MLWN	3.30	3.10	3.50
Mean Low Water Springs	MLWS	1.10	0.90	1.10
Lowest Astronomical Tide	LAT	0.10	0.00	0.20
Mean Spring Range	MSR	8.40	8.60	8.60
Mean Neap Range	MNR	3.90	4.10	3.80

Surge Levels

14.5.10 At any instance in time, the water level along the Bristol Channel and within Swansea Bay is the summation of an astronomical tidal level and a non-tidal (surge) component. Surges are generally formed by strong winds and rapid changes in atmospheric pressure with an inverse relationship, with low atmospheric pressure raising the water surface (positive surge) and high atmospheric pressure depressing the water surface (negative

surge). The surge component is generally much smaller in the summer than the winter. During winter periods deep atmospheric depressions and strong winds can have a significant effect on tidal levels. The phasing between tidal and non-tidal contribution to the water level is important, as a positive surge in conjunction with a high tidal level should result in an unusually high-water level. The available surge event information (from the Mumbles NTSLF Class A tide gauge) is summarised in **Table 85** which provides the top 5 largest positive and negative surge events in the data record.

Table 85: Top five positive and negative surge events from the Mumbles NTSLF data record (1990-2014)

Rank	Date and time	Positive surge (m)	Date and time	Negative surge (m)
1	04/01/1998 13:45	1.97	13/02/2005 19:00	-0.90
2	13/12/2000 00:00	1.59	30/01/2003 15:15	-0.86
3	30/10/2000 05:00	1.47	22/12/2006 11:15	-0.74
4	26/02/2002 03:00	1.44	24/11/2008 12:30	-0.73
5	08/02/2014 17:30	1.30	24/11/2005 21:00	-0.73

14.5.11 Extreme water levels (in metres relative to ordnance Datum, mODN) are published for sites around England and Wales by the Environment Agency Coastal Flood Boundary Dataset (CFBD0) (Environment Agency, 2018). Data for Mumbles Head, Swansea Docks and Port Talbot is summarised in **Table 86** for a range of return periods. These values have been derived for locations approximately 1 km from the shoreline and values at the coast, and those derived by other methods may differ slightly from these estimates. The table also includes local HAT at each coastal site for comparison purposes.

Table 86: Data for Mumbles Head, Swansea Docks and Port Talbot summarised for a range of return periods

Return Period (year)	Mumbles (mOD)	Swansea (mOD)	Port Talbot (mOD)
HAT	5.50	5.40	5.70
1	5.49	5.53	5.54
2	5.60	5.64	5.65
5	5.75	5.78	5.79
10	5.86	5.89	5.90
20	5.96	5.99	6.00
50	6.11	6.14	6.15
100	6.20	6.25	6.26
200	6.31	6.36	6.37
500	6.44	6.51	6.54

Sea-level Rise

14.5.12 Future changes in relative sea level (RSL) are quoted as the net effect of geological adjustments in land levels and the projected absolute changes in mean sea level.

14.5.13 **Table 87** presents a summary of UKCP18 projections up to 2100 for the RCP8.5 scenario and for 70%ile and 95%ile likelihoods.

Table 87: Future changes in relative sea level and range of estimated extreme water levels from EA CFBD (2018)

Year	Projected sea-level rise (m)	
	70%ile	95%ile
2024	-	-
2040	0.10	0.13
2060	0.27	0.35
2080	0.48	0.63
2100	0.72	0.97

Source: UKCP18

14.5.14 A general increase in relative sea level may result in a number of effects, such as, displacing the high-water mark towards the coast, enabling wave energy to move further towards the coast (exposing the shoreline to greater periods of wave and tidal energy) and increasing potential flood risk. The magnitude of this impact would vary depending upon the rate of predicted sea level rise and the timing relative to the 18.6-year Lunar Nodal Cycle variations, which may have a larger amplitude in the shorter term (estimated at around 0.2 to 0.3 m).

Tidal Flows

14.5.15 The variability of tidal flows across Swansea Bay is described by four main areas:

- offshore, approximately beyond the 10 m below CD (-15 mODN) contour, dominated by rectilinear flows;
- inshore west, from Mumbles Head to Swansea Docks, dominated by the Mumbles headland;
- inshore middle, between Swansea Docks and Port Talbot – relatively calm area with flows moving in and out of the bay; and
- inshore east, south from Port Talbot – shore aligned flows moving towards and from Porthcawl Point.

14.5.16 The strongest currents are in the offshore area, up to around 0.8 to 0.9 m/s over spring tides. Here flows are typically rectilinear and are aligned to the axis of the Central Bristol Channel. Peak ebb currents (0.9 m/s) tend to be greater than peak flood (0.8 m/s), indicating some asymmetry in the tide.

14.5.17 Tidal flows across the inshore area from Mumbles Head to Swansea Docks are typically weaker and exhibit a rotary pattern formed by the headland. Locally, flows past Mumbles Head are stronger (up to 1.5 m/s on a spring tide), diverging across the bay on the flood tide and converging

back into the channel on the ebb. The residual pattern in the tide (the flow patterns resulting from averaging instantaneous conditions over a full tidal cycle) is an anti-clockwise circulation in the lee of the headland.

14.5.18 For the inshore area between Swansea Docks and Port Talbot, which includes the River Neath, tidal flows are generally weak (typically less than 0.2 to 0.3 m/s on a spring tide) and can be prone to wind driven effects and locally influenced by fluvial flows. For the area identified as inshore east, there is a further flow divergence centered on Port Talbot. Flood flows from around Port Talbot are generally to the north-east whilst flows south of Port Talbot diverge towards the south-east, becoming aligned to the coast and towards Sker Point. On the ebb tide, tidal flows to the south of Port Talbot are reversed to a north-westerly direction.

Waves

14.5.19 There are contrasts in the wave conditions between the Central Bristol Channel and within Swansea Bay associated with relative exposure, local sheltering and different water depths, but each wave environment remains dominated by the influence of long westerly fetches into the Atlantic and prevailing strong westerly winds. At each location the local wave environment is the product of longer period Atlantic swell seas and locally generated wind-seas. However, the two wave components generally align and form a unimodal sea-state.

14.5.20 The inshore wave climate within Swansea Bay is locally influenced by coastal sheltering, especially from Mumbles Head, as well as wave shoaling and refraction effects as waves move into the shallower water and begin to dissipate more energy onto the seabed. The headland sheltering effects tend to protect the western part of the bay from exposure to longer period swell seas, whereas around the eastern side of the bay (i.e. to the east of the River Neath), the westerly facing beaches, and the approaches to Port Talbot, remain exposed to the long period swells.

14.5.21 The pattern of wave activity described here has a direct influence on wave-driven sediment transport processes. Waves in the Central Bristol Channel generally propagate from a west to south-west direction and move through relatively deep water, which limits their influence on the local seabed; here strong tidal currents dominate the sediment transport process. In contrast, as waves move into the shallow areas of Swansea Bay they interact more strongly with the seabed and dissipate more energy as they shoal and refract onto the shoreline. Currents in the bay are generally weaker than in the Central Bristol Channel and the wave driven sediment transport process is likely to become dominant, especially at times of storm events. Waves reaching the coastline directly adjacent to Port Talbot are typically ‘shore normal’, which limits generation of string net sediment transport. Further to the west, waves should approach at a more oblique angle. The most likely wave driven sediment transport pathway is towards the westerly facing beaches such as Aberafan Sands, Margam Sands and Kenfig Sands, all of which have experienced substantial periods of dune formation in the past.

Geology and sediments

14.5.22 The overall sediment distribution is related to the geology of the study area, the combined effects of waves and tides, the longer-term geomorphological processes that formed Swansea Bay and the historic (and future) changes to sea-level.

14.5.23 Tidal velocities in the area of the approach channel (<0.3 m/s) and Tidal Harbour (<0.1 m/s), are low and are rarely strong enough to move fine sand. Under average wave conditions, sea bed orbital velocities are also low contributing to a predominant depositional environment. This is demonstrated by the continual need for maintenance dredging of the harbour and approach channel.

14.5.24 However, information from previous surveys and dredging records has indicated that very large volumes of material can move into the area within a few days during storms. Not all storms, however, cause highly elevated siltation rates within the Port Talbot Channel or Tidal Harbour, and therefore the large influx of material must be related to the complexity of movement of sediments within the Bristol Channel and the severity of the storm.

14.5.25 The coastline immediately to the north and south of the Tidal Harbour is fronted by a sandy/ gravel beach with defence structures in place. Further to the south, the beach becomes sandier and forms part of the extensive Kenfig sand dune complex (Figure 14.1 in **Appendix A**). This is one of the largest remaining sand dune areas in Wales and is designated as a Special Area of Conservation (SAC) for its 'Fixed coastal dunes with herbaceous vegetation' along with other dune related Annex I habitats.

14.5.26 The description of seabed sediment characteristics relates to the surface materials which may originate as geological exposures, lag deposits, relict deposits or contemporary deposits, and they may comprise either fine (muds and fine sands) or coarse (coarse sand and gravel) material. The coarser sediments are likely to be mobile less frequently than the finer material and tend be subject to bedload transport rather than suspended transport. However, high energy conditions, such as periods of large tidal ranges and meteorological storm and surge events, may still be sufficient to suspend coarser sediment if only for short periods of time.

14.5.27 Across the Central Bristol Channel, seabed sediments are mainly coarse-grained deposits of sands and gravels whist further to the east much of the Inner Bristol Channel sea floor is swept bare of significant sediment accumulations (exposing the underlying bedrock) by strong tidal currents (Defra, 2006), and is an area generally described as a bedload parting zone, driven by opposing tidal asymmetry.

14.5.28 In contrast, the seabed sediments within Swansea Bay are generally much finer (mud and sand material) with westerly facing beaches characteristically wide and sandy and backed by extensive dunes. The British Geological Survey (BGS) seabed sediment and quaternary geology map (British Geological Survey, 1986) broadly identifies (at a 1:250,000 scale) the larger part of the bay to contain areas of muddy sand and sandy

mud, although in the west of the bay these are described as gravelly sand sediment classification after (Folk, 1965).Broad-scale sediment mapping across the Swansea Bay area is shown in Figure 14.2, in **Appendix A**.

14.6 Future Baseline

14.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The coastal processes chapter of the ES would seek to explain what the environmental change, in terms of coastal processes would likely be in the future if the Project were not to go ahead.

14.6.2 The future baseline will include natural changes to the environment and existing development that is complete and operation at the time when construction of the Project is due to commence.

14.6.3 For coastal processes, based on the information currently available, it is assumed that baseline conditions should remain broadly unchanged at the time of the start of the expected construction of the Project compared to current baseline conditions. Over the medium-term, the future baseline conditions will be influenced by climate change, as described in Section 14.5.

14.7 Mitigation Measures

14.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for coastal processes will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

14.7.2 This section sets out the potential controls relevant to coastal processes, which have been informed by the assessment undertaken as part of the EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

14.7.3 Embedded mitigation which may be incorporated into the Project design is likely to include:

- the footprint and alignment of the marine infrastructure will be designed to minimise potential changes to the physical processes of the study area whilst ensuring operational viability and safety.

Construction Controls

14.7.4 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage includes:

- even disposal deposition of dredged material: Targeting disposal loads in the central/deeper area of the disposal site to reduce depth reductions. This will minimise the initial reduction in water depth and any environmental changes at the disposal sites.

Operation and Maintenance Controls

14.7.5 Possible mitigation (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage includes:

- even disposal deposition of dredged material from maintenance dredging: Targeting disposal loads in the central/deeper area of the disposal site to reduce depth reductions. This will minimise the initial reduction in water depth and any environmental changes at the disposal sites.

14.8 Potential Likely Significant Effects

14.8.1 The potential likely significant effects for Coastal Processes are described in **Table 88**.

14.8.2 The activities, effects and receptors will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

Table 88: Potential likely significant effects for coastal processes

Activity	Effect / Pathway	Receptors
Construction of the new marine infrastructure and capital dredging (and disposal)	Increased Suspended Sediment Concentrations (SSC) and potential sedimentation over the extent of the disturbance plume as a result of the construction of the new marine infrastructure and capital dredging works. Increased SSC and potential sedimentation as a result of the deposit of capital dredge material at a licensed offshore disposal site. Potential for changes to seabed bathymetry and composition	Local coastline. Sandbank features to the south of the port. Existing approach channels around Swansea Bay.
Operation and maintenance of the finished Project	Local changes to hydrodynamic regime (flow speed and direction) as a result of the marine infrastructure and maintenance dredging. Local changes to the wave regime, as a result of the marine infrastructure and maintenance dredging.	Local coastline. Sandbank features to the south of the Port. Existing approach channels around Swansea Bay.
Operation and maintenance of the finished Project	Associated local changes to the sediment transport pathways, as a result of localised changes to the driving hydrodynamic (and wave) forcing.	Local coastline. Sandbank features to the south of the Port. Existing approach channels around Swansea Bay.

Activity	Effect / Pathway	Receptors
Operation and maintenance of the finished Project	Increased SSC and potential sedimentation in the area of dispersal plume as a result of maintenance dredging. Increased SSC and potential sedimentation as a result of deposition of maintenance dredge material at a licensed disposal site.	Local coastline. Sandbank features to the south of the Port Existing approach channels around Swansea Bay.
Operation and maintenance of the finished Project	Changes in seabed bathymetry and composition as a result of deposition of dredged/disposed maintenance dredge material.	Local coastline. Sandbank features to the south of the Port. Existing approach channels around Swansea Bay.
Operation and maintenance of the finished Project	Changes to features including local and regional coastline, sandbank features and Swansea Bay approach channels.	Local coastline Sandbank features to the south of the Port Existing approach channels around Swansea Bay.

14.8.3 The coastal processes assessment will consider the likely changes arising from the Project, both beneficial and adverse and during both the construction and operational/maintenance phases. Decommissioning phase is not included, as described in **Chapter 2 – Description of Development**.

14.9 Resources and Receptors Scoped Out of Assessment

14.9.1 There are no physical process receptors scoped out of the assessment.

14.10 Proposed Assessment Methodology

Construction

14.10.1 Within the assessment of potential effects during the construction phase, the baseline numerical modelling tools (see 14.10.5 for details) will be utilised to assess the likely impacts of the proposed activities (as identified in **Table 88**).

Operation

14.10.2 To inform the assessment of operational effects, modelling of the Project should be carried out with all marine elements of infrastructure in place. These modelling tools will then be used to assess the likely impacts of the proposed activities (as identified in **Table 88**).

Significance Criteria

14.10.3 The coastal processes assessment focuses on the potential changes to hydrodynamic and sedimentary processes. The effects are consequence of these changes on the environmental receptors, including receptors which are assessed in other topic-specific ES chapters, including **Chapter 17 – Marine Ecology** and **Chapter 18 – Marine Water and Sediment**

Quality. For example, ‘changes’ in the transport and deposition of sediment may lead to an ‘effect’ on the structure and function of marine habitats and their associated species.

14.10.4 Where changes in physical processes may potentially impact on physical environmental receptors, such as the local coastline and sandbank features to the south of Port Talbot, an assessment of effect significance would be undertaken following the methodology presented in **Chapter 5 – Approach to Assessment**. In accordance with published guidance and an established approach that has been used in numerous previous EIAs, the assessment would include an evaluation of the importance/ value and sensitivity of relevant physical processes receptors, using professional judgement, where necessary. An effect will be defined as ‘significant’ if it has an overall score of moderate and above.

Modelling

14.10.5 Numerical modelling tools (using the DHI software suite) and conceptual analyses would be used to predict coastal processes, hydrodynamic and sedimentary effects by comparing the baseline and future environmental conditions created by the Project. This would include predicting the changes to tidal water levels and currents, SSC and erosion and accretion patterns, and waves. The models would also allow for the fate of sediment plumes from marine construction and maintenance dredging and disposal activities (if required) to be simulated.

14.10.6 Changes in hydrodynamic and sedimentary processes would be considered in the context of climate change (specifically sea level rise) over the engineering design period of the Project by assessing the effects under projected future sea levels. The existing geotechnical information would also be analysed to optimise the construction and dredging methods and minimise changes in physical processes during construction and operation. Ground investigation data will be used to inform the specifics of the marine infrastructure and in particular the diameter, number and driven depth of the steel tubular piles.

14.10.7 The modelling will be completed using existing models of the Bristol Channel and Swansea Bay, with updates to ensure mesh resolution and model performance across the study area remains suitable. ABPmer hold existing models using a range of modelling software products, including Deltares Delft3D suite and the Danish Hydraulic Institute (DHI) software package MIKE21FM (Flexible Mesh). Both these modelling tools have previously been developed specifically for oceanographic, coastal and estuarine applications within the Swansea and Port Talbot region. The selected modelling tools will be subject to updates with latest available bathymetric and topographic data, along with a further verification stage using local measurements.

14.10.8 Following the refinement of the models to replicate the baseline conditions, the models should be updated to include a representation of the marine elements of the Project, namely the reclaim, the dredge footprint and the dredge disposal site(s) (if required).

Cumulative Effects

14.10.9 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects.** This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

14.10.10 If required, the models described previously would be updated to include a representation of any other coastal and marine developments that may overlap or interact with the Project to allow the potential for cumulative effects to be assessed.

14.11 Assumptions and Limitations

14.11.1 There is sufficient available information and data sources to support the numerical modelling and conceptual analyses and no further field survey work is considered necessary (with the exception of the hydrodynamic and grab sampling surveys (described above) and subsequent Ground Investigations (GI) surveys to inform the engineering design). The numerical modelling tools used within the assessment would undergo a verification process, through which, any inherent bias or uncertainty in the outcomes will be considered and quantified.

14.12 Summary

14.12.1 The proposed scope of the assessment is contained within Coastal Processes is contained within **Table 89.**

Table 89: Proposed scope of the Coastal Processes chapter of the ES

Resources, pathways and receptors	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Changes to SSC and sedimentation	Scoped in for all receptors: • local coastline; • sandbank features to the south of the Port; and • existing approach channels around Swansea Bay.	Scoped in for all receptors: • local coastline; • sandbank features to the south of the Port; and • existing approach channels around Swansea Bay.	Potential for impacts on receptors from construction of the new marine infrastructure and capital dredging (and disposal). Potential for impacts on receptors from activities during operation as a result of the marine infrastructure and maintenance dredging.
Changes to seabed bathymetry and composition	Scoped in for all receptors: • local coastline; • sandbank features to the south of the Port; and • existing approach channels around Swansea Bay.	Scoped in for all receptors: • local coastline; • sandbank features to the south of Port Talbot; and • existing approach channels around Swansea Bay.	
Changes to hydrodynamic regime	N/A	Scoped in for all receptors: • local coastline; • sandbank features to the south of Port Talbot; and • existing approach channels around Swansea Bay.	Potential for impacts on receptors from activities during operation as a result of the marine infrastructure and maintenance dredging.
Changes to the sediment transport pathways	N/A	Scoped in for all receptors: • local coastline; • sandbank features to the south of Port Talbot; and • existing approach channels around Swansea Bay.	
Changes to coastline, sandbank features and channels	N/A	Scoped in for all receptors: • local coastline; • sandbank features to the south of Port Talbot; and • existing approach channels around Swansea Bay.	

Chapter 14 References

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15 Commercial and Recreational Fisheries

15.1 Introduction

15.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential commercial and recreational fisheries effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

15.1.2 The effects of the Project on the following are considered:

- commercially and recreationally targeted fish and shellfish species;
- commercial fishing vessels operating in the study area;
- recreational charter fishing boats operating in the study area; and
- recreational fishers fishing from the shore or Port.

15.1.3 This environmental topic relates to marine aspects of the Project.

15.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

15.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 14 – Coastal Processes**, **Chapter 17 – Marine Ecology**, **Chapter 18 – Marine Water Quality and Sediment Quality**, **Chapter 19 – Navigation and Marine Transport** and **Appendix I** for Underwater Noise and Vibration

15.1.6 While this Chapter will assess potential effects on commercial and recreational fisheries, potential ecological effects on fish species, (including migratory fish and shellfish) will be considered in **Chapter 17 – Marine Ecology**.

15.2 Relevant Legislation, Policy, and Technical Guidance

15.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of commercial and recreational fisheries are detailed in **Table 90**.

Table 90:Legislation, policy and guidance relevant to commercial and recreational fisheries

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project only)
Legislation	
Environment (Wales) Act 2016	The Environment (Wales) Act 2016 sets out the requirement for the 'sustainable management of natural resources' together with new ways of working to achieve this. Part 1 of the Environment Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.
The Swansea Bay (Thomas Shellfish Limited) Mussel Fishery Order 2012	The Mussel Fishery Order 2012 came into force on 18 September 2012. Subject to the provisions of this Order, the Grantee has the right of several fishery for mussels within the Area demarcated within Swansea Bay in the legislation for a period of 20 years starting on 18 September 2012.
The Mumbles Oyster Fishery Order 2013	The Mumbles Oyster Fishery Order 2013 came into force on 10 September 2013. Subject to the provisions of this Order, the Grantee has the right of several fishery for native oysters within the Area demarcated within Swansea Bay for a period of 15 years starting on 10 September 2013.
The Wildlife and Countryside (WCA) Act 1981	The WCA is the principal mechanism for the legislative protection of wildlife in Great Britain. This Act is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention), the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), the Birds Directive (79/409/EEC) and the Natural Habitats and Wild Fauna and Flora Directive (92/43/FFC) are implemented in Great Britain. The WCA applies to the terrestrial environment and inshore waters (0 to 12 nautical miles) and concerns the protection of wild animals and the designation of protected areas, including Site of Special Scientific Interest (SSSIs). The following species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation protects them for a distance of up to 12 nautical miles from the Welsh coast. • Burbot (*Lota lota*); • Couch's goby (Gobius couchii); • Giant goby (Gobius cobitis); • Spiny seahorse (Hippocampus guttulatus); • Short-snouted seahorse (Hippocampus hippocampus); • Basking shark Cetorhinus maximus; • Vendace (Coregonus Albula); and • Whitefish (Coregonus lavaretus). The following species have partial protection under Schedule 5: • Allis shad (Alosa alosa); • Twaite shad (Alosa fallax); • Angel shark (Squatina squatina); and • Sturgeon (Acipenser sturio).
Marine and Coastal Access Act (MCAA) 2009	The MCAA provides the legal mechanism to help ensure clean, healthy, safe, productive and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. The MCAA comprises the following key elements: • the establishment of a Strategic Marine Planning System; • the establishment of a Streamlined Marine Licensing System; • the designation of Marine Conservation Zones (MCZs); • the establishment of Inshore Fisheries Conservation Authorities (IFCAs); • the introduction of a new licensing and authorisation system for fishing activities including emergency bylaws that respond to unforeseen threats to fish stocks; • the creation of a continuous, well signed and managed route around the entirety of the English and Welsh coastline; and • the establishment of a system of Integrated Coastal Zone Management.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project only)
The Conservation of Offshore Marine Habitats and Species Regulations 2017	The Conservation of Offshore Marine Habitats and Species Regulations 2017 implement the species protection requirements of the Habitats and Birds Directives offshore (more than 12 nautical miles from the coast).
The Habitats Regulations 2017 (as amended)	The overall objective is to ensure that the relevant species and habitat types are maintained, or restored, to a favourable conservation status within the UK. This includes inshore waters 12 nautical miles (or less) from the coast.
Environment Act 2021	The Environment Act 2021 sets out legislation to provide a post-Brexit environmental framework for the UK. The Act includes legislation such as binding targets on air and water quality, biodiversity, and resource efficiency and waste reduction.
Fisheries Act 2020	The Fisheries Act 2020 makes provision in relation to fisheries, fishing, aquaculture and marine conservation; to make provision about the functions of the Marine Management Organisation (MMO); and for connected purposes. The Fisheries Act 2020 is designed to manage fishing fleets and conserve fish stock in a sustainable way, based on robust scientific evidence. The Act amends the Government of Wales Act 2006 to extend the legislative competence of the Senedd so it can make primary legislation in relation to fisheries in the Welsh sea beyond 12 nautical miles. Specifically, this means primary legislation on matters relating to fishing, fisheries or fish health in the Welsh zone beyond the seaward limit of the territorial sea (beyond 12 nautical miles from the shore). Section 158 of the 2006 Act defines the 'Welsh Zone' as being the sea adjacent to Wales which is within British Fishery Limits or otherwise specified in an order made under that Act.
Well-being of Future Generations (Wales) Act 2015	The Well-being of Future Generations (Wales) Act 2015 (the WBFG Act) is about improving the social, economic, environmental and cultural well-being of Wales. It sets out new ways of working where all elements of well-being are considered together. It aims to facilitate collaborative working. The WBFG Act places a duty on public bodies to carry out sustainable development. This is defined as a process of improving the economic, social, environmental and cultural well-being of Wales. Action should be taken in line with the sustainable development principle so that the well-being goals are achieved.
National Policy	
Natural resources policy, 2017	This policy looks at working with nature to increase the resilience of Welsh ecosystems, for example to maintain the productivity of soils and seas, will be important in the long-term economic viability of agriculture, forestry and fisheries.
UK Marine Policy Statement (MPS), 2011	The MPS is the framework for preparing marine plans and taking decisions affecting the marine environment. The MPS also sets out the general environmental, social and economic considerations that need to be taken into account in marine planning and provides guidance on the pressures and impacts that decision makers need to consider when planning for and permitting development in the UK marine areas. Section 2.6.1 of the MPS is relevant to the marine ecology assessment. In particular, paragraph 2.6.1.3 states, amongst other things, that – "*As a general principle, development should aim to avoid harm to marine ecology, biodiversity and geological conservation interests (including geological and morphological features), including through location, mitigation and consideration of reasonable alternatives. Where significant harm cannot be avoided, then appropriate compensatory measures should be sought....". In addition, paragraph 2.6.1.4 notes that "Development proposals may provide, where appropriate, opportunities for building-in beneficial features for marine ecology, biodiversity and geodiversity as part of good design*...".

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project only)
Wales National Marine Plan, 2019	The Welsh National Marine Plan is the first marine plan for Wales and represents the start of a process to shape seas to support economic, social, cultural and environmental objectives. The plan was prepared and adopted under the MCAA 2009 for the purposes of Section 51 of the MCAA and in accordance with the UK MPS. The following marine plan policies are of particular relevance to this Chapter: • Policy ENV_01 Resilient marine ecosystems: Proposals should demonstrate how potential impacts on marine ecosystems have been taken into consideration and should, in order of preference: a) avoid adverse impacts; and/or b) minimise impacts where they cannot be avoided; and/or c) mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding. Proposals that contribute to the protection, restoration and/or enhancement of marine ecosystems are encouraged; • Policy ENV_03 Invasive non-native species: Proposals should demonstrate how they avoid or minimise the risk of introducing and spreading invasive non-native species. Where appropriate, proposals should include biosecurity measures to reduce the risk of introducing and spreading of invasive non-native species; • Policy ENV_05 Underwater noise: Proposals should demonstrate that they have considered man-made noise impacts on the marine environment and, in order of preference: a) avoid adverse impacts; and/or b) minimise impacts where they cannot be avoided; and/or c) mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding; and • Policy ENV_05 Fish species and habitats: Proposals potentially affecting important feeding, breeding (including spawning & nursery) and migration areas or habitats for key fish and shellfish species of commercial or ecological importance should demonstrate how they, in order of preference: a) avoid adverse impacts on those areas; and/or b) minimise adverse impacts where they cannot be avoided; and/or c) mitigate adverse impacts where they cannot be minimised; If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding.
Nature Recovery Action Plan (NRAP), 2015	The Nature Recovery Action Plan sets out how Wales will address the Convention on Biological Diversity's Strategic Plan for Biodiversity and the associated Aichi biodiversity targets in Wales. The Nature Recovery Action Plan will identify actions that can be delivered in the short-term and set a course to deliver longer-term commitments beyond 2020. The Nature Recovery Action Plan links to and complements The Well-being of Future Generations (Wales) Act 2015 and the Environment Act (Wales) 2016.
Local Policy	
Environment Strategy 2008-2026	Neath Port Talbot County Borough's Environment Strategy provides the framework within which to achieve an environment that is clean, healthy and thriving, has improving economic prosperity and is valued by the residents, businesses and visitors of the County Borough.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project only)
Guidance and Standards	
Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland – Version 1.2 (updated in April 2022) (CIEEM, 2022)	Guidelines for writing ecological EIA assessments in the UK.
Joint Nature Conservation Committee (JNCC) Marine Monitoring Handbook (JNCC, 2001)	The Marine Monitoring Handbook addresses the principles behind, and the procedures for, monitoring the habitats and species within marine Special Areas of Conservation (SACs) in UK waters to assess their condition. These assessments are intended to fulfil the requirements of The Habitats Regulations (HRA) when undertaking a HRA and the UK's Common Standards for Monitoring.
Offshore Wind Farms: Guidance Note for Environmental Impact Assessment in Respect of Food and Environmental Protection Act (FEPA) and Coast Protection Act (CPA) Requirements: Section 6 – Commercial Fisheries (CEFAS, 2004)	This guidance note assists the offshore wind farm industry and their consultants; the primary aim being to provide scientific guidance to those involved with the gathering, interpretation, and presentation of data within an Environmental Impact Assessment (EIA) as part of the consents application process in England and Wales.
Good Practice Guidance for assessing fisheries displacement by other licensed marine activities (Marine Scotland, 2022).	Marine Scotland commissioned this good practice guidance document. Guidance for assessing commercial fishing effort displacement in relation to offshore EIAs was highlighted as a priority evidence gap in the Scottish Marine Energy Research (ScotMER) fish and fisheries evidence map. Extensive consultation has been carried out to inform the Guidance with the ScotMER Fish and Fisheries Specialist Receptor Group (FFSRG), commercial fisheries industry, offshore energy and regulatory sectors.
FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW), 2014)	This guidance identifies the need and explores the options available for effective liaison between developers and the fishing industry. This facilitates a better understanding of the potential impacts, co-existence opportunities and displacement considerations, and guides appropriate mitigation responses.

15.3 Engagement and Consultation

15.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

15.3.2 To support the technical assessment for commercial and recreational fisheries, future engagement will be carried out with the Angling Trust who have partnered with Visit Wales and Natural Resources Wales to create and maintain the “Fishing in Wales” data resource (Fishing in Wales, 2024). Further investigation will be undertaken on any available additional recreational fisheries data which will be reported on in the Environmental Statement (ES).

15.4 Study Area

15.4.1 The study area representing the spatial extent of potential effects for the construction and operation phases, including maintenance of the facility has been determined using a combination of relevant guidance (Cefas 2004, Scottish Government Marine Directorate, 2022) and professional opinion. The Project is located within the International Council for the Exploration of the Sea (ICES) Division VIIf. Commercial fisheries data and information within each ICES Division are collected and analysed by ICES statistical rectangle. The study area used for assessment of commercial fisheries activity has therefore been defined with reference to the ICES rectangle within which the Project falls, ICES statistical rectangle 32E6. The spatial and temporal distribution, catch and value and fishing effort for recreational fisheries are not captured and reported in the same way as commercial fisheries data. In the absence of defined spatial reporting areas for recreational fisheries, the study area for commercial fisheries has been adopted for potential effects relevant to charter fishing boats and shore-based recreational fishing activity.

15.4.2 The study area defined above has been used to identify commercial and recreational fisheries active in areas relevant to the Project and the levels of fishing that the Project area sustains. Where relevant, however, data and information have been analysed from the wider area to provide context and describe the full extent of the fishing activity of the commercial fleets identified and recreational charter fishing boats/shore-based fishers undertaking recreational fishing activity in those areas. These include the adjacent ICES statistical rectangles 31E5, 32E5 and 31E6 in which further harbours, resources and access to those resources may be affected.

15.4.3 The study area for commercial and recreational fisheries is provided in Figure 15.1 in **Appendix A**. The study area is wholly within the marine area.

15.5 Description of the Existing Environment

15.5.1 For commercial and recreational fisheries, the resources and receptors are:

- commercially and recreationally targeted fish and shellfish species;
- commercial fishing vessels operating in the study area;
- recreational charter fishing boats operating in the study area; and
- recreational fishers fishing from the shore or Port.

Data Sources

15.5.2 Data sources used to inform the commercial and recreational fisheries baseline are described in **Table 91**. Should updated versions of the datasets presented in **Table 91** be available at the time of the EIA these will be incorporated.

Table 91: Data sources used to inform the commercial and recreational fisheries baseline

Data	Description	Year	Supplier / data source
Fisheries surveillance sightings data	Live fishing vessel positioning data to establish trends in vessel distribution.	Observed 2 times a day (09:00 and 17:00 hrs) three times a week in August and September 2024.	AIS Marine Traffic
Fisheries landing data values (£)	This data provides information on the value (£) of landings by vessel size, month, year, target species and landing port within the study area. As per MMO recommendations, 5 years of pre-construction data for fisheries has been examined.	2018 to 2022	MMO Natural Resources Wales (NRW)
Fisheries landing data values (tonnes)	This data provides information about the weight of landings (t) by vessel size, month, year, target species and landing port within the study area. As per MMO recommendations, 5 years of pre-construction data for fisheries has been examined.	2018 to 2022	MMO Natural Resources Wales (NRW)
Angling land and marine sites	This data provides an indication of locations and frequency of recreational activity	2010 and 2019	Wales Activity Mapping Pembrokeshire Coastal Forum

Baseline Conditions

Commercial fisheries

15.5.3 This section describes the principal fishing fleets and fishing methods operating in the study area, the principal ports of landing and the commercially targeted fisheries species fished and landed based on analysis of MMO UK annual sea fisheries statistics (MMO, 2024) in the data reporting period of 2018 to 2022.

Characterisation of the fishing fleet and ports of landing in the study area

15.5.4 The Port, located on the eastern side of Swansea Bay, a shallow tidal embayment formed in the central region of the Bristol Channel, falls within ICES statistical rectangle 32E6. Landings of commercially targeted species into the Port itself are very low with less than 0.1 tonnes reported as being landed there in 2022, and no landings between 2018 and 2021. Vessels landing into the Port in 2022 were exclusively under 10m in length, of Welsh nationality and operating drift and fixed nets.

15.5.5 The Port of Swansea, also located within ICES statistical rectangle 32E6, and the only other port within the study area where commercial landings have been reported between 2018 and 2022, predominantly comprises landings from vessels 10m and under, however the data indicates that vessels up to 12m in length utilise this port. Vessels landing in The Port of Swansea fish exclusively within ICES statistical rectangle 32E6. Vessels 10m and under that land in The Port of Swansea are exclusively of Welsh nationality, operate fixed and drift nets and handlines and predominantly target demersal finfish species. Vessels of 10.01m to 12m in length landing into The Port of Swansea are exclusively of English nationality and target finfish and ray species within ICES statistical rectangle 32E6. Annually, vessels 10m and under in length land less than 0.05 tonnes of catch into the Port. The data indicates that vessels 10.01m to 12m did not land into the Port between 2018 and 2020, then in 2021 landed approximately 3.5 tonnes, with Thornback rays comprising the majority of landings in that year equating to 1.34 tonnes. In 2022, only vessels 10m and under landed into the Port.

15.5.6 In 2019 vessels 24.01m to 40m in length of Belgium nationality were identified as fishing within ICES statistical rectangle 32E6. These vessels landed 8.34 tonnes into Milford Haven, located in ICES Statistical Rectangle 32E5. These vessels operate beam trawls targeting finfish and rays. Commercial fisheries landings were also recorded in other ports or harbours located within the wider study area and these include:

- ABP Barry;
- ABP Cardiff;
- Bury Port Marina;
- Neath Port Authority;
- North Dock, Llanelli Waterside;

- Porthcawl Marina;
- Port Talbot Docks/Phoenix Wharf;
- Pembroke Docks;
- Saundersfoot Harbor Commissioners; and
- Tenby Harbour.

Spatial distribution of commercial fisheries activity

15.5.7 Live fishing vessel positioning data was observed consistently two times a day (09:00 and 17:00) for three days of each week in August and September 2024 to establish trends in fishing vessel distribution. One vessel over 12m in length from Belgium was observed fishing within ICES statistical rectangle 32E6, however no other vessels of that size class and above of any nationality were observed in the data reporting period. Vessels of 12m and over observed fishing in the wider study area were of UK, Irish, Belgium, French and Netherlands origin and regularly frequent the area deploying towed demersal fishing gear.

15.5.8 Under the Sea Fishing Operations (Monitoring Devices) (Wales) Order 2022, all commercial fishing vessels under 12 metres in length either operating in Welsh waters (including non-Welsh vessels), or Welsh commercial fishing vessels wherever they may be fishing must have an inshore vessel monitoring system (I-VMS) installed, operating, and transmitting data to the Fisheries Authority when undertaking fishing activities.

15.5.9 From 12th May 2025 I-VMS became a requirement for any licenced English under 12 metre in length vessel undertaking a trip to sea. This arrangement is part of a new licence condition to introduced to support English fishers be prepared ahead of statutory legislation to be laid by the government.

15.5.10 The current position on implementation of this legislation by the new government is unknown at this stage, however approximately 80% of inshore vessel owners have had these installed and are prepared to meet these requirements when legislation is passed. Given I-VMS is yet to be implemented across all fishing vessels, it has not been possible to determine satellite VMS positioning of inshore vessels within the study area and the spatial implications of the Project on these vessels. Therefore, spatial distribution of these vessels and their fishing grounds have been identified using MMO fleet landings data by ICES statistical rectangle.

15.5.11 Vessels 12m and over in length are required by law to be fitted with VMS. VMS data is considered personal information and can only be requested by the vessel owner making it difficult to establish the number of UK or foreign vessels over 12m operating in the study area or the spatial and temporal trends in fishing effort and intensity. AIS Marine Traffic was used to support fisheries surveillance in the absence of VMS data for vessel over 12m in length.

Commercially targeted species

15.5.12 **Table 92** provides an overview of commercially targeted species fished within the immediate study area, defined as ICES rectangle 32E6. **Table 93** provides an overview of commercially targeted species fished within the wider study area, defined as ICES rectangles 31E5, 32E5 and 31E6. Data has been sourced from the MMO UK Fleet Landings Statistics by ICES rectangle and covers the data reporting period of 2018 to 2022. This represents the most up to date publicly available fisheries statistics. The table includes species that have been identified as important commercial catch for each rectangle based on landed weight (tonnes) and commercial value (£).

Characterisation of fishing activity in ICES statistical rectangle 32E6

Table 92: Annual average landed weight and value of fisheries target species in ICES rectangle 32E6 between 2018 and 2022.

Commercially targeted species	Average annual landings (tonnes) 2018-2022	Average annual value (£) 2018-2022
Sole (*Solea vulgaris*)	0.79	9860
Lesser Spotted Dogfish (**Scyliorhinus canicular*)	0.67	2035
Thornback ray (*Raja clavata*)	0.46	8387
Blonde ray (*Raja brachyura*)	0.44	1565
Plaice (*Pleuronectes platessa*)	0.43	714
Spotted ray (*Raja montagui*)	0.22	348
Brown crabs (*Cancer pagurus*)	0.11	277
Small eyed ray (*Raja microocellata*)	0.1	210
Bass (*Dicentrarchus labrax*)	0.07	659
Megrim (*Lepidorhombus whiffiagonis*)	0.05	51

Source: MMO, 2024 *MMO definition of species and groups

15.5.13 In the data reporting period of 2018 to 2022, the MMO UK annual sea fisheries statistics data indicates that average landings (t) and value (£) for the primary commercially targeted fisheries species in ICES statistical rectangle 32E6 are relatively low when compared to values derived from adjacent ICES rectangles. This can likely be attributed to ICES rectangle 32E6 comprising significantly less sea area and more land coverage than the adjacent ICES rectangles which form the wider study area, although the topography and depth profile of Swansea Bay are also likely to be factors that influence vessel access and target species distribution. The fishing fleet operating in this rectangle primarily comprises Welsh vessels 8m and under in length and deploying fixed and drift nets and handlines to target demersal fish species such as bass, sole and plaice. Landings assigned to these vessels make up a small fraction of the overall landings for these species detailed in **Table 92**, equating to less than 0.1 tonnes on average annually for all three species combined. English vessels of 10.01 to 12m in length operating demersal trawls were also identified as fishing within this

rectangle. These vessels predominantly target skate and ray species and represent a significant proportion of annual average landings identified in **Table 92** for these species. Currently there is no requirement for vessels 8m and under and 10.01 to 12m in length to be fitted with VMS, therefore spatial and temporal trends in fishing effort and intensity cannot be determined at this stage.

15.5.14 The MMO UK annual sea fisheries statistics data identifies landings that can be attributed to vessels of Belgium and Scottish nationality. These vessels are 24.01m to 40m and 18.01m to 24m in length respectively. Belgium vessels operate beam trawls and predominantly target skate and ray and demersal fish species such as bass. Landings into Milford Haven these vessels represent the largest proportion of the annual average landings identified in **Table 92** for these species. Scottish vessels fishing within ICES statistical rectangle 32E6 are more nomadic, operating pots and creels to specifically target brown crabs. These vessels then steam back to Scotland to land in Stromness. Vessels within these length classes are required by law to be fitted with VMS. VMS data is considered personal information and can only be requested by the vessel owner making it difficult to establish the number of Belgium and Scottish vessels operating in this rectangle and spatial and temporal trends in fishing effort and intensity.

Characterisation of fishing activity in ICES statistical rectangles 31E5, 32E5 and 31E6

Table 93: Annual landed weight and value of fisheries target species in ICES rectangle 31E5, 32E5 and 31E6 between 2018 and 2022.

Commercially targeted species	Average annual landings (tonnes) 2018 - 2022	Average annual value (£) 2018-2022
ICES statistical rectangle 31E5		
Whelks (*Buccinum undatum*)	650	783,307
Lesser Spotted Dogfish (**Scyliorhinus canicular*)	97	30,072
Blonde ray (*Raja brachyura*)	83	258,689
Brown crabs (*Cancer pagurus*)	66	158,353
Thornback ray (*Raja clavata*)	50	125,715
Dogfish (*Scyliorhinidae*)	43	33,834
Smoothhound (*Mustelus mustelus*)	35	16,209
Sole (*Solea vulgaris*)	27	320,267
Lobsters (*Homarus Gammarus*)	27	374,337
Spider crabs (*Maja brachydactyla*)	19	13,536
ICES statistical rectangle 32E5		
Whelks (*Buccinum undatum*)	897	1,126,672
Bass (*Dicentrarchus labrax*)	44	386,178
Brown crabs (*Cancer pagurus*)	32	73,850

Commercially targeted species	Average annual landings (tonnes) 2018 - 2022	Average annual value (£) 2018-2022
Spider crabs (*Maja brachydactyla*)	13	9,095
Lobsters (*Homarus Gammarus*)	10	142,314
Thornback ray (*Raja clavata*)	9	21,261
Dogfish (*Scyliorhinidae*)	9	9,744
Lesser Spotted Dogfish (**Scyliorhinus canicular*)	7	1,957
Blonde ray (*Raja brachyura*)	5	16,244
Mullet (*other*)	5	10,785
ICES statistical rectangle 31E6		
Lesser Spotted Dogfish (**Scyliorhinus canicular*)	43	11,870
Whelks (*Buccinum undatum*)	30	33,570
Blonde ray (*Raja brachyura*)	21	64,329
Smoothhound (*Mustelus mustelus*)	18	6,208
Thornback ray (*Raja clavata*)	17	38,684
Sole (*Solea vulgaris*)	13	159,870
Small eyed ray (*Raja microocellata*)	9	20,482
Bass (D*icentrarchus labrax*)	7	64,564
Brown crabs (*Cancer pagurus*)	4	7,770
Plaice (*Pleuronectes platessa*)	3	8,903

Source: MMO, 2024 - *MMO definition of species and groups

15.5.15 ICES Statistical rectangles 31E5, 32E5 and 31E6 extend seaward from Swansea Bay and ICES statistical rectangle 32E6 in which the Project is located into the Bristol Channel and Celtic Sea. For the purposes of this analysis, annual average landings (t) and value (£) for ICES Statistical rectangles 31E5, 32E5 and 31E6 have been reported individually to identify comparisons and differences between the areas the Project has the potential to influence.

15.5.16 ICES statistical rectangle 31E5 is located seaward of ICES statistical rectangle 32E6, representing deeper water as the mouth of the Bristol Channel opens into the Celtic Sea. Deeper water and increased fishing opportunities for larger vessels capable of fishing further afield changes the composition of the fleet operating within this area, the primary target species of vessel operators and the potential for increases in landings and catch value. In the data reporting period of 2018 to 2022, the MMO UK annual sea fisheries statistics data shows that the fishing fleet operating within this area is comprised of Welsh, English and Belgium vessels. These vessels range from 8m and under to 40m in length and deploy a broader range of gear types including beam trawls, demersal trawls, dredges, drift and fixed nets, handlines, longlines, pelagic trawls and pots and creels. Landings of whelk in ICES rectangle 31E5 are significantly higher than other species with 650t landed on average annually between 2018 and

2022. Whelks are exclusively targeted by Welsh and English vessels up to 12m in length using pots and creels. Finfish and crustaceans are also targeted by vessels deploying towed demersal gear, however, represent significantly less average annual landings than whelks. Larger vessel classes over 18m in length fishing in this area predominantly target demersal fish and skate and ray species and represent the majority of annual average landings for these species shown in **Table 93**. Lobsters and brown crab are also targeted by similar vessel nationalities and size classes, and although the former represents the second lowest landings of the primary species targeted, it does represent the second highest value fishery in the area. The Belgium fleet fishing in the area primarily comprises vessels of 24.01m to 40m in length and operate beam trawls and demersal trawls targeting demersal fish species and skates and rays.

15.5.17 ICES statistical rectangle 32E5 is located seaward of ICES statistical rectangle 32E6, however is similar in being coastally constrained and therefore likely represents comparable fishing grounds to those found in ICES statistical rectangle 32E6. In the data reporting period of 2018 to 2022, the MMO UK annual sea fisheries statistics data shows that the fishing fleet operating within this area is comprised of Welsh, English and Belgium vessels. These vessels range from 8m and under to 40m in length and deploy beam trawls, demersal trawls, dredges, drift and fixed nets, handlines, longlines, pelagic trawls and pots and creels. Landings of whelk in ICES rectangle 32E5 are significantly higher than other species with 897t landed on average annually between 2018 and 2022. Whelks are exclusively targeted by Welsh and English vessels up to 12m in length using pots and creels. Finfish and crustaceans are also targeted by vessels deploying towed demersal gear, however, represent significantly less average annual landings than whelks. Larger vessel classes over 18m in length fishing in this area predominantly target demersal fish and skate and ray species. The Belgium fleet fishing in the area primarily comprises vessels of 24.01m to 40m in length and operate beam trawls and demersal trawls and predominantly target skate and ray species.

15.5.18 ICES statistical rectangle 31E6 extends south from ICES statistical rectangle 32E6 and encompasses a large proportion of the Bristol Channel. This area contains deeper waters than 32E6, however, is coastally constrained either side. Annual average landings (t) and value (£) for ICES statistical rectangle 31E6 are more comparable to 32E6 than ICES rectangles 31E5 and 32E5, however, are still significantly higher. In the data reporting period of 2018 to 2022, the MMO UK annual sea fisheries statistics data shows that the fishing fleet operating within this area is primarily comprised of Welsh and English vessels. These vessels range from 8m and under to 15m in length and deploy beam trawls, demersal trawls, dredges, drift and fixed nets, handlines, longlines, pelagic trawls and pots and creels predominantly targeting finfish, mollusc, skates and rays and crustacean species. The Belgium fleet fishing in the area primarily comprises vessels of 24.01m to 40m in length and operate beam trawls and demersal trawls and predominantly target finfish and skate and ray species.

Shellfish production areas

15.5.19 As detailed in **Chapter 17 – Marine Ecology**, there are no classified commercial shellfish (bivalve) beds in Swansea Bay. In addition, other commercial shellfish species caught in the region such as whelks and lobsters are not harvested from the Port Tidal Harbour and approaches. Ecological effects on relevant fauna considered shellfish species (such as cockles, clams or crabs) will be assessed where relevant within the benthic habitats and species assessment in **Chapter 17 – Marine Ecology**.

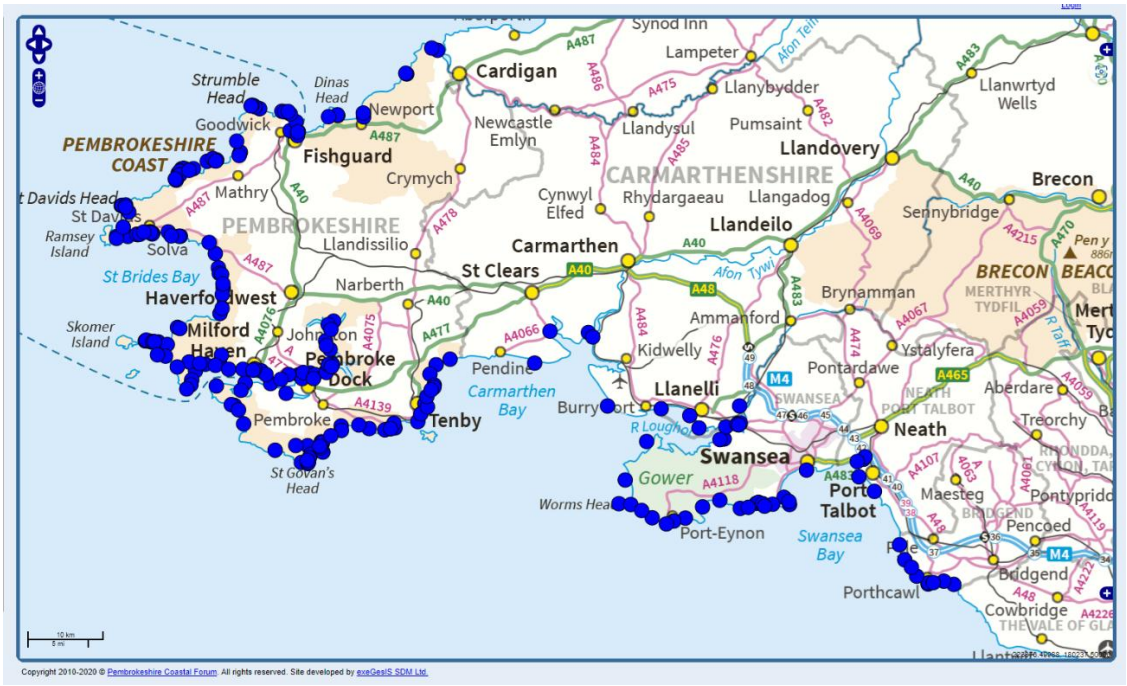
15.5.20 Two Several and Regulating Order areas, as demarcated in Data Map Wales (Welsh Government, 2024) within Swansea Bay have been identified. These include The Mumbles Oyster Fishery Order which concerns the fishing of native oysters and the Mussel Fishery Order 2012 for the harvest of mussels, both of which are currently operated by two respective companies. Swansea Bay is comprised of four separate Shellfish Waters Protected Areas covering its extent. These include Swansea Bay East, South and West and Queens Dock Swansea.

Recreational fisheries

15.5.21 Pembrokeshire Coastal Forum maintain a GIS web system (Pembrokeshire Coastal Forum, 2020) on behalf of a partnership of organisations involved in the management of the coast and countryside across South West Wales. The partnership seeks to assist in the sustainable management of the area to the maximum benefit of all potential users by constructing a coherent picture of activity. Currently, this platform provides recreational fishing data for 2008 (historical) and 2019 (most recent data available).

15.5.22 **Figure 15.1** and **Figure 15.2** indicate fishing areas used by recreational shore-based and recreational boat fishers within the study area (ICES rectangle 32E6) and within the wider study area (ICES rectangles 31E5, 32E5 and 31E6). Although this GIS web application does not provide information on target species, or numbers of individual species landed, it does provide information on seasonal variation in frequency of the areas fished.

Figure 15.1: Spatial distribution of shore-based recreational fishing locations (blue points) in 2019 within the study area, and the wider study area



Source: Pembrokeshire Coastal Forum, 2024.

Figure 15.2: Spatial distribution of boat based recreational fishing locations (orange polygons) in 2019 within the study area, and the wider study area

Source: Pembrokeshire Coastal Forum, 2024.

15.5.23 Recreational fisheries data after 2019 is unavailable at the time of writing this Scoping Chapter any additional published relevant datasets containing more recent data will be incorporated into the EIA process. Further investigation will be undertaken through consultation with the Angling Trust to verify whether any additional data is available for recreational fisheries within or in the vicinity of the study area. This will be reported in the ES. A review of online information has identified the presence of recreational fishers/chartered fishing vessels operating within the study area and some of the species they target. Port Talbot Dock, now disused and fed by a stream, hosts a diverse range of fish species including sea fish species that enter through the gates on the seaward side. The site supports pike, mullet, bass, skimmers, roach, perch, rudd, bream, eels, and tench, all of which are fished recreationally (Fishery Guide, 2024). Recreational fishing from the beach and rocks also takes place within the study area in Swansea, Mumbles & Gower. Gower is particularly popular for rock fishing and is regarded as offering some of the best rock fishing for bass in the UK. The most popular locations include Mumbles Head, Tutt Head, Langland and Caswell Bay, Brandy Cove, Pwll Du Head, Oxwich Point, Slade, Port Eynon Point. There are also other locations between Port Eynon and Worms Head, which is regarded as one of the best rough ground bass venues in Britain (Swansea Bay, 2024). Fishing charter boats operate from Swansea Marina, providing customers opportunity to fish within Swansea Bay and further afield (Fishing in Wales, 2024).

Next steps

15.5.24 A desktop study will be undertaken to assess commercial and recreational fisheries. The desktop study will include the following aspects:

- provide evidence of the major commercial and recreational fish and shellfish target species in the study area, stating which fisheries target these species and during which times of the year;
- provide evidence of recreational charter boat and shore-based fisheries operating within the study area, major target species and which times of year they operate;
- assess the potential impacts associated with the construction and operation phases of the Project on commercial and recreational fisheries operating in the area;
- evaluate the significance of impacts associated with the construction and operation phases of the Project on commercial and recreational fisheries operating in the area; and
- suggest effective mitigation measures to reduce or avoid impacts on commercial and recreational fisheries, where appropriate.

15.5.25 In accordance with the relevant guidance, the following information will be collated for the site and surrounding area:

- a description of the fisheries in the area:
  - analysis of commercial fisheries data will identify the number of vessels utilising ports and harbours within the study area, the size

of vessels within each fleet and subsequent operational range and constraints and the gear deployed from these vessels to identify target fisheries resources;

- analysis of recreational fisheries data (where available) will identify the number of charter fishing boats and shore-based fishermen operating within the study area, the ports and harbours from which charter boats launch from and important areas of shoreline utilised by shore-based fishermen; and
- consultation with local fishermen (such as commercial fishermen and fishing organisations) and local fisheries managers (such as inshore fisheries and conservation authorities) to understand the composition of the fleet, its general activities (seasonality, gear used etc.) and broad areas that are of greatest importance as fisheries grounds will be undertaken.

- landings data:
  - in-depth assessment of commercial fisheries target species by landings (t) and value (£) will be provided in the ES with information on vessel size and total value and tonnage of species, supported by additional fisheries statistics data requested from the MMO to update the current baseline reporting period of 2016 – 2020 used in this Chapter;
  - five years' worth of data (pre-construction) will be examined. It is recognised that there is generally a 2-year lag between reporting and publishing of commercial fisheries data by the MMO, therefore 2022 is likely to be the most recent data available for the ES. These data will be viewed in context with any qualitative data or descriptive information obtained from local fishermen; and
  - the Angling Trust will be contacted to obtain recreational fisheries data on target species and number of each species landed from charter fishing vessels and shore-based fishing activities. This data will be analysed and reported within the ES.
- effort data:
  - to identify those areas within the region that are most important for fishing activities;
  - effort data will examine annual and seasonal patterns in the spatial distribution of effort for the major gear used in the area. These data will be viewed in context with any qualitative data or descriptive information obtained from local fishermen; and
  - the Angling Trust will be contacted to obtain data on the spatial and temporal distribution of charter fishing vessels and shore-based fishing activities to identify those areas within the region that are most important for fishing activities.

15.5.26 Data sources used in the assessment will include those within Table 91, supported by conversations with stakeholders.

15.6 Future Baseline

15.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Commercial and Recreational Fisheries Chapter of the ES would seek to explain what the environmental change, in terms of commercial and recreational fisheries, would likely be in the future if the Project were not to go ahead.

15.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

15.6.3 The approach to establishing the future baseline for commercial and recreational fisheries will be based on engagement with local stakeholders, supported by an analysis of historical and current fisheries data to identify trends in fish populations and fisheries yield statistics. Biological, environmental and socio-economic indicators will enable an understanding of the health of fish stocks and the impact on local communities that depend on these resources.

15.6.4 However, these assumptions would be revisited through the EIA process to understand any committed plans or proposals that would affect access to the resource/ability to exploit the resource and or activities that may have an effect on ecology, in particular commercial or recreationally important fish species.

15.6.5 The cumulative predicted effects of climate change, ocean acidification and coastal squeeze is likely to reduce the resilience of marine species, including those fished, to further anthropogenic pressures (as described in **Chapter 17 – Marine Ecology**). This is likely to result in target fisheries stocks yielding less catch per unit effort, driving lower economic returns for commercial fishing fleets operating in the study area. Given the study rectangles are primarily located nearshore, this is likely to result in less fishing effort within these areas. Commercial vessels will likely need to fish grounds further offshore, resulting in increased steaming times, fuel overheads and the potential for increased gear conflict between fleets where displacement has led to congestion of fishing vessels in favourable fishing grounds. This is also likely to lead to increased effort being applied to seabed habitats in those areas, and an increase in bycatch of non-target species.

15.6.6 Data suggests that ecological changes linked to climate change (such as range shifts) are already occurring (Chaikin, 2024) although there is currently a high degree of uncertainty with respect to predicting the magnitude of potential effects in the future.

15.7 Mitigation Measures

15.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the commercial and recreational fisheries topic will be identified as the Project progresses and those taken

forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

15.7.2 This section sets out the potential controls relevant to commercial and recreational fisheries which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and experience from other projects. The list of control measures will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

15.7.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- following biosecurity management procedures: Biosecurity control measures during construction will be included within a Construction Environmental Management Plan (CEMP);
- even disposal deposition of dredged material: Targeting disposal loads in the central/deeper area of the disposal site to reduce depth reductions. This should minimise the initial reduction in water depth and any environmental changes at the disposal sites;
- adhering to environmental management best practice following CIRIA Guidance: The potential risk from accidents and spillages/leaks will be avoided or minimised by ensuring that the proposed design aspects follow pollution prevention legislation and environmental management best practice guidelines;
- as part of standard best practice: Arranging temporary lighting during construction so that glare is minimised outside the construction areas. A Lighting Management Plan (“LMP”) will be incorporated into the CEMP that addresses the use of lighting around potentially sensitive marine ecology receptors that will be identified during the impact assessment; and
- transiting construction/operational vessels to fully comply with the Convention on the International Regulations for Preventing Collisions at Sea (COLREGS) (International Maritime Organisation (IMO), 1972). Such compliance would negate the requirement for fishing vessels engaged in fishing to alter course or pose any risk to fishing gears.

Construction Controls

15.7.4 The proposed works would not directly introduce contaminants to the marine environment and good practice measures noted above, such as those described in Guidance for Pollution Prevention: Works and Maintenance in or Near Water (GPP5), would be used to minimise the potential for accidental spillages during the construction phase of the Project. The potential risk of spillage would be minimised throughout the

application of environmental best practice management measures specified in the CEMP. This impact pathway has, therefore, been scoped out of further assessment in the ES.

15.7.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- the release of regular Notice to Mariners bulletins via the Kingfisher Information System and other navigational warnings to be issued to the fishing industry and recreational charter boat operators prior to all survey and construction works through a Project specific marine co-ordination system to support the fishing community in making decisions on how to best avoid the works, enabling them to continue fishing and earning an income;
- potential risks to shore-based recreational fishers would be minimised by posting publicly visible notices, including physical notices at identified recreational fishing areas ahead of the Project;
- potential risks to fishing vessels would also be minimised by the required levels of communication through the specific channels outlined above. This will ensure the required level of awareness of potential construction related risks and the locations and periods of Temporary Safety Zones amongst fishing vessel owners and crews;
- appropriate liaison to be undertaken with all relevant fishing interests to ensure they are fully informed of all construction activities. To include provisions for enabling awareness of construction vessels crews of the locations of static gears and fishermen's awareness of construction vessel transit routes. If required, a Fisheries Liaison Officer (FLO) to provide up to date information to local fishermen;
- in instances where fishing gear may need to be temporarily relocated due to construction activities, appropriate evidence-based mitigation to be applied, as specified in FLOWW Guidelines (Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW), 2014); and
- where provisions for landing catch are not available at impacted ports/harbours, suitable temporary moorings to be provided to enable commercial fishing vessels to continue to operate on a day-to-day basis.

Operational Controls

15.7.6 Possible mitigation (including primary, secondary and tertiary mitigation) opportunities which may be incorporated at the operation and maintenance stage include:

- pollution prevention measures already in existence at the Port to be implemented and applied to the operation of the Project with regard to maintenance dredging.

15.8 Potential Likely Significant Effects

15.8.1 Where inter-relations with other environmental factor assessments may occur, the outcomes of the assessments carried out in other chapters presented within this EIA scoping report will be cross referenced. It is recognised that there are important linkages between **Chapter 15 – Commercial and Recreational Fisheries** and other environmental factor assessments. For example, the assessment of indirect impacts and receptors in **Chapter 15 – Commercial and Recreational Fisheries** will be informed by **Chapter 14 – Coastal Processes**, **Chapter 17 – Marine Ecology**, **Chapter 18 – Marine Water Quality and Sediment Quality**, **Chapter 19 – Navigation and Marine Transport** and the **Appendix I – Underwater Noise and Vibration** environmental factor assessments. Further information on the proposed approach to the assessment of these environmental factors can be seen in their respective Chapters.

15.8.2 The potential likely significant effects for commercial and recreational fisheries are described in **Table 94**. These take into account the expected control measures set out within Section 15.7.

Table 94: Likely significant commercial and recreational fisheries effects

Activity	Effect (marine)	Receptor
Construction of new marine infrastructure and construction activities, including piling, capital dredging and dredge disposal activities.	Could lead to: • Toxic contamination of marine species/habitats as a result of contaminant release from the sediment during dredging and piling activities; • Changes in water quality during capital dredging, dredge disposal and other construction activities such as piling could impact benthic species through an increase in SSC and the release of toxic contaminants bound in sediments; • Direct loss of fish habitat under the footprint of the reclamation area and rock revetement. The breakwater improvement works, and piling will also potentially result in the small loss of intertidal habitat; • Changes to fish populations and habitat; • Changes to salinity levels in the Port Talbot dock as a result of increased frequency in opening of the lock gates and effects on fish; and • The generation of underwater noise and vibration resulting from construction activities, including piling, dredging and dredge disposal activities.	Commercially and recreationally targeted fisheries, consisting of the species and their supporting habitats. Potential effects will be assessed in: **Chapter 14 – Coastal Processes**, **Chapter 17 – Marine Ecology**, **Chapter 18 – Marine Water Quality and Sediment Quality** and **Appendix I – Underwater Noise and Vibration**. Cross reference will be made to these chapters where potential impacts to commercially and recreationally targeted fisheries species and their supporting habitats have been identified and a separate assessment undertaken of the significance of these impacts in relation to commercial and recreational fisheries.

Activity	Effect (marine)	Receptor
Maintenance dredging and dredge disposal activities during the operation phase.	Could lead to: • Changes to fish populations and habitat during maintenance dredging and dredge disposal; • Changes in water and sediment quality during maintenance dredging and dredge disposal; • Changes to salinity levels in the Port Talbot dock as a result of increased opening of the lock gates and effects to fish species; and • Underwater noise during vessel operations, maintenance dredging and dredge disposal.	Commercially and recreationally targeted fisheries consisting of their species and their supporting habitats. Potential effects will be assessed in **Chapter 14 – Coastal Processes**, **Chapter 17 – Marine Ecology**, **Chapter 18 – Marine Water Quality and Sediment Quality** and **Appendix I – Underwater Noise and Vibration**. Cross reference will be made to these chapters where potential impacts to commercially and recreationally targeted fisheries species and their supporting habitats have been identified and a separate assessment undertaken of the significance of these impacts in relation to commercial and recreational fisheries.
Construction of new marine infrastructure and construction activities, including piling, capital dredging and dredge disposal activities.	Could lead to: • temporary loss or restricted access to fishing grounds for commercial and recreational fishers; • displacement of commercial and recreational fishing activity into other areas; • increased steaming times for commercial and recreational vessels to fishing grounds; and • potential impact to future stock value for commercially targeted species.	Commercial fishing vessels operating in the study area. Recreational charter fishing vessels operating in the study area. Recreational fishers fishing from shore/Port in the study area.
Maintenance dredging and dredge disposal during the operation phase.	Could lead to: • increased steaming times for commercial and recreational vessels to fishing grounds; and • potential impact to future stock value for commercially targeted species.	
Construction vessel traffic operating during the construction phase.	Could lead to congestion of marine traffic within the study area. Additional traffic, and the use of Temporary Safety Zones to facilitate construction of the new marine infrastructure, the transport of equipment and vessel traffic into the Port could lead to: • temporary loss or restricted access to fishing grounds for commercial and recreational fishers; • displacement of commercial and recreational fishing activity into other areas; • increased steaming times for commercial and recreational vessels to fishing grounds; and • safety and / or navigational issues for fishing vessels operating in the study area.	Commercial fishing vessels operating in the study area. Recreational charter fishing vessels operating in the study area. Potential effects related to safety and/or navigational issues will be assessed in **Chapter 19 – Navigation and Marine Transport**. Cross reference will be made to these chapters where potential impacts to commercially and recreationally targeted fisheries species and their supporting habitats have been identified and a separate assessment undertaken of the significance of these impacts in relation to commercial and recreational fisheries.

Activity	Effect (marine)	Receptor
Increased operational vessel traffic utilising the Port during the operation and maintenance phase.	Marine traffic is expected to increase within the study area during the operational phase. This could lead to: • displacement of commercial and recreational fishing activity into other areas; • increased steaming times for commercial and recreational vessels to fishing grounds; • potential impact to future stock value for commercially targeted species; and • safety and/or navigational issues for fishing vessels operating in the study area.	Commercial fishing vessels operating in the study area. Recreational charter fishing vessels operating in the study area. Potential effects related to safety and/or navigational issues will be assessed in **Chapter 19 – Navigation and Marine Transport**. Cross reference will be made to these chapters where potential impacts to commercially and recreationally targeted fisheries species and their supporting habitats have been identified and a separate assessment undertaken of the significance of these impacts in relation to commercial and recreational fisheries.

15.9 Resources and Receptors Scoped Out of Assessment

15.9.1 Construction and operational activities associated with the Project have been scoped in or out, based on their potential to have an impact on commercial and recreational fisheries receptors within and adjacent to the study area, including the marine resources on which these fisheries depend.

15.9.2 There are no resources or receptors proposed to be scoped out of the assessment for commercial and recreational fisheries.

15.10 Proposed Assessment Methodology

15.10.1 The impact assessment will be undertaken in compliance with relevant guidance and best practice including:

- Offshore Wind Farms: Guidance Note for EIA in respect of the Food and Environmental Protection Act (FEPA) 1985, and Coast Protection Act (CPA) (EIA) Requirements: section 6 – Commercial Fisheries (CEFAS, 2004);
- Good Practice Guidance for assessing fisheries displacement by other licensed marine activities (Marine Scotland, 2022); and
- Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Guidelines (FLOWW, 2014).

15.10.2 Although the Guidelines (CEFAS, 2004) (Marine Scotland, 2022) have been developed specifically for offshore EIAs, the method of identifying appropriate fisheries receptors and assessing potential impacts on commercial fisheries is broadly similar across all marine infrastructure projects. In the absence of specific commercial fisheries assessment guidance for the assessment and subsequent ES reporting, the Cefas and Marine Scotland reference documents provide the most comprehensive examples of an appropriate approach to determine relevant fisheries receptors and the data required to inform a robust commercial fisheries assessment for the purposes of the EIA framework.

15.10.3 There is currently no specific guidance on the identification of recreational fisheries receptors and the assessment of potential impacts. Therefore, the approach taken for commercial fisheries based on the guidance available has been adopted for recreational fisheries given the similarity in receptor pathways.

Impact Assessment Methodology

15.10.4 This section presents information on the impact assessment methodology for the construction and operation phases, including maintenance of the facility, both of which are informed by the same criteria detailed in **Table 95** to **Table 97**.

15.10.5 The following outlines the methodology to be used for the assessment of commercial and recreational fisheries which have the potential to be affected by the construction and operation of the Project. This involves firstly assessing the value (or sensitivity) of the commercial and recreational fisheries receptors that have the potential to be affected by the Project. Receptor sensitivity and magnitude of impact will then be combined and analysed together to determine the significance of effect. Significance of effects will be determined as negligible, minor, moderate or major. The assessment of effects will be used to develop appropriate mitigation measures to avoid or reduce potential adverse effects.

15.10.6 It should be noted that there is no guidance currently available in relation to the definition of receptor sensitivity and impact magnitude specific to the assessment of impacts on commercial and recreational fisheries receptors. Whilst it is helpful to guide the assessment, the application of a systematic receptor sensitivity and impact magnitude approach to determine impact significance is challenging, as standard definitions of sensitivity and magnitude are difficult to apply consistently across the range of impacts that require assessment for commercial and recreational fisheries. Therefore, commercial and recreational fisheries assessments are qualitative and rely on expert judgement to a large extent.

15.10.7 The sensitivity criteria used for assessment of impacts on commercial and recreational fisheries is described in **Table 95**.

Table 95: Definition of receptor sensitivity levels for commercial and recreational fisheries receptors

Sensitivity Level	Description
Very high	**Commercial fisheries** Very high importance of one fishing ground targeting one species using one specific type of fishing gear with no potential for substitution. **Recreational fisheries** Very high importance of one fishing ground targeting one species using one specific type of fishing gear with no potential for substitution for charter fishing vessels. No access to any other recreationally fished shore-based areas.
High	**Commercial fisheries** Limited operational range and / or limited gear / target species versatility. High dependence upon a single fishing ground.

Sensitivity Level	Description
	Recreational fisheries Limited operational range and / or limited target species versatility for charter fishing vessels. Limited opportunity to access any other recreationally fished shore-based area. High dependence upon a single fishing ground.
Medium	**Commercial fisheries** Moderate extent of operational range and / or limited gear/target species versatility. Dependence upon a limited number of fishing grounds **Recreational fisheries** Moderate operational range and / or limited target species versatility for charter fishing vessels. Moderate opportunity to access other recreationally fished areas, either by shore or charter fishing vessel.
Low	**Commercial fisheries** Extensive operational range and / or some gear/target species versatility. Ability to fish a number of fishing grounds. **Recreational fisheries** Extensive operational range and / or some target species versatility for charter fishing vessels. Extensive opportunities to access other recreationally fished areas, either by shore or charter fishing vessel.
Negligible	**Commercial fisheries** Extensive operational range and high gear / target species versatility. Vessels are able to exploit a large number of fishing grounds. **Recreational fisheries** Extensive operational range and high target species versatility for charter fishing vessels. Recreational fishers, both shore-based and vessel based are able to exploit a large number of fishing grounds.

Source: Mott MacDonald, 2024

15.10.8 The criteria used to define impact magnitude on commercial and recreational fisheries are provided in **Table 96**. The magnitude of an effect is considered for each predicted impact and is defined taking account of the spatial and temporal extent of the impact. This is considered in the context of the relative level of importance of the area affected by the potential impact (specifically the level of fishing in the area with reference to the extent of alternative grounds that the fleet is able to exploit).

Table 96: Definition of magnitude of potential impacts on commercial and recreational fisheries receptors

Magnitude		Description
Major	Adverse	**Commercial fisheries** The area affected by the impact sustains high levels of activity by the fishery and covers a large or moderate extent of its grounds. The impact is likely to be permanent and irreversible negative change. **Recreational fisheries** The area affected by the impact sustains high levels of recreational charter boat and / or shore-based fishing activity and covers a large or moderate extent of its grounds. The impact is likely to be permanent and irreversible negative change.
	Beneficial	**Commercial fisheries** Large scale or major improvement of resource quality and / or access to those resources by commercial fisheries resulting in a

Magnitude		Description
		large-scale positive benefit. **Recreational fisheries** Large scale or major improvement of resource quality and/or access to those resources by recreational charter boat and shore-based fishers resulting in a large-scale positive benefit.
Moderate	Adverse	**Commercial fisheries** The area affected by the impact sustains moderate levels of activity by the fishery and covers a large or moderate extent of its grounds; and / or the impact is permanent. **Recreational fisheries** The area affected by the impact sustains moderate levels of recreational charter boat and / or shore-based fishing activity and covers a large or moderate extent of its grounds; and / or the impact is permanent.
	Beneficial	**Commercial fisheries** Moderate improvement of resource quality and / or access to those resources by commercial fisheries resulting in a moderate positive benefit. **Recreational fisheries** Moderate improvement of resource quality and / or access to those resources by recreational charter boat and shore-based fishers resulting in a moderate positive benefit.
Minor	Adverse	**Commercial fisheries** The area affected by the impact sustains moderate / low of activity by the fishery and covers a moderate extent of its grounds; and / or the impact is long term, specifically several years in duration. **Recreational fisheries** The area affected by the impact sustains moderate/low levels of recreational charter boat and / or shore-based fishing activity and covers a moderate extent of its grounds; and / or the impact is long term, specifically several years in duration.
	Beneficial	**Commercial fisheries** Minor improvement of resource quality and / or access to those resources by commercial fisheries resulting in a beneficial impact or reduced risk of negative impact occurring. **Recreational fisheries** Minor improvement of resource quality and / or access to those resources by recreational charter boat and shore-based fishers resulting in a beneficial impact or reduced risk of negative impact occurring.
Negligible	Adverse	**Commercial fisheries** The area affected by the impact sustains low levels of activity by the fleet and covers a small extent of its grounds; and/or the effect is short to medium term, specifically months to a year in duration. **Recreational fisheries** The area affected by the impact sustains low levels of recreational charter boat and / or shore-based fishing activity and covers a small extent of its grounds; and / or the impact is short to

Magnitude		Description
		medium term, specifically months to a year in duration.
	Beneficial	**Commercial fisheries** Very minor improvement of resource quality and/or access to those resources by commercial fisheries resulting in very minor benefit. **Recreational fisheries** Very minor improvement of resource quality and / or access to those resources by recreational charter boat and shore-based fishers resulting in very minor benefit.
No change		**Commercial fisheries** The fleet has very little or no history of fishing in the area affected; and / or the impact is short-term, specifically days to weeks in duration. **Recreational fisheries** Very little or no history of recreational charter boat and / or shore-based fishing activity in the area affected; and / or the impact is short-term, specifically days to weeks in duration.

Source: Mott MacDonald, 2024

15.10.9 An effects significance is identified taking account of the impact magnitude and the receptor's sensitivity following the significance matrix shown in **Table 97**. On this basis, potential effects are assessed as negligible, minor, moderate or major significance. Impacts that are of moderate or major significance are considered significant in EIA terms. It should be noted that the definition of effect significance, whilst guided by the significance criteria matrix, is largely qualitative and based on professional judgement.

Table 97: Significance criteria matrix

Value / Sensitivity	Magnitude				
	No change	**Negligible**	**Minor**	**Moderate**	**Major**
Very high	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Source: Mott MacDonald, 2024

Cumulative Effects

15.10.10 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

15.10.11 As detailed in **Chapter 27 – Cumulative and In-combination Effects**, it has been assumed that committed developments within ICES statistical rectangles 32E6, 31E5, 32E5 and 31E6 with the potential to generate similar effects to those assessed for commercial and recreational fisheries, including commercially and recreationally targeted species will be incorporated into the assessment of the Project.

15.10.12 Specifically for the commercial and recreational fisheries chapter, in line with 'Good practice for assessing fisheries displacement by other licenced marine activities' (Marine Scotland, 2022), the cumulative assessment will consider other committed developments that give rise to additive/incremental impacts and effects or associated/connected impacts and effects of the Project. It is recommended that the cumulative impacts assessment takes into account projects and activities which may occur at the same time or within the same area (relative to the commercial and recreational fisheries receptor's operational range and sensitivity).

15.10.13 The cumulative effects assessment will consider the following:

- sensitivity of each receptor to displacement using the methods laid out in Section 15.10;
- the potential overlap of the fishing effort by the receptors relevant to the project itself with the projects/activities identified as part of the cumulative assessment;
- The design parameters of the projects/activities identified as part of the cumulative assessment; and
- The spatial and temporal overlap of the other projects/activities with the Project itself and how this could result in cumulative displacement impacts.

15.10.14 Where relevant the cumulative assessment for commercial and recreational fisheries will take into account the predicted changes in marine ecology in line with CIEEM Guidelines, coastal processes, marine water quality and underwater noise from other developments.

15.11 Assumptions and Limitations

15.11.1 The following limitations apply with regard to commercial and recreational fisheries and the use of third-party data when undertaking a desktop study to determine potential impacts of the Project. The main limitations of this EIA Scoping Chapter are summarised below:

- recreational fisheries data is unavailable at the time of writing this Scoping Chapter and will need in-depth assessment in the ES following consultation with "Fishing in Wales" and the Angling Trusts;
- it is recognised that there is generally a 2-year lag between reporting and publishing of commercial fisheries data by MMO, therefore 2022 is likely to be the most up to date data available for commercial fisheries landings and value to inform the ES Chapter. Data releases will be reviewed and additional data included in the ES Chapter if released by MMO prior to writing the Chapter;

- MMO landings data is derived from sales notes generated when fishermen sell their catch to a registered buyer or seller. The submission of sales notes is not required when catch is sold directly to the public, or for individual sales smaller than 25kg. Because of the nature of some inshore fisheries, where much of the catch is sold in small quantities and/or direct to the public, possibly via their own shops, these landings are not captured by the MMO database;
- this assessment assumes that the total value and species captured as reported by the MMO, is accurate and up to date. Unreported fishing activities are not considered within this assessment;
- analysis of the fleet operating in the study area using AIS fishing vessel surveillance provides a momentary view of activity occurring within the area and does not provide long-term trends in vessel presence;
- economic value and landed target species weight for each fishery has been expressed as an amalgamation of all vessel activity operating within each fishery within the study area. It has not been possible to determine the economic value and landed weight of each fishery for individual vessels in this study;
- surplus dredged material is expected to be disposed of within licenced offshore site(s), however there may be a requirement for some material to be disposed of on land depending on material quality to be determined through testing. Once confirmed, this will then be assessed in the ES;
- commercial fishing is a dynamic industry, which is subject to change over time. This may be for a number of reasons. For example, fluctuations in landings, the distribution of target species and status of targeted stocks, changes in legislation and management policies, economic constraints such as fuel costs and crew availability, or weather restrictions. As a result, the assessment undertaken is constrained by the existing baseline; and
- whilst it is recognised that the distribution of fishing activity and dependence on fishing grounds in areas relevant to the Project will vary between individual vessels within the same fishery, it is not possible within the scope of this assessment to consider the extent of impacts on a vessel-by-vessel basis.

15.11.2 In the absence of specific guidance on the identification of recreational fisheries receptors and the assessment of potential impacts, available commercial fisheries guidance has been followed. This may be overly conservative given the comparative lower specificity in species targeted by recreational fisheries, inherent differences in spatial utilisation, selectivity of recreational fishing gear, and wider spatial distribution of supporting facilities (shore access points or charter vessel locations).

15.11.3 These limitations are generally inherent to any commercial and recreational fisheries assessment. Care will be taken to minimise these limitations for the ES where possible by correlating with other available studies and to use engagement to validate findings where feedback has been provided by stakeholders. Any outstanding limitations will be documented in the ES.

15.12 Summary

15.12.1 The proposed scope of the assessment for Commercial and Recreational Fisheries is contained within **Table 98**.

Table 98: Proposed scope of the commercial and recreational fisheries Chapter of the ES

Matter	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Toxic contamination of marine species / habitats as a result of contaminant release from the sediment during dredging and piling activities.	In	Out	The EIA Scoping Boundary is situated within and adjacent to various habitats which are highly diverse and support commercially and recreationally important fisheries and species of conservation concern. As a result, there is potential that if not mitigated correctly the works could result in adverse effects on commercially and recreationally targeted fish and shellfish species and their supporting habitats. This in turn could indirectly affect the productivity of the fisheries that target them by reducing available stock on the ground to be fished and/or the quality of the adult stock, thus reducing fisheries yields. The potential effects of the scoped in construction, operation and maintenance phases will be assessed in **Chapter 14 – Coastal Processes**, **Chapter 17 – Marine Ecology**, **Chapter 18 – Marine Water Quality and Sediment Quality** and **Appendix I – Underwater Noise and Vibration**. Cross reference will be made to these chapters where potential impacts to commercially and recreationally targeted fisheries species and their supporting habitats have been identified and a separate assessment undertaken of the significance of these impacts in relation to commercial and recreational fisheries.
Changes in water quality during capital dredging, dredge disposal and other construction activities such as piling could impact benthic species through an increase in SSC and the release of toxic contaminants bound in sediments.	In	Out	
Direct loss of fish habitat under the footprint of the reclamation area and rock revetement. The breakwater improvement works, and piling will also potentially result in the small loss of intertidal habitat.	In	Out	
Changes to fish populations and their supporting habitat.	In	In	
Changes to salinity levels in the Port Talbot dock as a result of increased opening of the lock gates and effects on fish.	In	In	
Changes in water and sediment quality during maintenance dredging and dredge disposal.	n/a	In	
The generation of underwater noise and vibration resulting from construction activities, including piling, dredging and dredge disposal activities and underwater noise during vessel operations, maintenance dredging and dredge disposal.	In	In	

Matter	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Increased construction vessel activity associated equipment and increases in operational traffic may present safety and/or navigational issues for fishing vessels operating in the study area.	In	In	The EIA Scoping Boundary is located within and adjacent to commercially and recreationally important fishing grounds. As a result, there is the potential for the construction and operation phases of the Project to generate navigational and/or safety issues for vessels operating within the study area. If these potential impacts are not mitigated correctly, the Project could result in adverse effects on commercial and recreational fisheries. Potential effects will be assessed in **Chapter 19 – Navigation and Marine Transport**. Cross reference will be made to this chapter where potential impacts to commercial and recreational fisheries have been identified and a separate assessment undertaken of the significance of these impacts in relation to the commercial and recreational fisheries topic.
Temporary loss or restricted access to fishing grounds for commercial and recreational fishers.	In	Out	The works occur around and in potential fishing grounds and may impact access to the port and/or fishing grounds adjacent to the Scoping Boundary. During construction, temporary loss, or restricted access to commercially and recreationally targeted fishing grounds could also be a consequence of the implementation of temporary safety zones (if required) around construction activities and partially installed infrastructure. It is unknown at this stage whether temporary safety zones will be required, and the spatial extent and location of these, if required. Based on the above, temporary loss, or restricted access to commercially and recreationally targeted fishing grounds has been scoped in this assessment for the construction phase. During operation, it is expected that there will be an increase in vessel traffic which has the potential to present navigational/safety risks, however it is not anticipated that this increase will result in temporary loss, or restricted access to commercially and recreationally targeted fishing grounds. Based on the above, temporary loss, or restricted access to commercially and recreationally targeted fishing grounds has been scoped out of this assessment for the operation phase.
Displacement of commercial and recreational fishing activity into other areas.	In	In	The works occur in and around potential fishing grounds for local vessels and may impact the access to the Port. This could lead to the displacement of vessels and crowding of other ports/harbours, where provisions are available. There is the potential for temporary loss of access to commercially and recreationally targeted fishing grounds during construction to lead to a temporary relocation of fishing activity which in turn could result in increased competition for fishing grounds in other areas. Whilst it is difficult to predict

Matter	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
			where fishing activity may be displaced to and how this may affect individual vessels, in all cases, the level of displacement would be a function of the temporary loss or restricted access to fishing grounds. Based on the above, displacement of commercial and recreational fishing activity into other areas has been scoped in this assessment for the construction phase. Marine traffic is expected to increase within the study area during the operational phase. This has the potential to increase congestion within the study area, leading to displacement of commercial and recreational fishing vessels into other areas. Based on the above, displacement of commercial and recreational fishing activity into other areas has been scoped in this assessment for the operation phase.
Increased steaming times for commercial and recreational vessels to fishing grounds.	In	In	During construction, the implementation of temporary safety zones (if required) could result in increased steaming distances and times for commercial and recreational fishing vessels operating within the study area. This could potentially result in increased operational costs for some vessels. Based on the above, increased steaming times has been scoped in this assessment for the construction phase. Marine traffic is expected to increase within the study area during the operational phase. This has the potential to increase congestion within the study area, leading to commercial and recreational fishing vessels needing to change course, or deviate from usual journeys to avoid areas of higher boat traffic linked to the operation phase. Based on the above, increased steaming times has been scoped in this assessment for the operation phase.
Potential impact to future stock value for commercially targeted fisheries species.	In	In	Construction of new marine infrastructure and construction activities, including vessel operations, piling, capital dredging and dredge disposal activities could lead to a decline in stock numbers due to stress and displacement of brood stock and adult individuals. Based on the above, potential impacts to future stock value has been scoped in this assessment for the construction phase. During operation, maintenance dredge disposal activities and increases in vessel traffic could lead to a decline in stock numbers due to stress and displacement of brood stock and adult individuals. Based on the above, potential impacts to future stock value has been scoped in this assessment for the operation phase.

Chapter 15 References

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16 Marine Historic Environment

16.1 Introduction

16.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential marine historic environment effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

16.1.2 This environmental topic relates to marine and intertidal aspects of the Project, with terrestrial historic environment aspects being covered separately in **Chapter 10 – Terrestrial Historic Environment**.

16.1.3 The historic environment is defined within the Planning Policy Wales: Technical Advice Note 24 (Wel171) as:

"All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed".

16.1.4 The historic environment is also defined within the UK Marine Policy Statement (UK Government, 2011) as:

"The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged".

16.1.5 The marine historic environment is defined in the Cadw guidance 'Managing the Marine Historic Environment of Wales'' as:

"Places under the sea and in the intertidal zone where evidence for human activity is preserved. Here, this means historic remains found below the high water mark. This can include the upper tidal reaches of rivers as well as the coast itself. Many built structures can be found in this zone — for example, piers, harbours and breakwaters — and these are important for understanding and appreciating the marine historic environment".

16.1.6 The effects of the Project on the following are considered in relation to the marine historical environment:

- marine assets include those within the sea, dock and foreshore;

- marine and intertidal assets;
- marine assets which fall above the mean high water springs (MHWS), for example, breakwaters, jetties, or slipways, but '*are important for understanding and appreciating the marine historic environment'* (Cadw 2019); and
- where non-designated historic assets are categorised as 'maritime' in the local and national historic environment datasets which inform this chapter, these have also been included as marine assets within this chapter.

16.1.7 This chapter also only covers the marine historic assets at the Port and Jersey Marine Site as there are no recorded marine historic assets within the study area for Kenfig Marshalling Yard Site.

16.1.8 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

16.1.9 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 10 – Terrestrial Historic Environment**; **Chapter 14 – Coastal Processes; Chapter 21 – Landscape, Seascape and Visual Amenity**; and **Appendix I – Underwater Noise and Vibration.**

16.2 Legislation, Policy and Guidance Position

16.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of marine historic environment are detailed in **Table 99**.

Table 99: Legislation, policy and guidance relevant to Marine Historic Environment

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Historic Environment (Wales) Act 2023	This act improves the accessibility of Welsh law by combining listed building and scheduled monument legislation in one place. It is published in both Welsh and English. The act came into force on 4th November 2024 and supersedes the 2016 Historic Environment Act. This act consolidates several others, including the Historic Environment (Wales) Act 2016, but excludes monuments 'situated in, on or under the bed of the sea below the low water mark'.
Protection of Wrecks Act 1973	This act secures the protection of wrecks in territorial waters and the sites of such wrecks, from interference by unauthorised persons; and for connected purposes.
Protection of Military Remains Act 1986	This act secures the protection from unauthorised interference of the remains of military aircraft and vessels that have crashed, sunk or been stranded and of associated human remains; and for connected purposes.
Merchant Shipping Act 1995	This act consolidates the Merchant Shipping Acts 1894 to 1994 and other enactments relating to merchant shipping. The 1995 requires that all wreck material, whether recovered from UK territorial waters or brought into the UK from outside, must be reported to the Receiver of Wreck. The receiver will try to find the owner of the material, or a museum home for any artefacts.

Marine and Coastal Access Act 2009	This act introduces a new system of marine management. It aims to create a more integrated approach to effective marine management and the sustainable use and protection of marine resources. The act includes provisions for licensing activities in the marine environment and the designation of conservation zones. Section 186(1) of the act states that features of archaeological or historic interest are included within the scope of the marine environment.
National Policy	
Planning Policy Wales (PPW) Edition 12 (Welsh Government, 2024)	The PPW is a core planning policy document and sets out the national framework for planning policy. Section 6.1 pertains to the historic environment.
Planning Policy Wales Technical Advice Note (TAN) 24: The Historic Environment	The PPW is supported by the TAN 24 which sets out clearly how the Welsh planning system considers the historic environment during development plan preparation and decision making on planning applications and consents, including listed building consent and scheduled monument consent.
Welsh National Marine Plan (2019) (Welsh Government, 2019)	This plan identifies the need to protect coastal and marine heritage and how proposals should consider potential impact to historic assets and their setting.
UK Marine Policy Statement (2011) (UK Government, 2011)	The Marine Policy Statement (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment.
Local Policy	
Neath Port Talbot County Borough Council – Local Development Plan (2011-2026) (Neath Port Talbot Council , 2016)	Adopted in January 2016, this document sets out policies for the future development of Neath Port Talbot. Section 5.5 sets out the culture and heritage policies.
Neath Port Talbot County Borough Council – Replacement Local Development Plan Preferred Strategy 2023-2038 (Neath Port Talbot Council, 2024)	NPTC are currently in the process of developing a Replacement Local Development Plan. While not adopted as policy, it provides information and updated policies related to the historic environment. Relevant policies include Policy SP15: Historic Environment.
Guidance and Standards	
Conservation Principles for the Sustainable Management of the Historic Environment in Wales (Cadw (Cof Cymru), 2011)	This is the primary guidance document for work relating to the Historic Environment in Wales. It sets out how the significance of the historic environment should be understood.
Heritage Impact Assessment in Wales (Cadw (Cof Cymru), 2017a)	This document sets out the general principles to consider when planning changes to historic assets and applying for listed building, conservation area and scheduled monument consent.
Setting of Heritage Assets in Wales (Cadw (Cof Cymru), 2017c)	This document explains what setting is, how it contributes to the significance of a historic asset and why it is important.
Managing Historic Character in Wales (Cadw (Cof Cymru), 2017b)	This document explains why it is important to recognise historic character and use it as an evidence base for conservation, regeneration, and planning work.
Managing the Marine Historic Environment of Wales (Cadw (Cof Cymru), 2020)	This document explains the Welsh Government's approach to the marine historic environment and offers best-practice guidance for its protection and management.
Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) (Cadw (Cof Cymru) and Welsh Archaeological Trusts, 2022)	This document aims to provide guidance to allow HER users to submit data in a format that can be easily integrated into the now-statutory regional HERs, taking into account the need for certain project types to supply Welsh translations for certain fields in accordance with new legislation.

The Marine Historic and Natural Environment: Marine Area Statement (Royal Commission on the Ancient and Historical Monuments of Wales, 2022)	The purpose of this document is to highlight place-based examples linked to the terrestrial area statements supplementing the coastal margins and marine information with a historic environment perspective. The Marine Area Statement includes a theme on "Making the most of marine planning" and identifies actions needed to get the right activities in the right place, helping to ensure that our seas are healthy, resilient and provide us with what we need - energy, food, enjoyment - now and in the future.
Archaeology and Planning in South East Wales. Notes and Guidance (GGA, No Date)	This document provides guidance on archaeological reporting and fieldwork, including the different types of surveys and excavations, when working in South East Wales.
A Research Framework for the Archaeology of Wales (IFA Wales/Cymru, 2008)	These documents outline the research frameworks by period for Wales which identify key questions that should be asked in any archaeological investigation related to that period and area.
Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA), 2014)	This guidance seeks to define good practice for the execution and reporting of desk-based assessment in line with the regulations of Chartered Institute for Archaeologists (CIfA), in particular the Code of conduct.
Principles of Cultural Heritage Assessment by the Institute of Environmental Management and Assessment (IEMA), the Institute for Historic Building Conservation (IHBC) and CIfA (IEMA, IHBC and CIfA, 2021)	This publication provides a useful set of guiding principles to supplement existing guidance and provide a consistent framework for cultural heritage impact assessment in a variety of settings.
Design Manual for Roads and Bridges (DMRB) LA 104: Environmental Assessment and Monitoring (DMRB, 2020a)	This document sets out the requirements for environmental assessment of projects, including reporting and monitoring of significant adverse environmental effects.
DMRB LA 106 – Cultural Heritage Assessment (DMRB, 2020b)	This document sets out the requirements for assessing and reporting the effects on cultural heritage as part of the environmental assessment process of construction, operation and maintenance projects.

16.3 Engagement and Consultation

16.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

16.3.2 Consultation will be undertaken with Cadw, Heneb (Glamorgan-Gwent Archaeology (GGA)) and the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) to discuss marine historic environment matters in relation to the assessment approach and the study area. Initial findings may also be discussed as well as any proposed mitigation measures.

16.4 Study Area

16.4.1 The study area used for this scoping exercise for the marine historic environment is 1km from the EIA Scoping Boundary. The study area for the marine historic environment is provided in Figure 16.1 in **Appendix A**. The study area is wholly within the marine area of the Scoping EIA Boundary. The setting of terrestrial assets within the 1km study area is covered in **Chapter 10 – Terrestrial Historic Environment.**

16.4.2 There are two separate areas covered by the EIA Scoping Boundary for the Marine Historic Environment. Each of the below areas has a study area 1km from the relevant EIA Scoping Boundary.

- Existing port of Port Talbot (the Port); and
- Jersey Marine Site.

16.4.3 The 1km study areas are considered appropriate and proportionate for scoping to collate information on historic assets which have potential to be affected by the Project in a marine environment. It allows for consideration of assets which may be physically impacted by the Project as well as an assessment of the settings of historic assets and potential to changes within these settings appropriate for scoping. Historic assets characterised as marine within this chapter also include those recorded on the foreshore (up to the mean high water springs).

16.5 Description of the Existing Environment

Resources and Receptors

16.5.1 For the aspect of marine historic environment, the resources and receptors are:

- Designated historic assets which may consist of scheduled monuments, listed buildings and protected wreck sites.
- Non-designated historic assets which may consist of, or be a combination of vessels, shore-side facilities, port-related structures, submerged landscapes identified by plan-making bodies as having a degree of heritage significance meriting consideration in planning decisions but which do not meet the criteria for designated historic assets (Welsh Government, 2023).

Data Sources

16.5.2 The baseline for the marine historic environment has been derived from the data sources set out in **Table 100**.

Table 100: Data sources

Data type	Data Source
Designated historic assets including listed buildings, scheduled monuments and protected wreck site	National Historic Assets of Wales = (Cadw (Cof Cymru), 2024a).
Non-designated marine historic assets	Heneb (GGA) Historic Environment Record (HER) database and the National Monuments Record for Wales (NMRW) as held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) (RCAHMW, 2024). The NMRW may record many of the same assets as the HER, but HER entries are preferred with NMRW entries supporting them.

Data type	Data Source
Wrecks and obstructions	UK Hydrographic Office (UKHO) for charted, uncharted, live and dead wrecks and obstructions (UKHO, via the Admiralty Marine Data Portal accessed online , 2024).
Previous archaeological events	Heneb (GGA) HER database.

Baseline Conditions

16.5.3 Historic assets are identified in this document and the associated mapping (Figure 16.1, **Appendix A**) using specific reference numbers. Non-designated historic assets are denoted by their HER number prefixed by GGAT. UKHO assets are denoted by their wreck ID number prefixed by UKHO. Those solely numerical identifications relate to RCAHMW references.

16.5.4 A full list of marine historic assets recorded within the study area are in the gazetteer in **Appendix J.**

Designated Historic Assets

16.5.5 There are no designated marine historic assets recorded below the MHWS of the EIA Scoping Boundary and study area.

Non-designated Historic Assets

The Port

16.5.6 There are 136 non-designated marine historic assets recorded by the HER within the Port study area as shown in Figure 16.1, **Appendix A**. These include docks, jetties, weirs and wreck sites. Of these 136 historic assets, 70 are recorded within the EIA Scoping Boundary. These primarily comprise post-medieval and industrial dock infrastructure and include:

- wharfs (GGAT08814w and GGAT08818w);
- jetties (GGAT08800w to GGAT08809w, GGAT10801m, GGAT10802m GGAT10857m. GGAT10861m to GGAT10863m and GGAT10955m to GGAT10959m);
- a breakwater (GGAT03123w);
- boat house (GGAT10864m);
- dolphins (GGAT10035m to GGAT10038m, GGAT10190m, GGAT10191m to GGAT10198m, GGAT10803m, GGAT10865m, GGAT10867m and GGAT10915m);
- landing stages (GGAT08813w, GGAT10859m, GGAT10860m, GGAT10866m, GGAT10917m and GGAT10918m);
- locks (GGAT08841w, GGAT10029m, GGAT10039m and GGAT10856m); and
- mooring posts or mooring rings (GGAT10028m, GGAT10930m, GGAT10932m to GGAT10946m and GGAT10951m).

16.5.7 An additional 36 non-designated marine assets have been identified within the Port study area through the NMRW data (Cadw (Cof Cymru), 2024b) as shown in Figure 16.1, **Appendix A**. These include further possible post-medieval wreck sites. While they are included in the NMRW data, archaeological remains associated with the vessels are not confirmed in these locations but may be present in the vicinity. Eight marine assets have been identified within or immediately adjacent to the EIA Scoping Boundary through the NMRW data. These comprise:

- The possible wreck site of the *Carola* (273982), which is a 19th century wooden barque recorded just inside the EIA Scoping Boundary at the entrance to the tidal harbour near the breakwater;
- the possible wreck site of the *John Stroud* (240948), which is a 19th century wooden brig recorded within the EIA Scoping Boundary at the entrance to the Afon (River) Afan;
- the possible wreck site of the *Windermere* (273934), which is a 19th century steam ship recorded immediately adjacent to the EIA Scoping Boundary at the entrance to the Afon Afan;
- the possible wreck site of the *James Stevens* No 12 (274095), which is self-righting lifeboat recorded immediately adjacent to the EIA Scoping Boundary at the entrance to the Afon Afan;
- the possible wreck site of a 20th century crane barge named *Jumbo* (515495), recorded within the EIA Scoping Boundary in the impounded dock;
- the possible wreck site of the *Eva* (506806), which is a 20th century fishing vessel recorded within the EIA Scoping Boundary within the impounded docks;
- Roman Milestone (307252) recovered from within the EIA Scoping Boundary in the impounded dock; and,
- peat deposit (524727) recorded within the EIA Scoping Boundary in the impounded dock.

16.5.8 The wrecks and obstructions data held by the UKHO has identified an additional five non-designated marine assets within the study area, all of which comprise possible wreck sites. Of these five, one is recorded within the EIA Scoping Boundary. This comprises an unknown wreck within the impounded dock (UKHO 99670). There is limited information available online about the asset.

Jersey Marine Site

16.5.9 There are 14 non-designated marine historic assets recorded by the HER within the Jersey Marine Site study area as shown in Figure 16.1, **Appendix A**. These include docks, jetties, and wreck sites. These primarily comprise dock infrastructure associated with the Briton Ferry Docks site and include:

- Wharfs (GGAT03144w4, GGAT03589wNE9, GGAT03605wNE 25, GGAT03609wNE29, GGAT08821w, GGAT08822w, GGAT08823w, GGAT08824w and GGAT08827w);

- docks (GGAT03147w7);
- quays (GGAT03586wNE 6);
- jetty (GGAT08810w and GGAT08830w); and
- a ferry crossing (GGAT08842w).

16.5.10 Two additional non-designated marine assets have been identified within the Jersey Marine Site study area through the NMRW data as shown in Figure 16.1, **Appendix A**. These include two possible wreck sites. While they are included in the NMRW data, archaeological remains associated with the vessels are not confirmed in these locations but may be present in the vicinity. These comprise:

- The possible wreck site of the *Isabel* (240960), which is a 19th century wooden brigantine reported to have been wrecked at Briton Ferry on 27 December 1881; and
- the possible wreck site of the *Porth* (525585), which is 19th century wooden sloop which was reported to have been 'Lost in Neath River 4 February 1867'.

Historic Environment Baseline

16.5.11 The following section provides a brief description of the Marine Historic Environment baseline within the Port and Jersey Marine Site EIA Scoping Boundary and study areas. Where relevant, assets that lie outside of the study area have been included to provide context.

Prehistoric (up to AD 43)

16.5.12 There are no recorded prehistoric assets recorded within the EIA Scoping Boundary and there are a limited number recorded within the study area.

16.5.13 Sea levels were much lower than present day during the prehistoric period due to the expansion of ice sheets. Between 16,000 and 7,000 BC, and possibly even later, the Welsh coastlines would have extended further out to the west (University of Bradford, no date). Following the melting of ice sheets as the climate warmed, sea levels rose and submerged coastlines and land. This gave rise to submerged landscapes such as petrified forests. One such landscape has been documented north of the EIA Scoping Boundary within the western part of Swansea Bay (Sherman, 2011). It is considered that there is potential for a similar landscape to survive submerged at Port Talbot.

16.5.14 A peat deposit (524727) dated to the Mesolithic is identified to the north of the Port Talbot Harbour entrance within the EIA Scoping Boundary. This is particularly notable as it demonstrates the potential survival of earlier landscapes submerged within the Port EIA Scoping Boundary. These landscapes can contain valuable palaeo-environmental information about vegetation and climate. It also highlights the potential for associated finds and features to be preserved within the EIA Scoping Boundary.

16.5.15 Evidence of prehistoric occupation within the study area is demonstrated by a Neolithic axe head (GGAT00961w) recorded as having been discovered on Port Talbot Beach c. 435m north-west of the EIA Scoping Boundary. It is likely a redeposited find and not in-situ but indicates a wider prehistoric presence. A piece of human skull (GGAT00731w) thought to date to sometime before the Bronze Age is identified at the entrance to the Harbour, c. 150m west of the EIA Scoping Boundary.

Roman (AD 43 - AD 410)

16.5.16 There is limited information regarding Roman influence on Port Talbot. It has not been confirmed whether there was an active port at Port Talbot during this time, or even a settlement. However, there is some evidence for Roman activity as a Roman milestone (307252) has been recovered from within the EIA Scoping Boundary in the impounded dock. Although, this is likely a redeposited find. This may indicate the presence of a connecting road along the inner edge of the Port Talbot/Aberavon coastal plain. No further records relating to the marine environment have been recorded within the EIA Scoping Boundary or study area.

Early Medieval and Medieval (AD 410 - AD 1539)

16.5.17 There are no recorded marine historic assets dated to the early medieval and medieval periods within the EIA Scoping Boundary and the study area.

16.5.18 There is evidence that Port Talbot was exploited for marine activities. John Leland described Port Talbot, or as it was then known ‘Aberavon/Aberafan’ as a ‘poore village’…the grounds around it be baren and sower’ (Toulmin-Smith, 1906) during his travels between c. 1536-1539. This document also mentions that Aberavon was surrounded by woodland and used the mouth of the afon as a port. A local history website states that the old medieval harbour was located on the ‘Bar of Afan’, likely denoting an area of elevated sediment within an afon (Port Talbot Historical Society, 2024). This would suggest that the old medieval harbour was located at the mouth of the Afon Afan to the immediate north of the Port EIA Scoping Boundary. However, following the construction of the later, post-medieval port, the Afon Afan was reportedly redirected, obscuring the exact location of the possible medieval harbour.

16.5.19 It is known that a ferry crossing (GGAT08842w) was located to the south-east of the Jersey Marine Site during the medieval period as the Normans referred to the River crossing as *La Brittonne* (Morgan, 1977). The ferry crossing remained in use throughout the medieval period, and it is referred to as *Britanne Fery* (now Briton Ferry, within the Jersey Marine Site study area) by John Leland at the end of this period (Morgan, 1977).

Post-Medieval and Industrial (1539 -1899)

16.5.20 The coal resources surrounding Briton Ferry (GGAT08842w) were exploited as early as the 17th century; however, it was Briton Ferry's marine location at the mouth of the Afon Nedd, which stimulated its

industrial development. From the late 18th and early 19th centuries, coastal shipping at Giant's Grave's wharves (GGAT03144w4, GGAT03589wNE9, GGAT03605wNE 25, GGAT03609wNE29, GGAT08821w, GGAT08822w, GGAT08823w, GGAT08824w and GGAT08827w) loaded coal for export from pits in the Neath Valley and unloaded iron ore and limestone. The two 19th century wreck sites reported likely used to transport these goods (240960 and 525585).

16.5.21 Following the development of the Vale of Neath Railway in 1851, the Briton Ferry Dock was designed by Isambard Kingdom Brunel to handle coal and other goods. The Briton Ferry Dock opened in 1861. The dock is now disused, and the lock basin is filled with silt. It is a Grade II* listed building (23299) and a scheduled monument (GM445) (see Chapter 10 – Terrestrial Historic Environment as this asset falls above the high water spring).

16.5.22 At the Port of Port Talbot, C.R.M Talbot joined with other industrial owners in the area to create a new dock complex in 1836. This replaced the old medieval harbour. In 1898, the docks were upgraded again under Emily Talbot (see **Chapter 10 – Terrestrial Historic Environment**). The EIA Scoping Boundary comprises much of the existing port and so there are numerous records associated with the post-medieval dock. These include breakwaters (GGAT03123w), wharfs and docks (GGAT08814w, GGAT08833w, GGAT08818w), jetties (including GGAT08800w, GGAT08804w, GGAT08807w), a bridge (GGAT05818w) and extant and demolished residential and industrial buildings (GGAT03125w, GGAT08612w, GGAT08613w, GGAT04726w). A total of 18 wreck sites from this period are identified within the EIA Scoping Boundary or in close proximity to it. Two wreck sites (the *Windermere* (273934) and the *John Stevens* No 12 (274095)) are recorded close to the entrance to the Afon Afan and are directly adjacent to the EIA Scoping Boundary.

16.5.23 The possible wreck site of the *Amazon* (UKHO 12515) lies to north of these assets and the breakwater. The *Carola* (273982) is also recorded as having sunk in the entrance to the harbour, just inside the EIA Scoping Boundary.

16.5.24 Close to the port entrance but outside of the EIA Scoping Boundary the wreck sites of *Stalheim* (274357; UKHO 12508), *Madjoe* (274358) and an unidentified wreck (800455) have been positively located, while a further 12 wreck sites are known to have sunk in this area but their locations have not been securely identified. Further wreck sites and potential wreck sites have been identified within the study area to the south of the harbour on Morfa Beach and on the beaches to the north (Cadw (Cof Cymru), 2024b).

Modern (1900 - Present)

16.5.25 The expansion of industry continued into the 20th century with the establishment of the Port Talbot Steelworks in 1906. By 1947, it became an integrated steelworks. In the 1950s, British Petroleum (BP) opened a chemical plant at Baglan Bay to the north of Port Talbot. The success of industry attracted an influx of workers and their families into the area and the town subsequently expanded to accommodate this rise in population.

16.5.26 In contrast, by 1951 the Briton Ferry Dock to the south-east of the Jersey Marine Site was almost inactive with only sand delivery vessels making use of it. Eight years later, in 1959, the dock operations were suspended. The lock gate was partially taken apart, leaving the lower section in place, which resulted in silt accumulation in the dock basin. Following the Second World War, the site of Giant's Grave also became a centre for ship breaking. This continued even after the closing of the dock.

16.5.27 A further 13 wreck sites originating from this period have been identified within the study area for the Port, as well as the wreckage of the steam crane *Jumbo* which fell into the harbour in 1929. Near to this record lies an unknown wreck site (UKHO 99670). The asset reportedly lies at least 0.48m below the surface. It is not confirmed whether the two assets are related, and so they have been treated as separate assets. Wreck sites also from this period within the EIA Scoping Boundary include the *James Stevens* No 12 (274095) and *Eva* (506806). There is no information to indicate any of these wreck sites were salvaged. There is therefore potential for previously unidentified wreck sites to be present within the study area. There is also potential for crashed aircraft to be present, as there are a few records for Second World War infrastructure within the Study Area (see **Chapter 10 – Terrestrial Historic Environment**).

Historic Landscape/Seascape

16.5.28 The EIA Scoping Boundary covers the Port, including both 19th and 20th century infrastructure such as the harbour, part of existing steelworks, the dock, part of the Afon Afan and sections of the surrounding roads to the north/north-east such as Harbour Way. Modifications will be made to the harbour to accommodate the Project, such as the construction of new quay wall, land reclamation south of the existing iron ore jetty and dredging within the Tidal Harbour to create new areas of quayside.

16.5.29 The Jersey Marine Site occupies an area along the western bank of the Afon Nedd. The marine historic environment surrounding the Jersey Marine Site includes the mouth of the Afon Nedd and the industrial maritime landscape centered around the former Briton Ferry Docks.

16.5.30 There is limited information on the early development and history of Port Talbot as outlined in the sections above. Despite this, the EIA Scoping Boundary and study area are considered to have been suitable for historic occupation given its location at the mouth of a river with a natural harbour. Access to a harbour would have made travel and trade easier and the river would have allowed access deeper into Wales.

16.6 Future Baseline

16.6.1 As set out in **Chapter 5 – Approach to Assessment,** future baseline scenarios will be established to understand the potential situation without the Project. The marine historic environment chapter of the ES would seek to explain what the environmental change, in terms of marine historic

environment, would likely be in the future if the Project were not to go ahead.

16.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence.

16.6.3 The approach to establishing the future baseline for marine historic environment will include consulting national and local plans and national datasets.

Climate Change

16.6.4 As a coastal location, the biggest factor in the evolution of the baseline is likely to be the threat of climate change. For the historic environment in Wales, this is likely to involve:

- increased rainfall;
- more frequent extreme weather events;
- increasing temperatures;
- rising seas; and
- shifting coasts.

16.6.5 For marine historic assets the impact of these changes may include:

- a spread of invasive species which could damage submerged wreck sites or artefacts;
- increase in ocean temperatures, resulting in corrosion to maritime historic assets;
- disruption from increased wave action; and
- possible erosion and damage from the impact of storms altering the seabed.

16.6.6 Further information is available in **Chapter 8 – Flood Risk** and **Chapter 20 – Climate Change** of this EIA Scoping Report.

16.7 Mitigation Measures

16.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the marine historic environment will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

16.7.2 This section sets out the potential controls relevant to marine historic environment, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

16.7.3 Marine Historic Environment design objectives shall be developed for the project in accordance with national, regional and local policies as well as in discussion with the client and stakeholders. The historic environment design objectives should provide a clear statement of how the project, through avoidance, minimisation, mitigation and offsetting, is expected to contribute to the value of, or the understanding and dissemination of, the historic environment resource, and how this is to be achieved, monitored and validated. This should be guided by the appropriate research framework (IFA Wales/Cymru, 2008).

16.7.4 Further mitigation for historic assets of archaeological interest may be developed as part of the iterative archaeological process following the surveys undertaken as part of the assessment for the ES. These may involve a programme of archaeological works including marine geophysical survey.

Design Measures

16.7.5 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- use of minimal or sympathetic design to reduce changes within the settings of historic assets or landscapes;
- management of noise and vibration in the vicinity of historic assets;
- establish the potential for unknown archaeological remains through the desk-based research and potentially marine survey, which may include an assessment of marine geophysical and geotechnical data;
- exploring the opportunities for community engagement about the historic environment; and,
- installation of protection measures for historic assets or sensitive areas, including implementation of Archaeological Exclusion Zones (AEZS) and production of associated plans highlighting their location.

16.7.6 Embedded mitigation may also be identified following cross topic discussion including with noise, traffic and transport to understand the potential change in the setting of historic assets due to the construction and operation of the project.

16.7.7 Similarly cross topic discussions including with landscape, the historic environment team and the project designers will be held to enable sympathetic design to minimise the potential impacts whilst discussions will also be held to understand any change in the marine environment, including physical processes which could influence sedimentary regimes and the exposure or burial of historic assets.

16.7.8 Mitigation may also be informed through consultation with key heritage stakeholders, including CADW, Heneb (GGA) and the local planning authority conservation officer. Consultation may be informed by additional information obtained from RHAHMW and Cof Cymru.

Construction Controls

16.7.9 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction phase include:

- the survey of marine archaeological remains in advance of construction where there is the potential for disturbance;
- in exceptional circumstances, full excavation, and potential relocation of a wreck site may be required if avoidance is not possible;
- monitoring of vibration and noise on historic assets and the indirect impact of marine construction activities on marine historic assets;
- implementation of a Protocol for Archaeological Discoveries (PAD), which may include archaeological monitoring;
- where historic assets or archaeological remains cannot be avoided ensuring their investigation, recording, reporting and archiving; and
- establishment of an Archaeological Management Plan (AMP) or Written Scheme of Investigation (WSI), updated regularly to ensure best practice investigation of historic assets and archaeological remains.

Operational and Maintenance Controls

16.7.10 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational phase include:

- AEZs established during the construction phase will be retained during operation. All contractors would have a contractual obligation to avoid the seabed in these areas and transiting over an AEZ will not be prohibited.

16.8 Potential Likely Significant Effects

16.8.1 The potential likely significant effects for marine historic environment are described in **Table 101**. These take into account the expected control measures set out within Section 16.7.

16.8.2 There are no likely significant effects anticipated to impact upon any designated marine historic assets, specifically protected wrecks. This is due to there being no protected wreck sites recorded anywhere within the EIA Scoping Boundary, study area or within the immediate wider surrounding landscape.

Table 101: Likely significant Marine Historic Environment effects

Activity	Effect	Receptor
Presence of construction vessels and an increase in vessel traffic	Temporary changes to the settings of historic assets.	Non-designated marine historic assets
Diversion or alteration of existing services and installation of new services	Temporary changes to the settings of historic assets.	Non-designated marine historic assets
Changes to coastal processes including disturbance of sediment (i.e. uncovering/burial of assets).	Temporary indirect effects	Non-designated marine historic assets, including geoarchaeological features.
Excavation, ground disturbance, dredging, piling, anchoring and boat-wash.	Permanent removal	Non-designated marine historic assets, including geoarchaeological features.
Excavation, ground disturbance, dredging, piling, anchoring and boat-wash.	The identification and protection of wreck sites. Additionally, if increased sedimentation results in an exposed site becoming buried, it may add some protection	Non-designated marine historic assets
Increased vessel movements	Permanent changes to the settings of historic assets.	Non-designated marine historic assets
Permanent changes in coastal processes (e.g. wave action and tidal currents)	Stability of nearby morphological and archaeological features. This could affect the preservation of waterlogged remains and expose assets to an increased rate of erosion and deterioration.	Non-designated marine historic assets, including geoarchaeological features.

16.8.3 There is the potential for further significant effects as a result of the Project. There is also potential for less than significant effects as a result of the Project, allowing assets to be scoped out of the assessment. However, without detailed assessment of the marine historic environment in the study area this cannot be ascertained and will from part of the detailed assessment during the Environmental Statement (ES), site walkover and production of the Desk-Based Assessment (DBA) (outlined in more detail in Section 16.11.5).

16.9 Resources and Receptors Scoped Out of the Marine Historic Environment Assessment

16.9.1 The resources or receptors that are proposed to be scoped out of the assessment for marine historic environment are set out within **Table 102**. These include receptors that are proposed to be assessed in **Chapter 10 – Terrestrial Historic Environment**.

Table 102: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Phase 1 and Future Phase(s) construction and operational and maintenance activities	Permanent removal/ total loss and physical impact	Designated marine historic assets	There are no designated marine historic assets in the study area.
Phase 1 and Future Phase(s) construction and operational and maintenance activities	Temporary and permanent changes to non-registered historic landscape	Non-registered historic landscapes: the Port and Kenfig Marshalling Yard Site	The Port and Kenfig Marshalling Yard Site are industrial in nature and predominantly date to the post-medieval/Modern period. Changes to these areas will be in keeping with the overarching historic landscape character of the non-registered historic landscape.
Excavation, ground disturbance and compaction during Phase 1 and Future Phase(s) construction activities	Permanent removal/ total loss of marine historic assets	Terrestrial designated and non-designated historic assets	Covered in the **Chapter 10 – Terrestrial Historic Environment** of the EIA Scoping Report.
Phase 1 and Future Phase(s) construction and operational and maintenance activities	Permanent and temporary changes to the setting of historic assets, including historic seascape	Terrestrial designated and non-designated built historic assets	Covered in the **Chapter 10 – Terrestrial Historic Environment** of the EIA Scoping Report.

16.10 Proposed Assessment Methodology

16.10.1 The ES will be supported by a detailed DBA which will form the baseline and will be included as a technical appendix. Early consultations will be undertaken with relevant historic environment stakeholders to inform the contents, conclusions and recommendations of the DBA.

Baseline

16.10.2 The proposed study area for the DBA will comprise an inner (1km radius), and outer study area. The inner study area will include all assets (as defined in Table 16.2 above). The radius of the outer study area will depend on the ZTV and detailed design of the Project, as well as being informed by the results of the coastal processes numerical modelling undertaken. The selection of the study area will involve a selection process based on the setting of the historic asset and its sensitivity to change. This selection process will be recorded in the baseline of the ES. Only those assets selected will be considered for further assessment.

16.10.3 Both the ES and the DBA will utilise the following sources:

- Cof Cymru – National Historic Assets of Wales for data on listed buildings, scheduled monuments, World Heritage Sites, and protected wreck sites (Cadw (Cof Cymru), 2024a);

- Heneb (GGA) HER database for historic monument records and archaeological events;
- the NMRW as held by the RCAHMW for non-designated archaeological sites, find spots and wreck sites (RCAHMW, 2024);
- the wreck sites and obstructions data as held by the UKHO;
- site visits and setting assessments where relevant;
- an inspection of geological maps and historic BGS borehole data relevant to the study area;
- a review of material published from previous archaeological surveys and investigations;
- an inspection of cartographic evidence and aerial photographs for the land use history of the study area;
- an inspection of historic maps and other documents relevant to the Project that are available at archives, if required;
- an inspection of LiDAR data for the intertidal zone, if available;
- a review of Ground Investigation (GI) and Unexploded Ordnance (UXO) desk study; and
- a review of bathymetric data, if available.

16.10.4 It is anticipated that an archaeological deposit model will be developed utilising the GI results.

Assessment

16.10.5 The assessment methodology will be informed by Design Manual for Roads and Bridges (DMRB), LA 106 Cultural heritage[26] assessment guidance (published January 2020) (DMRB, 2020b). The methodology will also be informed by the DMRB, LA 104 Environmental assessment and monitoring (published 2020) (DMRB, 2020a). According to DMRB, significance of effect upon the historic environment resource is assessed according to the value of the historic asset correlated with the magnitude of change. The proposed assessment criteria for value and magnitude as set out in **Table 103** and **Table 104** below have been adapted from DMRB. They outline how to assign value (sensitivity) and the magnitude of impact. While the DMRB is specifically for roads and bridges, the assessment methodology is considered to be standard practice and is widely used across the industry for various types of development.

16.10.6 The heritage value (sensitivity) of historic environment receptors will be based on **Table 103** below. Assessment of value is based on a combination of designated status, guidance provided by Cadw and professional judgement. It takes into account the Secretary of State for the Department of Culture, Media and Sport's non-statutory criteria for the scheduling of ancient monuments (Historic England , 2024); assessment criteria adopted by Historic England as part of its Monuments Protection

[26] The term 'cultural heritage' is interchangeable with the term 'historic environment'.

Programme (Historic England, 1988-1990) (in lieu of Welsh equivalent guidance) and the Secretary of State's Principles of Selection Criteria for Listed Buildings (Department for Digital, Culture, Media & Sport, 2018).

16.10.7 It is also recognised that on occasion historic assets can have a lower or higher than normal value within a local context. This will be identified through the appropriate period/location guidance within the Research Framework for the Archaeology of Wales (IFA Wales/Cymru, 2008). The assessment of value will therefore take into account the component of the asset that is being affected and the ability of the asset to absorb change without compromising the understanding or appreciation of the resource.

Table 103: Criteria for assessing value (sensitivity)

Value	Typical criteria
Very High	Very high importance and rarity, international scale and very limited potential for substitution. These include World Heritage Sites, assets of acknowledged international importance, assets that can contribute significantly to acknowledged international research objectives.
High	High importance and rarity, national scale, and limited potential for substitution. Protected wreck sites, scheduled monuments and Grade I, II* and II listed buildings, where the asset and its setting retain evidential, aesthetic and communal, and historic value which contributes to their significance. Non-designated monuments, sites or landscapes that can be shown to have specific nationally important qualities and assets that can contribute significantly to national research objectives.
Medium	Medium importance and rarity, regional scale, limited potential for substitution. Non-designated Registered Historic Landscapes, of medium importance, where the asset and its setting retain less evidential, aesthetic, communal and/or historic value which contributes to a lesser extent of their significance. Non-designated sites of regional importance identified through research or survey, monuments or sites that can be shown to have important qualities in their fabric or historical association.
Low	Low or medium importance and rarity, local scale. Non-designated assets – buildings, structures, monuments, or archaeological sites with a local importance for education or cultural appreciation, and which add to local archaeological and historic research. Very badly damaged assets that are of such poor quality that they cannot be classed as high or medium.
Negligible	Very low importance and rarity, local scale. Heritage resources identified as being of little historic, evidential, aesthetic and communal interest, resources whose importance is compromised by poor preservation or survival or by contextual associations to justify inclusion into a higher grade.

Source: Adapted from DMRB – LA 104 (DMRB, 2020a)

16.10.8 The magnitude of impact on the historic environment, will be assessed in accordance with the criteria outlined in **Table 104**.

Table 104: Magnitude of change

Major	Adverse	Total loss or fundamental alteration to a historic asset's significance or setting. Addition of new features that substantially and detrimentally alter the setting of a historic asset.
	Beneficial	Changes that are extremely beneficial to the heritage value of the asset. Comprehensive changes to the setting of the asset which greatly reveal and enhance its heritage significance.
Moderate	Adverse	Partial loss or alteration to a historic asset or its setting. Addition of new features that form largely inconspicuous elements in the setting of a historic asset to the extent that its significance is slightly impacted.
	Beneficial	Changes that are beneficial to the heritage significance of the asset. Changes that result in the setting of the asset being noticeably enhanced and improving the ability to understand the asset and its historic context and setting.
Minor	Adverse	Minor loss of an element of a historic asset or its setting. Addition of new features that form largely inconspicuous elements in the setting of a historic

		asset to the extent that its significance is slightly impacted.
	Beneficial	Changes that have a limited benefit to the heritage significance of the asset. Changes to the setting of the asset which have a slight beneficial impact on heritage significance and enhance the ability to understand the asset its historic context and setting.
Negligible	Adverse	Very minor loss of elements of a historic asset or its setting. Addition of new features that do not alter the setting of a historic asset.
	Beneficial	Very minor enhancements to the historic asset or its setting that help slightly better reveal to the asset's heritage significance.
No change	Adverse	No change to the historic asset.

Source: Adapted from DMRB – LA 104 (DMRB, 2020a)

16.10.9 The magnitude and value will then be combined to determine the overall significance of effect. The matrix for determining the overall significance of effect is shown in **Table 9** in **Chapter 5 – Approach to Assessment** of this EIA Scoping report. The effects may be either adverse or beneficial. The guidance defines a significant effect as 'residual effects that are within moderate, large or very large categories. This may result from the removal of assets or changes to their settings.

Cumulative Effects

16.10.10 The approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

16.10.11 The cumulative assessment for the marine historic environment will consider other proposed developments known at the time the ES is prepared that have potential to give rise to additional impacts and effects on marine historic assets. The potential effects of these other developments will be assessed against the findings of the Marine Historic Environment chapter in the ES, to determine whether the effects of the Project have potential to have greater or lesser significance due to the cumulative impacts of both.

16.11 Assessment Assumptions and Limitations

Assumptions

16.11.1 The key assessment assumptions in relation to Marine Historic Environment are summarised below:

- where any designated or non-designated historic asset are recorded within the EIA Scoping Boundary, it has been assumed that a "worst-case" scenario is that they will be removed, resulting in total loss, unless the design is adapted to avoid this loss; and
- where changes to setting result in an impact to the heritage value of any designated or non-designated historic asset, a balanced professional judgement will be made on the impact assuming a "worst-case" scenario.

Limitations

16.11.2 The key assessment limitations in relation to Marine Historic Environment are summarised below:

- designated asset data used in this report is up to date as of September 2024. Non-designated asset data was acquired from the HER in September 2024;
- information provided by the HER can be limited because it depends on previous opportunities for research, fieldwork and discovery. Where nothing of historic interest is shown in a particular area, this can be down to lack of targeted research or investigation rather than the genuine absence of sub-surface archaeological deposits;
- databases are limited in their ability to predict new sites and the information from the HER will be a starting point for further research rather than as a definitive list. Where there is an absence of data, professional judgement will be used to reach informed decisions regarding the historic environment;
- no survey or in-depth consultation has taken place at this stage as such there is limited information as to the presence, nature or absence of archaeological assets within the study area and EIA Scoping Boundary;
- this EIA Scoping Report does not constitute a DBA; however, the production of a full DBA will be required to inform the baseline of the ES;
- information provided by the NMRW and HER relating to the locations of wreck sites is indicative in most instances and based on documentary information. Where the remains of wreck sites have been confirmed by surveys, this has been stated; and
- the methodology for the ES and DBA has not been agreed through consultation with key stakeholders. Early and ongoing consultation will be undertaken with the relevant historic environment stakeholders as part of the ES and DBA.

Uncertainties

16.11.3 The key assessment uncertainties in relation to Marine Historic Environment are summarised below:

- the specific nature, extent, date, degree of preservation and significance of known and unknown archaeological remains is difficult to predict without appropriate invasive investigation. The uncertainty in predicting impacts and effects upon such resources is inherent in all such studies and should be stressed; and
- the current understanding of the extent and survival of archaeological remains within the study area is based on data relevant to the assessment which has been selected according to professional judgement.

16.12 Summary

16.12.1 The proposed scope of the assessment for marine historic environment is contained within **Table 105**.

Table 105: Proposed scope of the Marine Historic Environment chapter of the ES

Receptor / Matter	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Designated marine historic assets	Scoped out	Scoped out	There are no effects anticipated upon any designated marine historic assets, specifically protected wrecks sites. This is due to there being no protected wreck sites recorded anywhere within the EIA Scoping Boundary, study area or within the immediate wider surrounding landscape. This will be checked in advance of the ES being undertaken.
Non-designated marine historic assets	Scoped in	Scoped in	There may be potential effects on the heritage value of marine historic assets from the construction and operation of the Project.
Non-registered historic landscapes the Port and Kenfig Marshalling Yard Site	Scoped out	Scoped out	The overarching historic character of the Port and Kenfig Marshalling Yard Site will not change.
Terrestrial designated and non-designated historic assets	Scoped out	Scoped out	Covered in the **Chapter 10 – Terrestrial Historic Environment** of the EIA Scoping Report.
Terrestrial designated and non-designated built historic assets	Scoped out	Scoped out	Covered in the **Chapter 10 – Terrestrial Historic Environment** of the EIA Scoping Report.

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17 Marine Ecology

17.1 Introduction

17.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential effects on marine ecology in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment)**. It provides the details of the datasets to be used to in from the assessment, present an overview of baseline conditions, sets out the likely significant effects to be considered in the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

17.1.2 The effects of the Project on the following are considered:

- plankton
- benthic habitats and species (including non-native species);
- fish; and
- marine mammals.

17.1.3 This environmental topic relates to marine aspects of the Project.

17.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

17.1.5 The assessment presented in the Marine Ecology Chapter has linkages with the following environmental topics, which should be considered when reading this Chapter: **Chapter 13 – Terrestrial and Freshwater Ecology** (potential effects on coastal ecology features above high water, such as sand dunes); **Chapter 24 – Ornithology** (potential effects on coastal waterbirds); **Chapter 14 – Coastal Processes; Chapter 18 – Marine Water Quality and Sediment Quality;** and **Chapter 20 – Climate change**.

17.1.6 While the Marine Ecology Chapter will assess potential ecological effects on fish species, potential impacts on commercial fisheries will be considered in **Chapter 15 – Commercial and Recreational Fisheries**.

17.1.7 The results of the Underwater Noise and Vibration Assessment (see **Appendix I** for a description of the proposed methodology) will be used to inform the Marine Ecology topic assessment.

17.1.8 An initial assessment of relevant designated sites within the Zone of Influence of the Site is set out within the EIA Scoping Report to Inform a HRA Screening (**Appendix D**).

17.2 Relevant Legislation, Policy and Technical Guidance Position

17.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of marine ecology are detailed in **Table 106**.

Table 106: Legislation, policy and guidance relevant to marine ecology assessment

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
Legislation	
Conservation of Habitats and Species Regulations 2017 (as amended) ('The Habitats Regulations')	The Habitats Directive and Birds Directive are transposed into UK law through the Conservation of Habitats and Species Regulations 2017 (as amended), known as the "Habitats Regulations"[27]. The Habitats Regulations provide for the designation and protection of 'Habitat Sites', the protection of 'European protected species' and the adaptation of planning and other controls for the protection of European Sites[28]. The Regulations also require the compilation and maintenance of a register of European Sites, to include Special Areas of Conservation (SACs) (classified under the Habitats Directive) and Special Protection Areas (SPAs) (classified under the Birds Directive). These sites form the Natura 2000 network. These regulations also apply to Ramsar sites (designated under the 1971 Ramsar Convention for their internationally important wetlands), candidate SACs ("cSAC"), potential SPAs ("pSPA"), and proposed and existing European offshore marine sites. An initial assessment of relevant designated sites within the Zone of Influence of the Site is set out within the EIA Scoping Report to Inform a HRA Screening (Appendix D).
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	The Water Framework Directive (WFD) (2000/60/EEC) is transposed into UK law through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 as amended, known as the Water Framework Regulations[29]. A WFD compliance assessment will be prepared to support the application(s) for the Project which includes consideration of several key biological receptors, specifically habitats, fish, protected areas and invasive non-native species ("INNS").
Marine and Coastal Access Act 2009	The Marine and Coastal Access Act (MCAA) provides the legal mechanism to help ensure clean, healthy, safe, productive and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. The MCAA comprises the following key elements: • the establishment of a Strategic Marine Planning System; • the establishment of a Streamlined Marine Licensing System; • the designation of Marine Conservation Zones (MCZs); • the establishment of Inshore Fisheries Conservation Authorities (IFCAs); • the introduction of a new licensing and authorisation system for fishing activities including emergency bylaws that respond to unforeseen threats to fish stocks; • the creation of a continuous, well signed and managed route around the entirety of the English and Welsh coastline; and • the establishment of a system of Integrated Coastal Zone Management.
The Wildlife and Countryside Act 1981	The Wildlife and Countryside Act (WCA) is the principal mechanism for the legislative protection of wildlife in Great Britain. The WCA is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention), the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), the Birds

[27] Following the UK leaving the EU, the Conservation of Habitats and Species Regulations 2017 have been modified by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

[28] European Sites is the term given to a network of internationally important sites designated for their ecological status, comprising Sites of Community Importance (SCI), Special Protection Areas (SPAs), Special Areas of Conservation (SACs),

[29] Following the UK leaving the EU, the main provisions of the WFD have been retained in English law through The Floods and Water (Amendment etc.) (EU Exit) Regulations 2019.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
	Directive (79/409/EEC) and the Natural Habitats and Wild Fauna and Flora Directive (92/43/FFC) are implemented in Great Britain. The WCA applies to the terrestrial environment and inshore waters (0 to 12 nautical miles, (nm)) and concerns the protection of wild animals and the designation of protected areas, including Site of Special Scientific Interest (SSSIs). Potential effects on relevant protected species and habitats protected under the WCA will be considered in the ES Marine Ecology chapter.
The Environment (Wales) Act 2016	The Environment (Wales) Act 2016 sets out the requirement for the 'sustainable management of natural resources' together with new ways of working to achieve this. Part 1 of the Environment Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act. Section 7 of Part 1 of the Act (Biodiversity lists and duty to take steps to maintain and enhance biodiversity) replaces the duty in Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006. Potential effects on relevant marine species and habitats of principle importance listed under Section 7 of the Environment (Wales) Act 2016 will be considered in the ES Marine Ecology chapter. The 2016 Act also requires that public bodies must seek to maintain and enhance biodiversity in the exercise of their functions and in doing so promote the resilience of ecosystems, so far as consistent with the proper exercise of their functions (see Chapter 3).
The Well-being of Future Generations (Wales) Act 2015	The Act aims to improve the social, economic and cultural well-being of Wales by placing a duty on public bodies to think in a more sustainable and long-term way.
The Eels (England and Wales) Regulations 2009	The regulations which apply to all freshwater and estuarine waters of England and Wales gives powers to statutory bodies to implement measures for the recovery of European eel stocks including improving access, habitat quality and fishing pressure.
National Policy	
Welsh National Marine Plan	The Welsh National Marine Plan (Welsh Government, 2019) is the first marine plan for Wales and represents the start of a process to shape seas to support economic, social, cultural and environmental objectives. The plan was prepared and adopted under the MCAA 2009 for the purposes of Section 51 of the MCAA and in accordance with the UK MPS. The following marine plan policies are of particular relevance to the Marine Ecology topic: • **Policy ENV_01 Resilient marine ecosystems:** Proposals should demonstrate how potential impacts on marine ecosystems have been taken into consideration and should, in order of preference: a) avoid adverse impacts; and/or b) minimise impacts where they cannot be avoided; and/or c) mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding. Proposals that contribute to the protection, restoration and/or enhancement of marine ecosystems are encouraged; • **Policy ENV_02 Marine Protected Areas:** Proposals should demonstrate how they: avoid adverse impacts on individual Marine Protected Areas (MPAs) and the coherence of the network as a whole; have regard to the measures to manage MPAs; and avoid adverse impacts on designated sites that are not part of the MPA network; • **Policy ENV_03 Invasive non-native species:** Proposals should demonstrate how they avoid or minimise the risk of introducing and spreading invasive non-native species. Where appropriate, proposals should include biosecurity measures to reduce the risk of introducing and spreading of invasive non-native species; • **Policy ENV_05 Underwater noise:** Proposals should demonstrate that they have considered man-made noise impacts on the marine environment and, in order of preference: a) avoid adverse impacts; and/or b) minimise impacts where they

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
	cannot be avoided; and/or c) mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding; and • **Policy ENV_05 Fish species and habitats:** Proposals potentially affecting important feeding, breeding (including spawning & nursery) and migration areas or habitats for key fish and shellfish species of commercial or ecological importance should demonstrate how they, in order of preference: a) avoid adverse impacts on those areas; and/or b) minimise adverse impacts where they cannot be avoided; and/or c) mitigate adverse impacts where they cannot be minimised; If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding.
Planning Policy Wales 12 (2024)	Planning Policy Wales (PPW) was updated in 2024 to include more clarity and increased emphasis on the importance of biodiversity and ecosystem resilience. In addition, PPW is clear that well-being improvements, addressing the consequences of climate change and considering sequestration of carbon should also be central to any protection, maintenance and enhancement strategy for ecosystem resilience. In respect of discharging their Section 6 duty set out in the Environment (Wales) Act 2016, PPW provides further clarification that when assessing development applications, local planning authorities should not only require development to not cause any significant loss of habitats or populations (based on up-to-date ecological information) but should seek for development to provide a net benefit for biodiversity and in doing so promote the resilience of ecosystems. A net benefit for biodiversity is defined as 'the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before, through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site'. To achieve this, PPW places significant weight on the importance of following the mitigation hierarchy (avoidance, minimisation, mitigation, compensation on-site and then compensation off-site, with enhancement opportunities considered at every step of this hierarchy). New development required to evidence that this step-wise approach has been followed in a Green Infrastructure Statement setting out long-term management. PPW also advises that in delivering a net benefit for biodiversity, the Diversity, Extent, Condition, Connections and Adaptability of ecosystems (DECCA) framework should be applied to demonstrate the resilience of ecosystems. PPW also places considerable weight on the importance and protection of peatlands and of irreplaceable habitats, unless there are significant material considerations (in respect of peatland) or "wholly exceptional" circumstances. Irreplaceable habitats are defined as those "Habitats, including the natural resources which underpin them, which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. The geographical scope of PPW applies to land above the Mean Low Water mark and therefore includes some intertidal habitats.
Technical Advice Note 5 (TAN 5): Nature Conservation and Planning	TAN 5 relates to nature conservation and planning (Welsh Assembly Government, 2009) and provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. TAN 5 provides advice for local planning authorities on: • the key principles of positive planning for nature conservation; • nature conservation and Local Development Plans; • nature conservation in development management procedures; • development affecting protected internationally- and nationally- designated sites and habitats; and • development affecting protected and priority habitats and species.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
Local Policy	
Neath Port Talbot County Borough Council (NPTC) Biodiversity Duty Plan 2023-2026	The plan sets out the means by which the NPTC will deliver against its statutory duty for biodiversity under Section 6 of the Environment (Wales) Act 2016. Of particular relevance to the Marine Ecology topic is the requirement to manage invasive non-native species under Nature Recovery Action Plan (NRAP) Objective 4 (*tackle key pressures on species and habitats*) and also the need under NRAP Objective 3 to increase the resilience of the natural environment by restoring degraded habitats and undertaking habitat creation (NPTCBC, 2024).
Guidance and Standards	
The Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland (2018)	The guidelines developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) aim to promote good practice in EcIA relating to terrestrial, freshwater, coastal and marine environments in the UK and Ireland (CIEEM, 2018). The assessment methodology for the Marine Ecology topic has been developed on the principles of the CIEEM (2018) guidance.
Statutory Nature Conservation Agency Protocol for Minimising the Risk of Injury to Marine Mammals from Piling Noise	The document outlines a protocol for the mitigation of potential underwater noise impacts arising from pile driving Joint Nature Conservation Committee, (JNCC, Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise., 2010)). (. The protocols will be followed when developing any suitable mitigation required to minimise potential effects on marine mammals during any piling.
Welsh Government Guidance on Habitat Regulation Assessment	Guidance on the principles and approach to HRA and applies to European Sites in Wales and associated inshore waters (within 12 nm of the coast) (Welsh Government, 2021). This guidance will be followed when undertaking the EIA Scoping Report to Inform a Habitats Regulations Assessment (HRA) Screening (Appendix D).
Natural Resources Wales (NRW) Guidance on Benthic Habitat Assessments for Marine Developments	The guidance sets out methods and approaches for survey and monitoring of benthic marine habitats where such work is required to support environmental and EcIAs for developments and activities in or near Welsh waters. The approach to undertaking the benthic ecology surveys (Section 17.5) has taken into account the advice provided in the guidance.
Phase I Intertidal Habitat Mapping Handbook	The Countryside Council for Wales (CCW) guide to mapping of intertidal habitats (Wyn, 2006), provides detailed guidance for the 'Phase I' method for intertidal survey and mapping. The Phase 1 Intertidal Ecology surveys (Section 17.5) were based on the methods highlighted in the handbook.
NRW Guidance on Marine Mammal Management Units in Habitat Regulations Assessments (Cyfoeth Naturiol Cymru Natural Resources Wales, n.d.)	The guidance outlines why NRW considers marine mammal management units (MMMUs) to be the most relevant spatial scale to use in HRA screening and assessment for highly mobile marine mammal species features of Special Areas of Conservation (SACs) around Wales. The approach highlighted in the guidance will be followed when assessing potential effects on marine mammal features of relevant SACs in the EIA Scoping Report to Inform a HRA.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
NRW Guidance on Assessing the Effects of Hearing Injury on Marine Mammals From Underwater Noise for Environmental Assessments (Cyfoeth Naturiol Cymru Natural Resources Wales, n.d.)	The guidance sets out NRW's position on assessing significance and adverse effects on site integrity from hearing injuries sustained from underwater noise generated by marine development including guidance on metrics and assumptions that should be used in assessment. The guidance will be followed when undertaking the underwater noise assessment that will be used to inform the Marine Ecology chapter (Section 17.10).
NRW Guidance on Assessing the Effect From Underwater Noise on Harbour Porpoise Behaviour (Cyfoeth Naturiol Cymru Natural Resources Wales, n.d.)	The guidance sets out NRW's position on assessing the extent of behavioural disturbance of harbour porpoise from underwater noise generated during construction of offshore renewables infrastructure in EIAs and HRAs. The guidance will be followed when undertaking the underwater noise assessment that will be used to inform the Marine Ecology chapter (Section 17.10).
NRW Principles supporting restoration and enhancement in marine or coastal development proposal (Cyfoeth Naturiol Cymru Natural Resources Wales, 2022)	The guidance sets out NRW's position sets out our approach to advising on inclusion of restoration or enhancement elements in a marine or coastal development proposal. The guidance will be considered in relation to the approach to defining marine enhancement measures for the project.
Welsh National Marine Plan Implementation Guidance (Welsh Government, 2022)	Sets out the approach that public authorities will need to take to ensure that any decision regarding the development is in accordance with the Welsh National Marine Plan (WNMP), including the approach to policy ENV_01: Resilient marine ecosystems. It outlines that opportunities for enhancement or a positive contribution to the policy area can form part of any consideration of a proposal's identified impacts or case for proceeding. This guidance will inform the approach to defining and presenting marine enhancements with respect to relevant WNMP policies.

17.2.2 In line with Planning Policy Wales 12 (2024) (Welsh Government, 2024)(PPW), the Project will be seeking to deliver an overall Net Benefit for Biodiversity (NBB) which is defined as taking "a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks", with ecologists encouraged to take a whole system approach incorporating biodiversity, ecosystem resilience and ecosystem services (CIEEM, 2024). For this reason, NBB (i.e. the requirement to leave biodiversity and ecosystems in a better state than before, through long-term, measurable, and demonstrable benefits) is a core objective of the Project with relevance across several EIA factor assessments. The policy framework for NBB is described in **Chapter 3 – Legislative and Policy Framework** and referenced in **Chapter 13 –Terrestrial and Freshwater Ecology**, **Chapter 20 – Climate Change** and **Chapter 25 – Population and Human Health** (in respect of wellbeing and access to nature).

17.3 Engagement and Consultation

17.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

17.3.2 In summary, stakeholder engagement on the Marine Ecology topic to date has included the following:

- a technical meeting on 26th June 2024 with NRW to describe the methodology and results from benthic habitat surveys and to discuss potential impact pathways;
- meetings with NRW in June and July 2024 in relation to an application for a marine licence for the marine Ground investigations discussions, which also focused on potential impacts to benthic habitats in particular with regards to peat and clay exposures;
- meetings with NRW on marine enhancements in May, July and August 2025 including a discussion on principles and potential sites for intertidal habitat enhancement.

17.3.3 Further technical engagement on the potential impacts on marine ecology and on appropriate marine mitigation is anticipated with key stakeholders to inform the technical assessment for the ES.

17.4 Study Area

17.4.1 In line with current guidance on EcIAs (CIEEM, 2018), the study area for the Marine Ecology assessment incorporates the area over which potential direct and indirect effects of the Project are predicted to occur during the construction and operational periods (i.e. the zone of influence (ZoI)). The ZoI varies depending on the ecological receptors affected and potential impact pathways. The size of the study area is determined by considering the potential ZoI for the receptors as follows:

- benthic habitats and species – the ZoI will be defined by the area over which direct effects occur (within the EIA Scoping Boundary) and the area over which indirect effects may occur. The latter is mainly related to the extent of suspended sediment concentration (SSC) plumes and sedimentation effects and will have a ZoI based on further physical processes assessment work and associated model outputs undertaken at the EIA stage; and
- fish and marine mammals – these receptors are mobile and wide ranging. They may be subject to indirect effects that may arise outside the Project footprint, such as the potential underwater noise effects during construction. The ZoI covers the marine area and the extent will be defined by underwater noise modelling outputs undertaken at the EIA stage and will cover up to the tidal limit of watercourses in the Swansea Bay area.

17.4.2 The study area for Marine Ecology is therefore focused on the Port Talbot region and potential disposal site (Swansea Bay LU130) (approximately 5 km from the Tidal Harbour) with data for the wider Swansea Bay region

presented where relevant to provide contextual information and to ensure the area of potential effects (e.g., noise disturbance) are fully considered. The extent of the study area will be refined, as necessary during the EIA and will be will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

17.5 Description of the Existing Environment

Resources and Receptors

17.5.1 For the Marine Ecology assessment the following receptors are considered:

- plankton;
- benthic habitats and species (including non-native species);
- fish; and
- marine mammals.

Data Sources

17.5.2 The baseline for the marine ecology topic has been derived from the data sources set out in **Table 107**.

Table 107: Data sources

Data Type	Data Source
Designated sites	• Natura 2000 (now National Site Network) standard data forms or information sheets for each designation: Information on the species and habitats listed in the original citations.
Designated sites	• NRW Protected Areas of Land and Sea Search: Information on protected areas in Wales.
Benthic habitats and species dataset	• **Tidal Lagoon Swansea Bay Benthic Surveys:** Intertidal and subtidal benthic data and baseline review information collected as part of the Tidal Lagoon Swansea Bay (Tidal Lagoon Swansea Bay, Tidal Lagoon Swansea Bay Environmental Statement: Chapter 8. Intertidal and Subtidal Benthic Ecology., 2014a).
Benthic habitats and species dataset	• **CCW Inter-tidal Phase 1 Habitat Mapping Survey:** Large-scale biotope mapping programme of Wales from 1996 to 2005 which included the Swansea Bay area ((Brazier, 2007).
Benthic habitats and species dataset	• **Port Talbot Navigational Channel Dredging Benthic Surveys (1995):** The results of a benthic survey of the area in and around the Port Talbot navigational channel undertaken in September 1995. Grab samples were collected from 20 stations (ABP Research and Consultancy, 1996).Data published by The Applicant is independent of this project.
Benthic habitats and species dataset	• **Port Talbot Dredging Benthic Surveys (2010):** The results of a benthic survey undertaken around the Port of Port Talbot in July 2010 using a 0.1 m^2 Day Grab sample for a proposed channel deepening environmental appraisal. In total 60 samples from 20 stations (three replicates at each) were collected (ABPmer, Port Talbot Proposed Channel Deepening: Environmental Appraisal. , 2010). Data published by The Applicant is independent of this project.

Data Type	Data Source
Benthic habitats and species dataset	• **Swansea University Benthic Survey Research:** Benthic survey data collected by Swansea University in 2014 using a 0.1 m^2 Day Grab from 129 stations (and compared against historic data collected in 1984) as part a study investigating benthic communities in Swansea Bay (Callaway R. , 2016).
Benthic habitats and species dataset	• **Swansea University Benthic Survey and Fish Surveys:** Benthic survey data collected by Swansea University in 2014 using a 0.1 m^2 Day Grab from 28 stations as part a study investigating anthropogenic and natural impacts on benthos and fish in Swansea Bay (Callaway R. F.-C., 2020).
Fish dataset	• **Centre for Environment, Fisheries and Aquaculture Science (Cefas) Spawning and Nursery Grounds of Selected Fish Species in UK waters:** Distribution maps of the main spawning and nursery grounds for 14 commercially important species (cod, haddock, whiting, saithe, Norway pout, blue whiting, mackerel, herring, sprat, sandeels, plaice, lemon sole, sole and Norway lobster) (Ellis, 2012).
Fish dataset	• **Methods to Collect Data on the Spatial and Temporal Distribution of Diadromous Fish in Welsh Waters:** The review includes information on the life cycles and status of migratory fish species (Clarke, 2021).
Fish dataset	• **The Identification and Characterisation of Small Salmon Populations to Support their Conservation and Management:** A review of literature and practical guidance on how to define small populations (Milner and Garcia de Leaniz, 2023).
Fish dataset	• **NRW Fish Sampling Data for the River Afan:** Data on migratory fish collected between 2019 and 2023 (NRW, 2024).
Fish dataset	• **Swansea University Benthic Survey and Fish Surveys:** Fish survey data collected by Swansea University in 2014 using beam trawl techniques as part a study investigating anthropogenic and natural impacts on benthos and fish in Swansea Bay (Callaway R. F.-C., 2020).
Fish dataset	• **Tidal Lagoon Swansea Bay Fish Surveys and Baseline Data:** Fish survey and baseline review information collected as part of the Tidal Lagoon Swansea Bay (Tidal Lagoon Swansea Bay, 2014b).
Marine mammal dataset	• **Seasonal and Diel Patterns in Cetacean Use And Foraging at a Potential Marine Renewable Energy Site:** The deployment of passive acoustic monitoring devices (C-PODs) in Swansea Bay, Wales in 2014 and 2015 (Nuuttila, 2018).
Marine mammal dataset	• **Reactions Of Harbour Porpoise (*Phocoena Phocoena)* to Vessel Traffic in the Coastal Waters of South-west Wales, UK**: The analysis of harbour porpoise data from 2011 to 2013 derived from shore-based surveys including at Port Talbot (Oakley J. A., 2017).
Marine mammal dataset	• **Assessing Harbour Porpoise Populations in South-west Wales:** The analysis of a ten-year harbour porpoise dataset focused on the Swansea Bay area and compared against the qualifying criteria for a SAC (Oakley J. A., 2016).
Marine mammal dataset	• **Modelled Distributions and Abundance of Cetaceans and Seabirds of Wales and Surrounding Waters:** Over 440,000 kilometres of cetacean survey effort and over 250,000 kilometres of seabird survey effort conducted between 1990 and 2020 using a combination of vessel, aerial visual and aerial digital observation platforms, were collated and analysed for an area encompassing the Irish Sea, Bristol Channel and that part of the Celtic Sea. Sighting rates and density distributions were determined and maps of modelled density distributions were produced also by month, season and decade. In addition, current knowledge of each species was summarised, drawing upon the literature and studies (Evans and Waggitt, 2023).

Data Type	Data Source
Marine mammal background literature report	• **Special Committee on Seals (SCOS) Annual Report:** Information on the status of seals around the UK coast is reported annually by the SMRU advised SCOS (SCOS, 2023).
Marine mammal dataset	• **At-sea Distribution Data for Grey and Harbour Seals:** The latest habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles (including the Swansea Bay region) estimated using data from animal-borne telemetry tags by the Sea Mammal Research Unit (SMRU) (Carter, 2020).
Marine mammal dataset	• **Inter-Agency Marine Mammal Working Group (IAMMWG) Management Units and Management Units Abundance Estimates:** In 2015, the IAMMWG defined Management Units (MUs) for the seven most common cetacean species found in UK waters: harbour porpoise, bottlenose dolphin, short-beaked common dolphin, white-beaked dolphin, Atlantic white-sided dolphin, Risso's dolphin and minke whale (IAMMWG, Management Units for cetaceans in UK waters (January 2015), 2015). Updated abundance estimates for these species and their MUs have been obtained from the 'Small Cetaceans in European Atlantic Waters and the North Sea (SCANS)-III' report (Hammond, 2021) and the ObSERVE Programme (Rogan *et al.,* 2018) (IAMMWG, 2022). In addition, potential changes to any of the MU boundaries based on evidence published since 2015 was reviewed in IAMMWG (2023). Following the review, the MU boundaries for all cetaceans defined in 2015 remain unchanged except for Coastal West Channel MU for bottlenose dolphin (which does not overlap with Welsh waters (IAMMWG, 2023).
Marine mammal dataset	• **Small Cetaceans in European Atlantic Waters and the North Sea (SCANS) IV:** Cetacean surveys to estimate the abundance of cetacean species in shelf and oceanic waters of the European Atlantic undertaken in 2022. Teams of observers using vessel and aerial methods searched along 75,000 km of transect line, recording thousands of groups of cetaceans from 17 different species. The survey (SCANS-IV) is the fourth in a series that began in 1994 (SCANS) and continued in 2005 (SCANS-II) and 2016 (SCANS-III) (Gilles, 2023).
Marine mammal dataset	• **Atlas of the Marine Mammals of Wales:** The most comprehensive information on the distribution of marine mammals in Welsh waters is provided in the Atlas of the Marine Mammals of Wales (Baines and Evans, 2012). The study compiled and analysed data from sixteen projects including a total of 216,031 km of effort from vessel and aerial surveys and 13,399 hours of land-based effort, spanning the 20-year period 1990-2009.
Marine mammal dataset	• **Identification of Discrete and Persistent Areas of Relatively High Harbour Porpoise Density in the Wider UK Marine Area:** The report presents the results of 18 years of survey data (1994 to 2011) as part of the Joint Cetacean Protocol (JCP) undertaken to inform the identification of discrete and persistent areas of relatively high harbour porpoise density in the UK marine area (Heinänen and Skov, 2015).
Marine mammal dataset	• **Atlantic Array Offshore Wind Farm Baseline Monitoring:** Marine mammal monitoring undertaken as part of the then proposed application for the Atlantic Array Offshore Wind Farm development from 2009-2010 (Channel Energy Limited, 2012).
Marine mammal dataset	• **Gower Marine Mammal Project (GMMP) Surveys:** Monitoring of harbour porpoise in the Bristol Channel (including Carmarthen Bay, the Gower, Swansea Bay and Scarweather Sands) was undertaken from December 2002 until January 2004 (Watkins and Colley, 2004).
Marine mammal dataset	• **Scarweather Sands Offshore Wind Farm Baseline Monitoring:** A two-year pre-construction baseline of harbour porpoise activity within and adjacent to Scarweather Sands (Pierpoint, 2008,as cited in Channel Energy Limited).

Data Type	Data Source
Marine mammal dataset	• **Low Carbon Research Institute (LCRI) Survey Data**; Vantage and boat-based survey data undertaken by Swansea Metropolitan University between February 2011 and May 2013 (Jenkins and Oakley, 2013).

17.5.3 In addition, the following project specific marine ecological surveys have been undertaken within and near to the Project within the Marine Ecology assessment study area and will also be used to inform the baseline (ABPmer, 2024):

- Phase 1 Intertidal habitat survey: A Phase 1 Intertidal Habitat Survey was undertaken in April 2023 to characterise the intertidal habitats and species present within the Port. The purpose of the survey was to map the intertidal habitats present, identify the main characterising species and also the presence of any habitats/species of conservation interest;
- intertidal benthic sampling: Ten intertidal stations were sampled in July 2023 using a 0.01 m² hand-held core. The location of the survey stations are shown in Figure 17.1 in **Appendix A**; and
- subtidal benthic sampling: Twelve subtidal stations were sampled in July 2023 (using a 0.1 m² Day Grab) within and near to the Port. The location of the survey stations are shown in Figure 17.1 in **Appendix A**.

Baseline Conditions

Designated Sites for Marine Ecology Features

17.5.4 No international nature conservation sites (i.e. SACs, SPAs or Ramsar sites) overlap with the EIA Scoping Boundary.

17.5.5 The nearest international nature conservation site to the Project is Kenfig SAC (approximately 4 km east) (Figure 17.2 in **Appendix A**). This site is designated for saltmarsh and a variety of coastal sand dune habitats and species features.

17.5.6 The nearest internationally designated site with mobile features is the Carmarthen Bay and Estuaries SAC and is located approximately 25 km west of the Project. Twaite shad *Alosa fallax* is an Annex II species that is a primary reason for its designation. Sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis,* Allis shad *Alosa alosa* and otter *Lutra lutra* are Annex II species that are present as qualifying features. The Bristol Channel Approaches SAC is located approximately 35 km west of the Project. This site has been identified for the protection of harbour porpoise *Phocoena phocoena*. The nearest SAC with grey seal as a qualifying feature is the Pembrokeshire Marine SAC (approximately 70 km away).

17.5.7 With respect to nationally designated sites, Crymlyn Burrows SSSI is located approximately 4 km west of the Project (Figure 17.2 in **Appendix A**). With respect to marine features this site is designated for saltmarsh and populations of wintering waders. Kenfig Sand SSSI is located approximately 4 km east of Port Talbot and is designated for its sand dunes and intertidal habitats.

Protected Marine Species

17.5.8 The WCA 1981 (as amended) protects various animals, plants, habitats in the UK. Relevant protected WCA species recorded in the Swansea Bay region include:

- Twaite shad *Alosa fallax* and allis shad *Alosa alosa;* and
- cetacean (whale and dolphin) species.

17.5.9 Marine species are also protected from being killed, injured or disturbed both inside and outside designated sites under the provisions of the European Habitats Directive. Of relevance to the Swansea Bay region are:

- Common seal *Phoca vitulina* and grey seal *Halichoerus grypus* (listed in Annex II and V);
- Harbour porpoise *Phocoena phocoena* (listed in Annex II and IV);
- Sea lamprey *Petromyzon marinus* (listed in Annex II) and river lamprey (listed in Annex II and V);
- Twaite shad *Alosa fallax* and allis shad *Alosa alosa* (listed in Annex II and V); and
- Atlantic salmon *Salmo salar* (listed in Annex II and V).

17.5.10 In addition, some marine fauna and habitats are listed as priority species and habitats of principle importance under Section 7 of The Environment (Wales) Act 2016. Species of principal importance which are of relevance to the Swansea Bay region include commercial fish (such as sole *Solea solea* and herring *Clupea harengus*), and migratory fish (such as lampreys, Atlantic salmon *Salmo salar* and European eel *Anguilla anguilla*). Habitats of principle importance of relevance to the Swansea Bay region include intertidal mudflats, coastal saltmarsh, peat and clay exposures, *Sabellaria alveolata* reefs and intertidal boulder communities.

17.5.11 European eels are also afforded protection as part of the Eels (England and Wales) Regulations 2009. The regulations which apply to all freshwater and estuarine waters of England and Wales give powers to statutory bodies to implement measures for the recovery of European eel stocks including improving access, habitat quality and fishing pressure.

Intertidal and Subtidal Benthic Ecology: Regional Overview

17.5.12 Swansea Bay supports a range of intertidal habitats including mudflat, clay exposures, fossilised peat, saltmarsh, gravel and rocky shores. Swansea Bay also supports areas of biogenic reef (consisting of honeycomb worm *Sabellaria alveolata* reef and blue mussel *Mytilus edulis* beds) (Tidal Lagoon Swansea Bay, 2014a).

17.5.13 Commonly occurring infaunal species in soft sediment intertidal habitats in Swansea Bay include polychaetes (such as the ragworm *Hediste diversicolor*) and bivalves (such *as Macoma balthica*). Rocky shore and other hard substrate habitats (such as anthropogenic structures) have been colonised by a range of algae species, the limpet *Patella vulgata,* barnacles, gastropods (such as periwinkle *Littorina* spp.) and anemones. In

addition, the native oyster *Ostrea edulis* has also been recorded (Tidal Lagoon Swansea Bay, 2014a).

17.5.14 Within Swansea Bay, commonly recorded subtidal benthic species include the bivalves *Nucula nitidosa* and *Spisula elliptica*, the polychaetes *M. palmata*, *Nephtys hombergii* and *Spiophanes bombyx*, and the cumacean *Diastylis rathkei* (Callaway R. , 2016; Tidal Lagoon Swansea Bay, 2014b; ABP Research and Consultancy, 1996; ABPmer, 2010).

Intertidal and Subtidal Benthic Ecology: Project Specific Survey Results

17.5.15 The Phase 1 intertidal habitat survey recorded a rich mosaic of distinct habitats due to the wide variety of different substrates present on the foreshore in the area including peat, clay, sand, mud, mixed sediment and large boulders (Figure 17.3 in **Appendix A**). This was reflected though a diverse range of algae and fauna present on the foreshore within the survey area (ABPmer, 2024).

17.5.16 The following Section 7 priority habitats of principle importance under The Environment (Wales) Act 2016 were recorded in the survey (Figure 17.4 in **Appendix A**):

- **peat and clay exposures**: Fossilised peat with some clay was present along extensive areas of the northern section of foreshore. The habitat supported piddocks as well as a wide range of other species;
- **intertidal mudflats**: Sandy mud and muddy sand mudflat (rich in infauna including cockles, lugworms etc) was present predominantly along mid to lower shore in southern section of the Port Talbot Tidal Harbour;
- ***Sabellaria alveolata* reefs**: A small patch of biogenic reef was observed in the northern section of foreshore; and
- **intertidal boulder communities**: Along lower shore sections of the boulder sea defence a rich under boulder community characteristic of this habitat was recorded (although noting the boulders are of anthropogenic rather than natural origin).

17.5.17 The native oyster *O. edulis* was also frequently recorded along the lower shore on boulders (a Section 7 priority species of principle importance). No other benthic species or habitats which are protected or considered nationally scarce or rare were recorded in the Phase 1 intertidal habitat survey.

17.5.18 The intertidal benthic core samples consisted predominantly of sand with some muddy sand, sandy mud and mud sediment types also recorded. Samples were characterised by a range of commonly occurring species of polychaetes (such as *H. diversicolor*, *Lanice conchilega*, *Scolelepis (Scolelepis) squamata*, *Owenia* spp and *Nephtys* spp,), oligochaetes *Tubificoides* spp, amphipods (including *Corophium volutator),* the mudsnail *Peringia ulvae* and nematodes which are considered characteristic of intertidal mudflat in the Swansea Bay region. No intertidal species which are considered nationally rare or protected were recorded in the samples.

17.5.19 The subtidal benthic samples consisted predominantly of mud along with sandy mud and muddy sand. Samples were characterised by nematodes, commonly occurring polychaetes including *Chaetozone gibber*, *Tharyx* spp, *M. palmata*, and *Nephtys* spp), bivalves (such as *Abra nitida N. nitidosa* and Mytilidae spp), amphipods, nematodes well as low numbers of other taxa including echinoderms. No subtidal habitats or species considered nationally rare or protected were recorded, with the assemblages observed considered characteristic of communities found more widely in coastal areas in the region.

17.5.20 Three non-native species were recorded in the surveys (Japanese wireweed *Sargassum muticum*, slipper limpet *Crepidula fornicata* and the polychaete *Boccardia proboscidea).* These species are all considered well established in the region.

Fish

17.5.21 Potential impacts on commercial fisheries will be considered in **Chapter 15 – Commercial and Recreational Fisheries**. There are no classified commercial shellfish (bivalve) beds in Swansea Bay (Cefas, 2024). In addition, other commercial shellfish species caught in the region such as whelks and lobsters are not harvested from the Tidal Harbour and approaches. Ecological effects on relevant fauna considered shellfish species (such as cockles, clams or crabs) will be assessed where relevant within the benthic habitats and species assessment.

17.5.22 Swansea Bay supports a wide variety of fish species. Commonly occurring demersal round fish species include gadoids (such as whiting *Merlangius merlangus*, pouting *Trisopterus luscus* and poor cod *Trisopterus minutus*), grey gurnard *Eutrigla gurnardus*, gobies and flatfish species include flounder *Platichthys flesus*, common sole *Solea solea* and plaice *Pleuronectes platessa*. Commonly occurring pelagic species include clupeids (herring *Clupea harengus* and sprat *Sprattus sprattus*), European sea bass *Dicentrarchus labrax* and sand smelt *Atherina presbyter* as well as the benthopelagic lesser sandeel *Ammodytes tobianus* (Callaway R. F.-C., 2020; Tidal Lagoon Swansea Bay, 2014b).

17.5.23 The Swansea Bay region overlaps with nursery areas for a range of commercially important species including herring *C. harengus*, whiting *Merlangius merlangus*, anglerfish *Lophius piscatorius* and elasmobranch species (tope *Galeorhinus galeus*, thornback ray *Raja clavata* and spotted ray *Raja montagui*) (Ellis, 2012).

17.5.24 Swansea Bay is also a known spawning area for herring *C. harengus* (Tidal Lagoon Swansea Bay, 2014b).

17.5.25 The Afon (river) Afan (which has its mouth at Port Talbot), is known to support a range of diadromous fish species including Atlantic salmon *Salmo salar*, sea trout *Salmo trutta*, river lamprey *Lampetra fluviatilis* and European eel *Anguilla Anguilla* (Clarke, 2021; Milner and Garcia de Leaniz, 2023; NRW, 2024). Other rivers draining into Swansea Bay (the Tawe, Neath and Kenfig) are also known to support these migratory fish species

(Clarke, 2021; Milner and Garcia de Leaniz, 2023; Tidal Lagoon Swansea Bay, 2014b). Key information on the life cycles of these species is provided below:

- **Atlantic salmon and sea trout** are anadromous species which migrate to freshwater to spawn, whilst spending much of their life in the marine environment. They spawn in the upper reaches of rivers, where they live for one to three years before migrating to sea as smolts. Atlantic salmon and sea trout smolts move out of the rivers and migrate downstream to the sea in spring, with the main movements occurring between March and May. At sea, salmon grow rapidly and after one to three years return to their natal river to spawn. The majority of adult salmon return to their natal rivers in the late summer and autumn (particularly August and September), although a small proportion return as early as March (Tidal Lagoon Swansea Bay, 2014b);
- **European eel** is catadromous species which migrates to the marine environment (Sargasso Sea) to spawn. The larvae (leptocephali) then drift in the Gulf Stream and the North Atlantic Drift current for 2 to 3 years across the Atlantic Ocean to Europe and metamorphose into juveniles (elvers). The eels usually migrate into freshwater where they remain for many years. However, not all eels migrate into freshwater and some, predominantly males, remain in inshore coastal areas. The adults, commonly referred to as ‘silver eels’ during the spawning migration, leave river systems to return to the Sargasso Sea. The arrival of glass eels usually begins around February, reaches a peak in April, and in some exceptional years may continue until June. Adults generally begin their spawning migrations from European rivers and coasts during the autumn of each year, predominantly from October to December (Righton, 2016); and
- **River lamprey** is an anadromous species, spawning in freshwater with the growth phase of river lamprey primarily restricted to estuaries. The upstream migration of river lamprey takes place almost exclusively at night, with adults being sedentary and resting under rocks and riverbanks during the day. Having spent up to two years in estuaries, river lamprey move upstream into medium to large rivers, usually migrating into fresh water from October to December (Maitland, 2003).

17.5.26 No spawning populations of twaite shad *Alosa fallax* or allis shad *Alosa alosa* are known to occur in Swansea Bay (Tidal Lagoon Swansea Bay, 2014b). Spawning populations of twaite shad are known to occur in the wider region such as Afon (river) Tywi (which has its mouth in Carmarthen Bay) and several rivers which enter the Severn Estuary (Usk and Wye). In Wales, spawning typically occurs in May with river entry from late April (Clarke, 2021). Allis shad has also been historically recorded spawning in these rivers but the only recently confirmed spawning site in British river systems is in the Tamar Estuary, Devon (JNCC, 2024).

17.5.27 Sea lamprey *Petromyzon marinus* is also known to spawn in the wider region such as the Afon (river) Tywi, Wye and Usk. The spawning migration

of sea lamprey usually takes place in April to June when the adults start to migrate back into fresh water (Clarke, 2021; Maitland, 2003).

17.5.28 The Impounded Dock is separated from the sea via lock gates. This brackish water body has very low salinity levels with the fish assemblage in the dock consisting of freshwater fish which are able to tolerate some limited salinity such as roach *Rutilus rutilus*, rudd *Scardinius erythrophthalmus*, perch *Perca fluviatilis*, and pike *Esox Lucius*. European sea bass *Dicentrarchus labrax* and mullet (*Chelon* spp.) are also known to occur in the dock. These marine species are known to tolerate low salinity conditions and are regularly recorded in brackish areas such as estuaries and lagoons (ABPmer, 2023).

Marine Mammals: Cetaceans

17.5.29 Relatively high densities of harbour porpoise *Phocoena phocoena* have been recorded in Swansea Bay with this species considered to have a year-round presence in this area (Baines and Evans, 2012; Channel Energy Limited, 2012; Evans and Waggitt, 2023; IAMMWG, 2022; Jenkins and Oakley, 2013; Nuuttila *et al*., 2018; Oakley *et al*., 2017; Oakley *et al*., 2016; Watkins and Colley, 2004). The Project is located in the Celtic and Irish Seas (CIS) Management Unit which contains the Bristol Channel Approaches SAC, West Wales Marine SAC as well as the North Anglesey Marine SAC and (which have all been identified for the protection of harbour porpoise) (IAMMWG, 2015; IAMMWG, 2023).

17.5.30 Nuuttila *et al.* (2018)recorded the highest detections of harbour porpoise in Swansea Bay during the summer and early autumn and during evening and night time (coinciding with sunset) although harbour porpoise were recorded in Swansea Bay all year round with harbour porpoise detected on between 75-85% of the days that passive acoustic devices were deployed.

17.5.31 Oakley *et al.* (2016) also reported a continuous year-round presence of harbour porpoise within Swansea Bay and the Gower and a density of 0.58 harbour porpoise (hp) km². Predominantly summer observations of females with calves and regional strandings records suggest breeding takes place within Swansea Bay and the Gower (Oakley *et al*., 2016). Data suggests that Swansea Bay is important for both foraging and also potentially as a calving and nursery area for harbour porpoise (Baines and Evans, 2012; Jenkins and Oakley, 2013). Data reviewed and collected by Oakley *et al.* (2016) indicates that Swansea Bay is used as nursery area, whereas areas further west around the Gower are used for calving.

17.5.32 With specific respect to Port Talbot, Oakley *et al.* (2016) highlighted this area as a ‘hotspot’ site of porpoise activity in Swansea Bay based on sightings data and also had the highest frequency of calf sightings compared with other locations in Swansea Bay. Oakley *et al.*, (2017) also highlighted that Port Talbot has had frequent occurrences of porpoise for many years with the study recording harbour porpoises foraging inside Port Talbot Tidal Harbour and approaches. In addition, harbour porpoise have been recorded in the ongoing project specific ornithology surveys (**Chapter 24 – Ornithology**) and a harbour porpoise was recorded at the entrance to

Port Talbot Tidal Harbour during the project specific Phase 1 intertidal habitat survey (ABPmer, 2024).

17.5.33 Based on this information, this species is considered to have a persistent, year-round presence in the Port Talbot area.

17.5.34 Other cetaceans such as short-beaked common dolphin *Delphinus delphis* are recorded much more infrequently in Swansea Bay (Baines and Evans, 2012; Evans and Waggitt, 2023; Gilles, 2023; Tidal Lagoon Swansea Bay, 2014c).

Marine Mammals: Seals

17.5.35 There is an estimated population of approximately 5,400 grey seals *Halichoerus grypus* in Wales with the latest pup production estimate of 2,250 pups per year born annually (SCOS, 2023).

17.5.36 Grey seals are recorded relatively frequently in low numbers in Swansea Bay. The nearest established colony is at Worms Head on the Gower Peninsula (approximately 30 km from Swansea Bay) although small numbers have also been occasionally observed hauling out at the Mumbles (Tidal Lagoon Swansea Bay, 2014c). Grey seals have been observed foraging in the Tawe Estuary, the mouth of the river Neath and around Port Talbot. This includes relatively frequent sightings at Port Talbot as part of ongoing project specific ornithology surveys (**Chapter 24 – Ornithology**).

17.5.37 The nearest major haul-out and breeding colonies in the wider region occur around Pembrokeshire (such as Skomer and Ramsey Island) and Lundy Island (in the Bristol Channel) (SCOS, 2023).

17.5.38 Tracking of individual seals at colonies around the UK has shown that most foraging probably occurs within 100 km of a haul out site (SCOS, 2023). However, long-distance movements and connectivity between haul-out sites in Wales (such as between Skomer, Pembrokeshire and the Dee Estuary, North Wales) as well more widely along the south-west British Isles (such as Lundy and Cornwall) and between colonies in Ireland and France (sometimes at distances of over 1,000 km) have been recorded (Kiely, 2000; Langley, 2020; Vincent, 2017).

Next Steps

17.5.39 Sightings of marine mammals recorded as part of the ornithology surveys (as described in more detail in **Chapter 24 – Ornithology**) will also be used to inform the baseline.

17.5.40 Two compensation sites have been purchased by ABP to provide off-site compensation for impacts on terrestrial ecology receptors. Only the Jersey Marine Site is relevant to the marine ecology topic as it supports a range of saltmarsh communities and is also fronted by intertidal mudflat habitat. As part of the biodiversity strategy this site will be managed to maximise opportunities to enhance marine habitats and species where feasible. Relevant baseline data will be collected to inform potential management options relating to marine ecology receptors.

17.5.41 Other locations which may be suitable for enhancements for marine ecology are being investigated. Discussions on the approach have been held with NRW (see 17.3.3) and ABP will continue to engage on potential opportunities for marine enhancement throughout the project.

17.5.42 There may be a requirement for benthic invertebrate sampling at existing or new marine disposal sites, and at a wet storage area. The need for baseline data collection at a disposal site will be determined once further assessment work has been carried out to estimate the volumes of capital dredge material.

17.6 Future Baseline

17.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Marine Ecology Chapter of the ES would seek to explain what the environmental change would likely be in the future if the Project were not to go ahead.

17.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

17.6.3 For the Marine Ecology assessment, it is assumed that in the absence of the Project, the current marine coastal processes in the Port Talbot area would remain largely the same (as described in **Chapter 14 – Coastal Processes**). Recent cessation of current operations at the adjacent steelworks are not anticipated to change the marine ecology baseline, however this will be kept under review.

17.6.4 Marine species are likely to become increasingly vulnerable to anthropogenic pressures in the future due to the predicted effects of climate change (**Chapter 20 – Climate Change**) and ocean acidification in combination with more local pressures. Changes to marine ecology receptors due to climate change include increased erosion of intertidal habitats due to stormier conditions and sea-level rise, changing sea temperatures resulting in range shifts for both benthic species and mobile species and also changes in the timings of migrations (MCCIP, 2020).

17.6.5 Data suggests that ecological changes linked to climate change (such as range shifts) are already occurring although there is currently a high degree of uncertainty with respect to predicting the magnitude of potential effects in the future.

17.7 Mitigation Measures

17.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the marine ecology topic will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

17.7.2 This section sets out the potential controls relevant to air quality which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and experience from other projects. The list of control measures will be kept under review through the EIA process and is non-exhaustive at this stage.

17.7.3 An assessment will be made as part of the EIA process to establish the level of mitigation and enhancement required. This will be informed by the baseline ecological surveys, the on-site mitigation and anticipated impacts. It will also be informed by stakeholder engagement. This assessment will determine whether mitigation or enhancement off-site may be required.

Design Measures

17.7.4 Embedded (primary) mitigation which may be incorporated into the Project design development is likely to include:

- design of the Project, as far as possible, to avoid and minimise impacts and effects to marine ecology receptors by minimising the dredge requirements as far as possible; and
- design of the Project to minimise the footprint of marine infrastructure to avoid habitat loss.

Construction Controls

17.7.5 A number of measures will be undertaken to manage commonly occurring environmental effects during construction. Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- following biosecurity management procedures: Biosecurity control measures during construction will be included within the Adaptive Environmental Management Plan (AEMP);
- even disposal deposition of dredged material: Targeting disposal loads in the central/deeper area of the disposal site to reduce depth reductions. This will minimise the initial reduction in water depth and any environmental changes at the disposal sites;
- adhering to environmental management best practice: The potential risk from accidents and spillages/leaks during construction will be avoided or minimised by ensuring that the construction methods, proposed design and the contractual arrangements follow pollution prevention legislation and environmental management best practice;
- as part of standard best practice temporary lighting during construction would be arranged so that glare is minimised outside the construction areas. Measures will be incorporated into the CEMP that addresses the use of lighting around potentially sensitive marine ecology receptors;
- potential seasonal restrictions for piling activity to avoid sensitive periods for migratory fish species; and

- JNCC “Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals during piling” (JNCC, Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise., 2010)will be followed when developing any suitable mitigation required to minimise potential effects on marine mammals during any piling.

17.7.6 Required construction environmental control and protection measures will be defined in an outline AEMP included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to an outline Construction Environmental Management Plan (CEMP) to include detailed marine ecology protection measures and would be compatible with any species-specific strategies or protected species licences if required.

Operational Controls

17.7.7 Any on site operational environmental control and protection measures identified for the Port would be defined in an outline Operational Environmental Management Plan (oOEMP) included as part of the application. This would include best practice measures and techniques, any specific measures identified through the EIA. Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP. This plan would complement but not duplicate requirements of the Biodiversity Strategy.

17.7.8 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage include:

- following biosecurity management procedures: The Applicant’s existing biosecurity management procedures associated with current port activities (Associated British Ports, 2024)will be followed during operation; and
- as part of standard best practice lighting during operation would be arranged so that glare and light spill onto nearby marine habitats is minimised. Lighting measures will be incorporated into the oOEMP that addresses the use of lighting around potentially sensitive marine ecology receptors.

Habitat Creation and Enhancement Opportunities

17.7.9 In line with PPW (Welsh Government, 2024), the Project will be seeking to deliver an overall NBB which by its nature is a holistic benefit which takes into account the terrestrial and marine biodiversity present as well as considering social and wellbeing, carbon sequestration and climate resilience.

17.7.10 The FPT overarching Biodiversity Strategy as mentioned in Section 2.5 of **Chapter 2 – Description of Development** serves as the main mechanism for securing embedded mitigation, compensation and enhancement

measures. This strategy would be included in the application. Under this strategy it is expected that a detailed marine mitigation and enhancement strategy would be prepared for the Project.

17.7.11 The Project has the potential to cause permanent loss of a range of intertidal and subtidal habitats during construction, including Section 7 habitats of principle importance under The Environment (Wales) Act 2016. A Marine Mitigation Strategy will be prepared which documents the application of the principles of the mitigation hierarchy. This will aim in the first instance to avoid and minimise impacts on habitats and species. Where there are unavoidable impacts, mitigation measures including restoration and/or enhancement will be sought.

17.7.12 Mitigation, compensation, and/or enhancement measures will be developed through engagement with statutory authorities as part of the statutory consultation process and taking into account the final Project design information and latest understanding of potential effects.

17.8 Potential Likely Significant Effects

17.8.1 This section identifies the key impact pathways that will be considered further in the marine ecology assessment. The potential likely significant effects for the Marine Ecology topic are described in **Table 108**. These take into account the expected control measures set out within Section 17.7.

17.8.2 The activities, effects and receptors will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

Table 108: Likely significant marine ecology effects

Activity	Effect	Receptor
Construction		
Reclamation of intertidal area, placement of rock revetment, breakwater improvements, piling.	Direct loss of intertidal benthic habitat and species under the footprint of the marine elements of the Project.	Benthic habitats and species
Reclamation of subtidal area, placement of rock revetment, breakwater improvements, piling.	Direct loss of subtidal benthic habitat and species under the footprint of the marine elements of the Project.	Benthic habitats and species
Capital dredging, dredge material disposal and construction activities	Direct changes to benthic habitats and species from potential removal of benthic habitats and species. Dredging causes the direct physical removal of marine sediments from the dredge footprint, resulting in the modification of existing marine habitats. The fauna associated with the dredged material is damaged, killed or relocated to a disposal site. Capital dredging, dredge disposal and other construction activity also have the potential to result in localised physical disturbance (including abrasion of marine habitats) and sediment deposition (when disturbed sediment settles out of suspension back onto the seabed). This has the potential to cause smothering effects.	Benthic habitats and species

Activity	Effect	Receptor
	Indirect changes to benthic habitats and species as a result of changes to hydrodynamic and sedimentary processes (e.g. flow rates, accretion and erosion patterns). Marine invertebrates inhabiting sand and mud habitat show different tolerance ranges to physiological stresses caused by tidal exposure and tidal elevation and, therefore, hydrodynamic and bathymetric changes caused by the dredging could affect the quality of marine habitats and change the distribution of marine species.	Benthic habitats and species
Capital dredging, dredge material disposal and other construction activities including piling	Changes in water and sediment quality could impact benthic species through an increase in suspended sediment concentration (SSC) in the water column and the release of toxic contaminants bound in sediments.	Benthic habitats and species
Presence and movement of vessels and construction plant during construction and dredging. Hard structures such as the rock revetment and piles.	Potential for transfer and introduction of invasive non-natives species (INNS) which may effect native habitats and species. INNS have the potential to be transported into the local area in the ballast water and on the hulls of the vessels if they have operated in differing water bodies. Additionally, the introduction of hard structures provides available habitat for any introduced non-native species to colonise.	Benthic habitats and species
More frequent opening of the Impounded Dock lock gates for the access/egress of construction vessels	Changes to salinity levels in the Impounded Dock could potentially increase the amount of saltwater intrusion which could impact on the benthic assemblage present.	Benthic habitats and species
Reclamation of intertidal and subtidal areas, placement of rock revetment, breakwater improvements, piling.	Loss of intertidal and subtidal habitat utilised by fish may potentially effect fish through loss of refuge or prey resource.	Fish
	More frequent opening of the dock lock gates for the access of construction vessels could increase the amount of saltwater intrusion which could impact on the fish assemblage present.	Fish
Capital dredging and disposal	Dredging has the to result in the direct removal of fish and fish eggs which can cause changes to fish populations. Dredging also has the potential to result in seabed disturbance and smothering of seabed habitats and species. The disposal of dredged material at the marine disposal site will result in the deposition of sediments which has the potential to cause physical disturbance and smothering of seabed habitats. These changes have the potential to impact on fish species through potential changes in prey resources and the quality of foraging, nursery and spawning habitats. The assessment will include an appraisal of potential effects based on the suitability of sediment type in the dredge footprint for key species (such for sandeels and herring spawning) and in context of available suitable habitat in the wide area and overlap with existing maintenance dredging.	Fish
Capital dredging, disposal and piling activities	Changes in water quality during capital dredging and associated sediment disposal, and other construction activities such piling could impact fish species through an increase in SSC and the release of toxic contaminants bound in sediments.	Fish

Activity	Effect	Receptor
Construction activities, including piling, dredging and disposal activities	Elevated underwater noise and vibration levels could potentially affect fish. The assessment will include consideration of effects on diadromous fish species known to occur in the Afon (river) Afan (which has its mouth at Port Talbot) as well as key marine fish species known to occur in Swansea Bay including those considered commercially important. The results of the underwater noise and vibration assessment (see Appendix I – Underwater Noise and Vibration for a description of the proposed methodology) will be used to inform the Marine Ecology topic. The assessment will consider percussive (impact) and vibro piling where relevant.	Fish
	Percussive (impact) and vibro piling will produce underwater noise above background conditions and at a level that may cause a risk of injury and behavioural changes to marine mammals in the vicinity of the Project. Elevated noise and vibration levels caused by the action of the dredger could also potentially affect marine mammals by inducing adverse behavioural reactions. The assessment will focus on the most commonly occurring marine mammals in the area consider effects (grey seal and harbour porpoise). The results of the underwater noise and vibration assessment (see Appendix I – Underwater Noise and Vibration for a description of the proposed methodology) will be used to inform the Marine Ecology topic assessment.	Marine mammals
Operation and maintenance		
Reclamation, construction of new quay, placement of rock revetment, breakwater improvements, piling.	Indirect losses or changes to seabed habitats and species as a result of changes to hydrodynamic and sedimentary processes (e.g. flow rates, accretion and erosion patterns). Marine invertebrates inhabiting sand and mud habitat show different tolerance ranges to physiological stresses caused by tidal exposure and tidal elevation and, therefore, hydrodynamic and bathymetric changes caused could affect the quality of marine habitats and change the distribution of marine species. This impact pathway has, therefore, been scoped into the assessment.	Benthic habitats and species
Maintenance dredging and dredge disposal Vessel operations	Potential for removal of benthic habitats and species as a result of maintenance dredging. Dredging causes the direct physical removal of marine sediments from the dredge footprint, resulting in the modification of existing marine habitats. The fauna associated with the dredged material is damaged, killed or relocated to a disposal site. Maintenance dredging and dredge disposal also have the potential to result in localised physical disturbance (including abrasion) and sediment deposition (when disturbed sediment settles out of suspension back onto the seabed). This has the potential to cause smothering effects.	Benthic habitats and species
	Maintenance dredging has the potential to result in seabed disturbance and smothering of seabed habitats and species. These changes have the potential to impact on fish species through potential changes in prey resources and the quality of foraging, nursery and spawning habitats.	Fish
	Changes in water quality during maintenance dredging could impact fish species through an increase in SSC and the release of toxic contaminants bound in sediments.	Fish
	Changes in water quality during maintenance dredging and dredge disposal could impact benthic habitats and species through an increase in SSC and the release of toxic contaminants bound in sediments.	Benthic habitats and species

Activity	Effect	Receptor
	Non-native species have the potential to be transported into the local area on the hulls of vessels during operation. INNS also have the potential to be transported via vessel ballast water. This impact pathway has, therefore, been scoped into the assessment.	Benthic habitats and species
More frequent opening of the Impounded Dock lock gates for the access of operational vessels	More frequent opening of the dock lock gates could increase the amount of saltwater intrusion which could impact on the benthic assemblage present.	Benthic habitats and species
	More frequent opening of the dock lock gates for the access of operational vessels could increase the amount of saltwater intrusion which could impact on the fish assemblage present.	Fish
Vessel operations, maintenance dredge and dredge disposal	Elevated noise and vibration levels caused by vessel operations and maintenance dredging could potentially affect fish by inducing adverse behavioural reactions. The assessment will include consideration of effects on diadromous fish species known to occur in the Afon (river) Afan (which has its mouth at Port Talbot) as well as key marine fish species known to occur in Swansea Bay including those considered commercially important. The results of the underwater noise and vibration assessment (see Appendix I – Underwater Noise and Vibration for a description of the proposed methodology) will be used to inform the Marine Ecology topic assessment.	Fish
	Elevated noise and vibration levels caused by vessel operations and maintenance dredging could potentially affect marine mammals by inducing adverse behavioural reactions. The assessment will consider effects on both grey seal and harbour porpoise. The results of the underwater noise and vibration assessment (see Appendix I – Underwater Noise and Vibration for a description of the proposed methodology) will be used to inform the Marine Ecology topic assessment.	Marine mammals

17.9 Resources and Receptors Scoped Out of Assessment

17.9.1 The resources or receptors that are proposed to be scoped out of the assessment for Marine Ecology are set out within **Table 109**.

Table 109: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Construction			
Construction activities, including piling, dredging and dredge disposal	Changes in water quality	Plankton	The expected potential changes in suspended sediments and contamination levels in the water column associated with dredging and other activities are considered to only cause negligible effects on plankton. On this basis, phytoplankton and zooplankton have been scoped out of the assessment.
	Underwater noise and vibration disturbance of benthic invertebrates	Benthic habitats and species	Underwater noise generated by construction activities has the potential to affect benthic species. Benthic invertebrates lack a gas-filled bladder and are, therefore, unable to detect the pressure changes associated with sound waves (Carrol., 2017). However, there is increasing evidence to suggest that benthic invertebrates respond to particle motion with behavioural responses observed in a range of species including bivalves and crustaceans in

Activity	Effect	Receptor	Justification for scoping out
			close proximity to anthropogenic noise such as piling and blasting. Responses recorded include a change in activity, reduction in antipredator behaviour and change in foraging habits (Tidau and Briffa, 2016; Wang, 2022). Given the extent of the responses, population level and mortality effects, however, are considered unlikely. This impact pathway has, therefore, been scoped out of the assessment.
	Changes in water quality and effects on marine mammals	Marine mammals	Changes in water quality could impact marine mammals through an increase in SSC and the release of toxic contaminants bound in sediments. However, marine mammals are considered to be well adapted to living in areas with a high suspended sediment load and are regularly recorded in such environments in the UK including Swansea Bay which can be subject to high turbidity levels, particularly after winter storm events. Regular maintenance dredging is also undertaken in the local area which causes elevated SSC. Marine mammals are typically not considered sensitive to the scale of changes in SSC predicted during dredging and dredge disposal (Todd, 2015). Furthermore, marine mammals are highly mobile and can avoid plume areas if required. In addition, the temporary and localised changes in water column contamination levels are considered unlikely to produce any lethal and sub-lethal effects in these highly mobile species (the concentrations required to produce these effects are generally acquired through long-term, chronic exposure to prey species in which contaminants have bioaccumulated) (Todd, 2015). Furthermore, potential for accidental spillages will also be negligible during construction by the application of established industry guidance and protocols. This impact pathway has, therefore, been scoped out of the assessment.
Reclamation of intertidal area, placement of rock revetment, breakwater improvements, piling.	Direct loss of marine mammal habitat	Marine mammals	The areas of expected direct intertidal and subtidal loss in the Tidal Harbour are not used by harbour porpoise with sightings of this species restricted to deeper water areas of the outer Tidal Harbour and mouth. Most grey seal sightings in the Tidal Harbour are also typically in outer sections. On this basis, the footprint of direct habitat loss is of very limited functional value for marine mammal species. Furthermore, the extent of predicted loss is considered negligible in the context of the ranges of these highly mobile species. This impact pathway has, therefore, been scoped out of the assessment.
Capital dredging	Changes in marine mammal foraging habitat due to capital dredging	Marine mammals	The Project has the potential to cause impacts to seabed habitats which could cause changes to the prey resources available for marine mammal species. However, the area of the proposed capital dredging is very small in the context of the known ranges of these high mobile species such as harbour porpoise and seals and would be expected to have a negligible effect on the overall foraging resource available in the region. This impact pathway has, therefore, been scoped out of the assessment.
Presence and movement of vessels and construction plant during construction and dredging	Collision risk of marine mammals with construction vessels	Marine mammals	Vessels involved in construction and dredging/dredge disposal will be mainly stationary or travelling at low speeds (2-6 knots), making the risk of collision very low. Although all types of vessels may collide with marine mammals, it is vessels that are traveling at speeds over 10 knots which are considered to have a higher probability of causing lethal injury (Schoeman, 2020). Furthermore, the region is already characterised by heavy shipping traffic. The additional movements due to construction activity (including capital dredging) will only constitute a

Activity	Effect	Receptor	Justification for scoping out
			small increase in vessel traffic in the area which will also be temporary in nature. In general, incidents of mortality or injury of marine mammals caused by vessels remain a relatively rare occurrence in UK waters (ABP Research, 1999; CSIP, 2020). For example, out of 144 post-mortem examinations carried out on cetaceans in 2018, only two (1.4%) were attributed to boat collision with the biggest causes of mortality including starvation and by-catch, although some incidents are likely to remain unreported (CSIP, 2020).In addition, marine mammals foraging within the Swansea Bay region will routinely need to avoid collision with vessels and are, therefore, considered adapted to living in an environment with high levels of vessel activity. This impact pathway has, therefore, been scoped out of the assessment.
Operation and maintenance			
Vessel operations, maintenance dredge and dredge disposal.	Changes in water quality	Plankton	The expected potential changes in suspended sediments and contamination levels in the water column associated with dredging and other activities are considered to only cause negligible effects on plankton. On this basis, phytoplankton and zooplankton have been scoped out of the assessment.
	Underwater noise and vibration disturbance of benthic invertebrates	Benthic habitats and species	Population level and mortality effects in benthic invertebrates are considered unlikely for marine piling. Maintenance dredging is known to produce lower noise levels than marine piling and, therefore, there is unlikely to be significant effects on benthic invertebrates, and this impact pathway has been scoped out of the assessment.
Presence and movement of vessels during operation	Collision risk of marine mammals with vessels	Marine mammals	Vessels using the berths during operation typically approaching at slow speeds (2-4 knots) and maintenance dredging/dredge disposal will be mainly stationary or travelling at low speeds (2-6 knots), making the risk of collision very low. Although all types of vessels may collide with marine mammals, vessels traveling at speeds over 10 knots are considered to have a much higher probability of causing lethal injury. (Schoeman, 2020). Furthermore, the region is already characterised by a high level of shipping traffic. The additional operational vessel movements resulting from the Project will only constitute a small increase in vessel traffic in the area. In general, incidents of mortality or injury of marine mammals caused by vessels remain a relatively rare occurrence in UK waters ((ABP Research, 1999; CSIP, 2020). For example, out of 144 post mortem examinations carried out on cetaceans in 2018, only two (1.4 %) were attributed to boat collision with the biggest causes of mortality including starvation and by-catch, although some incidents are likely to remain unreported (CSIP, 2020). In addition, marine mammals frequently foraging within the region will routinely need to avoid collision with vessels and are, therefore, considered adapted to living in an environment with high levels of vessel activity. This impact pathway has, therefore, been scoped out of further detailed assessment.

17.10 Proposed Assessment Methodology

17.10.1 To facilitate the marine ecology impact assessment, process a methodology will be applied and reported on in the ES. This has been developed from a range of sources, including relevant Environmental Impact Assessment ("EIA") Regulations, the EIA Directive (2014/52/EU) (see **Chapter 5 – Approach to Assessment**), statutory and non-statutory guidance, consultations and professional project experience and will be included in the ES. The assessment also follows the principles of relevant guidance, including Institute of Environmental Management and Assessment ("IEMA") guidelines, and the latest CIEEM guidelines for EcIA in the UK and Ireland (which combine advice for terrestrial, freshwater and coastal environments) (CIEEM, 2018). The methodology adopted is considered to be 'best practice' and is also consistent with the broad principles highlighted in **Chapter 5 – Approach to Assessment**. In accordance with published guidance, the assessment will include definition of the sensitivity of relevant marine ecology receptors at the site and the importance/value, and a detailed evaluation of impact magnitude. Further information on the criteria that will be used to determine these factors is described in more detail below.

Magnitude of Impacts

17.10.2 Magnitude of impact needs to be considered against in spatial and temporal terms (including duration, frequency, reversibility and seasonality), and against baseline conditions in a study area. The assessment of magnitude will also be carried out taking account of any embedded and standard design mitigation. The following criteria will be used to assess the magnitude of impact:

- **Large:** Receptors are subject to changes over a large spatial area with effects that are considered permanent/long-term duration;
- **Medium**: Receptors are subject to changes that occur over a large spatial area, but the effects are considered temporary;
- **Small:** Relatively localised changes that are often temporary in nature and/or a receptor has limited exposure to change; and
- **Negligible:** Changes that are barely discernible from existing baseline conditions.

17.10.3 Once a magnitude has been assessed, this is then considered in terms of the probability of occurrence (i.e. likelihood that the impact will occur) to derive an overall level of exposure to change, which is detail in **Table 110**.

Table 110: Exposure to change, combining magnitude and probability of change

Probability of Occurrence	Magnitude of Change			
	Large	**Medium**	**Small**	**Negligible**
High	High	Medium	Low	Negligible
Medium	Medium	Medium / Low	Low / Negligible	Negligible
Low	Low	Low / Negligible	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Sensitivity of Receptors

17.10.4 Sensitivity can be described as the intolerance of a habitat, community or individual of a species to an environmental change and essentially considers the response characteristic of the receptor/feature. The sensitivity of a marine habitat or species is considered to be a product of the following (Tyler-Walters, 2018):

17.10.5 The likelihood of damage (termed intolerance or resistance) due to a pressure. This could include behavioural effects, physiological damage or even mortality of individuals or populations; and

17.10.6 The rate of (or time taken for) recovery (termed recoverability, or resilience) of marine species once the pressure has abated or been removed.

17.10.7 The following criteria will be used to assess sensitivity:

- **Low**: Pressures in which the likelihood of damage to individuals or populations is low with recoverability expected to occur over short timescales;
- **Moderate**: Pressures in which damage to individuals or populations could occur but recoverability is expected to occur over short to moderate timescales; and
- **High**: Pressures in which damage to individuals or populations is highly likely with either no recoverability or recoverability expected to occur over longer timescales.

17.10.8 The vulnerability of the receptor is then calculated based on the sensitivity of those features (described above) and their exposure to a given change (**Table 110**). This is set out in **Table 111**.

Table 111: Estimation of vulnerability based on sensitivity and exposure to change

Sensitivity of receptor/feature	Exposure to change			
	High	**Medium**	**Low**	**Negligible**
High	High	High	Moderate	None
Moderate	High	Moderate	Low	None
Low	Moderate	Low	Low	None
None	None	None	None	None

Receptor importance

17.10.9 As part of the impact assessment approach, it is also necessary to identify whether an ecological feature is 'important'. As such, where possible, habitats, species and their populations will be valued on the basis of a combination of their conservation status, rarity and ecological/socioeconomic value using contextual information - where it exists.

17.10.10 The CIEEM (2018) guidelines recognise that determining ecological importance is a complex process, which is a matter of professional judgement guided by the importance and relevance of a number of factors. These include designation and legislative protection as well as biodiversity value and secondary / supporting value (e.g. where habitats may function as a buffer or resource associated with an adjacent designated area).

17.10.11 The importance of each ecological receptor will be determined, based on the following criteria:

- **Low**: The receptor is neither protected nor designated and is considered to be of low to moderate biodiversity or supporting value;
- **Moderate** Statutory protection / designation is afforded to a receptor, but it is considered to be of low to moderate biodiversity/supporting value or the receptor does not receive statutory protection but is considered to be of high biodiversity or supporting value; and
- **High**: Statutory protection / designation is afforded to a receptor and the receptor is considered to be of high biodiversity or supporting value.

Significance criteria

17.10.12 To assess the significance of effects, the vulnerability (**Table 111**) is combined with the importance of the receptor of interest (described above) using **Table 112** below. The significance effect categories align with the descriptions in **Chapter 5 – Approach to Assessment.**

Table 112: Estimation of significance based on vulnerability and importance

Importance of Receptor	**Vulnerability of receptor to impact (Table 111)**			
	High	**Moderate**	**Low**	**None**
High	Very Large/Large	Moderate	Slight	Neutral
Moderate	Moderate	Moderate	Slight	Neutral
Low	Slight	Slight	Neutral	Neutral
None	Neutral	Neutral	Neutral	Neutral

Other Assessment Considerations

17.10.13 It is recognised that there are important linkages between the Marine Ecology topic and other EIA topics. For example, the assessment of indirect impacts on marine ecology receptors will be informed by the outcomes of the physical processes (**Chapter 14 – Coastal Processes**) and water and sediment quality (**Chapter 18 – Marine Water Quality and Sediment Quality**) topic assessments.

17.10.14 The results of the underwater noise and vibration assessment (see **Appendix I – Underwater Noise and Vibration**) will be used to inform the marine ecology topic assessment. The underwater noise and vibration assessment scopes in all construction and operational activities interfacing with the marine environment that may cause potential physiological and behavioural effects on key sensitive receptors. The key sensitive receptors identified in this chapter are grouped into generalised hearing groups based on their auditory mechanism and hearing sensitivity from Popper *et al.* (2014) for fish and National Oceanic and Atmospheric Administration (NOAA) (2024) for marine mammals. The acoustic criteria – Auditory Injury (AUD INJ), Permanent Threshold Shift (PTS), Temporary Threshold Shift (TTS) and behavioural thresholds from Popper *et al.* (2014) and NOAA (2024) will be used to quantify the severity of the anthropogenic noise impact to marine receptors. These acoustic criteria inform the minimum distances at which the associated noise impact may arise, and the area of impact may be visualised through underwater noise modelling. Further information on the proposed approach to the underwater assessment can be seen in **Appendix I – Underwater Noise and Vibration**.

17.10.15 Information will also be provided to enable the competent authority to undertake an Appropriate Assessment (AA), assessing the effects of the Project on the interest features of European/Ramsar sites. An initial assessment on relevant designated sites within the Zone of Influence of potential effects is set out within the Report to Inform a HRA Screening (**Appendix D**).

Cumulative Effects

17.10.16 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

Specifically for the Marine Ecology topic, in line with CIEEM guidelines (CIEEM, 2018),the cumulative assessment for biodiversity will consider other committed developments that give rise to additive/incremental

impacts[30] and effects or associated/connected impacts[31] and effects with the Project. Where relevant the cumulative assessment for marine ecology will take into account the predicted changes in coastal processes and marine water quality from other developments.

17.11 Assumptions and Limitations

17.11.1 The pathways and potential effects scoped in could change as the project evolves and in light of further assessment work required for the ES including the results of underwater noise modelling (**Appendix I – Underwater Noise and Vibration**) and coastal processes modelling (**Chapter – 14 Coastal Processes**).

17.12 Summary

17.12.1 The proposed scope of the assessment is contained within marine ecology is contained within **Table 113**.

Table 113: Proposed scope of the marine ecology chapter of the ES

Resources and receptors	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Plankton – Water quality changes	Out	Out	Potential changes in suspended sediments and contamination levels in the water column are considered to only cause negligible effects on plankton.
Benthic habitats and species – intertidal habitat	In	N/A	Direct loss of intertidal habitat.
Benthic habitats and species – subtidal habitat	In	N/A	Direct loss of subtidal habitat.
Benthic habitats and species	In	In	Direct changes to benthic habitats and species during capital and maintenance dredging and disposal and construction activity.
Benthic habitats and species – seabed habitats and species	In	In	Indirect changes to seabed habitats and species at the disposal site as a result of changes to hydrodynamic and sedimentary processes.
Benthic habitats and species – water and sediment quality	In	In	Changes in water and sediment quality and effects to benthic habitats and species.

[30] Additive/incremental impacts arise from multiple activities/projects (each with potentially insignificant effects) added together to give rise to a significant effect due to their proximity in time and space (CIEEM, 2018).

[31] A development activity enables another development activity e.g. phased development as part of separate planning applications. Associated developments may include different aspects of the project which may be authorised under different consent processes. It is important to assess impacts of the project as a whole and not ignore impacts that fall under a separate consent process (CIEEM, 2018).

Resources and receptors	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Benthic habitats and species – underwater noise and vibration	Out	Out	Underwater noise has the potential to affect benthic species. However, only behavioural responses are expected in close proximity to any piling with population level and mortality effects considered unlikely. No significant effects on benthic invertebrates are anticipated during maintenance dredging and dredge disposal.
Benthic habitats and species – non-native species	In	In	Potential for non-native species transfer and introduction.
Fish – habitat	In	N/A	Direct loss of fish habitat.
Fish – populations and habitats	In	In	Changes to fish populations and habitat.
Fish – water and sediment quality	In	In	Changes in water and sediment quality and effects on fish.
Fish – underwater and noise vibration	In	In	Underwater noise and vibration disturbance of fish.
Marine mammals – habitats	Out	N/A	The areas of habitat loss are not considered functionally important for local marine mammal populations and will only constitute a negligible proportion of the overall ranges of these mobile species.
Marine mammals – foraging habitat	Out	N/A	The area of the proposed capital dredging is very small in the context of the known ranges of these high mobile species such as harbour porpoise and seals and would be expected to have a negligible effect on the overall foraging resource available in the region.
Marine mammals – water quality	Out	Out	Marine mammals are considered highly unlikely to be sensitive to the scale of water quality changes anticipated. This impact pathway has, therefore, been scoped out of the assessment.
Marine mammals – underwater noise and vibration	In	In	Underwater noise and vibration disturbance of marine mammals.
Marine mammals - collision risk	Out	Out	The risk of marine mammal collisions with vessels during construction and operation is considered to be low.

Chapter 17 References

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18 Marine Water Quality and Sediment Quality

18.1 Introduction

18.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential marine water quality and sediment quality effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

18.1.2 The effects of the Project on the following are considered:

- Water Framework Directive (WFD) water bodies:
  - Swansea Bay coastal water body;
  - Afan Estuary Incl Docks transitional water body;
  - Neath Estuary transitional water body; and
  - Bristol Channel Outer North coastal water body.
- WFD Protected Areas:
  - Swansea Bay (East) Shellfish Water Protected Area; and
  - Aberafan designated bathing water.

18.1.3 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

18.1.4 The assessment presented in the Chapter has linkages with the following environmental topics, which should be considered when reading this Chapter: potential effects on users of the water environment (people) will be considered in **Chapter 25 – Population and Human Health** in relation to potential effects on human activity / use / enjoyment / wellbeing and health which may be influenced by changes to water quality. Potential effects on marine ecological receptors (e.g., fish) will be assessed in **Chapter 17 – Marine Ecology**. The Marine Water and Sediment Quality chapter will be informed by the assessment of changes in coastal processes in **Chapter 14 – Coastal Processes** and by the assessment of changes in upstream river water bodies which are described in **Chapter 9 – Freshwater Environment.** The assessment will also be informed by **Chapter 20 – Climate Change.**

18.1.5 A preliminary WFD assessment has been carried out and is provided in **Appendix E**.

18.2 Relevant Legislation, Policy and Technical Guidance

18.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of marine water and sediment quality are detailed in **Table 114**.

Table 114: Legislation, policy and guidance relevant to marine water and sediment quality

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
Legislation	
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	The Water Framework Directive (WFD) (2000/60/EEC) is transposed into UK law through the Water Environment (WFD) (England and Wales) Regulations 2017 as amended, known as the Water Framework Regulations[32]. In terms of water and sediment quality, "good ecological status/potential" has regard to physico-chemical quality elements, and specific pollutants. The determination of good ecological status/potential also considers biological and hydromorphological elements. "Good chemical status" has regard to a series of priority substances and priority hazardous substances. A WFD compliance assessment will be prepared to support the application which considers whether the Project complies with the objectives of the WFD. A Preliminary WFD Assessment is provided in Appendix E.
WFD (Standards and Classification) Directions (England and Wales) 2015	These provide the allowable thresholds (Environmental Quality Standards (EQS)) for surface and groundwater bodies in England and Wales. This sets annual average (AA) concentrations and/or maximum allowable concentrations (MAC)) for priority substances and priority hazardous substances that are controlled under the Water Framework Regulations.
Marine and Coastal Access Act 2009	The Marine and Coastal Access Act (MCAA) provides the legal mechanism to help ensure clean, healthy, safe, productive, and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. The MCAA 2009 established a marine licensing and enforcement regime under which the Welsh Ministers are the appropriate licensing authority and enforcement authority. The majority of these licensing functions are delegated to Natural Resources Wales (NRW).
Marine Strategy Regulations 2010	The Marine Strategy Regulations put in place the legal framework to enable the Marine Strategy Framework Directive (MSFD) (2008/56/EC) to be implemented in the UK. Although the UK has left the EU the Marine Strategy Regulations continue to apply. A UK Marine Strategy was produced in 2012 and updated in 2025. The aim was to achieve good environmental status of marine waters by 2020 (although this date has subsequently revised for some descriptors) and to protect the resource base upon which marine-related economic and social activities depend. There are 11 descriptors of good environmental status, including eutrophication; sea-floor integrity; hydrographical conditions; and contaminants.
Bathing Water Regulations 2013 (as amended)	The revised Bathing Water Directive (2006/7/EC) is implemented in England and Wales under the Bathing Water Regulations 2013 (as amended). Bathing waters in the vicinity of the EIA Scoping Boundary are described in Section 18.4.
Nitrate Pollution Prevention Regulations 2015	The Nitrate Pollution Prevention Regulations 2015 implement the Nitrates Directive (91/676/EEC) in England and Wales. Nitrate Vulnerable Zones (NVZs) in the vicinity of the EIA Scoping Boundary are described in Section 18.4.
Urban Waste Water Treatment (England and Wales) Regulations 1994	The Urban Waste Water Treatment Directive (91/271/EEC) is implemented in England and Wales through the Urban Waste Water Treatment (England and Wales) Regulations 1994 (as amended). It aims to protect the environment from the adverse effects of the collection, treatment, and discharge of urban waste water.

[32] Following the UK leaving the EU, the main provisions of the WFD have been retained in English law through The Floods and Water (Amendment etc.) (EU Exit) Regulations 2019.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
Shellfish Water Protected Areas (England and Wales) Directions 2016	The Shellfish Water Protected Areas (England and Wales) Directions 2016 require that in Wales NRW) endeavour to observe a microbial standard in all 'Shellfish Water Protected Areas'. The Directions also require NRW to assess compliance against this standard to monitor microbial pollution (75% of samples taken within any period of 12 months below the microbial standard and sampling/analysis in accordance with the Directions). Shellfish Water Protected Areas in the vicinity of the EIA Scoping Boundary are described in Section 18.4.
Conservation of Habitats and Species Regulations 2017 (as amended) ('The Habitats Regulations')	Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora and Directive 2009/147/EC on the conservation of wild birds are transposed into UK law through the Conservation of Habitats and Species Regulations 2017 as amended, known as the "Habitats Regulations". Following the UK leaving the EU, the Conservation of Habitats and Species Regulations 2017 have been modified by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The Habitats Regulations provide for the designation and protection of 'Habitat Sites', the protection of 'European protected species' and the adaptation of planning and other controls for the protection of European Sites. The Regulations also require the compilation and maintenance of a register of European sites, to include Special Areas of Conservation (SACs) (classified under the Habitats Directive) and Special Protection Areas (SPAs) (classified under the Birds Directive). These sites form the Natura 2000 network. These regulations also apply to Ramsar sites (designated under the 1971 Ramsar Convention for their internationally important wetlands), candidate SACs ("cSAC"), potential Special Protection Areas ("pSPA"), and proposed and existing European offshore marine sites.
Well-being of Future Generations (Wales) Act 2015	The Well-being of Future Generations (Wales) Act (WBFGA) 2015 is concerned with improving the social, economic, environmental and cultural well-being of Wales. It requires public bodies to consider the long-term issues, work better with people and communities and each other, look to prevent problems and take a more joined-up approach. One of its well-being goals is for a Resilient Wales: "A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change". The Project is considered to provide a positive contribution to this goal as detailed further in Chapter 3 – Policy and Consenting.
Environment (Wales) Act 2016	The Environment (Wales) Act 2016 sets out the legislative framework to promote the 'Sustainable Management of Natural Resources in Wales'. The Act received Royal Assent in 2016. It delivers against Welsh Government Programme for Government commitment to introduce new legislation for the environment
National Policy	
UK Marine Policy Statement 2011	The Marine Policy Statement (MPS) is the framework for preparing marine plans and taking decisions affecting the marine environment. The MPS also sets out the general environmental, social, and economic considerations that need to be taken into account in marine planning and provides guidance on the pressures and impacts that decision makers need to consider when planning for and consenting development in the UK marine areas. Section 2.6.4 of the MPS is relevant to the marine water and sediment quality assessment. In particular, paragraph 2.6.4.3 states, amongst other things, that - "The marine plan authority should satisfy itself where relevant that any development will not cause a deterioration in status of any water to which the WFD applies... Decision makers should also take into account impacts on the quality of designated bathing waters and shellfish waters from any proposed development."
Technical Advice Note (TAN) 14, 1998	TAN 14 'Coastal Planning' was published in March 1998 by the Welsh Assembly Government (WAG) and gave guidance to planning authorities in Wales on the considerations to be given for proposed developments in coastal zones. This has since been incorporated into the December 2025 update to TAN 15 ('Development and Flood Risk') (see Chapter 8 – Flood Risk).

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
Welsh National Marine Plan, 2019	The Welsh National Marine Plan (WNMP) is the first marine plan for Wales and represents that start of a process to shape seas to support economic, social, cultural and environmental objectives. The plan was prepared and adopted under the MCAA 2009 for the purposes of Section 51 of the MCAA and in accordance with the UK MPS. The following marine plan policies are of particular relevance to the water and sediment quality assessment: • **Policy SOC_03 Marine pollution incidents:** Proposals should demonstrate how they minimise their risk of causing or contributing to marine pollution incidents. • **Policy ENV_04 Marine litter:** Proposals should demonstrate how they: avoid the deliberate introduction of litter into the marine plan area; and minimise the risk of accidental release of litter. • **Policy ENV_06 Air and water quality:** Proposals should demonstrate that they have considered their potential air and water quality impacts and should, in order of preference: a) avoid adverse impacts; and/or b) minimise adverse impacts where they cannot be avoided; and/or c) mitigate adverse impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding.
Local Policy	

Neath Port Talbot County Borough Council Local Development Plan (2011-2026)	The Neath Port Talbot County Borough Council (NPTC) Local Development Plan (2011-2026) guides future development, providing a clear vision for NPTC setting out where, when and how much new development can take place between 2011 and 2026. A Replacement Local Development Plan (RLDP) (2023-2038) is currently being prepared and a Preferred Strategy was published in 2024 which outlined updates to the below policies.
	
	The aim is to provide developers and the public with certainty about the planning framework for Neath Port Talbot.
	
	The Plan has five main outcomes to achieve the vision; Outcome 3 includes ambition to ensure "healthy and clean air, land and water".
	
	The following policies are of relevance to marine water and sediment quality:
	• **Policy SP 16: Environmental Protection:** Air, water and ground quality and the environment generally will be protected and where feasible improved through the following measures:
	  ○ ensuring that proposals have no significant adverse effects on water, ground or air quality and do not significantly increase pollution levels.
	  ○ giving preference to the development of brownfield sites over greenfield sites where appropriate and deliverable.
	  ○ ensuring that developments do not increase the number of people exposed to significant levels of pollution.
	• **Policy EN 8: Pollution and Land Stability:** Proposals which would be likely to have an unacceptable adverse effect on health, biodiversity and/or local amenity or would expose people to unacceptable risk due to the following will not be permitted:
	  ○ air pollution;
	  ○ noise pollution;
	  ○ light pollution;
	  ○ contamination;
	  ○ land instability; and
	  ○ water (including groundwater) pollution.
	Proposals which would create new problems or exacerbate existing problems detailed above will not be acceptable unless mitigation measures are included to reduce the risk of harm to public health, biodiversity and/or local amenity to an acceptable level.

Relevant legislation / policy / guidance	Relevance to assessment (marine aspects of the project)
Guidance and Standards	
Clearing the Waters for All, 2016	In 2016, the Environment Agency published guidance, referred to as "Clearing the Waters for All", regarding how to assess the impact of activities in WFD transitional and coastal water bodies. The guidance sets out the following three discrete stages for WFD compliance assessments to follow: • screening: excludes any activities that do not need to go through the scoping or impact assessment stages; • scoping: identifies the receptors and quality elements that are potentially at risk from an activity and need further detailed assessment; and • assessment: considers the potential impacts of an activity, identifies ways to avoid / minimise impacts, and indicates if it may cause deterioration or jeopardise the water body achieving good status. NRW signposts applicants for marine licences in Wales to this guidance. The WFD Compliance Assessment for the Project will broadly follow the format specified in this guidance.

18.3 Engagement and Consultation

18.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

18.3.2 In summary, stakeholder engagement on the marine water quality and sediment quality topic to date has included the following:

- a technical meeting on 20th June 2024 with NRW and NPTC to describe the baseline water quality surveys and to discuss potential impact pathways; and
- a second technical meeting on 7th November 2024 with NRW and NPTC to share preliminary results from baseline surveys and to discuss amendments to surveys following NRW advice (issued 13th August 2024).

18.3.3 The approach to considering the assessment of marine water quality and sediment quality will be discussed further with NRW prior to commencement of the assessment.

18.4 Study Area

18.4.1 The study area for marine water quality and sediment quality covers the study area for coastal processes (shown in Figure 14.1 in **Appendix A** and the tidal River Neath where the Jersey Marine site is located. The study area is wholly within the marine area (i.e. below MHWS).

18.4.2 The study area is the area over which potential direct and indirect effects of the Project may occur during construction and operation (i.e., the zone of influence). The direct effects on water and sediment quality are those related to changes of levels of contaminants in water such as from discharges or those that may arise due to accidental releases during construction. Indirect effects are those that may arise due to sediment that is disturbed into the water column during construction and operation

resulting in changes in water quality through changes in the levels of dissolved oxygen or the release of sediment-bound contaminants.

18.4.3 The defined study area for marine water quality and sediment quality for the Project will be influenced by the assessment in **Chapter 14 – Coastal Processes**. This will be informed by the results of the numerical modelling during the assessment. In this way, the full extent of any predicted impacts will be included in the impact assessment. At this stage, the study area is taken as being the near-field region, i.e., within the Tidal Harbour, and the far-field region, i.e., covering the remainder of Swansea Bay. In this way, the assessment will cover the marine footprint of the Project as well as the associated zone of influence. These extents will be refined, as necessary during the EIA and will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

18.5 Description of the Existing Environment

Resources and Receptors

18.5.1 For marine water quality and sediment quality the resources and receptors are:

- WFD water bodies (see Figure 18.1 in **Appendix A**):
  - Swansea Bay coastal water body (ID: GB641008260000);
  - Afan Estuary Incl Docks transitional water body (GB541005800600);
  - Neath Estuary transitional water body (ID: GB541005800700); and
  - Bristol Channel Outer North coastal water body (ID: GB611008590001).
- WFD Protected Areas:
  - Swansea Bay (East) Shellfish Water Protected Area; and
- Aberafan designated bathing water.

Data Sources

18.5.2 The baseline for marine water quality and sediment quality has been derived from the data sources set out in **Table 115**.

18.5.3 Marine sediment samples were collected for the Project in autumn of 2024 within the Tidal Harbour (Swansea Bay coastal water body), and the Impounded Dock (the Afan Estuary Incl Docks transitional water body). In November 2024, a sample plan (SP2409) was provided by NRW, prepared in consultation with Cefas. Sediment samples were collected and analysed in line with the Sediment Sample Plan from NRW.

18.5.4 Water quality monitoring has been undertaken within the Tidal Harbour and the impounded dock. Samples have been collected on a monthly basis between February 2024 and January 2025 (see Figure 18.3 in **Appendix A**). A range of contaminants were analysed including: organotins (dibutyl

tin (DBT), tributyl tin (TBT)); polychlorinated Biphenyls (PCBs); organochloride pesticides; total and dissolved metals (arsenic, copper, cadmium, chromium, mercury, lead, nickel, and zinc); polycyclic aromatic hydrocarbons (PAH); and polybrominated diphenyl ethers (PBDEs).

Table 115: Marine Water and Sediment Quality Data sources

Data Type	Data Source
Collection of web maps related to the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 in Wales	'Water Watch Wales' website (NRW, 2025a)
Designated bathing water data	'Find a bathing water' website (NRW, 2025b)
Shellfish Classification Zones Data of England and Wales	Shellfish classification zone maps (Cefas, 2024)
Shellfish Classifications England and Wales 2023-24 Data	Shellfish Classification (Food Standards Agency, 2024)
Water body summary table – information on WFD water bodies	'Water Watch Wales' website (NRW, 2025a)
NVZs	DataMapWales (Welsh Government, 2024)
Protected and designated sites, e.g. Sensitive Areas designated under the Urban Waste Water Treatment Regulations	DataMapWales (Welsh Government, 2024)
Sediment quality (contamination) data	Marine Ground Investigations (GI) carried out for the Project in September – November 2024

Baseline Conditions

Water Quality

18.5.5 Water quality standards and objectives are implemented through a range of legislation and policies including the Water Framework Regulations, the Bathing Water Regulations, and the UK Marine Strategy. The standards and objectives were established through the WFD which provided holistic management of all water bodies including rivers, estuaries, groundwater, lakes, and coastal waters to 1nm offshore. Domestic legislation derived from the WFD integrates and requires protection of designated shellfish waters, through The Water Framework Regulations; bathing waters, through the Bathing Water Regulations; nature conservation sites, through the Habitats Regulations; and eutrophication, through the Nitrate Pollution Prevention Regulations.

18.5.6 NRW publish River Basin Management Plan (RBMPs), which set out measures through which compliance with WFD objectives will be achieved. Swansea Bay coastal water body (ID: GB641008260000) overlaps the EIA Scoping Boundary and the Swansea Bay Outer marine disposal site (Figure 18.1 in **Appendix A**). It is recorded as a heavily modified water body (HMWB) due to coastal protection. This means 'ecological potential' is applied, a status recognising the importance of their human use while ensuring ecology is protected as far as possible, rather than 'ecological

status' which is the target for all non-HMWB. The current (2024) overall status of the water body is 'moderate', with an ecological potential of 'moderate', and a chemical status of 'moderate'. 'Moderate' ecological potential is due to dissolved inorganic nitrogen and the mitigation measures assessment (a test for HMWB) which do not meet the criteria for 'good' status. 'Moderate' chemical status is based on the priority hazardous substance mercury and its compounds, polycyclic aromatic hydrocarbons (PAHs), brominated diphenylethers (BDPE) which are failing to meet WFD objectives.

18.5.7 The Afan Estuary Incl Docks transitional water body (GB541005800600) covers the impounded dock. It is recorded as a HMWB due to navigation, ports and harbours use. The current (2024) overall status of the water body is 'moderate', with an ecological potential of 'moderate', and a chemical status of 'high'. The 'moderate' ecological potential is due to the mitigation measures assessment which is failing to meet the objectives.

18.5.8 The upstream river water bodies are described in **Chapter 9 – Freshwater Environment**.

18.5.9 Aberafan designated bathing water is located within 1km of the Project (Figure 18.2 in **Appendix A**). This was assessed as having 'excellent' bathing water quality in 2024, an improvement on the 'good' bathing water quality between 2022 and 2023 and 'sufficient' assessment in 2021 (NRW, 2025b).

18.5.10 The Project and potential marine disposal site (Swansea Bay LU130) are adjacent to the Swansea Bay (East) Shellfish Water Protected Area (NRW, 2025a) (Figure 18.2 in **Appendix A**) The Queen's Dock classification zone (within the Swansea Bay shellfish production area) is not currently classified under the Shellfish Water Protected Areas (England and Wales) Directions 2016 (Food Standards Agency, 2024) Previously, the Queen's Dock classification zone was classified as Class B (long term) meaning shellfish must not exceed 4,600 *E. coli* per 100 g flesh of shellfish and 10 % of samples must not exceed 46,000 *E. coli* per 100 g flesh.

18.5.11 There are no NVZs or Sensitive Areas (Eutrophic) designated under the Urban Waste Water Treatment Directive (UWWTD) in the vicinity of the EIA Scoping Boundary and marine disposal sites.

18.5.12 Two large sewage treatment works (STWs), Afan STW and Swansea STW, discharge their final effluent into Swansea Bay, via long sea outfalls. Swansea STW has ultra-violet treatment, which reduces the levels of bacteria in the final effluent and helps to improve bathing water quality. These works also have emergency and storm outlets, which when operating will discharge screened effluent mixed with rainwater into Swansea Bay. There are smaller STWs located along the length of the River Neath, and its tributaries, which also have storm and/or emergency overflows.

18.5.13 There are several sewage pumping stations with emergency and storm overflows located within the tidal zones of the Rivers Afan and Neath. These protect domestic properties in Neath and Port Talbot from being

flooded by sewage and storm water during heavy rainfall. There could be an adverse impact on water quality following periods of heavy rainfall, when these discharges operate.

18.5.14 Cooling water for the Port Talbot integrated iron and steelworks (owned by Tata Steel UK Ltd.) has historically been abstracted from the southeast corner of the Impounded Dock (i.e. the Afan Estuary Incl Docks transitional water body). This water is supplied by the River Afan via the Dock Feeder Channel (in addition to water from the River Ffrwdwyllt). Treated effluent from the coke making process and cooling water is combined and discharged via the long sea outfall. Cooling water is also discharged to the southeast corner of the Impounded Dock.

18.5.15 A preliminary analysis of the water quality monitoring data that has been collected between February and January 2025 within the Tidal Harbour and the Impounded Dock has been undertaken. Overall, most determinands are either below their respective EQSs or below the Minimum Detection Levels (MDL) for each of the laboratory tests. However, zinc and chromium both exceeded their respective annual average EQS across some or all of the sampling sites.

Sediment Quality

18.5.16 There are no formal quantitative EQSs for the concentration of contaminants in sediments, although the WFD has introduced optional standards for a small number of priority (hazardous) substances. Cefas has prepared a series of guideline Action Levels (ALs) to assist in the assessment of dredged material (and its suitability for disposal to sea) (UK Government, 2023). In general, contaminant levels in dredged material below Action Level 1 (AL1) are of no concern and are unlikely to influence decision-making processes. However, dredged material with contaminant levels above Action Level 2 (AL2) is generally considered unsuitable for disposal at sea. Dredged material with contaminant levels between AL1 and AL2 requires further consideration before a decision can be made as to whether material can be disposed of at sea.

18.5.17 The Cefas Guideline ALs should not be viewed as pass/fail thresholds. However, these guidelines provide an appropriate context for consideration of contaminant levels in sediments and are used as part of a ‘weight of evidence’ approach to assessing dredged material.

18.5.18 In November 2024, a sample plan (SP2409) was provided by NRW, prepared in consultation with Cefas. Between October and November 2024, sediment samples were collected across the proposed dredge areas comprising the proposed development. This included samples within the Tidal Harbour, the Afon Afan and the Impounded Dock. Chemical analysis was conducted on 16 boreholes (BHs) and 14 vibrocores (VCs) (including samples at depth). Six surface samples were also collected (three using VC and three with a Van Veen (VV) grab) and analysed. The sampling regime and analysis was undertaken in accordance with the sample plan. The sediment samples were analysed by an NRW-approved laboratory (Socotec UK Ltd) for the following physical and chemical parameters:

- Particle size analysis (PSA);
- Trace metals;
- Organotins;
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated biphenyls (PCBs);
- Organochlorine pesticides (OCPs);
- Brominated flame retardants (polybrominated diphenyl ethers (PBDEs)); and
- Total organic carbon.

18.5.19 A summary of sediment quality (chemical analysis) samples is provided below.

18.5.20 Trace metal concentrations in samples from the Tidal Harbour and the Afon Afan were typically below AL1, with some exceedances of AL1 for some metals. However, trace metal concentrations in sediment samples from the Impounded Dock exceeded AL2 with six samples containing high concentrations (above AL2) of some or all of the following contaminants: cadmium, copper, mercury, lead and zinc. In most cases, surface sample concentrations were highest (in the upper 2 m of sediment), with concentrations generally decreasing with depth.

18.5.21 Measured tributyl tin (TBT) and dibutyl tin (DBT) concentrations were all below AL1 (mostly below the limit of detection (LOD)) in all samples in all locations.

18.5.22 Most individual PAH concentrations were found to be either below AL1, or exceeding AL1. There is currently no AL2 for individual or total PAHs. The Gorham Test approach (an assessment of the toxicity of PAHs) was used to assess the concentration of PAHs in sediment. This calculates the sum of low molecular weight (LMW) and high molecular weight (HMW) PAHs and compares these to observed effect-ranges. If a total value (for either LMW or HMW PAHs) does not exceed the effects-range low (ERL), the indication is that the sediment in the sample can be considered low risk. If a total value exceeds the effects-range median (ERM) for either the LMW or the HMW total values it can be considered higher risk, with more likelihood of environmental harm occurring. The majority of samples were below or slightly above the Gorham-Test ERL for both LMW and HMW PAHs, indicating relatively low concentrations. However, several samples were very close to and exceeded the ERM, indicating high concentrations of PAHs. Samples that exceeded the ERM included three samples (at depths between 2 m and 6 m) located to the south of the iron ore jetty within the proposed south area of dredging, and two samples (at 2-4 m and 26 m) located in the south of the Tidal Harbour. The highest concentrations tended to be below the seabed surface.

18.5.23 PCB concentrations were generally low, mostly below the LOD. The majority of samples contained concentrations below AL1 or slightly above AL1 for the sum of ICES 7 and the sum of 25 congeners. Some samples, however, were above AL2 for the sum of 25 congeners and/or considerably exceeded AL1 for the sum of ICES 7 congeners. This included samples

collected from the Impounded Dock (two samples at 0 m and 2 m), as well as one surface sample located to south of the iron ore jetty within the proposed south area of dredging.

18.5.24 OCP concentrations were mostly below the LOD in most samples. Cefas ALs are in place for dieldrin and Dichlorodiphenyltrichloroethane (DDT). Dieldrin concentrations were below AL1 in all samples and mostly below the LOD. DDT concentrations were predominantly below AL1 in most samples, with some minor exceedances of AL1 in two samples south of the iron ore jetty, as well as in three samples north of the iron ore jetty, and two samples in the east of the Impounded Dock.

18.5.25 Most PBDE congener concentrations were low in general with most below the LOD. Currently, no ALs apply to PBDEs.

18.5.26 Overall, across most of the sediment samples, contaminant concentrations were generally low. Most values were below the respective Cefas Guideline AL1 or marginally exceeding AL1. However, the data suggests there are areas of contaminated sediment. The Impounded Dock (as well as the Impounded Dock Entrance lock) in particular has concentrations exceeding Cefas AL2 for metals and PCBs. Concentrations of PAHs and PBDEs are also considered to be elevated in comparison to other guidelines and thresholds (where current Cefas ALs are not in place). Surface sediment samples tended to be highest in concentration (generally the upper 2 m of sediment), with concentrations generally decreasing with depth.

18.5.27 There are also hotspots of contamination in the Tidal Harbour. In the area to the south of the iron ore jetty within the proposed south area of dredging and the proposed additional dredge area, elevated concentrations of PAHs (above proposed thresholds) were found below the seabed surface, and concentrations vary with depth. PCBs and PBDEs were also elevated in some surface samples (typically between 0-2 m).

Next Steps

18.5.28 Analysis of 12 months of water quality data collection will be undertaken and the results compared with relevant EQSs. The results will inform the requirement for further sampling.

18.5.29 Water quality monitoring is also being planned at the Jersey Marine Site (see Figure 18.4 in **Appendix A).** Sediment quality data may also be collected in order to inform decisions on potential management options, e.g., reconnecting the tidal creek.

18.6 Future Baseline

18.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The marine water quality and sediment quality chapter of the ES would seek to explain what the environmental change would likely be in the future if the Project were not to go ahead.

18.6.2 The future baseline will include natural changes to the environment and existing development that is complete and operating at the time when construction of the Project is due to commence.

18.6.3 For marine water quality and sediment quality, based on the information currently available, it is assumed that baseline conditions should remain broadly unchanged at the time of the start of the expected construction of the Project compared to current baseline conditions.

18.6.4 A potential change which may occur prior to construction is a reduction in cooling water abstraction and discharge volumes, as some of the current operations at the iron and steelworks have ceased. There may be new operations in association with the proposed Electric Arc Furnace at the adjacent steelworks (Tata, 2024) and if relevant then this would be considered as part of the assessment.

18.6.5 The LanzaTech development may be completed but is considered unlikely to have significant effects on water quality or sediment quality within the Impounded Dock and would not therefore constitute a change to the current baseline. Over the medium-term, the future baseline conditions will be influenced by climate change, as described in Section 14.5.

18.6.6 Where relevant the effects of climate change will be considered within the assessment (see **Chapter 20 – Climate Change**), for example levels of contaminants in run-off are often worse after long periods of dry weather followed by more intense storms. The effects of climate change may therefore mean that impacts are more severe with receiving bodies subject to higher contaminant loads.

18.7 Mitigation Measures

18.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for marine water quality and sediment quality will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

18.7.2 This section sets out the potential controls relevant to marine water quality and sediment quality, which have been informed by the assessment undertaken as part of the EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

18.7.3 Embedded (primary) mitigation which may be incorporated into the Project design is likely to include:

- the footprint and alignment of the marine infrastructure will be designed to minimise potential changes to the physical processes of the study area whilst ensuring operational viability and safety; and

- consideration of alternative beneficial use of dredge sediment and dredge disposal options which will be undertaken within a Waste Hierarchy Assessment (WHA) which will be submitted as part of the ES.

Construction Controls

18.7.4 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- good practice measures, such as those described in Guidance for Pollution Prevention: Works and maintenance in or near water (GPP5), would be used to minimise and mitigate the potential for accidental spillages (e.g., of fuels or oils) during Project construction. The potential risk of spillages would be minimised and mitigated through the application of environmental best practice management measures. These measures will be defined in a Construction Environmental Management Plan (CEMP).

18.7.5 Required construction environmental control and protection measures will be defined in an outline Adaptive Environmental Management Plan (AEMP) included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to an outline CEMP, outline Pollution Prevention Plan (including emergency spill and incident control procedures), and outline Erosion and Sediment Management Plans.

Operational Controls

18.7.6 Possible mitigation (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage includes:

- pollution prevention measures already in existence at the Port will be implemented and applied to the operation and maintenance of the Project to minimise the potential for accidental spillages during maintenance dredging and disposal.

18.7.7 Operational environmental control and protection measures will be defined in an outline Operational Environmental Management Plan (oOEMP) included as part of the application. This would include best practice measures and techniques; any specific measures identified through the EIA. Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP.

18.8 Potential Likely Significant Effects

18.8.1 The potential likely significant effects for Marine Water and Sediment Quality are described in **Table 116**. These take into account the expected control measures set out within Section 18.7.

18.8.2 The activities, effects and receptors will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

Table 116: Likely significant marine water quality and sediment quality effects

Activity	Effect	Receptor
Construction		
Piling, capital dredging and disposal activities	Changes to dissolved oxygen concentrations in coastal and transitional water bodies as a result of increased suspended sediment concentration (SSC) during piling, capital dredging and disposal activities.	• Swansea Bay water body; • Afan Estuary Incl Docks water body; and • Bristol Channel Outer North water body.
Piling, capital dredging and disposal activities	Changes to chemical water quality in coastal and transitional water bodies as a result of potential sediment-bound contaminants being released during piling, capital dredging and disposal activities.	• Swansea Bay water body; • Afan Estuary Incl Docks water body; and • Bristol Channel Outer North water body.
Piling, capital dredging and disposal activities	Redistribution of sediment-bound contaminants in coastal and transitional water bodies.	• Swansea Bay water body; • Afan Estuary Incl Docks water body; and • Bristol Channel Outer North water body.
Landside construction activities, including reclamation and dewatering	Changes to levels of contaminants in water during construction with potential effects on receiving water bodies	• Swansea Bay water body; and • Afan Estuary Incl Docks water body.
Works in the intertidal to create scrapes and/or reconnect the cut-off creek at Jersey Marine	Changes to chemical water quality as a result of potential sediment-bound contaminants being released with potential effects on receptors in the vicinity of the Jersey Marine Site.	• Neath Estuary water body; • Swansea Bay (East) Shellfish Water; and • Aberafan designated bathing water.
Works in the intertidal area to create scrapes and/or reconnect the cut-off creek at Jersey Marine	Redistribution of sediment-bound contaminants with potential effects on receptors in the vicinity of the Jersey Marine Site.	• Neath Estuary water body; • Swansea Bay (East) Shellfish Water; and • Aberafan designated bathing water.
Operation and Maintenance		
Maintenance dredging and disposal activities	Changes to dissolved oxygen concentrations in coastal and transitional water bodies as a result of increased SSC during the maintenance dredging and disposal activities.	• Swansea Bay water body; • Afan Estuary Incl Docks water body; and • Bristol Channel Outer North water body.

Activity	Effect	Receptor
Maintenance dredging and disposal activities	Changes to chemical water quality in coastal and transitional water bodies as a result of potential contaminants in the seabed sediment being released during maintenance dredging and disposal activities.	• Swansea Bay water body; • Afan Estuary Incl Docks water body; and • Bristol Channel Outer North water body.
Maintenance dredging and disposal activities	Redistribution of sediment-bound contaminants during maintenance dredging and disposal activities with potential effects on coastal and transitional water bodies.	• Swansea Bay water body; • Afan Estuary Incl Docks water body; and • Bristol Channel Outer North water body.
Maintenance dredging and disposal activities	Changes to levels of contaminants in water during operation. Although the Project would not directly introduce contaminants to the environment, there is some potential for existing outfalls into the marine environment to be affected.	• Swansea Bay water body; and • Afan Estuary Incl Docks water body.

18.8.3 The marine water quality and sediment quality chapter of the ES will set out the assessment of the likely changes to be generated by the Project, both direct, indirect, beneficial and adverse and during both the construction and operational phases.

18.8.4 Potential cumulative effects on water and sediment quality could also arise as a result of other coastal and marine developments in the area, as well as ongoing activities, including maintenance dredging and disposal activities. These would be considered as part of the cumulative and in-combination assessment to be presented within the ES.

18.8.5 The sections below consider the potential marine water and sediment quality effects during Project construction and operation phases (including maintenance dredging), and whether defined impact pathways have the potential to result in significant effects. The decommissioning phase is not included, as described in **Chapter 2 – Description of Development**.

18.8.6 Changes in SSC will be described as part of the coastal processes assessment (see **Chapter 14 – Coastal Processes**). Potential effects on abstraction licences within the marine environment will be assessed as part of **Chapter 26 – Socio-economics**, using the information contained in the marine water and sediment quality assessment.

18.9 Resources and Receptors Scoped Out of Assessment

18.9.1 The resources or receptors that are proposed to be scoped out of the assessment for Marine Water Quality and Sediment Quality are set out within **Table 117.**

Table 117: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Piling, capital dredging and disposal activities (construction, operation and maintenance) Landside construction activities, including reclamation and dewatering	Changes to levels of contaminants in water from accidental spillages	• Swansea Bay water body; • Afan Estuary Incl Docks water body; • Swansea Bay (East) Shellfish Water; • Aberafan designated bathing water; and • Bristol Channel Outer North water body.	Proposed works would not directly introduce contaminants to the environment, and pollution risks would be managed by environmental best practice management.

18.10 Proposed Assessment Methodology

18.10.1 The marine water quality and sediment quality assessment methodology has been developed from a range of sources, including relevant EIA Regulations, the EIA Directive (2014/52/EU), statutory and non-statutory guidance, consultations and professional project experience and will be included in the ES. The assessment also follows the principles of relevant guidance, including Institute of Environmental Management and Assessment (IEMA) guidelines (IEMA, 2016), and the latest Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for EcIA in the UK and Ireland (which combine advice for terrestrial, freshwater and coastal environments) (CIEEM, 2018). The methodology adopted is considered to be 'best practice' and is also consistent with the broad principles highlighted in **Chapter 5 – Approach to Assessment**. In accordance with published guidance, the assessment will include definitions of the sensitivity of relevant water and sediment quality receptors at the site and the importance/value, and a detailed evaluation of impact magnitude. Further information on the criteria that will be used to determine these factors is described in more detail below.

Magnitude of Impacts

18.10.2 Magnitude of impact needs to be considered in spatial and temporal terms (including duration, frequency, reversibility and seasonality), and against baseline conditions in a study area. The assessment of magnitude will also be carried out taking account of any embedded and standard design mitigation. The following criteria will be used to assess the magnitude of impact:

- **large**: receptors are subject to changes over a large spatial area with effects that are considered permanent/long-term in duration;
- **medium**: receptors are subject to changes that occur over a large spatial area, but the effects are considered temporary;
- **small**: relatively localised changes that are often temporary in nature and/or a receptor has limited exposure to change; and

- **negligible**: changes that are barely discernible from existing baseline conditions.

18.10.3 Once a magnitude has been assessed, this is then considered in terms of the probability of occurrence (i.e., likelihood that the impact will occur) to derive an overall level of exposure to change which can then be used for the next step of the assessment, which is detailed in **Table 118**.

Table 118: Exposure to change, combining magnitude and probability of change

Probability of occurrence	Magnitude of Change			
	Large	**Medium**	**Small**	**Negligible**
High	High	Medium	Low	Negligible
Medium	Medium	Medium / Low	Low / Negligible	Negligible
Low	Low	Low / Negligible	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Sensitivity of Receptors

18.10.4 The sensitivity of a receptor, in this case water and sediment quality, is related to its ability to tolerate or absorb changes that would otherwise arise from a particular impact (i.e., the likely extent to which effects may occur). Sensitivity is also considered in the context of recoverability (i.e., the ability to return to a state at, or close to, baseline conditions).

18.10.5 The following criteria will be used to assess sensitivity:

- **none**: water and sediment quality of receptor is likely to be able to tolerate changes with minimal or no impact on baseline conditions;
- **low**: water and sediment quality of receptor has high capacity to absorb changes due, for example, to large relative size of the receiving water body and capacity for dilution and flushing;
- **moderate**: water and sediment quality of receptor has moderate capacity to absorb changes; and
- **high**: water and sediment quality of receptor has low capacity to absorb any changes due, for example, to small relative size or enclose nature of the receiving water body and limited capacity for dilution and flushing.

18.10.6 The vulnerability of the receptor is then calculated based on the sensitivity of those features (described above) and their exposure to a given change (**Table 118**). This is set out in **Table 119** below.

Table 119: Estimation of vulnerability based on sensitivity and exposure to change

Sensitivity of feature	Exposure to change			
	High	**Medium**	**Low**	**Negligible**
High	High	High	Moderate	None
Moderate	High	Moderate	Low	None
Low	Moderate	Low	Low	None
None	None	None	None	None

Receptor Importance

18.10.7 As part of the impact assessment approach, it is also necessary to identify whether a receptor is 'important'. As such, where possible, water and sediment quality of the receptor will be valued on the basis of whether it supports or contributes to the designation of WFD protected areas, or is considered to support high biodiversity, economic, or amenity value.

18.10.8 The importance of receptor will be determined, based on the following criteria:

- **low**: the receptor is not connected to or does not support any WFD protected area and is not considered to support biodiversity, economic resources, and/or amenity;
- **moderate:** the receptor is connected to a limited number of WFD protected areas, and supports low to moderate biodiversity, economic, and/or amenity value; and
- **high**: the receptor in connected to multiple WFD protected areas and supports or contributes towards to high biodiversity, economic and/or amenity value.

Significance

18.10.9 To generate an initial level of significance, the vulnerability (**Table 119**) is combined with the importance of the receptor of interest (described above) using **Table 120** below. The significance effect categories align with the descriptions in **Chapter 5 – Approach to Assessment.**

Table 120: Estimation of significance based on vulnerability and importance

Importance of feature	Vulnerability of receptor to impact			
	High	**Moderate**	**Low**	**None**
High	Very Large/Large	Moderate	Slight	Neutral
Moderate	Moderate	Moderate	Slight	Neutral
Low	Slight	Slight	Neutral	Neutral
None	Neutral	Neutral	Neutral	Neutral

Other Assessment Considerations

18.10.10 The basis for the assessment is contaminant concentration data; both dissolved in water and sediment bound. These data are derived from desk-based sources together with data collected specifically for the Project (see Section 18.5). Contaminant concentrations in sediment samples will be compared to Cefas Guideline ALs to determine their suitability for disposal at sea. Contaminant concentrations in sediments which would be dredged during construction will also inform the assessment of potential changes to dissolved concentrations in the water column and predicted redistribution of contaminants as a result of the Project via a partition coefficient analysis.

18.10.11 The outputs of the physical processes assessment (**Chapter 14 – Coastal Processes**), e.g. increase in SSC, and the results from water quality sampling, will be used to inform the water and sediment quality assessment. Incremental changes to dissolved contaminant concentrations, in addition to background contaminant concentrations, will be compared to EQS values to consider potential impacts on WFD water bodies, based on MAC (short-term) and thresholds for annual averages (long-term). The outputs of the physical processes assessment will also support an assessment of changes to dissolved oxygen concentrations.

18.10.12 A WFD Compliance Assessment will be undertaken to determine the potential implications of the Project on the objectives of the relevant water bodies. This assessment will be based on the information and analysis provided within the ES in relation to changes in physical processes, water and sediment quality, and effects on nature conservation and marine ecology receptors. The WFD Compliance Assessment will be included within the application. It will be prepared to follow the format specified in the latest Clearing the Waters for All guidance. A Preliminary WFD Assessment has been prepared and is provided in **Appendix E**.

Cumulative Effects

18.10.13 The approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

18.10.14 If required, the models described in **Chapter 14 - Coastal Processes** would be updated to include a representation of any other coastal and marine developments that may overlap or interact with the Project. The model outputs, e.g. the increase in SSC from the Project combined with a separate proposed development, would allow the potential for cumulative effects to be assessed.

18.11 Assumptions and Limitations

18.11.1 The baseline will be based on desk-based sources and the water quality monitoring campaign. Whilst the sampling programme has been designed to capture temporal (seasonal) and spatial variability, water samples can only ever provide a snapshot of the conditions at the time of sampling.

18.12 Summary

18.12.1 The proposed scope of the assessment for marine water quality and sediment quality is contained within **Table 121**.

Table 121: Proposed scope of the Marine Water Quality and Sediment Quality Chapter of the ES

Resources and receptors	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Swansea Bay water body Afan Estuary Incl Docks water body Neath Estuary water body Bristol Channel Outer North water body Swansea Bay (East) Shellfish Water Aberafan designated bathing water	In: • Changes to dissolved oxygen concentrations • Changes to chemical water quality • Redistribution of sediment-bound contaminants	In: • Changes to dissolved oxygen concentrations • Changes to chemical water quality • Redistribution of sediment-bound contaminants	Potential for impacts on receptors from piling, dredging and disposal activities.
Swansea Bay water body Afan Estuary Incl Docks water body Neath Estuary water body Bristol Channel Outer North water body Swansea Bay (East) Shellfish Water Aberafan designated bathing water	Out: • Changes to levels of contaminants in water from accidental spillages.	Out: • Changes to levels of contaminants in water from accidental spillages.	Proposed works would not directly introduce contaminants to the environment, and pollution risks would be managed by environmental best practice management.

Chapter 18 References

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19 Navigation and Marine Transport

19.1 Introduction

19.1.1 ABP is the Statutory Harbour Authority (SHA) for the Port of Port Talbot. ABP is also the Competent Harbour Authority (CHA) with respect to pilotage and the Local Lighthouse Authority (LLA) for the SHA area. ABP when performing its statutory functions as an SHA, CHA and LLA, does so independently from its functions as port operator and developer.

19.1.2 This Chapter sets out the proposed scope and approach to be used to assess the potential navigation and marine transport effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

19.1.3 The effects of the Project on the following are considered:

- human life;
- the environment;
- Port/port user operations; and
- Port/shipping infrastructure damage.

19.1.4 This environmental topic relates to marine aspects of the Project.

19.1.5 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

19.1.6 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 14 – Coastal Processes**; **Chapter 15 – Commercial and Recreational Fisheries**; **Chapter 17 – Marine Ecology**; **Chapter 18 – Marine Water Quality and Sediment Quality**; **Chapter 25 – Population and Human Health;** and **Chapter 26 – Socio-Economics.**

19.2 Relevant Legislation, Policy and Technical Guidance

19.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of navigation and marine transport are detailed in **Table 122.**

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Table 122: Legislation, policy and guidance relevant to navigation and marine transport assessment

Relevant legislation / policy / guidance	Relevance to assessment (applicable to the marine environment)
Legislation	
The Wales Act 2017 (UK Government)	Transferred Ports Policy for Welsh Ports (other than Reserved Trust Ports of which Port Talbot is not) to Welsh Ministers under a reserved powers model. This was achieved through changes to various legislation including: • the Sea Fish Industry Act 1951; • the Harbours Act 1964; • the Docks and Harbours Act 1966; and • the Pilotage Act 1987.
The Port Talbot Harbour (Extension of Limits) Harbour Revision Order 2024	Defines the incorporated legislation, and powers and the limits over which ABP's duties and powers as a SHA apply in respect to Port Talbot and its approaches.
Marine and Coastal Access Act 2009	The act defines the requirement for marine licences in English and Welsh waters which includes the "construction of any works in or over the sea, and on or under the seabed" and the carrying "out of any form of dredging within the English or Welsh marine area (whether or not involving the removal of any material from the sea or sea-bed)". The application for a licence must have regard to the need to protect the environment, protect human health, prevent interference with legitimate uses of the sea and other matters considered relevant by the Licencing Authority. This process is administered by Natural Resources Wales (NRW) acting on behalf of the Welsh Ministers.
Pilotage Act 1987	The act requires Competent Harbour Authorities (CHA) to keep under consideration the pilotage services that may be required to secure the safety of ships. This Act gives a CHA the powers to make pilotage compulsory within their CHA limits and levy charges for the use of a pilot, grant pilotage exemption certificates and authorise pilots within their CHA limits. For the purposes of this act the area of ABP Port Talbot Jurisdiction as a CHA is aligned with the SHA limits.
Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998	States that certain UK ports, harbours and oil-handling facilities and all offshore installations on the UK Continental Shelf must submit Oil Pollution Preparedness and Response (OPRC) Plans to the Maritime and Coastguard Agency (MCA) which applies to ports, harbours and oil handling facilities exceeding the defined limits for turnover and/or site volume.
Civil Contingencies Act 2004	The Civil Contingencies Act, and accompanying non-legislative measures, delivers a single framework for civil protection in the UK. The Act is separated into 2 substantive parts: local arrangements for civil protection (Part 1); and emergency powers (Part 2). For the purposes of this act, ABP Port Talbot SHA is defined as a category 2 responder.
National Policy	
The UK Marine Policy Statement (2011)	Identifies in relation to port developments and marine safety that: "Marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety; and ensure that their decisions are in compliance with international maritime law" (Defra, 2020).
The Welsh National Marine Plan (2019) Sector Policy Ports and Shipping	Proposals that provide for the maintenance, repair, development and diversification of port and harbour facilities will be supported where they contribute to the objectives of this plan. Proposals should comply with the relevant general policies and sector safeguarding policies of this plan and any other relevant considerations.
Technical Advice Note (TAN) 18 (Welsh Government, 2007))	TAN 18 'Transport' provides guidance to planning authorities in Wales in relation to shipping and in relation to port developments (section 8.15) that: *"Local authorities should take care to ensure that developments intended to regenerate ports are not incompatible with any nearby port operations".*

Relevant legislation / policy / guidance	Relevance to assessment (applicable to the marine environment)
Guidance and Standards	
International Maritime Organization (IMO) Revised Guidelines for Formal Safety Assessment (FSA) for use in the IMO rule making process	Provides an outline framework for formal safety assessments such as the Navigational Risk Assessment (NRA) which will inform the ES, whilst primarily written for Member States to implement, certain elements of the guidelines are utilised in the NRA methodology. The guidelines are used in the Department for Transport (DfT) Port Marine Safety Code (PMSC) (Maritime and Coastguard Agency, 2022).
DfT Port & Marine Facilities Safety Code PMSC	The UK national standard for the safe and efficient running of Port Marine Facilities, introducing the principle of 'As Low As Reasonably Practicable' (ALARP) as guiding criterion for the assessment of marine risk within port facility areas of responsibility. The PMSC is a voluntary code which ABP commits and adheres to.
MCA A Guide to Good Practice on Port and Marine Facilities (GtGP)	The GtGP defines the aim of assessing and managing marine operations as being to reduce risk to ALARP, the explanation of ALARP is defined as follows: "Judgement of risk should be an objective one, without being influenced by the financial position of the authority. The degree of risk in a particular activity or environment can, however, be balanced on the following terms against the time, trouble, cost and physical difficulty of taking measures that avoid the risk. If these are so disproportionate to the risk that it would be unreasonable for the people concerned to incur them, they are not obliged to do so. The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble and invention to reduce it. But if the consequences and the extent of a risk are small, insistence on great expense would not be considered reasonable".

19.3 Engagement and Consultation

19.3.1 The engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**. No topic specific engagement has taken place for Navigation and Marine Transport.

19.3.2 Navigational stakeholders will be engaged as part of the NRA including port, marine, and technical stakeholders, for example, CHA Pilots to gather views on potential effects of the Project.

19.4 Study Area

19.4.1 The study area for Navigation and Marine Transport is provided in Figure 19.1 in **Appendix A**.

19.4.2 The study area is aligned with the Port Talbot SHA limits which wholly encompasses the marine areas of the Port as relevant to navigation and marine transport. The study area (the SHA) relates to the legislation and policy guidance set out in

19.4.3 Table 106, and is the area that would be considered in relation to navigational features and risk.

19.4.4 The current study area incorporates the potential construction dredge material disposal site LU130 (Swansea Bay Outer), which is also the extant, maintenance dredge disposal site for Port Talbot. However, as a marine disposal site has not yet been confirmed, the study area will be kept under review as the Project progresses.

19.4.5 It is anticipated that an area within the SHA will be designated for the mooring of floating platforms during Phase 1 and subsequent phases, known as a 'wet storage' site. The need for this site will be kept under review as the Project progresses. The size and location of this site is not known at this time; however it would be located within the study area (i.e. within the SHA).

19.5 Description of the Existing Environment

Resources and Receptors

19.5.1 The receptors will be categorised in line with the DfT PMSC (DfT, 2025) and its Guide to Good Practice (Maritime and Coastguard Agency, 2025) for navigation and marine transport. The resources and receptors are:

- human life;
- the environment;
- port/port user operations; and
- port/shipping infrastructure damage.

Data Sources

19.5.2 The baseline for navigation and marine transport has been derived from the data sources set out in **Table 123**.

Table 123: Data sources

Data Type	Data Source
Accident and Incident data	• Marine Accident Investigation Branch (MAIB); • Royal National Lifeboat Institute (RNLI); and • ABP Port Talbot and Swansea MARNIS Port Risk Management Accident/Incident Database.
Automatic Identification System (AIS) data	Commercially sourced and / or collected in the Study Area. Class A and Class B data* will be collected and /or acquired. There will be a minimum of 2 weeks of data collected and/ or acquired in a busy period and a minimum of 2 weeks of data collected and or acquired in a quieter period. The actual dates of collected and or acquired data will be determined to consider seasonality of recreational craft movements and seasonality of fishing vessel movements. *AIS signals are broadly classified as 'Class A' and 'Class B', where AIS-A is carried by international voyaging ships with Gross Tonnage (GT) of 300 or more tonnes, all passenger ships regardless of size, fishing vessels 15 m or more in length overall (operating within UK waters) and certain categories of workboats. The use of AIS-B is not compulsory but may be carried by other vessels, including smaller commercial craft, the fishing sector, and recreational vessels.
Vessel movement statistics	ABP Ports and Vessel Information System (PAVIS).
Recreational boating information	RYA coastal atlas of recreational boating.
Commercial fishing information	Fishing Vessel Monitoring Systems (VMS) and fisheries surveillance sightings data from AIS.

Data Type	Data Source
Navigational features and charted information	United Kingdom Hydrographic Office (UKHO) Admiralty Chart 1161 Swansea Bay.
Maintenance dredging and disposal	ABP/UKD records and dredge disposal returns.
Vessel Services and Vessel Traffic Management (VTM) procedures and parameters	ABP South Wales Ports MSMS.
MetOcean conditions	ABPmer modelled data.

Baseline Conditions

Commercial Navigation

19.5.3 The Port, until recently, supported several million tonnes of raw material import, primarily for the existing steelworks adjacent to the Port and tens of thousands of tonnes of bulk export annually, primarily granular blast furnace slag and cement. The Steelworks have concluded changes to their operation which includes the cessation of raw material imports and exports from Port Talbot. The Environmental Statement (ES) will consider commercial shipping movements at the Port based on the best current information at the time of the commencement of the NRA with consideration also given to recent uses of the port.

19.5.4 The British Transport Docks Act 1964 authorised the construction and maintenance of two new breakwaters to form the large tidal harbour. The harbour limits were extended to include an approach channel by Section 19 of the British Transport Docks Act 1971. Powers to dredge were extended over this area. The Port Talbot Harbour (Extension of Limits) Harbour Revision Order 2024 extended the Port Talbot port limits to include a large area of Swansea Bay including the Deep-Water Anchorage south of Mumbles Head. ABP Powers to dredge were also extended by the 2024 Order subject to the requirements of the Marine and Coastal Access Act 2009.

19.5.5 ABP currently holds a 10-year Maintenance Dredge Disposal Marine Licence which was determined by NRW 24 June 2020 (DML1630v2). Subject to intermediate sediment sampling at 3-year intervals and compliance with the conditions set out in Section 3 of the Marine Licence, the extant Marine Licence is valid until 23 June 2030. **Table 124** sets out the relevant criteria of this licence.

Table 124: Relevant criteria for the Maintenance Dredge Disposal Marine Licence (DML11630v2)

Marine Licensable Activity Type	Deposit
Description:	Maintenance dredge disposal at Port Talbot. The areas dredged are the harbour approach channel, the dock approach channel and the tidal harbour using a Trailer Suction Hopper Dredger. The dredged material will then be deposited at Swansea Bay (Outer) LU130 disposal site.
Maximum Dredge Depth Channel and Harbour Dredge Zone 1:	17.3 m below Ordnance Datum Newlyn.
Maximum Dredge Depth South Pocket Dredge Zone 2:	23.3 m below Ordnance Datum Newlyn.
Maximum Dredge Depth North Pocket Dredge Zone 3:	20.1 m below Ordnance Datum Newlyn.
Maximum Dredge Depth Old Dock Channel Dredge Zone 4:	6.5 m below Ordnance Datum Newlyn.
Maximum Deposit:	Tonnage per year 3.1 million.
Deposit Location:	Site Code: LU130 Site Name: Swansea Bay (Outer).
Material Type:	Sand, Silt and Clay arising from maintenance dredging.

19.5.6 The vessels that previously serviced the Tidal Harbour were up to 300m length overall (LOA), up to 17m draught and in excess of 180,000 Deadweight Tonnes (DWT). Average vessel movements in the Tidal Harbour were around 200 vessels per year including maintenance dredgers and bunker barges.

19.5.7 The Impounded Dock at Port Talbot was authorised by various local legislation between 1834 and 1914 when breakwater extensions and a new lock were authorised. The Impounded Dock can accommodate vessels up to 8,000 DWT, 120m LOA, 17.7m beam and 7.7m draft. Commercial traffic at the Impounded Dock consists of an average of around 50 vessels per year exporting cement. Imports include sand for the construction industry.

19.5.8 The Port of Neath is situated between ABP Port Talbot and ABP Swansea. The port supports a small number of independent wharfs that service a small number of commercial vessels in the form of coasters, typically handled on spring tides to provide maximum tidal range.

19.5.9 ABP Swansea is owned and operated by ABP servicing vessels up to 20,000 DWT within the dock system. Trades supported include aggregates, steel coal, and coke. There is a Roll-on, Roll-off (RoRo) berth in the River Tawe that in the past supported the twice weekly ferry service between Swansea and Cork. Swansea is the west coast base for Trinity House vessels Galatea and Patricia when undertaking their General Lighthouse Authority duties.

19.5.10 The Port of Swansea is the base port for ABP West Wales Pilotage service, and the fleet of tugs servicing Port Talbot. Pilot vessels and tugs regularly transit between Swansea and Port Talbot.

19.5.11 The extant maintenance dredge disposal ground LU130 is situated in Swansea Bay close to the south of the Swansea Pilot boarding area. It is

primarily utilised for disposal of maintenance dredge arisings from the Tidal Harbour and approach channel, and to a lesser extent, the Swansea Channel.

19.5.12 To the south of Mumbles Head there is a large deepwater anchorage. This is mainly utilised by Cape size and Panamax bulk carriers awaiting a berth at the Tidal Harbour and to a lesser extent, large vessels either coming to or from the ports of Milford Haven and or Bristol awaiting a berth or orders.

Fishing Vessels

19.5.13 The Port of Swansea is the only port in the Swansea Bay area where fishing vessels transit to and from. They are few in number and consist of local day fishing and charter vessels based in Swansea Marina and a small number of commercial fishing vessels sporadically utilising Swansea Docks to land their catch from the wider Bristol Channel area.

Recreational Navigation

19.5.14 Established recreational vessel destinations in Swansea Bay includes Swansea Marina with approximately 385 berths, Monkstone Cruising and Sailing Club at the River Neath, and the Afan Boat Club at the River Afan in Port Talbot, with limited tidal moorings upstream from the Port Talbot Lock. The majority of recreational vessel transits are close inshore between Swansea Docks along the coast to the west.

Statutory Authorities

19.5.15 ABP is the SHA for the Port of Port Talbot and Swansea and for the wider Swansea Bay area including the deepwater anchorage south of Mumbles Head. In this capacity, ABP has a set of duties, powers and responsibilities which includes the management and regulation of the safety of navigation and marine operations in the SHA areas.

19.5.16 ABP is also the CHA with respect to pilotage for the Port of Port Talbot and Swansea and for the wider Swansea Bay area including the deepwater anchorage south of Mumbles Head. ABP, as the CHA, issues Pilotage Directions that prescribe which vessels require a Pilot when navigating within the CHA area. Pilotage is provided by ABP based in Swansea. A Pilotage Exemption Certificate (PEC) process is also operated for deck officers meeting the necessary standard.

19.5.17 ABP, acting in its capacity as SHA and CHA is doing so independently of its function as commercial port operator. ABP is a statutory body corporate created by the Transport Act 1981. ABP was conferred CHA status by virtue of the Pilotage Act 1987. ABP recognises this distinction in section 32 of the ABP Standard Terms and Conditions of Trade.

19.5.18 VTM is provided by ABP Wales Local Port Services (LPS) within the meaning of Marine Guidance Note (MGN) 401, at Port Talbot and the Port of Swansea during the times that the respective locks at Port Talbot and Swansea are operational. The function is provided at all other times by the

ABP Wales central LPS function at Cardiff VTM is therefore provided by ABP on a 24-hour basis.

19.5.19 Neath Port Authority (NPA) is the SHA and CHA for their area of jurisdiction, provided in Figure 19.1, in **Appendix A**.

19.5.20 ABP and NPA are the LLA for the respective SHA areas by virtue of the Merchant Shipping Act 1995. As LLA, ABP is responsible for the provision and maintenance of Aids to Navigation (AtoN). ABP is required to report any defects to AtoN and consult on any proposed changes, additions or removal of AtoN with Trinity House Lighthouse Authority as the General Lighthouse Authority for England and Wales.

19.5.21 Both ABP and NPA have committed to meeting the requirements of the PMSC. The PMSC requires that ports operate an effective Marine Safety Management System (MSMS) which is based on a comprehensive and continuously updated set of risk assessments. The MSMS details how the ports fulfil their duties as SHAs and meet the marine safety requirements prescribed by the PMSC.

Next Steps

19.5.22 A review of the currently held AIS dataset will be carried out and new data acquired if deemed necessary to inform the NRA and the ES. AIS data will cover two weeks in a busier period and two weeks in a quieter period and will include all vessel categories.

19.6 Future Baseline

19.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Navigation and Marine Transport Chapter of the ES would seek to explain what the environmental change, in terms of air quality, would likely be in the future if the Project were not to go ahead.

19.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

19.6.3 For the Navigation and Marine Transport chapter, based on the information currently available, it is assumed that future baseline conditions will remain broadly unchanged at the time of the start of the expected construction of the Project compared to current baseline conditions. In defining future baseline conditions potential for changes in policy or local/national plans will be considered where information is available at the time of the assessment. Where sufficient information is available consideration will also be given to any anticipated changes in operations at local ports as communicated by navigational stakeholders through engagement for the NRA.

19.7 Mitigation Measures

19.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the navigation and marine transport topic will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 –Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

19.7.2 This section sets out the potential controls relevant to navigation and marine transport which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and experience from other projects. The list of control measures will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

19.7.3 Where impacts on navigation and/or marine transport from the Project are identified, mitigation measures or mitigation controls will be identified through the NRA process for adoption/implementation as appropriate. Where possible, these controls will be embedded (primary mitigation) within the background navigational environment through the marine works and adjustments and additions to the ABP MSMS.

Construction Controls

19.7.4 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage includes:

- Project Liaison Officer (Marine Management Plan): the appointment of an authority officer to act as liaison with the construction contractors, responsible for the development and adherence to a Marine Safety Management Plan. The premise of the plan is that it outlines the procedures in place for each organisation and how those procedures interface and deconflict. The intended outcome is shared understanding and defined responsibility. Typically, the plan will include procedures for communications, agreed parameters for specific operations and contingencies to respond to reasonably foreseeable situations;
- Construction Contractor Risk Assessment and Method Statement (RAMS): these are a requirement of ‘Construction, Design and Management’ (CDM) Regulations 2015 UK (Health and Safety Executive, n.d.). The specific RAMS for the construction/dredging activity of the Project will be developed at the appropriate time and subject to review by ABP Port Talbot as the SHA;
- on completion of the marine works, a bathymetric survey will be undertaken to inform the future baseline and ABP’s MSMS;
- UKHO will be promptly informed of any relevant changes to the seabed and aids to navigation for inclusion in updates to charts and publications

and also any relevant Notices to Mariners (in addition to local Notices to Mariners that will be issued by ABP as the SHA); and

- the Project will incorporate The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) guidance on AtoN for marking the works.

Operation and Maintenance Controls

19.7.5 Possible mitigation (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage includes:

- operation in line with the established ABP MSMS since the Project is wholly within the ABP Port Talbot SHA limits; and
- use of the outcomes of the NRA to inform potential future mitigations that ABP as the SHA will adopt as appropriate within the MSMS.

19.8 Potential Likely Significant Effects

19.8.1 The potential likely significant effects for navigation and marine transport are described in **Table 125**. These take into account the expected control measures set out within Section 19.7. These potential impact pathways are scoped into the assessment that will be reported in the ES informed by the HAZID and NRA.

19.8.2 The activities, effects and receptors will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

Table 125: Likely significant navigation and marine transport effects

Activity	Effect	Receptor
Construction		
Vessel activity and movements during construction phase	Potential effects from heavy contact (allision) from contact of construction or dredging craft with port marine structures (jetties and breakwaters) during manoeuvring of construction or dredging craft.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.
Vessel activity and movements during construction phase	Potential effects from collision of passing vessels with construction or dredging craft. Increased risk from aberrant construction craft outside of construction hours and the potential displacement of craft from their normal routes during the marine works.	• human life; • the environment; • Port / port user operations; and • port / shipping infrastructure damage.

Activity	Effect	Receptor
Vessel activity and movements during construction phase	Potential effects from allision of passing vessels with anchored of moored construction or dredging craft: as passing vessels (commercial, recreational or fishing) are manoeuvring in proximity to a moored or jacked-up construction craft there is a potential for allision. Increased risk from aberrant construction craft outside of construction hours and the potential displacement of craft from their normal routes during the marine works.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.
Vessel activity and movements during construction phase	Potential effects from collision during navigation including from vessel collision (commercial, recreational or fishing) with the construction or dredging craft whilst transiting to or from the site or during activities within the disposal sites.	• human life; • the environment; • port / port user operations; and • port/shipping infrastructure damage.
Vessel activity and movements during construction phase	Potential effects from grounding of construction or dredging craft if vessels engaged in the works ground on the foreshore, breakwater or other marine works during construction and dredge activity.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.
Diving for construction or inspection activity	Potential effects on human life as a result of a commercial dive related incident as a result of an underwater hazard or marine craft activity.	• human life.
Vessel activity and movements during construction phase	Potential effects from marine pollution incidents if pollutants enter the water from a marine incident (for example, a collision) or through an accidental spill from refuelling plant and equipment.	• human life; • the environment; and • port / port user operations.
Unloading of cargo (for example, construction material or rock armour)	Potential effects from a payload related incident, for example where a construction craft suffers a loss of stability resulting in water ingress or capsize.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.
Vessel activity and movements during construction phase	Potential effects from fire/explosion if construction or dredging craft experiencing a fire and/or an explosion onboard leading to a marine emergency situation.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.
Vessels moored during construction phase	Potential effects from ranging if moored vessels and structures influenced by environmental factors, potentially lead to mooring failure and break out.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.
Lifting heavy material from vessels during construction phase	Potential effects from a heavy lift failure if construction craft experience a failure of lifting equipment or drop a heavy item (for example, rock armour) onto a vessel causing a marine emergency situation.	• human life; • the environment; • port / port user operations; and • port / shipping infrastructure damage.

Activity	Effect	Receptor
Vessel activity and movements during construction phase	Potential effects from accidents to personnel during construction phase including potential for loss of personnel into the water during a crew transfer operation or directly from a construction or dredge craft during the construction phase.	• human life.
Operation and Maintenance		
Vessel activity and movements during operational phase	Potential effects from contact (allission) of a vessel with port infrastructure.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Vessel activity and movements during operational phase	Potential effects from grounding of vessel within port Talbot Harbour or approaches.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Vessel activity and movements of vessels and Floating Offshore Wind (FLOW) structures during operational phase	Potential effects from collision if commercial, recreational or fishing vessels collide with another vessel or floating FLOW structure within Port Talbot Harbour or approaches due to increased traffic density.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Vessel activity and movements of vessels and FLOW structures during operational phase	Potential effects from contact of FLOW structures with port infrastructure if floating FLOW structures being towed, into, out of or within Port Talbot Harbour make contact (allision) with port infrastructure.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Vessels and FLOW structures moored during operational phase	Potential effects from ranging if moored vessels and structures influenced by environmental factors, potentially lead to mooring failure and break out.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Diving for maintenance or inspection activity.	Potential effects on human life as a result of a commercial dive related incident as a result of an underwater hazard or marine craft activity.	• human life.
Vessels and FLOW structures moored or moving during operational phase	Potential effects from fire/explosion if operational or maintenance dredging craft experiencing a fire and/or an explosion onboard leading to a marine emergency situation.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Lifting heavy material from vessels during operational phase	Potential effects from a heavy lift failure if operational craft experience a failure of lifting equipment or drop a heavy item (for example, FLOW structures) onto a vessel or marine infrastructure causing a marine emergency situation.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Vessel activity and movements of vessels and FLOW structures during operational phase	Potential effects from marine pollution incidents if pollutants enter the water from a marine incident (for example, a collision) or through an accidental spill from refuelling operational craft.	• human life; • the environment; and • port/port user operations.

Activity	Effect	Receptor
Vessel activity and movements of vessels and FLOW structures during operational phase	Potential effects from accidents to Personnel including the potential for loss of personnel into the water, for example, from FLOW structures.	• human life.
Unloading of cargo (for example, operational components)	Potential for a payload related incident where for example if an operational vessels could suffer a loss of stability resulting in water ingress or capsize.	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.
Vessel activity and movements of vessels and FLOW structures during operational phase	Potential effects from grounding of FLOW structures being towed, into, out of or within Port Talbot Harbour which could make contact (allision) with port infrastructure	• human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage.

19.9 Resources and Receptors Scoped Out of Assessment

19.9.1 The resources or receptors that are proposed to be scoped out of the assessment for navigation and marine transport are set out within **Table 126**.

Table 126 Resources or receptors scoped out of the assessment

Activity	Effect	Receptor	Justification for scoping out
Vessel activity and movements during construction phase	Accident to the public: for the general public and those engaged in near-shore recreational pursuits (for example, swimming, small manual powered craft).	• human life; and • the environment.	This potential impact pathway is considered as scoped out due to the nature of the Project site being non-public accessible from land, and the Tidal Harbour not being subject to Open Port Duty by exclusion of section 33 of Harbours Docks Piers and Clauses Act 1847 and powers under the Harbours Act 1964.
Vessel activity and movements during construction phase	Loss of hull integrity leading to Flooding or Stranding.	• human life; and • the environment.	This is not considered a likely impact pathway in its own right and will instead be considered as part of a collision or contact scenarios.
Vessel activity and movements of vessels and FLOW structures during operational phase	Accident to the public: the accessibility of the shoreline for the general public and those engaged in near-shore recreational pursuits (for example, swimming, small manual powered craft) presents a marine safety risk to the general public during the operational phase.	• human life; and • the environment.	This potential impact pathway is considered as scoped out due to the nature of the Project site being non-public accessible from land, and the Tidal Harbour not being subject to Open Port Duty by exclusion of section 33 of Harbours Docks Piers and Clauses Act 1847 and powers under the Harbours Act 1964.
Vessel activity and movements of vessels and FLOW structures during operational phase	Loss of hull integrity leading to Flooding or Stranding.	• human life; and • the environment.	This is not considered a likely impact pathway in its own right and will instead be considered as part of a collision or contact scenarios.

19.10 Proposed Assessment Methodology

Navigational Risk Assessment

19.10.1 The NRA will inform the Navigation and Marine Transport Chapter of the ES and will be presented as an appendix to the ES. It will cover both construction and operational phases of the Project.

19.10.2 There are no planned surveys to inform the marine transport and navigation assessments for the Project as sufficient baseline data is already available (see **Table 123**). The outputs of the hydrodynamic surveys that would be used to inform the physical processes assessment (refer to **Chapter 14 – Coastal Processes**) would be used to inform vessel simulation studies for the Project. The assessment will consider changes to navigational depths where relevant to the Project. In addition, information on FLOW structures specification and on FLOW structure potential maneuvering constraints and limitations will be used to inform the vessel simulations and NRA.

19.10.3 To inform the NRA, consultation will need to be undertaken with navigational stakeholders including port, marine, and technical stakeholders, for example, CHA Pilots to gather views on potential effects of the Project through construction and operational phases.

19.10.4 The potential effects will need to be assessed through expert opinion facilitating risk assessments. This process will be informed by a HAZID which will confirm the likely significant Navigation and Marine Transport effects.

19.10.5 Likely impacts on navigation and marine transport receptors, formulated during the HAZID process, will be assessed during the NRA process in terms of both most likely and worst credible scenarios, as described by the PMSC GtGP, to reflect the range of potential outcomes arising from an incident. The most likely and worst credible scenarios will be determined from the consenting envelope to ensure that all potential scenarios are assessed.

19.10.6 The descriptors to be used for magnitude (consequence) and sensitivity (likelihood) are set out in **Table 127** and **Table 128**. These will be confirmed through the SHA Duty Holder established process at the time of undertaking the NRA. The resultant risk scores are the product of the consequence and likelihood scores which take into account existing (embedded controls) already in place. This process is informed by the HAZID, and a set of risk assessments will be created. These will identify hazards, potential causes and potential future risk controls.

19.10.7 Following the risk assessment process and full consideration of navigation hazards brought about by the Project, the need to have further controls would be decided upon. Decisions relating to further controls would be finalised by the appropriate authority (the ABP SHA as Duty Holder under the PMSC) to determine whether a tolerable and ALARP state has been met for each risk. This would determine whether the Project's residual impacts have been reduced to an ALARP state as defined and applied

within the guidance in the PMSC, which requires the Duty Holder to keep its MSMS under constant review.

Table 127: Consequence descriptors

Rank	Description	Definition			
		People	**Property**	**Planet**	**Port (Business)**
1	Negligible	No injury	Negligible (£0 - £10,000)	None (No incident - or a potential incident/near miss)	None
2	Minor	Minor injury(s)	Minor (£10,000 - £750,000)	No Measurable Impact (An incident or event occurred, but no discernible environmental impact - Tier 1[33] but no pollution control measures needed)	Minor (Little local publicity. Minor damage to reputation. Minor loss of revenue, £0 - £750,000)
3	Moderate	Serious injury(s) (Marine Accident Investigation Branch (MAIB)/ Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) reportable injury	Moderate (£750,000 - £4M)	Minor (Incident results in pollution with limited/local impact - Tier 1, Harbour Authority pollution control measures deployed)	Moderate (Negative local publicity. Moderate damage to reputation. Moderate loss of revenue, £750,000 - £4M)
4	Major	Single fatality	Serious (£4M - £8M)	Significant (Has the potential to cause significant damage and impact - Tier 2[33], pollution control measures from external organisations required)	Serious (Negative national publicity. Serious damage to reputation. Serious loss of revenue, £4M - £8M)
5	Extreme	Multiple fatalities	Major (> £8M)	Major (Potential to cause catastrophic and/or widespread damage - Tier 3, requires major external assistance)	Major (Negative national and international publicity. Major damage to reputation. Major loss of revenue, > £8 M)

[33] Merchant Shipping (Oil Pollution Preparedness and Response regulations 1998)

Table 128: Likelihood descriptors

Rank	Description	Definition	Indicative Return Period
1	Rare	The impact of the hazard is realized but should very rarely occur (within the lifetime of the entity)	> 1,000 years
2	Unlikely	The impact of the hazard might occur but is unlikely (within the lifetime of the entity)	100 – 1000 years
3	Possible	The impact of the hazard could very well occur, *but it also may not* (within the lifetime of the entity)	10 – 100 years
4	Likely	It is quite likely that the impact of the hazard will occur (within the lifetime of the entity)	1 – 10 years
5	Almost Certain	The impact of the hazard will occur (within lifetime of entity)	< 1 year

19.10.8 Determining the overall risks to navigation and marine transport receptors (a product of consequence and likelihood) incorporates a degree of subjectivity as qualitative outcomes are based on expert opinion in combination with baseline data and marine traffic information.

19.10.9 For the purposes of the EIA, impacts that are deemed to be intolerable, or not within ALARP parameters within the NRA, are considered to be significant in EIA terms; impacts deemed to be tolerable and ALARP are deemed as not significant in EIA terms.

Cumulative Effects

19.10.10 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

19.10.11 Cumulative effects on marine transport and navigation could occur during construction and operation of the Project if other developments were to also change the volume, composition and/or routing of vessels within the Study Area. Where sufficient information is available on other developments then the NRA will consider cumulative impacts. If necessary, then appropriate risk controls will be identified at the HAZID workshop to mitigate cumulative effects between the projects.

19.11 Assumptions and Limitations

19.11.1 Any assumptions and limitations will be set out within the NRA and the Navigation and Marine Transport chapter of the ES.

19.11.2 It is assumed at this stage that the ABP SHA will provide clear guidance on the level at which their risk tolerability (as SHA) is set. This level will be used to determine the application of the ALARP principle.

19.12 Summary

19.12.1 The proposed scope of the assessment for Navigation and Marine Transport is contained within **Table 129**.

Table 129: Proposed scope of the Navigation and Marine Transport chapter of the ES

Matter	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
• contact; • collision; • grounding; • commercial; • diving related incidents; • marine pollution; • payload related incidents; • fire/explosion; • ranging; • heavy Lift failure; and • accidents to personnel	Scoped in for all receptors: • human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage	Scoped in for all receptors: • human life; • the environment; • port/port user operations; and • port/shipping infrastructure damage	Potential for impacts on receptors from construction and operational activities.
• accident to the public: for the general public and those engaged in near-shore recreational pursuits (for example, swimming, small manual powered craft)	Scoped out for: • human life; and • the environment.	Scoped out for: • human life; and • the environment.	This potential impact pathway is considered as scoped out due to the nature of the Project site being non-public accessible from land, and the Tidal Harbour not being subject to Open Port Duty by exclusion of section 33 of Harbours Docks Piers and Clauses Act 1847.
• loss of hull integrity leading to Flooding or Stranding.	Scoped out for • human life; and • the environment.	Scoped out for • human life; and • the environment.	These are not considered likely to impact pathways in their own right and will instead be considered as part of a collision or contact scenarios.

Chapter 19 References

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20 Climate Change

20.1 Introduction

20.1.1 This chapter sets out the proposed scope and approach to be used to assess the potential Effects on Climate and Climate Resilience in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

20.1.2 Effect on Climate encompasses the direct and indirect Greenhouse Gas emissions associated with the Project. Note that 'Carbon' is used as shorthand for Greenhouse Gases (GHGs), as carbon dioxide is the largest contributing GHG to climate change. For the aspect of GHG emissions the receptor is the global climate.

20.1.3 Climate Resilience considers the potential effects of future climate change and extreme weather conditions on the construction, operation and maintenance of the Project. For the aspect of Climate Resilience, receptors include all operational assets forming part of the Project.

20.1.4 This environmental topic relates to both terrestrial and marine aspects of the Project.

20.1.5 The assessment of Effects on Climate presented in this Chapter has linkages with the following environmental topics: **Chapter 12 – Onshore Traffic and Transport, Chapter 13 – Terrestrial and Freshwater Ecology, Chapter 19 – Navigation and Marine Transport and Chapter 23 – Materials and Waste**.

20.1.6 The assessment of Climate Resilience presented in this Chapter has linkages with the following environmental topics: **Chapter 13 – Terrestrial and Freshwater Ecology** and **Chapter 8 – Flood Risk**. Ecology will consider the resilience of ecosystems that will be created or enhanced as part of the project to climate change to support the habitat design and management as part of the achievement of Net Benefits for Biodiversity (NBB) and flood risk will consider climate change uplifts as part of the flood modelling.

20.2 Relevant Legislation, Policy and Technical Guidance

20.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of Effects on Climate and Climate Resilience are detailed in **Table 130** and **Table 131**.

Table 130: Legislation, policy and guidance relevant to Effects on Climate

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Environment (Wales) Act 2016	This act sets out the policy framework to embed Welsh carbon budgets to ensure carbon targets are met. It clarifies the carbon budget periods and what steps are required to justify actions that incur carbon emissions, and how carbon should be measured and reported. This legislation is relevant to both marine and terrestrial elements of the Project.
Welsh Climate Change Regulations 2021	These regulations set out a long-term framework for meeting the net zero 2050 target by providing milestones and a direction of travel for Wales's decarbonisation pathway. To mitigate the effects of climate change, the EIA Scoping Report focuses on: • prevention – tackling the root cause of climate change by reducing carbon emissions; • integration – Striving towards the global sustainable development goals to adopt measure and policies that support other Welsh Government priorities and commitments while bringing benefits beyond reducing emissions; • collaboration – providing the technical mechanism and governance framework to help different agents work together to achieve emission reduction targets; • involvement – stakeholder engagement events were held, and a commitment has been made to involve those affected by policies in the decision-making process; and • impact, Cost and Savings – the Royal Institute of Architects (RIA) considers the costs, benefits and impacts of the Climate Change Committee's (CCC) recommended Balanced Pathway. This legislation is relevant to both marine and terrestrial elements of the Project.
Climate Change Act 2008	The Climate Change Act 2008 forms part of the UK government's plan to reduce GHG emissions, committing the government to a reduction of GHG by at least 80% of 1990 levels by 2050. With recent legally binding climate commitments the UK is set to change this emissions reduction target: net UK GHG emissions for the year 2050 must be 100% lower than the 1990 baseline, supporting the Paris Agreement which provides a framework to keep global warming well below 2C, pursuing efforts to limit the temperature increase to 1.5C. Key provisions of the Act in respect of climate change mitigation include the requirement for the government to set legally binding carbon budgets capping the amount of GHG emitted in the UK over a 5-year period. This legislation is relevant to both marine and terrestrial elements of the Project.
Well-being of Future Generations (Wales) Act 2015, (updated 2024)	The Well-being of Future Generations (Wales) Act is about improving the social, economic, environmental, and cultural well-being of Wales. The Act aims to promote long-term thinking to ensure a good quality of life for future generations. The Act promotes the reduction of carbon emissions by embedding sustainability and climate considerations into the decision-making processes of public bodies. This is reflected in the project by ensuring that carbon reduction is considered at all stages of the project, while considering the states milestone that Wales will achieve net-zero greenhouse gas emissions by 2050. This legislation is relevant to both marine and terrestrial elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
National Policy	
All Wales Plan 2021-25: Working Together to Reach Net Zero (Welsh Government, 2022)	This Welsh Government policy paper showcases their decarbonisation pledges made in 2019 and provides case studies in each sector (including Energy and Heat Generation). This includes the South Wales Industrial Cluster (SWIC), which collaborates with the major stakeholders in the Future Port Talbot Project including Associated British Ports (ABP) (the Applicant), Neath Port Talbot County Borough Council (NPTC), and Offshore Renewable Energy Catapult to decarbonise the industrial sector in South Wales. Due to the scale of the Scheme, additional decarbonisation efforts will be required despite the scheme's location within the SWIC area. This policy is relevant to both marine and terrestrial elements of the Project.
Planning Policy Wales Edition 12, (Welsh Government , 2024)	Planning Policy Wales (PPW) aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required the Well-being of Future Generations (Wales) Act 2015 and other key legislation. PPW was updated in 2024 to include more clarity and increased emphasis on the importance of biodiversity and ecosystem resilience. In addition, PPW is clear that well-being improvements, addressing the consequences of climate change and considering sequestration of carbon should also be central to any protection, maintenance and enhancement strategy for ecosystem resilience. To achieve this, PPW places significant weight on the importance of following the mitigation hierarchy (avoidance, minimisation, mitigation, compensation on-site and then compensation off-site, with enhancement opportunities considered at every step of this hierarchy). Through considering these negative impacts on carbon storage and sequestration should be minimised. New development is required to evidence that this stepwise approach has been followed in a Green Infrastructure Statement setting out long-term management. PPW also places considerable weight on the importance and protection of peatlands and of irreplaceable habitats, unless there are significant material considerations (in respect of peatland) or "wholly exceptional" circumstances. The peatland is of particular importance due to the high level of carbon storage. This policy is relevant to both marine and terrestrial elements of the Project.
Powering Up Britain: Net Zero Growth Plan (Department of Energy Security and Net Zero, 2023)	This UK Department for Energy Security and Net Zero policy paper has a mission to replace fossil fuel-powered energy with cheaper, cleaner, domestic sources of energy. For example, the paper cites the LanzaTechUK investment in Port Talbot, in which the government awarded £3.1m through the Green Fuels, Green Skies competition and £25m through the Advanced Fuels Fund. This policy is relevant to both marine and terrestrial elements of the Project.
Net Zero Strategy: Build Back Greener (UK Government, 2021)	This UK Department for Energy Security and Net Zero policy paper aims to set out policies and proposals to decarbonise all sectors in line with the UK net zero target date of 2050. The Future Port Talbot Project links to multiple aims and commitments in the policy, such as the commitment to delivery 40GW of offshore wind, including 1GW of floating offshore wind by 2030. This policy is relevant to both marine and terrestrial elements of the Project.
Infrastructure Carbon Review (UK Treasury, 2013)	The Infrastructure Carbon Review sets out carbon reduction actions required by infrastructure organisations. In terms of the Project, this means that emission reduction actions should be considered when developing Project specific mitigation measures, where relevant. This policy is relevant to both marine and terrestrial elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment

Clean Maritime Plan (Department for Transport, 2019)	The Clean Maritime Plan sets out existing maritime environmental and supply / demand opportunities for clean maritime technologies. The plan itself sets out a route-map of the Maritime 2050 strategy focused on developing Zero Emissions Shipping through targets, incentives and technological development. The targets included are that by 2025:
	• all vessels operating in UK waters are maximising energy efficiency options;
	  ○ zero emission vessels are in use in UK waters; and
	  ○ the UK is building clean maritime clusters focused on innovation and infrastructure associated with zero emission propulsion technologies, including bunkering of low or zero emission fuel.
	• Targets for 2035 include:
	  ○ the UK has built a number of clean maritime clusters; and
	  ○ low or zero emission marine fuel bunkering options are readily available across the UK.
	These targets are designed to ensure that the UK is home to a world-leading zero emissions maritime sector, and the UK Ship Register is known as a global leader in clean shipping.
	
	This policy is relevant to marine elements of the Project.

Maritime Decarbonisation Strategy (Department for Transport, 2025)	The Maritime Decarbonisation Strategy sets out the pathway for the maritime sector to reach zero fuel lifecycle greenhouse gas emissions by 2050 with at least 30% reduction by 2030 and 80% reduction by 2040. The outset of this strategy aims to focus on vessels with clear routes to decarbonisation such as offshore wind vessels. The strategy sets out five key policy measures: Fuel regulation Emissions pricing Decarbonisations at ports and while at berth Measures for smaller vessels and accelerating uptake in targeted subsectors Energy efficiency
Local Policy	
Climate emergency declaration (Neath Port Talbot, 2024)	The Welsh Government declared a climate emergency on the 30th April 2019. NPTC recognised that tackling climate change is both necessary and urgent. This policy is relevant to both marine and terrestrial elements of the Project.
Decarbonisation and Renewable Energy strategy (Neath Port Talbot, 2024)	To respond to the Welsh Government's challenge, NPTC created the Decarbonisation and Renewable Energy strategy. This policy is relevant to both marine and terrestrial elements of the Project.
Swansea Council Net Zero Declaration (Swansea Council, 2019)	In 2019, Swansea Council declared a Climate Emergency and aimed to make Swansea Council net zero by 2030 and Swansea net zero by 2050. This policy is relevant to both marine and terrestrial elements of the Project.
Guidance and Standards	
PAS2080:2023 (BIS)	PAS2080 sets out a common approach and understanding of whole life carbon management in the provision of economic infrastructure as a result of the Infrastructure Carbon Review. It promotes reduced carbon, reduced cost infrastructure delivery, more collaborative ways of working and a culture of challenge in the infrastructure value chain. This guidance is relevant to both marine and terrestrial elements of the Project.
IEMA Guidance - Assessing Greenhouse Gas Emissions and Evaluating their Significance	Guidance assists GHG practitioners to assess, mitigate, and report GHG emissions. The guidance includes a definition of which emissions are deemed 'significant'. This guidance is relevant to both marine and terrestrial elements of the Project.

Table 131: Legislation, policy, guidance relevant to the Climate Resilience assessment

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Climate Change Act 2008	The UK Climate Change Act 2008 sets out a policy framework to ensure the UK adapts to climate change. This includes commitments to identify risks associated with a changing climate, to ensure that the UK's preparedness and resilience of essential services and infrastructure, such as the Future Port Talbot Project, is a cost-effective way to protect people, the economy, and the environment. This legislation is relevant to both marine and terrestrial elements of the Project.
Environment (Wales) Act 2016	The Environment (Wales) Act Part 2 Climate Change sets out the strategy for management and strengthening of natural resources to help reduce the impacts of and adapt to climate change. The Act includes provision for creating a statutory framework for action on climate change. In terms of this Project, it means that ensuring resilience of the Project to the future impacts of climate change to plan and manage the sustainability of natural resources. This legislation is relevant to both marine and terrestrial elements of the Project.
Well-being of Future Generations (Wales) Act 2015, (updated 2024)	The Well-being of Future Generations (Wales) Act is about improving the social, economic, environmental, and cultural well-being of Wales. The Act aims to promote long-term thinking to ensure a good quality of life for future generations. The Act promotes climate adaptation by embedding sustainability and climate considerations into the decision-making processes of public bodies. For the Project, by looking into the future climate projections for the location, and ensuring embedded resilience, it is showing long-term sustainability and enhancing the quality to be used by future generations. This legislation is relevant to both marine and terrestrial elements of the Project.
The Flood and Water Management Act 2010 (Schedule 3)	The Schedule 3 of the Flood and Water Management Act 2010 requires new developments to include Sustainable Drainage Systems (SuDS) features that comply with national standards. See 'Guidance and Standards' section of this table. This legislation is relevant to terrestrial elements of the Project.
National Policy	
Prosperity for All: A Climate Conscious Wales 2019 (Welsh Government, 2019)	The Prosperity for All: A Climate Conscious Wales recognises the risks associated with climate change and sets out the actions the Welsh Government plans to take to respond to those risks over the plan period of 2021-2025. This vision for climate adaptation in Wales is identified as "In 2030, Wales is a country which has the resources and is prepared, has the knowledge to understand the risk and challenges ahead and has the capacity to adapt to the impact of climate change". This is to be achieved through building knowledge of the risks and challenges associated with climate change, increasing adaptive capacity across the country and building resilience. There are eight key areas of action including flood protection and ecosystems amongst others. The Future Port Talbot Project links to this by ensuring the Project understands and is equipped to deal with the risks associated with a changing climate. This legislation is relevant to both marine and terrestrial elements of the Project.
Future Wales – The National Plan 2040 (Welsh Government, 2021)	Future Wales is the national development framework, setting the direction for development in Wales up to 2040. The framework identifies key national priorities including achieving climate resilience. This includes development that should help Wales adapt and respond to climate change whilst ensuring resource efficiency. In terms of this Project, by ensuring resilience is embedded within design, its nature promotes resource efficiency to ensure the Project is planned to accommodate long-term changes in climate. This legislation is relevant to both marine and terrestrial elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Planning Policy Wales 12 (2024) (Welsh Government , 2024)	Planning Policy Wales (PPW) aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required the Well-being of Future Generations (Wales) Act 2015 and other key legislation. PPW was updated in 2024 to include more clarity and increased emphasis on the importance of biodiversity and ecosystem resilience. PPW provides further clarification that developments should provide a net benefit for biodiversity and in doing so promote the resilience of ecosystems. PPW suggests that addressing the consequences of climate change should be a central part of any measures to protect, maintain and enhance biodiversity and the resilience of ecosystems. This legislation is relevant to both marine and terrestrial elements of the Project.
Climate Adaptation Strategy for Wales (Welsh Government 2024)	The Climate Adaptation Strategy for Wales sets out an approach to tackle the risks and impacts of climate change such as heat, flooding, coastal erosion, sea level rise and drought in Wales and the roles and responsibilities of different sectors. The strategy sets out key actions the Welsh Government will take such as ensuring that major port authorities conduct regular monitoring of climate risks and ensure new developments and work to existing assets take into account key policy, advice and strategies. It also sets out asks of the UK government, the public sector and Welsh industry such as considering adaptation and contingency planning for climate related risks and adhering to the Wesh National Marine Plan for any developments in the marine environment.
Wales Resilience Framework (Welsh Government, 2025)	The Wales Resilience Framework sets out the Welsh Government's vision to strengthen Wales' resilience and preparedness anticipate disruptive events such as those related to climate change, minimise adverse impacts and respond effectively.
Local Policy	
Neath Port Talbot Council Strategic Change Programme 2023-2027 (Neath Port Talbot Council, 2023)	Following the declaration of a climate emergency by The Welsh Government on the 30th of April 2019, NPTC recognised that tackling climate change is both necessary and urgent. The Strategic Change Programme recognises the necessity of climate resilience within well-being objective 3: 'Our local environment, culture and heritage can be enjoyed by future generations. This objective comprises the aim that developments are undertaken to mitigate and develop greater resilience to the impacts of climate change. This legislation is relevant to both marine and terrestrial elements of the Project.
Guidance and Standards	
IEMA EIA Guide to: Climate Change Resilience and Adaptation (2020) (IEMA, 2020)	The IEMA EIA Guide to: Climate Change Resilience and Adaptation (2020) provides a framework for considering climate change resilience and adaptation in the Environmental Impact Assessment process. This includes a methodology for identifying which risks are 'significant'. This legislation is relevant to both marine and terrestrial elements of the Project.
Design Manual for Roads and Bridges (DMRB) LA 114 Climate (DMRB, 2021)	This document sets out the requirements for assessing and reporting the effects of future climate change on construction, operation and maintenance of projects by considering their resilience to climate change. This legislation is relevant to both marine and terrestrial elements of the Project.
Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems) (Welsh Government, 2018)	In order to meet the Standards, the design of surface water management schemes is required to take into account the likely future pressures on site drainage such as increasing intensity of rainfall as a result of climate change. By considering climate change when designing drainage contributes to the resilience of the drainage system. This legislation is relevant to terrestrial elements of the Project.

20.3 Engagement and Consultation

20.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

20.3.2 Consultation will be undertaken with appropriate stakeholders to discuss climate resilience matters relevant to the Project to inform the assessment methodology. Initial assessment findings may also be discussed as well as proposed mitigation measures.

20.4 Study Area

Effects on Climate

Construction

20.4.1 The study area for the construction assessment of GHG emissions associated with the Project includes construction-related activities that occur within the EIA Scoping Boundary. It is not limited to the terrestrial or marine environment as any construction activities related to the Project are considered, regardless of location.

20.4.2 Emissions would also include those associated with some activities supporting construction which occur outside the EIA Scoping Boundary, for example carbon emissions from construction related transport (including workers and materials).

20.4.3 Similarly, the quantification of indirect emissions resulting from construction activities would include emissions associated with production, manufacture and refining of construction materials, regardless of the location where these activities occur – this is known as embodied carbon.

Operation

20.4.4 The study area to be considered for operation includes emissions arising from the operation of the Project. This includes emissions from energy, material and water consumption, in addition to the carbon associated with the maintenance and refurbishment of the Project assets; note that this comprises embodied carbon, emissions from maintenance activities and associated transport.

Climate Resilience

20.4.5 The study area for the assessment of Climate Resilience is defined as the extent of the EIA Scoping Boundary, including both terrestrial and marine areas. Climate projection data is available for the whole of the UK, and the climate baseline will consider climate data for the wider Port Talbot region and Swansea Bay.

20.4.6 The Project assets at risk from future climate changes are considered for both the construction and operational phase, for the lifetime of the Project.

It is assumed that the operational life of the port will be in perpetuity, as is the case for the rest of the port, as the assets built as part of the Project would become core marine infrastructure and therefore maintained. However, the assets could be expected to be in use for the Project to 2090.

20.5 Description of the Existing Environment

20.5.1 For the aspect of GHG emissions the receptor is the global climate. The impact is climate change.

20.5.2 For the aspect of Climate Resilience, receptors include all operational assets forming part of the Project including:

- expanded and modified port infrastructure such as quays and jetties;
- new or modified internal roads and accesses;
- new buildings and stores;
- surface water drainage network, including SuDS; and
- habitat features (both marine and terrestrial) including off-site enhancement areas and both soft and hard landscaping; and the workforce, offices, welfare facilities and outdoor working areas.

20.5.3 Due to the nature of the climate resilience assessment, as the receptors relevant to the assessment include all operational assets forming part of the Project, they do not form part of the existing environment as they are not yet in construction or operational.

Data Sources

Effect on Climate

20.5.4 The baseline for Effect on Climate has been derived from the data sources set out in **Table 132** to contextualise the regional and national emissions.

Table 132: Data sources

Data type	Data Source
Wales Carbon emissions (total and by sector)	Welsh Government (Welsh Government, 2025)
UK Carbon emissions (total and by sector)	UK Government (UK Government, 2025)

Climate Resilience

20.5.5 The baseline for Climate Resilience has been derived from the data sources set out in **Table 133** below.

Table 133: Data sources

Data type	Data source
Current baseline	
Temperature and precipitation observations	Met Office observed seasonal data from HADUK-Grid (Met Office, 2019)
Sea level observations	The UK Tide Gauge Network (National Oceanograpahy Centre, 2024)
Future baseline	
Future climate projections	Met Office UKCP18 Probabilistic Projections dataset (Met Office, 2019)
Agricultural projections (for climate indicators relevant to ecology)	Climate Risk Indicator (CRI) tool for the south of the Bridgend and Neath Port Talbot district incorporating the Project location (The UK Climate Resilience Programme, 2024)

Baseline Conditions

Effect on Climate

20.5.6 Baseline data availability for carbon emissions associated with existing operational uses is limited for the port of Port Talbot, and NPTC do not calculate local emissions, which would provide context of emissions in the locality. On a National scale, the Welsh Government calculated (Welsh Government, 2025) Wales's carbon emissions to be 34.01 $MtCO_2e$ in 2023, in comparison to the UK as a whole emitting 371 $MtCO_2e$ (UK Government, 2025) in 2024. The largest contributor to Wales carbon footprint (Welsh Government, 2025) is from industry and business, comprising 31% of all emissions. This is followed by electricity and heat production at 16.5%.

20.5.7 The current baseline, to contextualise emissions, will be established by examining the existing activities and conditions in the Port, the Kenfig Marshalling Yard Site, and the Jersey Marine Site. The approach to baseline assessment is outlined in Section 20.8 below.

Next Steps

20.5.8 The ES will include a further data review of publicly available sources, survey data and third-party information. This should provide more context of the emissions arising from the existing site activities. To date, third-party and survey data is very limited.

Climate Resilience

20.5.9 Wales has a maritime climate characterised by cloudy, wet and windy weather conditions, whilst remaining relatively mild (Met Office, 2019). The current baseline conditions for the 1981-2000 period are presented in **Table 134**. These data show that on average, summer months experience higher temperatures than winter months, averaging 15.0°C and 4.5°C for summer and winter mean air temperature respectively.

20.5.10 In terms of precipitation trends, baseline conditions show that precipitation occurs throughout all seasons, but with strong seasonality. Wetter

conditions are experienced throughout the autumn and winter seasons, whilst drier conditions throughout spring and summer.

20.5.11 Extreme weather events have in the past impacted the Project location, in particular from Atlantic storms due to its coastal location.

Table 134: Climate baseline conditions

Climate variable	Season	Baseline (1980-2000) value
Mean temperature (°C)	Winter (December, January, February)	4.5
	Spring (March, April, May)	8.4
	Summer (June, July, August)	15
	Autumn (September, October, November)	10.2
Maximum temperature (°C)	Winter (December, January, February)	7.3
	Spring (September, October, November)	12.1
	Summer (June, July, August)	19.2
	Autumn (September, October, November)	13.5
Minimum temperature (°C)	Winter (December, January, February)	1.8
	Spring (March, April, May)	4.6
	Summer (June, July, August)	10.9
	Autumn (September, October, November)	6.9
Average precipitation (mm/day)	Winter (December, January, February)	17.7
	Spring (March, April, May)	11.5
	Summer (June, July, August)	11.2
	Autumn (September, October, November)	18.5

Source: Met Office UKCP18 dataset (Met Office, 2019)

Next Steps

20.5.12 A review of the Met Office data will be undertaken prior to undertaking the assessment to ensure utilisation of the most up to date climate change projections.

Future Baseline

Effect on Climate

20.5.13 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Effect on Climate chapter of the Environmental Statement (ES) would seek to explain what the environmental change, in terms of carbon emissions, would likely be in the future if the Project were not to go ahead.

20.5.14 The future baseline will include natural changes to the environment, and existing developments that are complete and operational at the time when construction of the Project commences. The future projects to be considered are outlined within Section 5.5.

20.5.15 The future baseline for the Effects on Climate will be used to contextualise the future level of the emissions of the Project, compared to a scenario without the Project.

20.5.16 Where there is an interaction between the Project and any other committed projects that would reduce or increase the emissions associated with the Project, these will be taken into account within the assessment.

20.5.17 The approach to establishing the future baseline will be through reviewing the committed project information and any policy changes to understand the impact they could have on the baseline and the Project. As with the current baseline the approach to estimating the future baseline is detailed within Section 20.8.

Climate resilience

20.5.18 The future baseline scenarios will be established to understand the future climate. The climate resilience chapter of the ES would seek to explain what the climate change would likely be in the future during the operational lifetime of the Project.

20.5.19 The future climate baseline for the Project comprises projected changes to the UK's climate against a range of future global GHG emissions scenarios. The emission scenario considered within this EIA Scoping Report consists of a medium-high GHG scenario (RCP6.0) and high GHG emissions scenario (Representative Concentration Pathway (RCP)8.5)[34]. These approximately equate to global temperature rises of 2.8°C (for RCP6.0) and 4.3°C for RCP8.5 (Met Office, 2018).

20.5.20 The assessment uses future climate projections to plan for and mitigate against the impacts of climate change on the Project's assets and operations over different future time periods. Specifically, the assessment focuses on two future time periods, the 2050s (2040-2059) and the 2090s (2080-2099). These future periods are compared to a past baseline period from 1981-2000 to understand how the climate is projected to change over time, for the Project location throughout the lifetime of the Project. The projected change in climate for the 2050s will be utilised to assess the impacts of climate change on assets that have a lifetime of 20–30 years, including vegetation, whilst the 2090s projected change will be utilised to assess the impacts of climate change on the operational life of the Project which is expected to be 50 years.

[34] Representative Concentration Pathway 4.5 (RCP 4.5) represents an 'intermediate scenario', RCP 6.0 is the 'medium-high emission' scenario and RCP 8.5 represents the 'high emission' scenario. These projections have been developed by the UK Met Office using the Met Office Hadley Centre climate model and a selection of other global climate models.

20.5.21 The future climate projections presented in **Table 135** use the 50th percentile from the probabilistic projections, or the median value of all possible outcomes. In other words, there is an equal chance that the actual future climate could be either higher or lower than this value, represents an 'as likely as not' probability of change. This approach helps provide a balanced view of potential future climate conditions. In order to focus on the future climate specific to the Project location, projections are considered for a 25km^2 grid cell as available from the UKCP18 dataset (coordinates: 287500_187500), encompassing the Project location. Table 135 presents projection data for air temperature and precipitation for both RCP6.0 and RCP8.5 for the 2050s and 2090s. Table 135 also presents projections for sea level rise, but for RCP4.5 and RCP8.5 due to limited availability of marine projections within the UKCP18 dataset. Sea level rise data has been obtained for coordinates -3.91667, 51.611111 as per spatial availability of marine projections.

20.5.22 The data on the projected changes in climate will be utilised to inform the magnitude of climate change impact during the next stage of the assessment, as per the proposed assessment methodology presented in Section 20.9. In addition, climate projection data for the 10th and 90th percentiles will be used if required as the project develops, to represent 'worst-case' climate changes in temperature and precipitation.

Table 135: Current baseline and projected changes in climate

Climate variable	Season	Baseline (1981-2000)	2050s projected change		2090s projected change	
			RCP6.0	RCP8.5	RCP6.0	RCP8.5
Mean air temperature	Summer (June, July, August)	15.0	+1.5	+2.2	+4.0	+5.6
	Winter (December, January, February)	4.5	+1	+1.5	+2.2	+3.2
Maximum air temperature	Summer (June, July, August)	19.2	+1.7	+2.5	+4.5	+6.2
	Winter (December, January, February)	7.3	+1.0	+1.4	+2.2	+3.2
Minimum air temperature	Summer (June, July, August)	10.9	+1.3	+2.0	+3.6	+5.0
	Winter (December, January, February)	1.8	+1.1	+1.6	+2.3	+3.4
Precipitation (mm)	Summer (June, July, August)	11.2	-11.8%	-16.2%	-29.7%	-39.4%
	Winter (December, January, February)	17.7	+9.8%	+13.7%	+22.8%	+31.3%
		Baseline (1990-2010)	RCP4.5	RCP8.5	RCP4.5	RCP8.5
Mean sea level (m)	Annual	0.22	+0.237	+0.279	+0.467	+0.648

Source: Met Office UKCP18 dataset (Met Office, 2019)

20.5.23 Climate projections from **Table 135** show that the location of the Project is anticipated to become warmer throughout the Project operational life with an increase in mean, maximum and minimum summer and winter temperatures. Winters are also projected to become wetter while summers are projected to become drier.

20.5.24 These projected climate trends are likely to exacerbate future extreme weather events. Warmer summers may result in more frequent, severe, and prolonged heatwave events. Wetter winters may result in increased flood risk while drier summers can increase the frequency and severity of drought events. Drought events may also exacerbate the severity of flooding and lead to flash flood events during summer more intense future downpours due to reduced soil moisture, which decreases the soil's ability to absorb water.

20.5.25 Climate models for winds and storms contain higher uncertainties and therefore quantitative data on future wind projections have not been published by the Met Office. However, global projections show that there is potential for an increase in near surface wind speeds over the UK in the second half of the 21st century during the winter months, alongside an increase in the frequency and/or severity of winter storms (Met Office, 2019).

20.5.26 Sea level rise projections from Table 135 show that sea level is projected to rise under both emissions scenarios across the Project lifetime. These projected trends in sea level will likely lead to the increased impacts on the Project site when combined with an increase in frequency and intensity of storm events and associated storm surges (Met Office, 2023). It is important to note that due to data availability, the baseline sea level is representative of the sea level at the Mumbles tide gauge station in Wales from The UK Tide Gauge Network (National Oceanograpahy Centre, 2024), whilst the projections are representative of the 25km area encompassing the Mumbles tide gauge location and obtained from UKCP18 (Met Office, 2019). As such, the baseline data for Mumble tide gauge represents 1990-2010, whilst projections are provided against a 1980-2000 baseline. Therefore, directional trends for projections can be taken, however absolute values for future sea level rise should be interpreted with caution.

20.5.27 Projections for agricultural variables relevant to ecology are presented in **Table 136** and will be used to inform the assessment of ecosystem resilience in order to support creation and maintenance of habitats for the achievement of net benefits for biodiversity as described in Section 20.6. These data are presented for the Bridgend and Neath Port Talbot district spatial unit, encompassing the Project location.

20.5.28 **Table 136** shows a gradually earlier start of the crop growing season as the century progresses, with a longer crop growing season compared to the 1981-2010 baseline. Projections also show that the number of frost days are projected to decrease under both RCP6.0 and RCP8.5. Finally, potential soil moisture deficit is projected to increase under both emissions scenarios compared to the baseline period, indicating projected shortages

of water availability for plants, and drought conditions in the Project location during summer months. This is supported by the climate projections presented in **Table 135** for precipitation and temperature, suggesting that summers will become drier and temperatures will increase.

Table 136: Projected changes in agricultural variables

Agricultural variable	Baseline (1981-2010)	2050s		2090s	
		RCP6.0	RCP8.5	RCP6.0	RCP8.5
Start of crop growing season (days past 1st Jan)	83.18	70.77	63.22	57.29	46.38
Growing Season length (days duration)	250.01	270.85	281.91	270.77	306.35
Frost days (number of days per year below 0°C)	41.92	28.73	23.46	19.80	14.11
Potential soil moisture deficit (mm difference between rainfall and evaporation)	71.51	107.96	133.17	173.15	232.82

Source: UK Climate Risk Indicators 2024 (The UK Climate Resilience Programme, 2024)

20.6 Mitigation Measures

20.6.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for Climate Change will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

20.6.2 This section sets out the potential controls relevant to Effects on Climate and Climate Resilience, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

Effect on Climate

20.6.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include measures for reducing GHG emissions from the Project to align with the UK governments target to achieve net zero emissions by 2050. The effectiveness of these measures should be considered against the baseline as described above and developed in line with the principles detailed in this section.

20.6.4 The first principle is to avoid potential effects, if possible, before seeking to minimise or mitigate any unavoidable impacts through a well-developed mitigation strategy.

20.6.5 From a carbon management perspective, the following approach to mitigation will be undertaken:

- work within the PAS2080 principles, including the carbon reduction hierarchy, to ensure carbon is managed effectively and integrated within the decision making;
- aim to set an appropriate carbon baseline and carbon reduction targets;
- coordination with design teams to identify opportunities to mitigate carbon at each design stage; and
- measure progress of carbon reduction throughout the Project development.

20.6.6 The effective assessment and management of impacts on climate offers the opportunity to reduce the impact of projects on climate by minimising the magnitude of GHG emissions as far as possible. The Project should work with the 80:20 rule in mind where targeted interventions into the largest 20% of causes can impact a large proportion (80%) of the Project.

20.6.7 An initial sustainability workshop was undertaken in August 2023 to identify a sustainability approach, including climate.

20.6.8 The workshop included attendees from the following disciplines:

- biodiversity;
- carbon;
- climate resilience; and
- waste.

20.6.9 From the workshop, a sustainability opportunities log was created. These opportunities are to be further investigated through the progression of the Project. Opportunities relevant to Tacarbon reduction include:

- exploration of additional renewable energy for the site including hydro/tidal power and wind walls;
- explore possibility of carbon capture techniques;
- reuse as much of the current site infrastructure and buildings as possible; and
- include energy storage on site.

20.6.10 To ensure that carbon reduction opportunities can be progressed, regular communication and strong collaboration with the design team will be supported, to drive the considerations of carbon within the decision-making process.

20.6.11 The approach set out by the carbon reduction hierarchy in PAS2080:2023 will inform design and identification of mitigation. The hierarchy is as follows:

- avoid – Evaluate the basic need for an element, asset, project, and programme, exploring alternatives that avoid or reduce new construction;

- switch – Assess alternative materials or innovative solutions to adopt the best option to reduce whole life carbon emissions; and
- improve – Identify opportunities to improve the use of resources and extend the life of an asset, applying circular economy principles.

20.6.12 Opportunities generated in coordination with design teams will be organised into these sections and then further categorised into subsections such as design optimisation, energy use and construction processes.

Climate Resilience

20.6.13 The Climate Resilience embedded mitigation measures (primary mitigation) will be developed as an iterative process with the relevant design teams, and in collaboration with terrestrial and marine ecology, carbon and socio-economic teams to consider Net Benefits for Biodiversity (NBB).

20.6.14 Collaboration with the design teams will enable communication of the potential likely significant effects from climate change on the Project (including to proposed and existing ecosystems) and opportunity to propose solutions that can be embedded into the design to mitigate against the identified significant effects. The following mitigation measures will be considered during the next stage of the design, taking into account need for these measures to be either embedded into permanent features, or for allowances/capacity to be included to allow adaptation of infrastructure during future maintenance upgrades and renewals during the Project lifetime:

- placement of critical pipework and power cables below ground;
- the design of key or critical infrastructure elements using materials with higher temperature threshold specification, and to be above extreme sea levels (for example storm surges plus sea level at high spring tide);
- the design of workforce welfare and evacuation routes to maintain safe working conditions under extreme weather events, including heatwaves, floods and storms;
- the design of structures to withstand wind loads that account for future climate changes;
- the design of structures and off-site habitat compensation and enhancement areas to withstand the rising sea level and increased frequency of wind storm and storm surge events;
- reinforcement and raising of the breakwater crest wall to account for climate change in order to limit wave overtopping to tolerable levels for FLOW operations in the future;
- improvement and/or repair all or sections of breakwater with imported rock armour or high-density concrete units to provide long-term resilience of the breakwater and account for climate change;
- Safeguarding of the areas suitable as construction compounds for the construction of future phases, with consideration for changes in climate conditions at the time of construction;

- the choice of plant species within landscape design and when designing the off-site compensation and enhancement areas that can withstand increasing temperatures and changing precipitation patterns;
- consideration of climate change uplifts to rainfall quantities and intensity when undertaking a detailed flood risk assessment and drainage impact assessment;
- the design of the drainage network to be suitably sized for future climate conditions, plus where appliable to aid irrigation of soft landscaped areas;
- consideration of nature-based solutions when designing sustainable urban drainage; and
- implementation of the Diversity, Extent, Condition, Connectivity and Adaptability to change (DECCA) framework (Welsh Government , 2024) during ecosystem design in order to demonstrate the resilience of ecosystems through the following attributes: diversity, extent, condition, connections and adaptability of ecosystems.

Construction Controls

Effect on Climate

20.6.15 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the constructions stage include:

- reducing construction waste generation by implementing circular economy principles;
- reducing emissions from travel to site by using less carbon intensive fuels and sourcing goods locally; and
- switch the fuel type of plant equipment away from fossil fuels towards electricity powered by renewable energy.

20.6.16 As the Project progresses the specific mitigation measures will be developed collaboratively with the design team and stakeholders, in conjunction with preliminary and final results from the construction assessment. Any opportunities identified that can be committed to and secured within an opportunities log will be considered within the assessment. Following the completion of the assessment, a decision will be made on further specific inclusions to carbon assessments other than the initial baseline within the Adaptive Environmental Management Plan (AEMP).

Climate Resilience

20.6.17 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- implementation of the existing South Wales Ports Resilience Procedure and Adverse Weather Procedures as specified by the South Wales Marine Department Safety Management System;
- inclusion of appropriate construction measures within the AEMP by provision of weather-resilience measures to mitigate against risks associated with extreme weather events (floods, storms and heatwaves); and
- requirement to implement an emergency action plan for the construction works, as part of the AEMP, to include weather and flood alerts, and preparedness measures to secure asset and workforce safety.

Operational and Maintenance Controls

Effect on Climate

20.6.18 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage include:

- utilise on-site renewable energy generation to reduce the quantity of electricity coming from the grid, which has a higher carbon intensity;
- reduce a target percentage of operational waste generation by implementing circular economy principles and divert waste from landfill;
- effective management to minimise operational energy and water consumption by a target percentage; and
- determine an appropriate maintenance and refurbishment schedule to maximise the life of the assets.

20.6.19 As the Project progresses the specific mitigation measures will be developed collaboratively with the design team and stakeholders, in conjunction with the preliminary and final results of the operational assessment. Any opportunities identified that can be committed to should be considered within the assessment. Following the completion of the assessment, a decision will be made on further specific inclusions to be detailed in the Outline Operational Environmental Management Plan (oOEMP).

Climate Resilience

20.6.20 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operational stage include:

- periodic inspections and maintenance to be carried out of assets that may be affected by climate change, to include monitoring of deterioration of equipment and structures;
- inspections of assets prior to and following extreme weather events;
- monitoring and recording of the impact of weather events and the setting of trigger levels for actions (including cessation of work and preparation for extreme weather events). Considerations for updated climate

projections in the specification of asset upgrades during the project lifetime; and

- the implementation of hazardous weather management plans and staff training for dealing with extreme weather events, including floods (including coastal flooding), storms and heatwaves.

20.6.21 The above measures, if deemed practicable, would form part of the oOEMP. This will include reviews and updates of climate resilience measures and actions within site operational management plans, periodically and in response to the observed effects of extreme weather.

20.7 Potential Likely Significant Effects

Effect on Climate

20.7.1 Impact significance is assessed across both construction and operational phases and should be considered for the Project as whole, including both the construction and operation.

20.7.2 The potential likely significant effects for Effect on Climate through construction, operation and maintenance are described in **Table 137**. These take into account the expected control measures set out within section 20.6. The carbon lifecycle stages[35] are defined as per BS EN 15978:2011 (BS EN 15978: 2011).

[35] The lifecycle stages are the way in which different elements of an asset are assessed for their impact on carbon. These include the following: A1: Raw material supply, A2: Transport of Material to plant, A3: Manufacturing, A4: Transport of goods to site, A5: Construction and Installation Process, D: Benefits and loads beyond the system boundary.

Table 137: Potential Likely significant Effects on Climate

Activity	Effect	Receptor
Construction		
Embodied emissions of construction materials (A1-3)	Carbon Emissions are released into the atmosphere	Global Climate
Transport of materials to site (A4)	Carbon Emissions are released into the atmosphere	Global Climate
Emissions from construction and installation processes (A5)	Carbon Emissions are released into the atmosphere	Global Climate
Land use change – emissions associated with change to carbon storage (D)	Carbon Emissions are released into the atmosphere	Global Climate
Operation and Maintenance		
Operational energy use (B7)	Carbon Emissions are released into the atmosphere	Global Climate
Planned maintenance, repair, refurbishment and replacement (B2-5)	Carbon Emissions are released into the atmosphere	Global Climate
Embodied emissions from material consumption for fabrication of foundations of FLOW (B1)	Carbon Emissions are released into the atmosphere	Global Climate
Machinery fuel consumption for fabrication, assembly and commissioning of FLOW (B1)	Carbon Emissions are released into the atmosphere	Global Climate
Land use change impacts through changes to carbon fluxes from areas within the site boundary (D)	Carbon Emissions are released into the atmosphere	Global Climate
End of life (C1-4)	Carbon Emissions are released into the atmosphere	Global Climate

Climate Resilience

20.7.3 A potential three to four-year construction period for Phase 1 is anticipated prior to the commencement of Phase 1 operational activities. As climate change is generally considered over longer time horizons, risks from changing average climate conditions during Phase 1 construction are considered limited and not significant.

20.7.4 The construction period for later Phases is as yet unknown due to the anticipated to commence in line with future demands and Crown Estate Leasing Rounds and the climate is likely to have slightly changed by the time construction of later phases commence. The design will safeguard a future construction compound site and as such, risks from changing

average climate conditions during later phases of construction are considered limited and not considered significant.

20.7.5 However, construction of the Project may still be at risk from extreme weather events such as flooding, heatwaves or storms typical of our present-day climate, which may disrupt and delay construction, as well as pose health and safety risks to construction workers.

20.7.6 The potential likely significant effects for Climate Resilience during construction, operation and maintenance are described in **Table 138**. These take into account the expected control measures set out within Section 20.6.

Table 138: Potential likely significant Climate Resilience effects

Activity	Effect	Receptor
Construction		
Increase in mean, maximum and minimum air temperature	None - risks from changing average climate conditions which are considered over longer time horizons are limited and not significant due to a short construction period.	The Project construction
Heatwaves	Extreme weather events may disrupt and delay construction and result in health and safety risks to construction workers.	The Project construction
Increase in winter precipitation	None - risks from changing average climate conditions which are considered over longer time horizons are limited and not significant due to a short construction period.	The Project construction
Decrease in summer precipitation	None - risks from changing average climate conditions which are considered over longer time horizons are limited and not significant due to a short construction period.	The Project construction
Increased intensity and/or frequency of extreme weather events, potentially resulting in increased flood risk, or high winds, waves and storm surges.	Extreme weather events may disrupt, damage and delay construction and result in health and safety risks to construction workers.	The Project construction
Sea level rise	None - risks from changing average climate conditions which are considered over longer time horizons are limited and not significant due to a short construction period.	The Project construction
Operation and Maintenance		
Increase in summer and winter temperature Increase in extreme temperature events such as heatwaves	Extreme temperatures may lead to exceedance of heat tolerance of electrical, plastic and metal components of operational assets, power cables, equipment, machinery, and railway track, potentially resulting in failure.	Operational assets forming part of the Project.
	Increased temperatures may lead to cracking, reduced strength, and increased rate of deterioration of materials.	Operational assets forming part of the Project.

Activity	Effect	Receptor
	High temperatures, especially combined with drought, may lead to increased vegetation dieback of landscaped areas and off-site compensation and enhancement proposals. Higher temperatures of coastal waters may affect maritime habitats and also invasive non-native marine species.	Habitat features and landscaping, forming part of the Project.
	Extreme temperatures may pose risks to human health and thermal discomfort of staff from heat stress.	Operational workforce.
Increase in winter precipitation Decrease in summer precipitation Increased intensity and/or frequency of extreme precipitation events (potentially resulting in increased flood risk) or drought events.	Fluvial and surface flooding may affect operation of and access to the Project.	Operational assets forming part of the Project, including new or modified internal roads and accesses.
	Flooding and extreme precipitation may pose danger to operational workforce and issues for accessing/moving around the site.	Operational workforce and new or modified internal roads and accesses.
	Summer drought events lead to increased vegetation dieback of landscaped areas and off-site compensation and enhancement proposals.	Habitat features and landscaping, forming part of the Project.
Sea level rise Increase in frequency and height of storm surges	Sea level rise and storm surges could lead to damage of the breakwater, revetment, jetties and other structures exposed to the sea. Inundation from extreme high sea levels (in storm surge plus sea level and high spring tide) could pose risks to onshore infrastructure.	Operational assets forming part of the Project.
	Health and safety risk to operational workforce working near the sea.	Operational workforce.
Increase in wind speeds Increase in winter storms and higher wind-driven waves	Increased wind loading of operational assets may lead to structural damage, leading to potential safety risk.	Operational assets forming part of the Project and operational workforce.
	Storms and waves may lead to damage of the breakwater, revetment, jetties and other structures exposed to the sea.	Operational assets forming part of the Project.
	Storms and waves may impact the vessel movements or floating wind turbines once launched to sea following assembly.	Operations and safety of the Port.

20.8 Resources and Receptors Scoped Out of Assessment

20.8.1 The resources or receptors that are proposed to be scoped out of the assessment for Effect on Climate and Climate Resilience are set out within **Table 139**.

Table 139: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Effect on Climate			
Construction			
Unplanned Maintenance refurbishment and repairs	Expected to be small amount of emissions	Global Climate	These are not possible to include as their frequency and magnitude is unknown.
Operation and maintenance			
Unplanned Maintenance refurbishment and repairs	Expected to be small amount of emissions	Global Climate	These are not possible to include as their frequency and magnitude is unknown.
Climate Resilience			
Construction			
Changing average climate conditions (temperature, precipitation, winds, sea level rise)	None	Construction activities	Risks from changing average climate conditions which are considered over longer time horizons are limited and not significant due to a short construction period.
Operation and maintenance			
Cold conditions	Damage to assets due to freezing, weight of snow and ice build-up.	Operational activities	Climate projections indicate gradual warming of winter seasonal averages. Met Office guidance indicates that while cold snaps will occur, winters are not anticipated to get colder than historic low temperatures, therefore the low temperatures already included in design standards and specifications will still apply for future low temperatures.

20.9 Proposed Assessment Methodology

Effect on Climate

20.9.1 In line with IEMA Guidance, it is considered that “all new GHG emissions contribute to a negative environmental impact” but the “significance of a project’s emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible” (IEMA, 2022). Therefore, the aim is to reduce all emissions as much as possible to reduce the net impact of the Project.

20.9.2 It is crucial to understand what the net carbon impact of the Project is “relative to a comparable baseline consistent with a trajectory towards net zero by 2050”, in line with IEMA Guidance. To assess the expected carbon impact of the Project, any carbon assessment must set a baseline to calculate the change in embodied and operational carbon, with consideration of future changes in the absence of the Project. As discussed in Section 20.5 the existing activities are limited and to contextualise emissions, any further available data will be collected on existing and future operational activities. To do this, the following data will be collected,

calculated or estimated with relevant assumptions where specifics are not available for within the study area:

- current and future land use storage and flux of carbon within the study area, which should be calculated using the baseline habitat areas from the net benefits for biodiversity assessment with emission factors applied for storage and sequestration rates;
- current and future operational energy and water consumption;
- current and future maintenance schedule; and
- current and future material consumption through the operation of the site.

20.9.3 If any of the above data is not available, the current and future baseline assessment will utilise the available information and any gaps noted. This will not materially affect the ability to undertake the assessment but will supplement the understanding of how the Project compares to the baseline, supporting the significance assessment.

20.9.4 As such, the following methodology is proposed:

- collect all scoped-in data within **Table 137** based on reasonable worst-case assumptions;
- convert data into an appropriate format/unit to conduct carbon calculations;
- use appropriate publicly available carbon emissions factor databases, such as those from the Department for Energy Security and Net Zero (Department for Energy Security and Net Zero, 2024) and the Inventory of Carbon and Energy;
- for emissions from transport, waste, and end-of-life emissions, assumptions should be based on best available guidance such as RICS (Royal Institute of Chartered Surveyors, 2023);
- align with the approach for Net Benefits for Biodiversity by assessing the impact of habitat removal and creation, comparing the baseline to the operational Project;
- categorise emissions appropriately to allow for carbon hotspots to be identified; and
- compare total emissions and carbon hotspots to the baseline.

20.9.5 The GHG assessment will assess the scale of impact of the Project by estimating GHG emissions arising from construction and operation.

20.9.6 Using the results of the assessment, total emissions for construction and operation will be compared to the 1.5ºC trajectory to determine the significance of the effects on the net zero trajectory. This will be done by comparing the difference between the baseline and the Project assessment and how these fit with the 1.5ºC trajectory. Using professional judgement and the IEMA Guidance, this review will consider if the Project results in an increase, how this compares to the rate of reduction required to meet the 1.5ºC trajectory. The assessment of significance will consider the potential reduction the mitigation is likely to result in, compared to a Business-as-

Usual approach to the design. The definitions of the significance criteria from IEMA Guidance are as follows:

- **major adverse:** the project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
- **moderate adverse**: the project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
- **minor adverse**: the project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
- **negligible**: the project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
- **beneficial**: the project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

20.9.7 In line with IEMA Guidance, major or moderate adverse effects and beneficial effects are considered to be significant. Minor adverse and negligible effects are not considered to be significant.

Construction

20.9.8 Construction emissions are linked to carbon lifecycle modules A1-A5[36], known as embodied emissions. Emissions come from capital goods (such as cement or steel), purchased goods & services (such as specialist sensors or consultancy services), or emissions from the construction site.

20.9.9 To calculate emissions, a detailed Bill of Quantities, or similar, is required. This is a list of all materials and labour necessary for the build. For each item scoped into the assessment, an emissions factor is assigned. A

[36] A1: Raw material supply, A2: Transport of Material to plant, A3: Manufacturing, A4: Transport of goods to site, A5: Construction and Installation Process.

number of criteria should be applied including: age – preference for current data; geography – data which applies to the location of actual suppliers and/or activities will be preferred; technology – data which represent the actual product/activity in question will be preferred; methodology – data which follow a published methodology or product category rules will be preferred; competency – data which are produced from proficient entities will be preferred. The likely sources for the construction stage include Inventory for Carbon and Energy v3 (Circular Ecology, 2019) supplemented with emissions from the Department for Energy Security and Net Zero (DESNZ) Greenhouse Gas Conversion Factors (Royal Institute of Chartered Surveyors, 2023). The assessment will assume a reasonable worst-case scenario for material quantities and activity intensity.

20.9.10 To determine the emissions from transport of materials to site, the methodology in accordance the Royal Institute of Chartered Surveyors (RICS) guidance will be used. This includes assumptions on the distances that different materials would travel to site and should cover all transport types. The DESNZ Greenhouse Gas Reporting emission factors will be used.

20.9.11 In line with the Net Benefits for Biodiversity approach, the emissions associated with land use change, notably habitats including terrestrial, marine and intertidal, should be undertaken and considered as a construction and operational effect. Data will be collected on the baseline of the habitat area and the removal and provision of further habitat will be determined. Using the areas determined from this assessment and the most relevant carbon storage factors for the different sources the change in carbon storage due to the construction phase will be calculated. The likely emission factors would include those determined for the Natural Resource Wales Carbon Positive Project (Natural Resources Wales, 2017) and data from Natural England (Natural England). Where possible site-specific data should be included with regards to soil and subsoil.

Operation

20.9.12 Operational emissions will vary year on year, dependent on the sources of emissions noted in **Table 137**. The results will be documented as variable across the periods and as a total amount across the assessment period. The data to inform will be considered as the reasonable worst case where assumptions are necessary.

20.9.13 Operational energy emissions will be estimated based off the likely energy requirement of the site and the projected emission factors for the future energy, adjusted in line with any on site renewable usage or further detail on the intended energy sources.

20.9.14 The assessment of the use of the site for the fabrication of foundations, assembly and commissioning of the FLOW will follow the construction methodology, Paragraph 20.9.9 and 20.9.10 where possible. Reasonable worst-case assumptions will be made on the quantities of the materials and the plant requirement.

20.9.15 Estimates of the known maintenance, repair, replacement and refurbishment frequency and the magnitude of such will inform the likely quantities of materials and plant requirement over the operation of the Project. This data will be used in line with the methodology outlined in the construction section above, Paragraph 20.9.9 and 20.9.10, to estimate maintenance related emissions.

20.9.16 For land use change, using the data collected on the baseline and post Project construction habitat areas, the change in carbon flux as a result of the Project will be assessed. The emission factor source for carbon flux will align with those used in the construction assessment, Paragraph 20.9.11.

20.9.17 End of life emissions will only be considered as part of A5 Waste and B4 Replacement (for items that require replacement) and will be estimated in accordance with assumptions from the Royal Institute of Chartered Surveyors, Whole lifecycle carbon assessment for built environment. Assumptions are included on the default proportions of materials that would be disposed or recycled and estimated of the activity required to deconstruct by comparing to the construction assessment.

Cumulative Effects

20.9.18 The approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

20.9.19 The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally. Therefore, the assessment of cumulative GHG effects differs from other EIA topics as there is no geographically bounded study area. As per IEMA 'Assessing Greenhouse Gas Emissions and Evaluating their Significance', specific cumulative effects "in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other". Instead, the contextualisation of the emissions against the carbon budgets and supporting trajectory to net zero is key for significance. The national targets inherently consider the cumulative impact of emissions across different sectors and projects. As such a separate cumulative assessment will not be completed for Effects on Climate.

Climate Resilience

20.9.20 The Climate Resilience assessment will comprise of two methodologies:

1. assessment of the physical effects on the Project assets, workforce and operation arising from future climate change and extreme weather conditions.
2. assessment of in-combination climate change impacts, considering the combined impact of the Project, as identified by other environmental topics, and future climate change on the receiving environment.

Assessment of effect from future climate change on the Project

20.9.21 The approach adopted for undertaking and reporting the assessment of physical effects on the Project arising from future climate change is informed by good practice from other similar developments, in line with guidance such as the IEMA EIA Guide to Climate Change Resilience and Adaptation (IEMA, 2020) and the Design Manual for Roads and Bridges (DMRB), LA 114 Climate (DMRB, 2021).

20.9.22 The approach will consider the likelihood of each future climate risk occurring and the consequence of the impact if the risk were to occur. This will take into account embedded resilience measures within the design and will determine whether climatic effects on the Project should be considered significant.

20.9.23 The likelihood of each risk occurring refers to the probability and the frequency of a risk occurring as a result of future climate conditions.

20.9.24 The likelihood of the risk occurring will be defined using the climate change projections presented in Section 20.5, with a consideration for the Project setting. The criteria for defining likelihood of future climate risks occurring is described in **Table 140**.

Table 140: Likelihood of climate change risk occurring

Likelihood	Criteria
Very high	The event occurs multiple times during the lifetime of the project (e.g. approximately annually).
High	The event occurs several times during the lifetime of the project (e.g. approximately once every five years).
Medium	The event occurs limited times during the lifetime of the project (e.g. approximately once every 20 years).
Low	The risk occurs once during the lifetime of the project.
Very low	The risk may occur once during the lifetime of the project.

Source: Professional judgement informed by the IEMA Guidance (IEMA, 2020) and DMRB LA 114 Climate (DMRB, 2021).

20.9.25 The consequence of the climate change impact is described in **Table 141**.

Table 141: Consequence of the climate change impact

Consequence	Criteria
Very large	Severe acute damage to receptor and its functionality or a substantial, measurable decrease in receptor lifespan following the occurrence of a climate impact. Substantial increase in need for periodic maintenance or in maintenance costs. Severe illness or injury to multiple persons, or fatality due to severity of a climate impact (e.g. heat stoke due to high temperatures, or drowning due to flooding).
Large	Large, measurable decrease in receptor performance or lifespan following the occurrence of a climate impact. Large increase in need for periodic maintenance or in maintenance costs. Illness or injury to a limited number of persons due to severity of a climate impact (for example heat exhaustion to site workforce).

Consequence	Criteria
Moderate	Measurable decrease in receptor performance (short-term or long-term) or lifespan. Increase in necessary maintenance frequency and costs following the occurrence of climate impact. Risk of harm to site operatives or site users due to severity of a climate impact (for example bruising due to wind-blown storm debris).
Minor	Small, measurable damage to a receptor's performance following climate impact, or small reduction in receptors lifespan due to chronic deterioration (e.g. slight decrease in lifespan of an asset due to increased higher temperatures). Short-term, limited, minor effects on site workforce.
Negligible	No change to the integrity of receptor or a minimal, undetectable, temporary or reversible change to receptor lifespan following the occurrence of a climate impact. No perceptible effect on site workforce.

Source: Professional judgement informed by the IEMA Guidance (IEMA, 2020) and DMRB LA 114 Climate (DMRB, 2021)

20.9.26 Once the likelihood and consequence have been determined, these will be combined to reach an overall judgement on the significance of the likely effect, which can be either adverse or beneficial by using the significance matrix shown in **Table 142**.

20.9.27 In line with **Chapter 5 – Approach to Assessment**, any Very Large, Large or Moderate climate resilience effects will be considered significant.

Table 142: Significance matrix

Likelihood	Consequence				
	Negligible	**Minor**	**Moderate**	**Large**	**Very large**
Very high	Neutral, not significant	Slight, not significant	Moderate or Large, significant	Large or Very Large, significant	Very Large, significant
High	Neutral, not significant	Slight, not significant	Slight, not significant, or Moderate, significant	Moderate or Large, Significant	Large or Very Large, significant
Medium	Neutral, not significant	Neutral or Slight, not significant	Slight, not significant	Moderate, Significant	Moderate or Large, significant
Low	Neutral, not significant	Neutral or Slight, not significant	Neutral or Slight, not significant	Slight, not significant	Slight, not significant, or Moderate, significant
Very low	Neutral, not significant	Neutral, not significant	Neutral or Slight, not significant	Neutral or Slight, not significant	Slight, not significant

20.9.28 As part of the assessment of effects of future climate change on the Project and in addition to consideration of climate effects on Project assets, workforce and operations, the assessment will consider the resilience of both existing/retained and proposed ecosystems required to provide mitigation, compensation and enhancement on-site and off-site, and seek opportunities to increase their resilience in order to support the achievement of Net Benefits for Biodiversity.

In-combination climate change impact assessment

20.9.29 The impacts of the Project on the local environment in-combination with future climate change will be assessed by using the future climate baseline and the information on the receptors identified by the individual environmental factor assessments. The assessment will consider the effects of the Project on receptors and how the impact of the projected climate conditions will affect the outcomes of those assessments. For example, will the impacts of the project on the receptor be greater, lesser or no different under a future climate baseline. The outcomes of these assessments will be reported on in the relevant individual ES chapters.

20.9.30 Methodologies for the assessment of effects from future climate change on the Project and in-combination climate change impact assessment will be applied to the construction and operation phases of the Project for those climatic variables that are scoped into the next stage of the assessment, as set out in Section 0.

Cumulative Effects

20.9.31 Climate resilience considers long-term changes beyond the timescales of typical cumulative assessment and therefore will not be further considered as part of the cumulative assessment. The climate resilience assessment will however consider how the project aligns with available long-term strategic plans for wider development in the region and any potential cumulative effects such as wider scale flooding or urban heat island effects.

20.10 Assumptions and Limitations

Effect on Climate

20.10.1 The construction assessment will be based on the available information provided by the design team. Assumptions are necessary to ensure the aspects can be assessed, this may include selection of the closest match emission factor, assumptions on dimensions and material type. A list of the key assumptions will be detailed within the assessment results within the ES.

20.10.2 The operational assessment will be reliant on data availability on energy use, maintenance and the relevant elements of operational activities. There will be a level of uncertainty in this information. Any assumptions and limitations of this should be detailed within the assessment results of the ES.

20.10.3 The assessment of land use change will be based upon the level of information available at the time on proposed habitat removal and provision. Any assumptions and limitations of this will be detailed within the ES.

20.10.4 For all facets of the assessment, where precise data is unavailable, a reasonable worst-case scenario will be assumed.

Climate Resilience

20.10.5 The assessment methodology and other information presented in this chapter are based on freely available information available from third parties for reporting purposes, including observational data from local weather stations, climate change projections and a range of existing climate change datasets and literature at the time of writing this assessment. The following limitations and disclaimer should be noted:

20.10.6 Climate change projections: climate projections are not predictions or forecasts but simulations of potential scenarios of future climate under a range of hypothetical emissions scenarios and assumptions. Therefore, the results from the experiments performed by climate models cannot be treated as exact or factual, but projection options. They represent internally consistent representations of how the climate may evolve in response to a range of potential radiative forcing scenarios and their reliability between climate variables. For a single emission scenario, projections can vary significantly as a function of the model used and how it is applied, so that there is a wide uncertainty in the band results. Scenarios exclude outlying ‘surprise’ or ‘disaster’ scenarios in the literature, and any scenario necessarily includes subjective elements and is open to various interpretations informed by professional judgment. Generally regional projections are more certain than global, and temperature projections more certain than those for precipitation. Further, the degree of uncertainty associated with all climate change projections increases for projections further into the future. Climate models and associated projections are updated on a regular basis, implying changes in the forecasted future climate.

20.10.7 Validation of information: The applicant has not independently verified the observational or projection data and does not accept responsibility or liability for any inaccuracies or shortcomings in this information. Should these information sources be modified by third-parties, we assume no responsibility for any of the resulting inaccuracies in any of our reports. Issued reports are relevant to the project information provided and are not intended to address changes in project configuration or modifications which occur over time. The data is obtained to provide a general ‘sense check’ on the published literature on existing observational and climate projections for the region.

20.10.8 No climate impact modelling has been undertaken so this chapter relies solely on freely available climate projections data in this region. Accordingly, any further research, analysis or decision-making should take account of the nature of the data sources and climate projections and should consider the range of literature, additional observational data, evidence and research available – and any recent developments in these.

20.11 Summary

20.11.1 The proposed scope of the assessment for Effect on Climate and Climate Resilience is contained within **Table 143** below.

Table 143: Proposed scope of the Effect on Climate and Climate Resilience chapter of the ES

Matter or Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Effects on Climate			
Embodied emissions of construction materials (A1-3)	In	Out	A1-3 emissions make up a significant proportion of overall emissions and can be estimated with high accuracy. This LCA module only occurs during construction.
Transport of materials to site (A4)	In	Out	A4 emissions are vital to consider to genuinely portray the carbon footprint of the Scheme and can be estimated with reasonably high accuracy. This LCA module only occurs during construction.
Emissions from construction and installation processes (A5)	In	Out	A4 emissions are vital to consider to genuinely portray the carbon footprint of the Scheme and can be estimated with reasonably high accuracy. This LCA module only occurs during construction.
Land use change – emissions associated with change to carbon storage (D)	In	Out	Land Use changes are essential to consider as improvement of or disruption to existing carbon stores can have a significant impact on overall emissions. This LCA module only occurs during construction.
Operational energy use (B7)	Out	In	B7 emissions are vital to plot the ongoing impact of the Scheme and can be assessed to a reasonably high accuracy. This LCA module only occurs during operation.
Embodied emissions from material consumption for fabrication of foundations of FLOW (B1)	Out	In	B1 emissions are a significant part of the overall emissions of the scheme and should be assessed where possible. This LCA module only occurs during operation.

Matter or Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Machinery fuel consumption for fabrication, assembly and commissioning of FLOW (B1)	Out	In	B1 emissions are a significant part of the overall emissions of the scheme and should be assessed where possible. This LCA module only occurs during operation.
Planned maintenance, repair and refurbishment of assets (B2, B3, B5)	Out	In	B2, B3 and B5 emissions are important to consider as a maintenance schedule can have an effect on B4 emissions. This LCA module only occurs during operation.
Replacement of items (B4)	Out	In	B4 emissions are a significant part of the overall emissions and can be assessed with reasonably high accuracy. This LCA module only occurs during operation.
End-of-life processes for any items decommissioned(C1-4)	Out	Out	C1-4 emissions are a vital part of the overall emissions and can be estimated to a high accuracy. Decommission will only be considered as part of A5 Waste and B4 Replacement.
Land use change impacts through changes to carbon fluxes from areas within the site boundary (D)	Out	In	Land Use changes are essential to consider as improvement of or disruption to existing carbon stores can have a significant impact on overall emissions. This LCA module only occurs during operation.
Unplanned repairs.	Out	Out	Unplanned repairs are not possible to be included as the frequency and magnitude of these is unknown.
Climate Resilience			
Extreme weather events including heatwaves, intense precipitation leading to flooding, storms, storm surges and high wind speeds	In	In	Risks from extreme weather events could result in significant effects on both construction and operation activities.
Changes in air and sea temperature	Out	In	Risks from changing average climate conditions are considered over longer time periods are limited and not considered significant during construction due to a short construction period.
Changes in winter and summer precipitation	Out	In	Risks from changing average climate conditions are considered over longer time periods are limited and not considered significant during construction due to a short construction period.

Matter or Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Sea level rise	Out	In	Risks from changing average climate conditions are considered over longer time periods are limited and not considered significant during construction due to a short construction period.
Cold conditions	Out	Out	Climate projections indicate gradual warming of winter seasonal averages. Met Office guidance indicates that while cold snaps will occur, winters are not anticipated to get colder than historic low temperatures, therefore the low temperatures already included in design standards and specifications will still apply for future low temperatures.

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21 Landscape, Seascape and Visual Amenity

21.1 Introduction

21.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential landscape, seascape and visual amenity effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

21.1.2 The effects of the Project on the following receptors are considered:

- Local Landscape Character Areas;
- National Marine Character Areas;
- Local Seascape Character Areas; and
- visual receptors.

21.1.3 This environmental topic relates to both terrestrial and marine aspects of the Project.

21.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

21.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 10 – Terrestrial Historic Environment**; **Chapter 13 – Terrestrial and Freshwater Ecology;** and **Chapter 25 – Population and Human Health**.

21.1.6 Given the above and that the Project will include significant changes to current lighting levels and additional lighting provisions during both the construction and operation phases, these additional lighting elements have the potential to increase obtrusive light levels therefore, an Environmental Lighting Impact Assessment (ELIA) will be required for the Project. The ELIA will be provided as a technical appendix to the Landscape, Seascape and Visual Amenity chapter of the Environmental Statement (ES) and will present information to enable statutory consultees, members of the public and stakeholders to understand, identify and assess the likely significant effects of obtrusive light from the Project on human receptors.

21.1.7 The ELIA will support other disciplines such as biodiversity, landscape visual, heritage and communities by providing information to inform their assessments.

21.2 Relevant Legislation, Policy and Technical Guidance

21.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of landscape and seascape character, and visual amenity are detailed in **Table 144**.

Table 144: Legislation, policy and guidance relevant to landscape, seascape and visual amenity

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
The National Parks and Access to the Countryside Act 1949 (Section 11A(2))	Established National Parks and Areas of Outstanding Natural Beauty (AONB), providing a basis for their protection and management. This Act is relevant to the terrestrial elements of the Project. Note: AONB are now referred to as National Landscapes and this will be used throughout this Chapter, except for instances where AONB is referenced in published documents.
The Countryside and Rights of Way Act 2000 (Section 85)	Includes provisions for the protection and management of landscapes, particularly in designated areas such as National Parks and AONBs. This Act is relevant to the terrestrial elements of the Project.
The Wellbeing of Future Generations (Wales) Act 2015	There are seven connected wellbeing goals including 'a resilient Wales', 'a prosperous Wales' and 'a healthier Wales'. Public bodies subject to this legislation and of relevance to landscape, seascape and visual amenity include local authorities, Natural Resources Wales and National Park Authorities. This Act is relevant to the terrestrial and marine elements of the Project.
European Landscape Convention 2006	The ELC highlights the importance of all landscapes and encourages greater attention to care and planning in all landscapes, to manage change and ensure a forward-looking approach to management. The convention also states that all landscapes have value, even if not under formal designation. This Convention is relevant to the terrestrial and marine elements of the Project.
Environment (Wales) Act 2016	The Act emphasises the sustainable management of natural resources, which includes landscape resources.
The Historic Environment (Wales) Act 2023	This legislation provides an update to the protection and management of Wales' historic environment including the designation and management of Conservation Areas, as well as the importance of preserving historic landscapes and maintaining public enjoyment of these. This Act is relevant to the terrestrial elements of the Project.
Clean Neighbourhoods and Environment Act (CNEA) 2005	CNEA amended Section 79 of the Environmental Protection Act 1990 to include "artificial light emitted from premises so as to be prejudicial to health or a nuisance". The CNEA states that this does not apply to defence infrastructure, airports, harbour premises, railway premises, tramway premises, bus stations and any associated facilities, public service vehicle operating centres, lighthouses and prisons. However, although the referenced sections of the CNEA do not apply to harbours and road lighting, there are elements of the Project to which they will apply. Additional guidance is provided by the government website GOV.UK, Guidance on "Artificial light nuisances: how councils deal with complaints", and states that street lighting is also excluded. Local Authorities are provided with powers to serve abatement notices to premises with artificial lighting installations deemed to be causing a nuisance. There is, however, no definition provided on the levels of artificial lighting which could be considered as a statutory nuisance. Therefore, due consideration to all identified areas of significant lighting sensitivity shall be provided and best practicable means will be applied where reasonably practicable to enable the prevention or limitation of the effects of obtrusive light. Section 103 of CNEA allows the defence of best practicable means where artificial lighting is emitted from industrial, trade or business premises or where lighting is used for an outdoor relevant sports facility.

Relevant legislation / policy / guidance	Relevance to assessment
National Policy	
Future Wales – The National Plan 2040 (Welsh Government, 2021)	Within Policy 1 – National Growth, the area surrounding Swansea Bay is marked as a potential area for future growth. Within Policy 18 it is specified that development can only be approved if there are "no unacceptable adverse visual impacts on nearby communities and individual dwellings, national statutory designated sites for nature conservation (and the features for which they have been designated), protected habitats and species, statutorily protected heritage features, no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance, and that the proposal includes biodiversity enhancement measures to provide a net benefit for biodiversity". This document is relevant to the terrestrial and marine elements of the Project.
Technical Advice Note (TAN) 8: Planning for Renewable Energy (Welsh Government, 2005)	Although TAN 8 has been revoked and replaced by Future Wales – The National Plan, Annex D of TAN 8 contains potential methodology for strategic search areas for new wind turbines that is relevant to this assessment. Methodology considers visual study areas and other aspects of landscape and visual assessment of wind turbines.
TAN 10: tree preservation orders (TPO) (Welsh Government, 1997)	This TAN outlines guidance on the use of TPO in Wales.
TAN 12: design (Welsh Government, 2016)	This TAN outlines the importance of good design to help achieve sustainable development in Wales.
TAN 14: coastal planning (Welsh Government, 1998)	This TAN outlines guidance on planning in Wales' coastal areas, including giving consideration to sustainability and minimising environmental impact.
TAN 16: sport, recreation and open space (Welsh Government, 2009)	This TAN outlines guidance on providing sport and recreational facilities and informal open spaces in Wales and includes strategies for protecting existing facilities and enhancing these where possible.
TAN 24: the historic environment (Welsh Government, 2017)	This TAN sets out clearly how the Welsh planning system considers the historic environment during development plan preparation and provides guidance around designated sites including conservation areas and historic parks and gardens.
Natural Resources Policy (Welsh Government, 2017)	It is specified within the chapter 'Landscapes and our Historic Environment' that "landscapes are a vital part of both place-based and nature-based approaches. All places have distinctive qualities, opportunities and functions which will be reflected by Natural Resources Wales (NRW) in developing area statements." This document is relevant to the terrestrial and marine elements of the Project.
Prosperity for All: A Low Carbon Wales (Welsh Government, 2019)	Within the chapter 'Land Use, Land Use Change & Forestry (LULUCF)' the plan sets out that there is a need to increase woodland creation activity to meet climate change targets. This document is relevant to the landscape, seascape and visual amenity elements of the Project.
Planning Policy Wales Edition 12 (Welsh Government, 2024)	In policy 5.9.20, PPW states that when considering applications "planning authorities should also identify and require suitable ways to avoid, mitigate or compensate adverse impacts of renewable and low carbon energy development. The construction, operation, decommissioning, remediation and aftercare of proposals should take into account: - the impact on the natural and historic environment". As the study area includes several conservation areas policy 6.1.16 is of relevance and states that "Preservation or enhancement of a conservation area can be achieved by a development which either makes a positive contribution to an area's character or appearance or leaves them unharmed." Several Historic Parks and Gardens are within the study area and this is of relevance to paragraph 6.1.18 "Planning authorities should value, protect, conserve and enhance the special interest of parks and gardens and their settings included on the register of historic parks and gardens in Wales." and paragraph 6.1.19 "The

Relevant legislation / policy / guidance	Relevance to assessment
	effect of a proposed development on a registered park or garden, or its setting, is a material consideration in the determination of planning applications." Section 6.3 Landscape, point 6.3.3 sets out the following goals: • ensuring Wales contributes to meeting international responsibilities and obligations for landscapes; • ensuring statutorily designated sites are properly protected and managed; • ensuring that the value of all landscapes for their distinctive character and special qualities is protected; and • ensuring the opportunities landscapes provide for tourism, outdoor recreation, local employment, renewable energy and physical and mental health and wellbeing are taken into account and multiple wellbeing benefits for people and communities secured. National Parks and AONB are also addressed in Section 6.3 Landscape, as below: • paragraph 6.3.8: "National Parks and AONBs are of equal status in terms of landscape and scenic beauty, and must both be afforded the highest status of protection from inappropriate developments"; and • paragraph 6.3.9: "The special qualities of designated areas should be given weight in the development planning and the development management process. Proposals in National Parks and AONBs must be carefully assessed to ensure that their effects on those features which the designation is intended to protect are acceptable. The contribution that development makes to the sustainable management of the designated area must be considered." In relation to lighting, the national policy outlining guidance for making planning decisions states that: - "There is a need to balance the provision of lighting to enhance safety and security to help in the prevention of crime and to allow activities like sport and recreation to take place with the need to: • protect the natural and historic environment including wildlife and features of the natural environment such as tranquility; • retain dark skies where appropriate; • prevent glare and respect the amenity of neighbouring land uses; and reduce the carbon emissions associated with lighting. Lighting to provide security can be particularly important in rural areas or for specific purposes such as defence or to create calming environments. Where this is the case, planning authorities should adopt policies for lighting, including the control of light pollution, in their development plans. Planning authorities can attach conditions to planning permissions for new developments that include the design and operation of lighting systems, for example, requiring energy-efficient design and to prevent light pollution". This document is relevant to the terrestrial and marine elements of the Project.
Welsh National Marine Plan (Welsh Government, 2019)	This document outlines the marine plan for inshore and offshore Welsh marine plan regions. It was produced to help influencing the seas to support economic, social, cultural and environmental objectives. This Plan is relevant to the marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Local Policy	
Swansea Local Development Plan 2010-2025 (Swansea Council, 2019)	In relation to the importance of its landscape, Swansea Local Development Plan (LDP) states in point 1.1.23 that "the high quality natural environment, landscapes, and coastline are important assets to the local economy, attracting visitors, and providing resources. The wealth of wildlife habitats supports a huge diversity of plant and animal species (biodiversity) that must also be valued for their intrinsic worth." As the development is within view from Gower National Landscape, Policy ER 4 is of relevance. It states that "development proposals that are outside, but closely interlinked with the AONB must not have an unacceptable detrimental impact on the natural beauty of the AONB." In Policy ER 5: Landscape Protection it states that "where appropriate, a Landscape Impact Assessment will be required in order to consider the impact of the development on the designated area," and "in exceptional circumstances, where development is necessary and could result in a significant landscape impact, a landscaping scheme will also be required, and appropriate mitigation and enhancement measures should be provided." This LDP is relevant to the terrestrial elements of the Project.
Swansea Local Development Plan 2023-2038 (LDP2) Pre-Deposit Plan (Preferred Strategy) (Swansea Council, 2024)	Swansea Council are currently in the process of developing their second Lodal Development Plan. While not adopted as policy it provides information and updated policies relating to landscape and visual amenity. Policy SP18L Safeguarding the County's Landscape states that "Development proposals will be required to demonstrate that no significant adverse impact would be caused to the special character and quality of the County's landscape and seascape" The LDP is relevant to the terrestrial elements of the Project.
Neath Port Talbot County Borough Council (NPTC) - Local Development Plan 2011-2026 (NPTC, 2016)	Point 1.1.12 of Neath Port Talbot LDP sets out the context of the landscape of Neath Port Talbot. It describes the area as "a varied landscape with a number of distinctive habitats ranging from coastal salt marsh and sand dunes through to ancient woodlands and upland areas of purple moor grass. Some of these habitats are of European, National or local importance. Large areas of the County Borough contain conifer plantations and the area also contains important geological features including glaciated valleys and rock formations". Policy BE1 Design discusses how all "development proposals will be expected to demonstrate high quality design which fully takes into account the natural, historic and built environmental context and contributes to the creation of attractive, sustainable places." In addition, points 1, 2 and 3 outline the importance of design in context to the surroundings, point 7 mentions the importance of achieving an integrated transport and communications network and point 9 considers the importance of flood prevention and prevention of pollution. This policy aims to ensure that townscape, landscape and seascape are enhanced and complemented by proposed development. Policy TO4 Walking and Cycling Routes should be taken into consideration, with regards to recreational routes such as the Wales Coast Path. It states in point 5.2.69 that "any proposals that would adversely affect the identified routes, for example by preventing their implementation or use, will be resisted unless modifications are made to avoid any adverse effects." Policy EN1 The Undeveloped Coast states that "development proposals within the undeveloped coast will only be permitted where it is demonstrated that a coastal location is necessary." and in point 2, if the proposal relates to "the management and/or maintenance of shipping channels/port access and other associated infrastructure." Policy EN2 Special Landscape Areas states that "development within the designated Special Landscape Areas will only be permitted where it is demonstrated that there will be no significant adverse impacts on the features and characteristics for which the Special Landscape Area has been designated."

Relevant legislation / policy / guidance	Relevance to assessment
	Policy EN3 Green Wedges relates to prevention of urban sprawl within 5 designated areas of designated Green Wedges within Neath Port Talbot. In point 5.3.18 it states that inappropriate development will not be permitted except in very exceptional circumstances. In point 5.3.19 it states how these Green Wedges can provide opportunities for recreation and countryside access, support biodiversity, agriculture and rural interests, improve derelict land, provide carbon sinks and mitigate the effects of urban heat islands. Policy RE1 Criteria for the Assessment of Renewable and Low Carbon Energy Development states that "All schemes will need to demonstrate that the proposal would not cause any unacceptable impacts to the environment and the amenity of local residents or communities. Particular regard will be given to the potential impact on the landscape, townscape or seascape, nature conservation, wildlife interests, areas of historical and cultural importance and the potential for pollution, noise, dust, vibration, reflected light and shadow flicker". This LDP is relevant to the terrestrial elements of the Project.
Neath Port Talbot County Borough Council – Replacement Local Development Plan Preferred Strategy 2023-2038	NPTC are currently in the process of developing a Replacement Local Development Plan. While not adopted as policy, it provides information and updated policies related to landscape and visual amenity. Relevant policies include SP17 Countryside, Landscapes and Undeveloped Coast which outlines measures to safeguard these areas and policy SP5: Placemaking in Action. The LDP is relevant to the terrestrial elements of the Project
Neath Port Talbot County Borough Council Local Development Plan - Design Supplementary Planning Guidance (SPG) (NPTC, 2017)	This document provides information about design issues in Neath Port Talbot. It outlines relevant matters that need to be addressed when considering developments being planned in the County Borough. This SPG is relevant to the terrestrial elements of the Project.
Neath Port Talbot County Borough Council Local Development Plan - Landscape and Seascape SPG (NPTC, 2018)	This SPG provides further guidance on relevant policies for the assessment of landscape and seascape and in particular in relation to Special Landscape Areas (SLAs), Green Wedges and the Undeveloped Coast as specified in the Neath Port Talbot County Borough Council LDP. This SPG is relevant to the terrestrial and marine elements of the Project.
Bridgend County Borough Local Development Plan 2018-2033 (BCBC, 2018)	There are several SLAs within the study area and DNP4 sets out that: "The settings of SLAs will be protected with consideration of the views from those areas to the settlements of the County Borough. New development within settlements must be designed to provide an attractive transition between the urban area and the countryside." Point 5.5.77 on Light Pollution states that: "where necessary, conditions will be attached to planning permissions to ensure that the design and operation of lighting systems are satisfactory and/or to prevent light pollution." Point 5.5.100 states that "It is for the applicant to show that they understand the significance of the registered park or garden at the earliest stage." Point 5.5.101 mentions The Register of Historic Landscapes in Wales in relation to historic landscapes Margam Mountain and Merthyr Mawr Kenfig and Margam Burrows. This LDP is relevant to the terrestrial elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Guidance and Standards	
Guidelines for Landscape and Visual Impact Assessment (GLIVIA) 3rd Edition (Landscape Institute, 2013)	The principal guidance for landscape and visual impact assessment in the UK.
TGN 06/19 Visual Representation of development proposals (Landscape Institute, 2019)	Guidance on how development should be represented in photographs and visualisations.
TIN 08/2015 Landscape Character Assessment (Landscape Institute, 2016)	Guidance on landscape character assessment.
TIN 05/2015 Landscape Character reading list (Landscape Institute , 2015)	Landscape character reading list (accompanies the guidance on landscape character).
Seascape and visual sensitivity to offshore wind farms in Wales (Strategic Assessment Guidance) (Natural Resources Wales, 2019)	Contains guidance for assessing seascape and visual sensitivity to offshore wind farms in Wales' draft Marine Plan areas. Although guidance relates primarily to offshore windfarms, parts are still relevant to this assessment.
Designing Wind Farms in Wales (Design Commission for Wales, 2014)	Contains guidance for assessing seascape and visual sensitivity to onshore wind farms. Although guidance relates primarily to onshore windfarms, parts are still relevant to this assessment.
Planning Guidance for Smaller Scale Wind Turbine Development (Gillespies LLP for The Heads of the Valleys Landscape Officers and Planners, 2015)	Contains useful guidance on the assessment of single wind turbines and windfarms. Guidance includes study area information based upon size and scale of wind turbines/windfarms.
PLG04 Professional Lighting Guide 04 - Guidance on Undertaking Environmental Lighting Impact Assessments (Institution of Lighting Professionals, 2013)	Key guidance on undertaking environmental lighting impact assessments.
Guidance Note 01/21: The Reduction of Obtrusive Light (Institution of Lighting Professionals, 2021)	Best practice guidance note providing environmental zones for exterior lighting control and associated obtrusive light limitations.
Guidance Note 08/23: Bats and Artificial Lighting at Night (Institution of Lighting Professionals and Bat Conservation Trust, 2023)	Best practice guidance on reducing the effects of lighting on bats.

21.3 Engagement and Consultation

21.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

21.3.2 The selection of viewpoints was further refined through meetings with Neath Port Talbot County Borough Council (NPTC) and Cadw.

21.3.3 Further consultation with appropriate stakeholders will be undertaken to support the technical assessment going forwards.

21.4 Study Area

21.4.1 A 20km study area (excluding off-site compensation sites) has been used to gather information on landscape, seascape and visual receptors which have the potential to be affected by the Project. The study area for landscape and seascape character and visual amenity is provided on Figure 21.1 in **Appendix A**. The study area includes terrestrial and marine areas.

21.4.2 The 20km study area (including both terrestrial and marine areas) is based upon the guidelines set out in “Seascape and visual sensitivity to offshore wind farms in Wales (Strategic Assessment Guidance)” and “Planning Guidance for Smaller Scale Wind Turbine Development: Landscape and Visual Impact Assessment Requirements” as detailed in Table 144. This guidance is deemed appropriate as there will be turbines being assembled within the FLOW EIA Scoping Boundary excluding off-site compensation sites which may be visible at any given time. The Strategic Assessment Guidance states “Up to 22.6km from shore the sensitivity of seascape is generally considered to be high for wind farm development” and planning guidance for Smaller Scale Wind Turbine Development determines that “very large” (higher than 200m) turbines should have a study area of at least 15km.

21.4.3 The 20km study area includes the area from which the Project will theoretically be visible to a person with a viewer eye height of 1.6m above ground level. The 20km study area was tested through a Zone of Theoretical Visibility (ZTV) (for further detail on the representative viewpoint locations identified as a result of the ZTV, refer to Figure 21.2 in **Appendix A**) calculation and further refined through a winter site visit undertaken between the 5 and 9 of March 2024.

21.4.4 The ZTV for the FLOW EIA Scoping Boundary excluding off-site compensation sites for the Project was derived by using an approximate mark-up of the Project with heights for the assembly and fabrication area, integration area and proposed access road (worst case scenario heights as proposed design was at early stages). This was used to create and attribute a line dataset in GIS for the Project. This dataset, along with a LiDAR 1m DSM, was then used in the visibility tool in GIS to return the ZTV. Visibility may vary due to environmental factors and therefore the output is theoretical. The output should not be relied upon for critical

decision making and should be used as a guide only. The ZTV is not a definitive account of the potential visibility of the Project and the findings of the ZTV have been assessed and checked on site by a landscape architect. There might be further limitations of sight and context that will screen and filter views such as vegetation, built form, topography and the changing urban context. Views beyond 20km will be limited by depth of field of the human eye and therefore are not assessed within the Landscape, Seascape and Visual Amenity Chapter.

21.4.5 Two ZTV calculations were run for the FLOW EIA Scoping Boundary excluding off-site compensation sites for the Project taking in the entire 20km study area: one to capture the construction works (100m high across the whole terrestrial area) and one to capture the operation works (300m high across the area where the turbines would be likely). The study area has been set to 20km both in construction and operation as it is assumed that although wind turbines are not present on-site during construction, the 200m high new quayside cranage would require a similar size (or higher) construction crane to install and that this crane would have a similar ZTV to a “very large” wind turbine. The ZTV will be refined as design details develop, and final details will be reported in the ES.

21.5 Description of the Existing Environment

Resources and Receptors – Landscape and Seascape

21.5.1 The landscape and seascape receptors are set out in Section 21.1.2. The designations set out below contribute to the overall value and sensitivity of the landscape and seascape receptors, and this will be further detailed in the LVIA.

National Landscape Character Areas

21.5.2 The FLOW EIA Scoping Boundary excluding off-site compensation sites lie within National Landscape Character Area (NLCA) 38 Swansea Bay (NRW, 2023), (NRW, 2014), the key characteristics of which are described as follows:

- narrow coastal plain – a long lowland area, of limited width in its middle section, between uplands and the sea, and opening out into wider lowland areas at either end;
- estuaries – including those of the Rivers Loughor, Tawe, Neath and Ogmore;
- extensive soft coastline – sand dunes and sweeping sandy beaches and lagoons. Kenfig Dunes/lagoon have important species including fen orchid and medicinal leech. Relict, pre-historic and later period landscapes, successively buried by wind-blown sand;
- setting of steeply rising hills – in the central section around Port Talbot, and belonging to South Wales Valleys to the north;

- coal measures - beneath much of the area, but Triassic mudstones form the northern bank of the Ogmore Estuary;
- limestone outcrops - near Mumbles and Porthcawl;
- major glacial moraine deposits by estuaries e.g. Glais Morraine 1 mile long x 45m high;
- urban areas – dominated by the city of Swansea and the coalescing towns of Llanelli, Neath and Port Talbot. Swansea, with its strong architectural heritage and cultural importance forms a regional focus. Housing and business planned in large estates;
- heavy industry – giant apparatus with large buildings and chimneys with steam issuing focussed at Port Talbot (assumed to mean the Port), with dominating visual and audible presence;
- major transport corridor – with main road and rail lines linking settlements along the corridor, with associated movement, busyness and noise;
- ports and docks – at major river estuaries. Historically the focus for industry but today regenerating and redesigning as post-industrial housing, education and leisure marinas;
- historically strategic location – recognised early for good coal for industry and sea transport, and latterly by rail;
- agriculture - in areas away from dunes and lagoons that have not been built on. Predominantly pasture for dairy, sheep or horse paddocks in regular, hedged fields; and
- in the few remaining rural parts – the pattern is settlements along roads, with scattered stone or white/cream render farmsteads.

21.5.3 The 20km study area includes NLCA 36 Vale of Glamorgan, 37 South Wales Valleys and 39 Gower as shown on Figure 21.3 in **Appendix A**. Further details will be included in the assessment and reported in the ES.

Local Landscape Character Areas (LCA)

21.5.4 The FLOW EIA Scoping Boundary excluding off-site compensation sites within LCA50 Port Talbot Docks & Margam works and LCA52 Margam Sands/Aberavon Sands (NPTC, 2004). Further details of the LCA will be reported in the ES. A number of other LCA are located within the 20km study area as follows:

- the NPTC administrative area has a total of 49 LCAs including LCA 50 and LCA 52;
- the Swansea Council administrative area has a total of 27 LCAs; and
- the Bridgend County Borough Council (BCBC) administrative area has a total of 15 LCAs.

National Landscapes (NL)

- Gower NL lies within the 20km study area. Further details of the NL will be included in the assessment and reported in the ES.

Special Landscape Areas (SLA)

21.5.5 The BCBC administrative area has eight SLAs within the 20km study area (BCBC, 2010) including:

- SLA1 (Foel y Dyffryn);
- SLA3 (Western Uplands);
- SLA4 (Bryngarw Country Park);
- SLA5 (Mynydd y Gaer);
- SLA6 (Kenfig Burrows);
- SLA7 (Laleston);
- SLA8 (Porthcawl Coast); and
- SLA9 (Merthyr-mawr Warren).

21.5.6 The NPTC administrative area has five SLAs within the 20km study area including:

- SLA1 (Mynydd y Garth);
- SLA2 (Duluis Valley), SLA4 (Margam);
- SLA5 (Mynydd y Gelli); and
- SLA6 (Foel Trawsnant).

21.5.7 The Swansea Council administrative area has three SLAs within the 20km study area including:

- SLA1 (Mawr Uplands);
- SLA3 (North East Gower and Crockett Valley); and
- SLA4 (Garngoch and Lower Afon Llan Valley).

National Marine Character Areas (MCA)

21.5.8 MCA are designated marine geographic areas around the Welsh coastline. They are used to characterise the key natural, cultural, and perceptual influences on the defined area and are described by Natural Resources Wales. The Project lies within MCA26 Swansea Bay and Porthcawl (NRW, n.d.), the key characteristics of which are described as follows:

- large south and south-easterly facing bay backed by a developed coastal plain with pockets of sparsely settled coastline, backed in part by steeply rising hills inland;
- shallow waters of the inner bay of less than 10m bathymetry; depths reach a maximum of 20m in the outer bay;
- the dramatic Mumbles Head, formed of two limestone islands with lighthouse and pier, forms a distinctive western gateway into Swansea Bay;
- varied coastline between development, including estuaries (of the rivers Tawe, Neath, Afan and Cynffig), sandy bays, dunes and low limestone cliffs and pavements;

- Kenfig Dunes are one of the largest sand dune systems in Wales, internationally important for their coastal habitats, birdlife and preserved archaeology found beneath the dunes. Seabed of Devonian and Carboniferous sandstones and mudstones, overlain by Holocene deposits of sand, gravel and mud - dredged to maintain port access;
- sand bars, banks and submerged rocks forming dangers to navigation, marked by a number of buoys and fog signals as well as the 18th century Mumbles Lighthouse;
- carboniferous limestone reefs and rocks (including Fairy Rocks) extending offshore from the Porthcawl coastline, with associated turbulence and shallow water;
- the bay has long provided safe refuge from heavy weather, although the seas can still be very steep in south or south-westerly storms;
- a higher wave climate is associated with the outer parts of the MCA, where the shelter provided by the land diminishes. The area around Scarweather Sands is a licenced Wind Farm Area;
- varied marine life supporting a range of commercial fishing activities including trawling, set netting, rod and line fishing, whelk potting and mussel seed harvesting;
- MCA has historic associations with both fishing and native oyster catching, a concentration of intertidal fishing traps dating from the medieval period are found in the intertidal zone;
- origins as a Viking trading post, Swansea expanded significantly in the 17th to 19th centuries, its position allowing international maritime trade in a wide range of products – most notably locally produced coal and copper (termed "Copperopolis");
- concentration of wrecks in the bay, a number torpedoed or mined during WWII. Swansea was the birthplace of poet Dylan Thomas – the famous link marked by the Dylan Thomas Centre and an imposing statue in the Maritime Quarter;
- a busy seascape, with major port-related development and the Port Talbort steelworks forming strange geometric apparatus; chimneys and smoke plumes dominating the landward skyline; and
- a popular area for sailing, boating, watersports and recreational angling. Much of the shoreline is traced by the Wales Coast Path.

21.5.9 As shown on Figure 21.3 in **Appendix A**, the following MCA are within the 20km study area:

- MCA26 Swansea Bay and Porthcawl;
- MCA24 Carmarthen Bay and Estuaries (NRW, n.d.);
- MCA25 Gower and Helwick Coastal Waters (NRW, n.d.);
- MCA27 Glamorgan Coastal Waters and Nash Sand (NRW, n.d.); and
- MCA28 Bristol Channel (NRW, n.d.).

Local Seascape Character Areas (SCA)

21.5.10 SCA assessment is a systematic way of analysing and describing the character of coastal and marine areas. The following SCAs lie within the 20km study area (Swansea Council, 2021):

- SCA7 Pwlldu Head to Mumbles Head;
- SCA8 Swansea Bay – West;
- SCA9 Swansea Bay – East;
- SCA10 Neath Estuary;
- SCA11 Margam to Porthcawl;
- SCA12 Porthcawl; and
- SCA16 Mid Swansea Bay.

Seascape and Landscape Related Designations

21.5.11 The following is a list of landscape and seascape related designations relevant to the Project within the 20km study area. They are included in this list as they meet certain criteria, which include:

- they may contribute to the character of the landscape or seascape. For example, a Site of Special Scientific Interest (SSSI) of geological importance may contribute to the condition or conservation value of a particular landscape; and
- their setting may be affected by the Project. For example, a Grade I listed building may sit within a rural, landscape setting; and although a development may not cause any direct, physical change to the building, it may cause harm through the loss of this rural setting.

21.5.12 The list is as follows:

- landscape related designations:
  - Gower National Landscape.
- National Nature Reserve (NNR):
  - Kenfig Pool and Dunes (within 5km);
  - Crymlyn Bog and Pant y Sais (within 10km); and
  - Merthyr Mawr Warren (within 20km).
- SSSI:
  - 4 within 5km;
  - 5 within 10km; and
  - 33 within 20km.
- Special Protected Area (SPA) – Burry Inlet
  - 1 within 20km;
- Special Area of Conservation (SAC):
  - 1 within 5km;
  - 3 within 10km; and

    - 10 within 20km.
- National Cycle Network (NCN) routes 4, 43, 46, 47, 88, 883, 887, and 888;
- Wales Coastal Path and Gower Coast Path;
- Public Right of Way (PRoW);
- Open Access Land;
- Conservation Areas:
    - 1 within 5 km (Margam Park);
    - 8 within 10km; and
    - 29 within 20km.
- Registered Parks and Gardens:
    - 1 within 5km;
    - 3 within 10km; and
    - 16 within 20km.
- Scheduled Monuments:
    - Multiple within study area (refer to Chapter 12, Historic Environment).
- Grade I Listed Buildings:
    - 7 within 5km;
    - 2 within 10km; and
    - 14 within 20km.
- Grade II* Listed Buildings:
    - Multiple within 20km study area (for further detail refer to Figure 21.1 in **Appendix A**) or refer to Chapter 12, Historic Environment).

Resources and Receptors – Visual Amenity

21.5.13 The visual receptors for assessment are either highly sensitive with potential views toward the Project or have potential to be significantly affected by the Project. These receptors are:

- visitors to Mumbles Lighthouse and Mumbles Hill Local LNR and residents of the Mumbles Conservation Area;
- visitors to Oystermouth Castle and residents of Oystermouth and Norton;
- visitors to Gower National Landscape;
- users of Singleton Park and residents in, and visitors to, Sketty Conservation Area;
- users of Cwmdonkin Park;
- visitors to Mynydd Pysgodlyn;
- users of Kilvey Hill Community Woodland and proposed ski-lift;
- visitors to St Catharine's Church and residents of Baglan;

- visitors to Foel Fynyddau;
- residents of Neath Port Talbot;
- residents of Penycab;
- visitors to St Theodore's Church, Talbot Memorial Park and residents of Taibach;
- users of Little Warren Playing Fields, The Small Beach and residents of Mariners Point;
- residents of Margam;
- visitors to Ergyd Isaf Round Barrows (Scheduled Monument);
- visitors to Margam Castle, Margam Country Park and Margam Conservation Area;
- visitors to The Pulpit Viewpoint;
- residents in properties on Old Park Road;
- visitors to St Mary Magdalene Church;
- residents of Maudlam and North Cornell;
- visitors to Kenfig NNR; and
- users of various PRoW within the study area, including the Wales Coast Path and the Gower Coast Path.

Data Sources

21.5.14 Preliminary baseline information to inform the scoping exercise was gathered from data sources set out in **Table 145**.

Table 145: Data sources

Data type	Data source
Designations	Natural Resources Wales
Designations	DataMap Wales
Designations	Cadw
National cycle network routes	Sustrans
Mapping	Ordnance survey maps
Aerial mapping	Esri World Imagery

21.5.15 Site visits were undertaken in both summer and winter by a chartered landscape architect. Winter site visits were undertaken between 5th and 9th of March 2024 (when trees were not in leaf) and summer site visits were undertaken between 22nd and 25th July as well as on 13th and 18th September 2024 (when trees were in leaf). Viewpoint photography (see **Appendix K**) was undertaken with a Canon EOS 6D camera, with either a full frame 50mm fixed focal length lens or an equivalent cropped frame 35mm fixed focal length lens, using a tripod with a height above ground level of 1.6m.

Baseline Conditions

21.5.16 The Project lies within the administrative area of NPTC and the 20km study area enters the administrative areas of Swansea Council and BCBC. The study area also enters the administrative areas of Vale of Glamorgan Council (VGC), Rhondda Cynon Taf County Borough Council (RCTCBC) and Powys County Council (PCC), however due to the distance from the FLOW EIA Scoping Boundary excluding off-site compensation sites (>18km) as well as intervening topography and vegetation, VGC, RCTCBC and PCC have not been included in this report as there will be no impact on views from these areas.

21.5.17 The 20km study area is extensive and includes many natural and historical designations. The 20km study area includes the Gower National Landscape. The Bannau Brycheiniog National Park lies just outside the 20km study area to the north (refer to Figure 21.1 in **Appendix A**). The 20km study area includes a high number of SLAs; the closest of these are Margam SLA and Kenfig Burrows SLA both within 5km of the EIA Scoping Boundary. The 20km study area is recognised for its high scenic value and includes large areas of woodland, extensive soft coastline, areas of open water and large areas of upland plateau with deep valleys.

21.5.18 The port is located within the FLOW EIA Scoping Boundary excluding off-site compensation sites and is surrounded by the urban development of Port Talbot to the north and Swansea Bay to the south-west.

Wider Landscape

21.5.19 A narrow coastal plain links the lowlands of Glamorgan to those of Gwendraeth. In the middle of the area lies the Port, one of two major ports in the area. Large parts of the area have been built on with the focus of the development around Swansea, Llanelli, Neath Port Talbot and Pyle. Surrounding the urban developments are extensive sandy beaches and major river estuaries. The landscape is overall a busy, noisy, and ambitious urban landscape with extensive road and rail infrastructure.

Immediate Landscape

21.5.20 This entirely industrial and port area is situated on the coastal margin of the Margam Moors in the south of the county borough. The industrial area comprises of large-scale heavy industry and the Port, a deep-water port. The skyline is dominated by the existing steelworks which acts as a significant landmark in the flat landscape. Smaller industrial units lie around the docks and next to the town centre. A network of railways, both passenger and industrial, cross the area including the main London to Swansea line, although there is no public access. The docks within the area, although large in scale are fairly well hidden from public view. The character of the area is dominated by overpowering and noisy heavy industry. This area of industrial development sitting on former dunes and coastal grassland retains remnants of these habitats.

Seascape

21.5.21 The seascape comprises the south and south-west facing, large-scale sweeping arc of Swansea Bay. The western edge of the bay is framed by the dramatic Mumbles Head, formed of two limestone islands with lighthouse, pier and lifeboat slip, creating a distinctive western gateway into Swansea Bay and eastern gateway into the Gower National Landscape. At the opposite eastern side of the seascape, the limestone bedrock geology is also exposed in rocky cliffs and limestone pavements punctuating small sandy bays. Between the outer limestone sections and extensive industrial and urban development, the bay is backed by a variety of low-lying intertidal, estuarine and coastal habitats. This area forms part of a regional complex of wetland and estuary habitats including the Gwendraeth, Burry and Severn Estuaries. The central coastline area includes Crymlyn Burrows SSSI, which along with Kenfig Burrows to the east of the bay represents a wider system of ancient sand dunes found across the area.

Visual Amenity

21.5.22 The visual envelope of the Project is defined by the ZTV and is largely concentrated along the coast and the residential communities near to the coast. A pronounced ridgeline runs immediately inland of the coast as far west as The Gower, and views are available from the high points along this ridge. Beyond this ridgeline, views are largely screened by the ridgeline itself and intervening tree planting. There are occasional high points within the 20km study area that have views over the ridgeline and into the FLOW EIA Scoping Boundary excluding off-site compensation sites. The existing operational port and industrial area is visible against the skyline for land-based visual receptors but is less prominent against the backdrop of the hills for sea-based visual receptors.

Next Steps

21.5.23 In order to establish a complete baseline for the EIA, winter viewpoint photography will be completed, and Type 4 visualisations of the scheme will be produced to inform the Landscape, Seascape and Visual Amenity assessment.

21.6 Future Baseline

21.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Landscape, Seascape and Visual Amenity chapter of the ES would seek to explain what the environmental change, in terms of landscape, seascape and visual amenity, would likely be in the future if the Project were not to go ahead.

21.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

21.6.3 The future baseline will be established by researching and assessing the impact of any newly consented development proposals.

21.7 Mitigation Measures

21.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for the landscape, seascape and visual amenity topic will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

21.7.2 This section sets out the potential controls relevant to landscape, seascape and visual amenity which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and experience from other projects. The list of control measures will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

21.7.3 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include:

- rationalising existing street layout, with potential to introduce new street furniture and signage to improve the landscape quality and ease of use;
- green corridors alongside new transport infrastructure to filter views and facilitate the Project into the landscape and visual context;
- sustainable urban drainage systems within the FLOW EIA Scoping Boundary excluding off-site compensation sites to maximise the potential of green infrastructure on site; and
- general landscaping around proposed built and marine infrastructure to filter views and to set the Project within the landscape and visual context.

Construction Controls

21.7.4 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction stage include:

- protection of existing vegetation to be retained and early planting of green infrastructure to filter views;
- sensitive siting of construction compounds and stockpiles where possible, to reduce impact on views;
- use of hoarding or phasing of works to screen construction activities from sensitive views;

- directional or reduced construction task lighting to reduce impacts on views; and
- minimising working at night or at unsociable hours, to reduce any potential loss in tranquillity.

Operation and Maintenance Controls

21.7.5 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated at the operation stage include:

- directional or reduced lighting when working at night or at unsociable hours.

21.8 Potential Likely Significant Effects

21.8.1 The potential likely significant effects for landscape, seascape and visual amenity are described in **Table 146** and **Table 147**. These take into account the expected control measures set out within Section 21.6.

Table 146: Likely significant Construction effects

Activity/impact	Effect	Receptor
Creation of construction compounds within the Port estate with associated materials storage areas and office facilities.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Land reclamation and quay wall construction to create additional land and quay length.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Creation of new construction access and haul roads both as widening of existing roads and as addition of new roads as well as potential modification of existing highway structures, such as embankments and bridges.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Increased traffic movement associated with general construction works and associated parking arrangements.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National

Activity/impact	Effect	Receptor
		Landscape) (terrestrial and marine)
Introduction of new active travel routes for pedestrian and cyclists and the refurbishments, recommissioning.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Temporary traffic and pedestrian management arrangements in relation to the increased construction activity.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Demolition and construction activity, stockpiles, machinery and related activities including steel fabrication facilities (up to 500m long, 500m wide and 20-70m tall), blasting and paint sheds (up to 70m tall) as well as extensive temporary works such as scaffolding and cranes.	Significant change in landscape or seascape scenic value. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Dredging activity and marine reclamation in the waters surrounding Port Talbot.	Significant change in landscape or seascape scenic value. Significant change in view value.	MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Night-time impacts may result from the introduction of lighting into the landscape and associated views.	Significant change in landscape or seascape scenic value. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)

Table 147: Likely significant Operation and Maintenance effects

Activity / impact	Effect	Receptor
Introduction of additional industrial elements such as new steel fabrication facilities, cranes and office buildings into views.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)

Activity / impact	Effect	Receptor
Introduction of new industrial buildings of up to 70m in height into views.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Introduction of wind turbines (refer to **Chapter 2 Description of Development**) when fully assembled and on a base, at the highest tides.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Increase in marine activity in relation to the construction and transportation of wind turbines.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)
Introduction of new, permanent lighting features associated with the Project operating at a continuous basis.	Significant change in landscape or seascape scenic value. Significant change in landscape or seascape condition. Significant change in view value.	LCA (terrestrial) MCA (marine) SCA (marine) Sensitive visual receptors (including those within the Gower National Landscape) (terrestrial and marine)

21.9 Resources and Receptors Scoped Out of Assessment

21.9.1 The resources or receptors that are proposed to be scoped out of the assessment for Landscape, Seascape and Visual Amenity are set out within **Table 148**.

Table 148: Resources and receptors scoped out of assessment

Resource/Receptor	Justification for scoping out
Construction	
LCA within Vale of Glamorgan Council (VGC), Powys County Council (PCC) and Swansea Council administrative areas.	Distance of greater than 18km from the FLOW EIA Scoping Boundary excluding off-site compensation sites. Intervening topography and vegetation, results in no significant effects being anticipated on the landscape character of this area.
LCA within Neath Port Talbot County Borough Council (excluding LCA50 Port Talbot Docks & Margam works and LCA52 Margam Sands/Aberavon Sands)	The proximity of these LCA to the FLOW EIA Scoping Boundary excluding off-site compensation sites results is such that no significant effects are anticipated on the landscape character of this area.

MCA24 Carmarthen Bay and Estuaries MCA26 Swansea Bay and Porthcawl MCA27 Glamorgan Coastal Waters and Nash Sand MCA28 Bristol Channel	Distance of greater than 10km from the FLOW EIA Scoping Boundary excluding off-site compensation sites results in no significant effects being anticipated on the marine character of this area.
SCA7 Pwlldu Head to Mumbles HeadSCA8 Swansea Bay – West SCA10 Neath Estuary SCA11 Margam to Porthcawl SCA12 Porthcawl SCA16 Mid Swansea Bay	The proximity of these SCA to the FLOW EIA Scoping Boundary excluding off-site compensation sites results is such that no significant effects are anticipated on the seascape character of this area.
Visual receptors with views of Kenfig Marshalling Yard and Jersey Marine (viewpoints 22, 24b, 26, 27 and 28) (refer to **Appendix K** and Figure 21.2 in **Appendix A**).	The nature of the proposed 'off-site' habitat creation works would not typically be the subject of an EIA and the proximity of these sites to the Port is such that no significant visual effects (either adverse or beneficial) are anticipated.
Operation and maintenance	
LCA within Vale of Glamorgan Council (VGC), Powys County Council (PCC) and Swansea Council administrative areas.	Distance of greater than 18km from the FLOW EIA Scoping Boundary excluding off-site compensation sites. Intervening topography and vegetation results in no significant effects being anticipated on the landscape character of this area.
MCA24 Carmarthen Bay and Estuaries MCA26 Swansea Bay and Porthcawl MCA27 Glamorgan Coastal Waters and Nash Sand MCA28 Bristol Channel	Distance of greater than 10km from the FLOW EIA Scoping Boundary excluding off-site compensation sites results in no significant effects being anticipated on the marine character of this area.
SCA7 Pwlldu Head to Mumbles HeadSCA10 Neath Estuary SCA12 Porthcawl SCA16 Mid Swansea Bay	The proximity of these SCA to the FLOW EIA Scoping Boundary excluding off-site compensation sites results is such that no significant effects being anticipated on the seascape character of this area.
Visual receptors with views of Kenfig Marshalling Yard and Jersey Marine (viewpoints 22, 24b, 26, 27 and 28) (refer to **Appendix K** and Figure 21.2 in **Appendix A**).	The nature of the proposed 'off-site' habitat creation works would not typically be the subject of an EIA and the proximity of these sites to the Port is such that no significant visual effects (either adverse or beneficial) are anticipated.

21.10 Proposed Assessment Methodology

21.10.1 The Landscape, Seascape and Visual Impact Assessment will identify, predict, and evaluate the potential landscape, seascape and visual effects likely to result from the Project during demolition, construction and in operation. For the full methodology, refer to **Appendix L**.

21.10.2 The phasing of the works may require different periods of construction (terrestrial and marine works) that overlap with areas of operation. The assessment will consider the phasing of these periods of construction and operation (as known at the time of preparing the ES). The assessment will also consider a “year 15” operational stage, which will assess landscape, seascape and visual effects 15 years after the final phase of construction is completed. The methodology used for assessing landscape, seascape and visual effects is based on the third edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA 3) (Landscape Institute, 2013). This sets out a framework to be followed when completing LVIAs. A process of iterative design and assessment will be used to avoid and reduce adverse effects as a result of the Project in construction and operation.

21.10.3 Further methodology and guidance are provided in the Technical Guidance Note 06/19 Visual Representation of Development Proposals Guidance (Landscape Institute, 2019) on how development should be represented in photographs and visualisations.

21.10.4 The Technical Information Note 08/2015 Landscape Character Assessment Guidance (Landscape Institute, 2016) provides guidance and methodology for the assessment of landscape character.

Baseline conditions

Landscape, Seascape and Visual Amenity Baseline

21.10.5 The baseline landscape, seascape and visual amenity resource and receptor information described within this scoping report will be used to inform the Landscape, Seascape and Visual Impact Assessment.

21.10.6 The winter and summer viewpoint photography provided in **Appendix K** will be used to inform the assessment.

Arboricultural baseline

21.10.7 A full tree survey will be undertaken in accordance with British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction – recommendations, to provide a baseline survey of the arboriculture associated within the EIA Scoping Boundary or any trees directly adjacent which will be affected by the Project. The arboricultural survey will either identify specific trees or tree groups, this is dependent on-site specific circumstances and will be undertaken by a qualified arboriculturist. This will be included within the ES technical appendix and enable quantification of tree loss and condition to support the landscape study.

Lighting baseline

21.10.8 A full lighting baseline survey has been undertaken. The methodology for the lighting baseline survey was informed by guidance published by the ILP, specifically (Institution of Lighting Professionals, 2013).

21.10.9 The lighting baseline survey was undertaken over five separate visits by suitably qualified and experienced lighting professionals. The dates that each survey was undertaken were as follows:

- 5th, 6th and 7th December 2023;
- 23rd, 24th and 25th January 2024;
- 26th, 27th and 29th February 2024;
- 15th,16th, and17th October 2024; and
- 11th, 12th, 13th, and 14th November 2024.

Assessment of Construction and Operational Effects

21.10.10 The significance of effects will be assessed by considering the sensitivity of the receptor and the predicted magnitude of change in relation to the baseline conditions as described in the sections above. Effects may be adverse or beneficial. Professional judgement will be used to determine the overall level of significance of effects on landscape, seascape and visual receptors in weighing the sensitivity of the receptors against the magnitude of change. The evaluation of the significance of effects will be based on the criteria set out in GVLIA 3 (Landscape Institute, 2013). Effects deemed to be either major or moderate will be deemed to be significant.

21.10.11 In order to ensure the mitigating effects of maturing landscape planting are taken into account, the operation assessment will include an assessment at both years 1 and 15 of operation, for Phase 1 and future phases of the Project.

21.10.12 To support the assessment, several Type 1 and Type 4 Visualisations will be prepared in accordance with the Landscape Institute's Technical Guidance Note 06/19 Visual Representation of Development Proposals. These will show the Project during winter in years 1 and 15 of operation.

Cumulative Effects

21.10.13 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

21.10.14 The cumulative assessment for landscape, seascape and visual amenity will consider other developments, plans or programmes known at the time the ES is prepared that have potential to affect the landscape or seascape character and/or visual amenity. The potential effects of these other developments etc. will be assessed against the findings of the Landscape, Seascape and Visual Amenity chapter in the ES, to determine whether the effects of the Project have potential to have greater or lesser significance due to the cumulative impacts of both.

21.11 Assumptions and Limitations

Assumptions

21.11.1 The impact of lighting on the character of the landscape and on views experienced by identified receptors will be considered in the assessment, but some visual receptors, such as outdoor recreational receptors, will not be considered as they would generally not be present at night or their immediate context would already be lit (for example, sports pitches or recreational users of PRoW).

21.11.2 The lighting baseline survey was undertaken during winter months in order to achieve optimal conditions. The assessment of impacts upon night-time views will be based upon the lighting strategy and lighting assessment.

Limitations

21.11.3 The level and extent of landscape and visual assessment will be commensurate with the form of application for each aspect of the Project. For outline application components of the Project, the assessment will be based upon parameter plans of development zones and maximum heights of buildings. For full application components of the Project, the assessment will be based upon detailed design information.

21.11.4 Prior to the photographic surveys, selected viewpoints were typically publicly accessible areas and private land where prior access had been agreed.

21.11.5 Where access was limited such as private land, viewpoint photography was undertaken from the nearest publicly accessible location and noted within the assessment. The consequential evaluation for impacts on some private and/or inaccessible viewpoints will be made, therefore, based upon the professional judgement of suitably qualified and experienced specialists.

21.11.6 The landscape baseline surveys were undertaken in summer and winter in order to provide representative views when trees are in leaf and out of leaf, respectively.

21.12 Summary

21.12.1 Due to the scale of the Project, existing baseline of the landscape and seascape character and the sensitivity of the landscape and seascape and certain visual receptors, some impacts could result in significant effects. Landscape, seascape and visual amenity is, therefore, scoped in for both construction and operation (year 1 and 15), for Phase 1 and future phases of the Project.

21.12.2 The proposed scope of the assessment for landscape, seascape and visual amenity is contained within **Table 149**.

Table 149: Proposed scope of the Landscape, Seascape and Visual Amenity Chapter of the ES

Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance Years 1 and 15 (due to any landscape related mitigation that will be established at year 15)	Justification for scoping in or out
LCA50 Port Talbot Docks & Margam works LCA52 Margam Sands/Aberavon Sands	In	In	Potential significant effects on the surrounding landscape designations. Change in landscape character resulting from construction activity and the operational Project, including lighting, at years 1 and 15.
MCA25 Gower and Helwick Coastal Waters	In	In	Potential significant effects on the surrounding marine designations. Change in landscape character resulting from construction activity and the operational Project, including lighting, at years 1 and 15.
SCA9 Swansea Bay – East	In	In	Potential significant effects on the surrounding seascape designations. Change in landscape character resulting from construction activity and the operational Project, including lighting, at years 1 and 15.
Visual receptors (viewpoints 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16a, 16b, 17, 18, 19, 20, 21, 22, 23, 24a, 25a, 25b, 29 and 30) (refer to **Appendix K** and Figure 21.2 in **Appendix A**)	In	In	Potential significant effects on views from sensitive visual receptors. Change in views resulting from operational Project activity, including lighting, at years 1 and 15.
LCA within Landscape Vale of Glamorgan Council (VGC) and Powys County Council (PCC) administrative area.	Out	Out	Distance of greater than 18km from the FLOW EIA Scoping Boundary excluding off-site compensation sites. Intervening topography and vegetation results in no significant effects being anticipated on the landscape character or visual amenity of this area.
LCA within Rhondda Cynon Taf County Borough Council (RCTCBC) administrative area.	Out	Out	Distance of greater than 18km from the FLOW EIA Scoping Boundary excluding off-site compensation sites. Intervening topography and vegetation results in no significant effects being anticipated on the landscape character or visual amenity of this area.
LCA within Powys County Council (PCC) administrative area.	Out	Out	Distance of greater than 18km from the FLOW EIA Scoping Boundary excluding off-site compensation sites. Intervening topography and vegetation results in no significant effects being anticipated on the landscape character or visual amenity of this area.

LCA within Neath Port Talbot County Borough Council (excluding LCA50 Port Talbot Docks & Margam works and LCA52 Margam Sands / Aberavon Sands)	Out	Out	The proximity of these LCA to the FLOW EIA Scoping Boundary excluding off-site compensation sites results is such that no significant effects are anticipated on the landscape character of this area.
MCA24 Carmarthen Bay and Estuaries MCA27 Glamorgan Coastal Waters and Nash Sand MCA26 Swansea Bay and Porthcawl MCA28 Bristol Channel	Out	Out	Distance of greater than 10km from the FLOW EIA Scoping Boundary excluding off-site compensation sites results in no significant effects being anticipated on the marine character of this area.
SCA7 Pwlldu Head to Mumbles HeadSCA8 Swansea Bay – West SCA10 Neath Estuary SCA11 Margam to Porthcawl SCA12 Porthcawl SCA16 Mid Swansea Bay	Out	Out	The proximity of these SCA to the FLOW EIA Scoping Boundary excluding off-site compensation sites results is such that no significant effects being anticipated on the seascape character of this area.
Visual receptors (viewpoints 22, 24b, 26, 27 and 28) (refer to **Appendix K** and Figure 21.2 in **Appendix A**)	Out	Out	The nature of the proposed 'off-site' habitat creation works at Kenfig Marshalling Yard and Jersey Marine would not typically be the subject of an EIA and the proximity of these sites to the Port is such that no significant visual effects (either adverse or beneficial) are anticipated.

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22 Major Accidents and Disasters

22.1 Introduction

22.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential major accidents and disaster effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed, and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

22.1.2 A major accident is an event that threatens human health and/or the environment, caused by disasters from both man-made and natural hazards.

22.1.3 The scale of the event is such that it is likely to require the use of resources beyond those of the client, or its appointed representative, and/or result in destruction of an environmental receptor which cannot be restored through minor clean-up and restoration (IEMA, 2020).

22.1.4 Major accidents and disasters should be considered as part of an assessment where:

- the Project itself is a source of hazard;
- interaction with external hazards may make the Project vulnerable; and
- potential for the Project to increase the risk to an environmental receptor, if an accident or disaster occurred.

22.1.5 This environmental topic relates to both terrestrial and marine aspects of the Project.

22.1.6 The approach to the scoping exercise is set out in Section 5.3 of Chapter 5 – Approach to Assessment.

22.1.7 The assessment presented in this Chapter has considered the findings of other key studies and sensitive environmental receptors at risk of significant effect. The other key studies are reported in:

- Chapter 8 – Flood Risk;
- Chapter 9 – Freshwater Environment;
- Chapter 10 – Terrestrial Historic Environment;
- Chapter 11 – Land Quality and Hydrogeology;
- Chapter 12 – Onshore Traffic and Transport;
- Chapter 13 – Terrestrial and Freshwater Ecology;
- Chapter 16 – Marine Historic Environment;
- Chapter 17 – Marine Ecology;

- Chapter 19 – Navigation and Marine Transport;
- Chapter 20 – Climate Change;
- Chapter 21 – Landscape, Seascape and Visual Amenity;
- Chapter 24 – Ornithology; and
- Chapter 25 – Population and Human Health.

22.2 Legislation, Policy and Guidance

22.2.1 General policy and overarching consenting regulations in relation to the Project are detailed in **Chapter 1 – Introduction and Chapter 3 – Legislative and Policy Context.**

22.2.2 The legislation, policy, standards and guidelines considered to be relevant to the assessment of major accidents and disasters are detailed in **Table 150** below.

Table 150: Legislation, policy and guidance relevant to major accidents and disasters

Relevant legislation / policy / guidance	Relevance to assessment
The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017	An Environmental Statement (ES) must include "*A description of the expected significant adverse effects of the project and the regulated activity on the environment deriving from the vulnerability of the project and the regulated activity to risks of major accidents or disasters which are relevant to the project and the regulated activity concerned*." Schedule 3 (5). *A description of the likely significant effects of the project and the regulated activity on the environment resulting from, inter alia.* *…..* *(d)the risks to human health, cultural heritage or the environment (for example, due to accidents or disasters);* *(f)the impact of the project on climate (for example, the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change.* This legislation is relevant to the marine elements of the Project.
The Control of Major Accident Hazards (COMAH) Regulations (2015)	The requirements of the COMAH Regulations (2015) ensure evaluation of major accident and disaster risks and effective mitigation strategies to enhance the safety of the Project. The inventory of substances at the Project site would be in excess of the qualifying quantities listed in Schedule 1 of the regulations, therefore this legislation is applicable. Sections that are of relevance to major accidents and disasters include and is not limited to: • Part 2 section 5: Every operator must take all measures necessary to prevent Major Accidents and to limit their consequences for human health and the environment; • Part 2 section 6: Within a reasonable period of time prior to the start of construction of a new establishment the operator must send to the competent authority a notification containing the information set out in Part 2 Section 6; and • This regulation is relevant to the terrestrial elements of the Project.
Health and Safety at Work etc. Act (1974)	The Health and Safety Act (1974) requires employers to conduct thorough risk assessments and implement measures to mitigate the identified risks. It contains legislation that is of particular relevance to major accidents and disasters. This includes and is not limited to: Section 1: (a) securing the health, safety and welfare of persons at work;

Relevant legislation / policy / guidance	Relevance to assessment
	(b) protecting persons other than persons at work against risks to health or safety arising out of or in connection with the activities of persons at work; and (c) controlling the keeping and use of explosive or highly flammable or otherwise dangerous substances, and generally preventing the unlawful acquisition, possession, and use of such substances. This chapter incorporates these standards to ensure that proposed projects do not pose an undue risk to workers, the public, or the environment. The Health and Safety at Work Act 1974 and relevant statutory provisions provide the overarching framework in relation to the regulation of industrial health and safety. It applies to the construction, operation and maintenance of the Project and: • places general duties on, e.g. employers, people concerned with premises, manufacturers and employees. Health and Safety Regulations made under this Act contain more detailed provisions; and • provides the framework for the regulation of industrial health and safety in the UK. This Act and its supporting regulations mandate that a comprehensive risk assessment is conducted for all workplace activities, ensuring that any foreseeable risks to persons in workplaces are minimised to 'As Low As Reasonably Practicable' (ALARP). This regulation is relevant to the marine and terrestrial elements of the Project.
Construction Design and Management (CDM) Regulations (2015)	The CDM Regulations (2015) apply specific requirements for the management of health and safety during construction projects. This includes the importance of identifying, assessing, and managing risks throughout the construction project lifecycle. Likewise, this chapter requires the assessment of potential major accidents and disasters. By integrating the principles of the CDM Regulations (2015) there will be a comprehensive approach to health and safety risks, thereby protecting both people and the environment. Under the CDM Regulations (2015), designers must avoid foreseeable risks and mitigate the risk of accidents to ALARP. This regulation is relevant to the marine and terrestrial elements of the Project.
The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) (2002)	The DSEAR requires employers to control the risks to safety from fire, explosions and substances corrosive to metals, through a series of mandatory measures to remove or mitigate the risk. This regulation is relevant to the marine and terrestrial elements of the Project.
The Dangerous Substances in Harbour Areas Regulations (1987)	Section 26 (1) mandates that a harbour authority have an effective emergency plan for dealing with dangerous substances that are brought into or handled in the harbour. This regulation is relevant to the marine elements of the Project.
The Convention of International Regulations for Preventing Collisions at Sea (1972)	The Convention of International Regulations for Preventing Collisions at Sea (1972) includes 41 rules which outline best practice for marine vessels. The rules establish guidelines to prevent collisions at sea which is a significant aspect of maritime safety. In addition, planning and preparing for emergencies at sea is included in the regulation. By adhering to these rules, the risk of major accidents involving vessels is minimized. This regulation is relevant to the marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
International Convention for the Prevention of Pollution from Ships (2019)	This is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The conventions regulations ensure that ships operate in a manner that minimises the risk of different pollution. In addition, including provisions for managing accidents such as oil spills, noxious liquid substances and then mitigating the subsequent environmental damage. This regulation is relevant to the marine elements of the Project.
Port Security Regulations 2009	These regulations implement Directive 2005/65/EC, which aims to enhance port security across the EU. They require ports to conduct security assessments, develop security plans, and appoint Port Security Authorities. This regulation is relevant to the marine elements of the Project.
Port and Marine Facilities Safety Code 2025	The code sets out a national standard for port and marine facility safety. In addition, it defines the role of the Duty Holder and designated Person, clarifies responsibility between organisations and holds to account. organisations for safe and effective management.
Ship and Port Facility (Security) Regulations 2004	These regulations implement the International Ship and Port Facility Security (ISPS) Code, which sets out measures to enhance the security of ships and port facilities. They require the development of security plans and the appointment of security officers. The Ship and Port Security (Amendment etc.) (EU Exit) Regulations 2019 amend existing security regulations to ensure they remain effective following the UK's exit from the EU. This regulation is relevant to the marine elements of the Project.
Environment (Wales) Act 2016	The Environment (Wales) Act 2016 sets out the requirement to sustainably manage the natural resources in Wales together with new ways of work to achieve this. Part 1 sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Environment (Wales) Act 2016. This legislation is relevant to the marine and terrestrial elements of the Project.
Civil Contingencies Act 2004	The Civil Contingencies Act 2004 sets out a framework for emergency preparedness in the UK. The Act defines what an emergency is, facilitates effective multi-agency working at the local level, and provides emergency powers that allow the government to react quickly and make temporary special legislation in the most serious of emergencies. This legislation is relevant to the marine and terrestrial elements of the Project.
Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998, SI1998 No. 1056	Entered into effect on 15 May 1998 setting out the Harbour Authority statutory responsibilities in relation to responding to oil pollution within the harbour area.

Relevant legislation / policy / guidance	Relevance to assessment
United Kingdom Marine Policy Statement (HMGovernment, 2011)	The UK Marine Policy Statement (MPS) is the framework for preparing marine plans and taking decisions affecting the marine environment. The MPS emphasizes the importance of identifying and managing risks associated with marine activities. This includes preparing for and responding to accidents to minimize environmental damage. This policy is relevant to the marine elements of the Project.
National Policy	
Welsh National Marine Plan (Welsh Government, 2019)	The Welsh National Marine Plan (2019) was prepared and adopted under the Marine and Coastal Access Act 2009 and in accordance with the UK MPS. It contains marine plan policies that are of particular relevance to major accidents and disasters. This includes and is not limited to: • **Policy SAF_01a and b:** Safeguarding policies that seek to minimise negative impacts on shipping activity, ensure freedom of navigation and navigational safety which are provided under international law, and protect the efficiency and resilience of continuing port operations, including their economic interests; • **Policy SOC_03:** Relates to marine pollution incidents stating that development proposals should demonstrate how they minimise their risk of causing or contributing to marine pollution incidents; • **Policy S0C_08:** Resilience to coastal change and Flooding: developments and activities should appropriately assess the risk of coastal change and flooding over the lifetime of the project and, where appropriate, include measures to address this risk and increase their resilience to coastal change; and • **Policy S0C_09:** Effects on coastal change and flooding: aims to ensure that proposed activities will not have significant adverse impacts on coastal processes and will not result in an increased risk of coastal change and flooding. This policy also encourages proposals that take account of relevant plans and policies in order to achieve this. This policy is relevant to the marine elements of the Project.
Future Wales: The National Plan 2040	The national development framework for Wales. It includes Policy 8 Flooding which may be relevant to the scope of this assessment.
Planning Policy Wales 12 (Welsh Government, 2024)	The Planning Policy Wales (2024) sets out current land use planning for Wales. It provides the policy framework for the effective preparation of local planning authorities' development plans. PPW emphasizes the importance of identifying and managing risks associated with development projects. This policy is relevant to the marine and terrestrial elements of the Project.
Wales Resilience Framework (Welsh Government, 2025)	The Wales Resilience Framework sets out the Welsh Government's vision to strengthen Wales' resilience and preparedness to anticipate disruptive events, minimise adverse impacts and respond effectively.

Relevant legislation / policy / guidance	Relevance to assessment
Local Policy	
NPTC Environment Strategy 2008-2026 (NPTCBC, 2008)	The Neath Port Talbot County Borough Council (NPTC) Environment Strategy provides the framework to achieve an environment that is clean, healthy, and thriving, has improving economic prosperity, and is valued by the residents, businesses, and visitors of the County Borough. It outlines key areas that relate to major accidents and disasters including emphasising the importance of identifying and managing environmental risks as well as promoting sustainable development practices to reduce the likelihood of environmental hazards. Most notably the consideration of the planning process, which ensures that the consequences of flooding and other hazards are addressed. In addition, the Local Development Plan (LDP) has commenced, which will be relevant to the Project once adopted. This policy is relevant to the marine and terrestrial elements of the Project.
NPTC Replacement Local Development Plan 2023-2038 (NPTCBC, 2023)	Neath Port Talbot County Borough Council (NPTC) is currently in the process of developing a Replacement Local Development Plan which will replace their existing Local Development Plan. This plan will be relevant to the Project once adopted and relevant to the terrestrial and marine elements of the Project. Emerging policies within the Preferred Strategy (December 2024) of relevance are: • SP2 Climate Change; and • SP18 Environmental Protection. These policies are relevant to the marine and terrestrial elements of the Project.
Guidance and Standards	
Major Accidents and Disasters in EIA: A Primer (IEMA, 2020)	This document was produced in September 2020 and contains definitions of key terms and provides guidance on an assessment methodology to EIA practitioners, through screening, scoping and assessment stages. This guidance is relevant to the marine and terrestrial elements of the Project.
The Ports and Marine Facilities Safety Code (Department for Transport, Maritime & Coastguard Agency, 2025)	This code sets out a national standard for port and marine facility safety in the UK. It applies to all harbour authorities and other marine facilities, berths, and terminals. While the PMSC itself is not legally binding, it references existing legal duties and powers. Key measures outlined in the code include: • Organisations must comply with any statutory duties and responsibilities; • Organisations must ensure that risks are formally assessed and are eliminated or reduced to the lowest possible level; • Organisations must operate an effective Marine Safety Management System; • Organisations must use people who are appropriately trained, qualified and experienced to manage marine and navigation safety. This guidance is relevant to the marine elements of the Project.
National Occupational Standards (NOS) (Port Skills & Safety (PSS), 2024)	These standards detail the competencies required of port operatives, ensuring that they are trained and qualified to perform their roles safely. This guidance is relevant to the marine elements of the Project.

22.3 Engagement and Consultation

22.3.1 The general Project engagement and consultation undertaken to date and the proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement.**

22.4 Study Area

22.4.1 There is no regulatory guidance or standardised methodology for the assessment of Major Accidents and Disasters within EIA. The Project extents, as described in **Chapter 2 – Description of Development**, have been considered in the development of the study area. It is recognised that the consequences of major accidents could extend beyond the immediate vicinity of the Project.

22.4.2 The study area encompasses a 2km buffer around the Port, Jersey Marine Site and Kenfig Marshaling Yard Site. This is illustrated in Figure 22.1 in **Appendix A**. The study area includes landside and marine areas and considers the potential extent that the consequences of major accidents could extend beyond.

22.4.3 The study area takes into consideration potential receptors from the study areas within the Chapters referenced in Paragraph 22.1.7.

22.4.4 The study area includes where construction and operation and maintenance would take place, major hazard sites, existing above and below ground utilities, existing transport infrastructure and including any public safety and safeguarding zones related to other infrastructure.

22.5 Description of the Existing Environment

22.5.1 The landside receptors are:

- population and human health (including members of the public; people within the operational areas of the Project; users of landside transport; and nearby workers in other facilities and businesses);
- land and soil;
- water;
- air and climate;
- biodiversity (including ecological receptors including protected habitats and species); and
- material assets, cultural heritage and landscape (including designated and non-designated heritage assets).

22.5.2 The marine receptors are:

- population and human health (including members of the public; people within the marine operational areas of the Project; users of marine transport and navigation; and nearby workers in other facilities and businesses using the marine environment);
- marine waterbodies and seabed/marine sediments;

- air and climate;
- biodiversity (including marine and intertidal ecological receptors including protected habitats and species); and
- material assets, cultural heritage and seascape (including designated and non-designated heritage assets).

Data Sources

22.5.3 Preliminary baseline information to inform the scoping exercise was gathered from sources indicated in **Table 151.**

Table 151: Data sources

Data type	Data Source
Land uses	Esri World Imagery
Seismic activity	British Geological Survey (BGS) (British Geological Survey, 2024)
Population data	Office of National Statistics (2024)
Information relating to the likelihood and potential impact of a broad range of risks that may directly affect the UK and its interests	National Risk Register (NRR) (HM Government, 2025)
Information related to local risk potential and types	Local Risk Register (Neath Port Talbot County Borough Council and City and County of Swansea, 2024)
Location of the Control of Major Accident Hazards (COMAH) sites	COMAH 2015 Public Information Search (Health and Safety Executive, 2015)
Location of coal mine reporting areas and positions of high risk development areas	Mining Remediation Authority Map Viewer ((Mining Remediation Authority, 2024)

22.5.4 **Table 152** lists the topic chapters that include baseline information on natural features and protected areas relevant to major accidents and disasters.

Table 152: Chapters relevant to Major Accidents and Disasters

Major Accidents and Disaster Baseline	Relevant Chapter
Water Resources	Chapter 8 – Flood Risk Chapter 9 – Freshwater Environment
People, property and material assets (including heritage assets and landscape)	Chapter 10 – Terrestrial Historic Environment Chapter 16 – Marine Historic Environment Chapter 21 – Landscape, Seascape and Visual Amenity Chapter 25 – Population and Human Health
Air, land and soil	Chapter 6 – Air Quality Chapter 11 – Land Quality and Hydrogeology
Ecological receptors including protected habitats and species	Chapter 13 – Terrestrial and Freshwater Ecology Chapter 17 – Marine Ecology Chapter 24 – Ornithology
Navigation, Traffic and Transport	Chapter 12 – Onshore Traffic and Transport Chapter 19 – Navigation and Marine Transport
Climate effect on disasters	Chapter 20 – Climate Change

Baseline Conditions

22.5.5 To identify credible major accident and disaster scenarios, the geographical location of the Project is considered. The baseline data review seeks to identify potential major hazards that could generate a major accident through potential linkages with the Project, and the main risk themes and types of risk at a national and regional level. These risks are considered when assessing the likelihood of the Project causing or increasing the likelihood of a major accident.

22.5.6 The baseline for major accidents and disasters considers:

- nearby sites with the potential to cause major accidents, including COMAH sites;
- proximity to existing major transport infrastructure;
- nearby locations that are susceptible to major accidents and disasters or natural occurrences with potential to cause disasters, including land formations, localised weather patterns (for example known strong wind events or fog hollows, and areas with susceptibility to flooding); and
- other receptors identified in other environmental chapters (see paragraph 22.5.1 for list of receptors).

Potential major accident sites

22.5.7 The Project location is in an area which has historically and is currently being used for industrial purposes. Further information relating to the Project location and land use can be found in **Chapter 2 – Description of Development, Chapter 11 – Land Quality and Hydrogeology, Chapter 10 – Terrestrial Historic Environment**, and **Chapter 16 – Marine Historic Environment.**

22.5.8 There are two facilities which classify as COMAH sites which are located within the study area (see Figure 22.1 in **Appendix A**). They are classified as COMAH sites as they have operations that fall under the COMAH Regulations (2015) and could be a potential source of a major accident or disaster. The two COMAH sites are:

- British Oxygen Company Works, British Oxygen Company Limited, Margam, SA13 2NS (1.50km from Kenfig Marshalling Yard EIA Scoping Boundary); and
- Tata Steelworks, Tata Steel UK Limited, SA13 2NG (1.78km from Future Port Talbot EIA Scoping Boundary).

22.5.9 The existing Tata Steelworks is classified as an upper tier establishment and is currently the closest source of a potential major accident/disaster. Historic data records indicate that the principal dangerous substances associated with the establishment include flammable liquids and gases; substances hazardous to the aquatic environment; and toxic substances. Currently, the South side of the Port estate including the iron ore jetty falls within the COMAH regulated areas, Associated British Ports (ABP) and

their agents/customers agree to adhere to the COMAH rules and regulations.

22.5.10 Each of the establishments identified are obliged to prepare a Major Accident Prevention Policy (MAPP) under the COMAH Regulations. This applies to both Lower and Upper tier establishments. Upper Tier establishments are also obliged to prepare a Safety Report and submit a copy of same to the Health and Safety Executive (HSE).

22.5.11 The occurrence of a major emission, fire or explosion resulting from a COMAH establishment has the potential to give rise to a major accident or disaster, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances.

Historic land use

22.5.12 The Jersey Marine Site is a currently undeveloped area land which was historically used as a copper works (see **Chapter 2 – Project Description**) and Kenfig Marshalling Yard Site is an area of former rail sidings.

22.5.13 Data Map Wales (Llywodraeth Cymru Welsh Government, 2024) indicates there are no historic landfills within the Project extent or within 500m of the EIA Scoping Boundary.

22.5.14 The regional unexploded ordnance (UXO) mapping and reporting shown in **Appendix B** and **Appendix G** identifies where there are areas with low, medium, and high risk of UXO. The risk of a potential UXO detonation, if UXO coincides with planned project activities or infrastructure, needs to be carefully managed in order to prevent unplanned UXO detonations.

Existing transport infrastructure

22.5.15 In consideration of major infrastructure within the study area, the closest airport is Swansea Airport, approximately 17km west of the EIA Scoping Boundary. The EIA Scoping Boundary is not identified as being wholly or partially within an aviation safeguarding zone.

22.5.16 Roads within the Strategic Road Network (SRN) present in the study area include the M4, A48, and A4241. These roads have an orientation of north-west to south-east.

22.5.17 The existing major railway corridors include the Port Talbot Parkway, north of the EIA Scoping Boundary. The railway track-line has an orientation of north-west to south-east.

22.5.18 Along the western edge of the Kenfig Marshalling Yard Site is Public Right of Way (PRoW) 5/93.PT/1, 5/93.PT/2 and 5/WCP/1. At its northern end, PRoW 5/93.PT/1 connects into Heolcae'r-Bont. At the southern end of Kenfig Marshalling Yard Site is PRoW 5/93.PT/2 which connects into the private road leading to and from the Kenfig Industrial Estate.

22.5.19 There are no PRoW or other active travel facilities within the Port and the Jersey Marine Site.

22.5.20 Information on transport infrastructure in proximity of the EIA Scoping boundary can be found in **Chapter 20 – Onshore Traffic and Transport**.

22.5.21 The Port is an operational asset comprising the inner Impounded Dock and the Tidal Harbour as well as the port limits. The harbour limits of Port Talbot extend into Swansea Bay and are under the jurisdiction of ABP as statutory harbour authority (SHA).

22.5.22 Information on commercial and recreational maritime transport infrastructure in proximity of the EIA Scoping boundary can be found in Section 19.1 of **Chapter 19 – Navigation and Marine Transport**.

Ground conditions

22.5.23 The UK experiences very low levels of seismic activity and there are no significant seismic events recorded by the BGS for Port Talbot (British Geological Survey, 2024). The nearest seismic monitoring location is in Monmouthshire, approximately 70km north-east of the EIA Scoping Boundary (British Geological Survey, 2024).

22.5.24 A review of the Mining Remediation Authority Map Viewer, Planning, (Mining Remediation Authority, 2024) indicates that the EIA Scoping boundary is within a coal mine reporting area, that there are no high risk development areas within the Port or Kenfig Marshalling Yard Site but that the southern part of the Jersey Marine Site does interact with a high risk development area. This site also is shown to contain old shaft and adits.

22.5.25 Information on ground conditions, geological resources, groundwater quality and land contamination can be found in **Chapter 11 – Land Quality and Hydrogeology.**

Climatic and weather conditions

22.5.26 The Project is considered likely to be at risk from flooding from a number of sources, including fluvial, tidal, surface water, artificial waterbodies (including reservoirs and canals), groundwater and sewers to varying degrees. Tidal and fluvial flooding is typically the most dominant source of flood risk to the Project.

22.5.27 Further information is included within the detailed flood risk assessment referenced in **Chapter 8 – Flood Risk**.

22.5.28 As a tidal harbour, Swansea Bay experiences tidal surges formed by strong winds and rapid changes in atmospheric pressure. During winter, any surges can have a significant effect on tidal levels. Further information is included within **Chapter 14 – Coastal Processes.**

22.5.29 Wales has a maritime climate characterised by cloudy, wet and windy weather conditions, whilst remaining relatively mild (Met Office, 2024). Further information relating to climatic conditions is included in **Chapter 20 – Climate Change.**

Resources and receptors

22.5.30 The resources and receptors potentially impacted by a major accident, or from an event which occurs as a result of the vulnerability of the Project, are also identified from the baseline review.

22.5.31 The borough of Neath Port Talbot covers a large area of land around the Project, including other residential areas such as Margam, Taibach, and Baglan. The nearest town is Neath, located approximately 250m north-west of Port Talbot Docks, with a population of approximately 142,300 in 2021 (Office for National Statistics, 2022).

22.5.32 There are a number of protected statutory designated sites present within close proximity of the Project. Further detail can be found in **Chapter 13 – Terrestrial and Freshwater Ecology** and **Chapter 17 – Marine Ecology**. Notably these include:

- Kenfig Special Area of Conservation (SAC), National Nature Reserve (NNR) and Local Nature Reserve (LNR) - located approximately 4.2km south-east;
- Margam Moors Site of Special Scientific Interest (SSSI) - located approximately 3km south-east;
- Eglwys Nunydd Reservoir (SSSI) – located approximately 3.5 km south-east;
- Crymlyn Burrows (SSSI) – located approximately 4.4km north-west; and
- Earlswood Road Cutting and Ferryboat Inn Quarries (SSSI) – located approximately 5km north.

22.5.33 Receptors relating to marine navigation and transport include the marine environment, commercial and recreational operators, marine asset owners, and people in authorities responsible for marine safety and navigation. Further information can be found in **Chapter 19 – Navigation and Marine Transport.**

22.5.34 Receptors relating to onshore transport include road users, pedestrians and cyclists. Further information can be found in **Chapter 20 – Onshore Traffic and Transport.**

22.5.35 There are also a number of ornithology resources and receptors which include statutory designated sites, statutory non-designated sites and protected and notable bird species which can be found in **Chapter 24 – Ornithology.**

22.5.36 There are listed buildings and scheduled monuments within the EIA Scoping Boundary. Further information is included within the detailed historic assessment referenced in **Chapter 10 – Terrestrial Historic Environment** and **Chapter 16 – Marine Historic Environment.**

22.5.37 Information on people and the impact of atmospheric environment on human health can be found in **Chapter 6 – Air Quality** and **Chapter 25 – Population and Human Health.**

22.5.38 The Project is situated within a National Landscape Character Area 38 Swansea Bay and within Local Landscape Character Area 50 Port Talbot Docks & Margam works and Local Landscape Character Area 52 Margam Sands/Aberavon Sands. Furthermore, Marine Character Areas are designated marine geographic areas around the Welsh coastline. Further information can be found in **Chapter 21 – Landscape, Seascape and Visual Amenity.**

Future Baseline

22.5.39 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Major Accidents and Disasters Chapter of the ES would seek to explain what the environmental change, in terms of Major Accidents and Disasters, would likely be in the future if the Project were not to go ahead.

22.5.40 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence.

22.5.41 The approach to establishing the future baseline for Major Accidents and Disasters is identifying where potential developments present new environmental receptors or a change to the current baseline specific to Major Accidents and Disasters.

22.6 Potential Risk Resulting in Major Accident or Disaster

Screening

22.6.1 A screening exercise has been completed to define a long list of hazards that could reasonably occur as a direct result of the Project, and/or an indirect interaction between the Project and an external hazard (**Appendix M**).

22.6.2 The screening long list has been informed by the National Risk Register (NRR) (HM Government, 2025) and the Local Risk Register (Neath Port Talbot County Borough Council and City and County of Swansea, 2024).

22.6.3 Key considerations include:

- whether the Project itself is a source of hazard;
- interaction with external hazards that could make the Project vulnerable; and
- potential for the Project to increase risks to environmental receptors if an accident or disaster occurs.

22.6.4 If vulnerabilities are identified, they must be addressed through design measures, legal requirements, and good practices.

22.6.5 For each hazard, consideration was given to likely receptors identified within the EIA process, namely population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and

landscape. These hazards and receptors together are described as risk events. Risk events were screened out where:

- there is no source-pathway-receptor linkage;
- the receptor is not within the scope of the EIA;
- the consequence does not meet the criteria of significant environmental effect; or
- the consequence and likelihood of the risk is high to the extent that the proposed development would not be able to go ahead.

22.6.6 The risk events that were screened in for further consideration were:

- pandemic similar to COVID-19;
- heatwave;
- inland flood;
- coastal flood;
- storms;
- major industrial accident (landside and marine);
- terrorist attack;
- major protest event;
- major maritime pollution incident;
- incident of a vessel blocking a major port; and
- major marine vessel collision.

Scoping

22.6.7 The short list of risk events was then assessed, to consider the potential for likely significant effects. This assessment assumes that relevant embedded (primary) measures, and good practice (tertiary) measures are in place before assessing the effects.

22.7 Mitigation Measures

22.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for Major Accidents and Disasters will be identified as the Project progresses and for those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

22.7.2 This section sets out the potential controls relevant to Major Accidents and Disasters, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures (primary embedded measures)

22.7.3 General embedded (primary mitigation) measures which may be incorporated into the Project design of the landside and permanent marine infrastructure (quayside and reclaimed land) are likely to include:

- design that is compliant with relevant design standards and good practices to ensure structural integrity and safety. The main 'codes' as such are the BS6349 (maritime works) suite Parts 1 to 7 and the Eurocode suite as applicable to the structures being designed;
- upgrading and addition of new water and electrical utilities infrastructure to handle increased loads and new operational demands;
- inclusion of surface water drainage containment systems in areas where activities have the potential for accidental and fugitive emissions. System to include secondary and tertiary containment systems to manage spills, run-off and prevent environmental contamination;
- adaptive flood defences and water management systems that accommodate current and future climate scenarios;
- use of real-time monitoring technologies to detect and respond to structural, mechanical, or digital vulnerabilities swiftly;
- installation of fire detection and suppression systems; and
- perimeter boundary security that accords with the Port Marine Safety Code (PMSC) (Associated British Ports, 2024).

22.7.4 Embedded (primary mitigation) measures relevant to marine navigation are set out within **Chapter 19 – Marine Transport and Navigation**.

22.7.5 Embedded (primary mitigation) measures relevant to onshore traffic and transport are set out within **Chapter 20 – Onshore Traffic and Transport**.

22.7.6 Embedded (primary mitigation) measures relevant to onshore flood risk are set out within **Chapter 8 – Flood Risk**.

22.7.7 Embedded (primary mitigation) measures relevant to marine water quality are set out within **Chapter 18 – Marine Water Quality and Sediment Quality**.

Tertiary measures

22.7.8 There are a range of best practice actions that will be undertaken to meet existing legislative requirements, during both construction and the operation and management of the Project.

22.7.9 It is noted that as the statutory harbour authority (SHA) for the Port, the Port Marine Safety Code (PMSC) by the Department for Transport (DfT), and endorsed by the devolved administrations, applies to ABP as well as to all statutory harbour authorities and other marine facilities, berths and terminals in the UK. Part 2 of the Code contents sets out key measures to secure marine safety. This includes the completion of formal risk assessments and, in turn, formulation and implementation of a marine

safety management system (MSMS) in order to keep risk as low as reasonably practicable (ALARP).

22.7.10 Under the Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998, the Harbour Authority has prepared an Oil Spill Continency Plan setting out approaches for responding to oil pollution within the harbour area.

22.7.11 During both construction and operation and maintenance of the Project, tertiary mitigation measures are likely to include:

- development and updating of comprehensive emergency response plans in consultation with local emergency services and adjacent COMAH facilities;
- development of preparedness and response strategies for public health emergencies, including labour management and safety protocol adaptations;
- development of, or review and update, an oil spill contingency plan that sets in motion the necessary actions to stop or minimise any discharge and to mitigate its effects;
- review and use of the existing risk management framework, incorporating regular audits and updates to ensure continuous improvement and adherence to safety standards; and
- application of rigorous health and safety protocols, especially concerning industrial hazards and public health risks.

22.7.12 More detail on tertiary mitigation measures is provided in the following Chapters:

- measures relevant to onshore flood risk are set out within Section 8.7 **Chapter 8 – Flood Risk**;
- measures relevant to marine navigation are set out within Section 19.7 **Chapter 19 – Marine Transport and Navigation**;
- measures relevant to onshore traffic and transport are set out within Section 20.7 in **Chapter 20 – Onshore Traffic and Transport**; and
- measures relevant to marine water quality are set out within Section 18.7 **Chapter 18 – Marine Water Quality and Sediment Quality**.

Evidencing mitigation in the ES

22.7.13 The Project Description chapter within the ES should include a risk assessment to identify risks associated with the construction and operation and maintenance of the Project, with the embedded design features and management controls to demonstrate that risks are mitigated, and the resulting outcome aligned with the principle of being ALARP.

Construction Controls

22.7.14 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) which may be incorporated into the Project at the construction phase are included in **Table 153**.

22.7.15 These measures and techniques would be secured through approved management plans where applicable.

Table 153: Mitigation measures relevant to the construction of the Project

Risk Event	Mitigation measures
Landside and marine activities	
Pandemic similar to COVID-19	• updates to risk assessments and plans covering preparedness and responses for public health emergencies, including labour management and safety protocol adaptations to accord with UK Government advice, to include measures such as social distancing, limiting movement to/from the Project measures to restrict close contact working during construction and/or additional biosecurity (i.e., testing, wearing masks).
Climatic – heat / storm/ high winds / flood	• inclusion of temporary welfare areas for workforce with heating / cooling • provision of safe dry access and egress points • updates to risk assessments and management plans covering preparedness and responses for in relation to extreme weather events to include measures such as: ○ works protocols during high heat events, ○ lift protocols to stop works during high wind speeds ○ securing of equipment and moving of equipment to higher ground when storm events and storm surges are predicted ○ workforce training and induction to cover actions required in the event of a number of emergency incidents, including flood risk; such as warning sirens and escape routes in the event of a site evacuation. No workers would be allowed on site unless they have undergone such an induction
Major industrial accident	• vulnerable to incident from adjacent facility; • operators of COMAH installations are required to demonstrate within a Safety Report, submitted pursuant to the COMAH Regulations (2015), that the risks associated with the facility have been comprehensively assessed and a conclusion has been reached on the tolerability of risk, including the sufficiency of measures to ensure risk is reduced to ALARP; • updates to risk assessments and management plans covering preparedness and responses to include measures that accord with approved Safety Plans of COMAH facilities; • emergency response training and drills; • provision of safety and pollution response equipment; • design includes fire suppression where required; • segregated drainage systems with containment if required; • vulnerability of the Project to result in an incident; • fire and explosion risks associated with the construction phase will be manged through measures to be compliant with the Health Safety at Work etc Act 1974, CDM Regulations, DSEAR; • emergency response and fire safety training and drills; • provision of safety and pollution response equipment; • design includes fire suppression where required; • segregated drainage systems with containment if required; and • compliance to the regional emergency plan prepared in accordance with the requirements of S.26(1) of “The Dangerous Substances in Harbour Areas Regulations 1987” including any required updates to the South Wales Regional Port Emergency Plan.

Risk Event	Mitigation measures
Landside and marine activities	
Pandemic similar to COVID-19	• updates to risk assessments and plans covering preparedness and responses for public health emergencies, including labour management and safety protocol adaptations to accord with UK Government advice, to include measures such as social distancing, limiting movement to/from the Project measures to restrict close contact working during construction and/or additional biosecurity (i.e., testing, wearing masks).
Terrorist attacks Major protest event	• maintain existing physical site security; • monitoring of government advice; • continued compliance to existing Port security plans, as applicable; and • the Port protected by existing security features (such as perimeter fencing, control access and closed circuit tv (CCTV) surveillance) with security philosophy developed and documented in a Security Strategy to be included within the Application.
Marine activities	
Marine accident	• vulnerability of the Project to result in an incident - vessel collision and grounding related; • navigation safety and vessel management plans approved by the harbour master covering measures such as but not limited to temporary navigation marks, construction safety zones, use of guard vessels, and notice to mariners procedures.

	• disturbance of UXO in Project area (marine);
	• risk assessment to inform measures and if needed:
	  ○ completion of UXO pre-construction surveys to identify any potential hazards within the array site and export cable corridor
	  ○ UXO specific Emergency Response plans for vessels involved in intrusive

	• floating WTG breaking free of moorings; • Maritime and Coastguard Agency require under their Regulatory Expectations on Moorings for Floating Wind and Marine Devices (Maritime and Coastguard Agency & HSE, 2017) that developers arrange Third Party Verification (TPV) of the mooring systems by an independent and competent person / body. The Regulatory Expectations state that TPV is a “continuous activity”, and that any modifications to a system or if new information becomes available with regard to its reliability, additional TPV would be required; and • tows of WTGs to and from the deployment site (either during construction or O&M) would be mitigated by existing procedures relating to shipping and navigation the most relevant being Navigational Safety Plan; Project vessel compliance with international marine regulation; Promulgation of information and the Vessel Management Plan.
Major marine pollution incident	• the Port has an oil spill contingency plan in place which has been developed for use in the event of an operational incident. This plan will be modified where appropriate to take account of the risks during the construction phase; and • non-oil spill and major leaks responses measures such as containment, communications to other marine users to be included within operational management plans and procedures.
Vessel collision	• navigation safety and vessel management plans approved by the harbour master covering measures such as but not limited to temporary navigation marks, construction safety zones, use of guard vessels, and notice to mariners procedures; and • measures to be set out in outline Navigation management plan to be included in the application.

Operational Controls

22.7.16 Possible mitigation (including primary, secondary and tertiary mitigation) relevant to the operation and maintenance of the Project are included in **Table 154**.

Table 154: Mitigation measures relevant to operation and maintenance of the Project

Risk Event	Mitigation measures
Landside and marine activities	
Major industrial accident	• operators of COMAH installations are required to demonstrate within a Safety Report submitted pursuant to the COMAH Regulations (2015) that the risks associated with the facility have been comprehensively assessed and a conclusion has been reached on the tolerability of risk, including the sufficiency of measures to ensure risk is reduced to ALARP; • fire and explosion risks associated with the operation phase will be managed through measures to be compliant with fire safety regulations, Health Safety at Work etc Act 1974, CDM Regulations, DSEAR including but not limited to inclusion within the design of fire detection and alarm systems, fire suppression systems (subject to risk assessments), inclusion of controlled stores for substances with fire and explosion risk; • compliance to the regional emergency plan prepared in accordance with the requirements of S.26(1) of "The Dangerous Substances in Harbour Areas Regulations 1987"; and • implementation of management and operational controls including the following: ○ operation and management of the facility by experienced, qualified personnel ○ operability risk assessments carried out during design phase ○ undertaking planned preventative maintenance systems to prevent equipment defects and failures ○ inspection regimes to detect corrosion and other mechanisms which could lead to equipment defects including safety critical equipment ○ emergency planning and response procedures including regular live tests
Climatic – heat / storm/ high winds / flood	• inclusion of offices with welfare areas for workforce with heating / cooling; • designed in safe dry access and egress points; and • updates to risk assessments and plans covering preparedness and responses for in relation to extreme weather events to include measures such as: ○ works protocols with reference to high heat events ○ lift protocols to stop works during high wind speeds ○ securing of equipment and moving of equipment to higher ground when storm events and storm surges are predicted ○ workforce training and induction to cover actions required in the event of a number of emergency incidents, including flood risk; such as warning sirens and escape routes in the event of a site evacuation. No workers would be allowed on site unless they have undergone such an induction
Terrorist attacks	• works are within secure location of the existing Port which must comply with The Port Security Regulations 2009 including preparation and implementation of a Port Security Plan; • required adjustments to boundary security, CCTV and other security features part of design of the Project; • provision of security staff (supplemented if risk assessment deemed necessary); and • compliance with the Ship and Port Facility (Security) Regulations 2004.
Major protest event	

Risk Event	Mitigation measures
Landside and marine activities	
Marine activities	
Marine accident	• operators to develop coordinated plans with adjacent COMAH facilities in relation to emergency response planning and control; • Maritime and Coastguard Agency require under their Regulatory Expectations on Moorings for Floating Wind and Marine Devices (Maritime and Coastguard Agency & HSE, 2017) that developers arrange Third Party Evaluation (TPV) of the mooring systems by an independent and competent person / body. TPV is a "continuous activity", and that any modifications to a system or if new information becomes available with regard to its reliability, additional TPV would be required; and • tows of WTGs to and from the deployment site (either during construction or during O&M) would be mitigated by existing procedures relating to shipping and navigation, the most relevant being Navigational Safety Plan; Project vessel compliance with international marine regulation; Promulgation of information in a Vessel Management Plan.
Vessel collision	• navigation safety and vessel management plans approved by the harbour master covering measures such as but not limited to operational navigation marks, safety zones, use of guard vessels, and notice to mariners procedures.

22.7.17 In addition to plans already prepared in relation to ongoing Port operations (such as the National Contingency Plan for Responding to Marine Pollution Incidents (Maritime and Coastguard Agency, 2024), the South Wales Port Emergency Plan (ABP South Wales, n.d.) and the Oil Spill Contingency Plan (ABP South Wales, n.d.)), operational environmental control and protection measures will be defined in an outline operational environmental management plan (oOEMP) included as part of the application. This would include best practice measures and techniques; any specific measures identified through the EIA.

22.7.18 Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP. In relation to major accidents and disasters the types of measures within the oOEMP are expected to include but not be limited to:

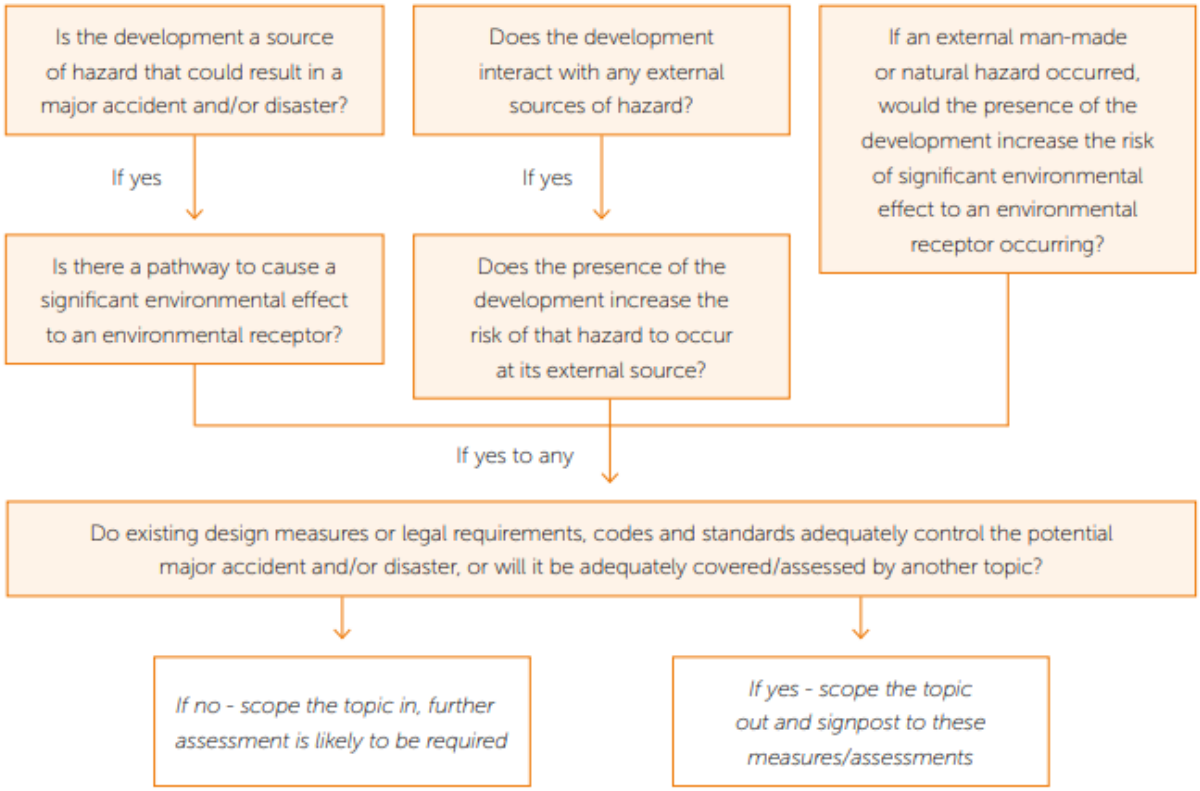
- requirement for Port security (physical security measures, surveillance, security staff);
- measures to manage biosecurity risks; and
- requirements for site audits and monitoring to ensure adherence with relevant legislation.

22.8 Potential Environmental Effects

22.8.1 This section sets out the likely significant effects of the Project in relation to the potential for major accidents.

22.8.2 It follows the method set out within the Major Accidents and Disasters in EIA: A Primer (IEMA, 2020) as illustrated in **Figure 22.1** below. It is assumed that relevant embedded (primary) measures, and good practice (tertiary) measures are in place before assessing the effects. However, it highlights relevant documents that support this, to aid transparency in the conclusions drawn.

Figure 22.1: Scoping decision methodology



Source: Figure 1 within Major Accidents and Disasters in EIA: A Primer (IEMA, 2020)

22.8.3 The potential likely significant effects for major accidents and disasters during construction, operation and maintenance are described in **Table 155**. These take into account the expected control measures set out within Section 22.7.

22.8.4 Risk events were assessed to identify the worst-case environmental impact, carried out using professional judgement and consultation with Chapter specialists.

Table 155: Likely significant Major Accidents and Disasters effects

Activity (risk event)	Effect	Receptor
Construction, operation and maintenance – landside and marine		
Pandemic similar to Covid 19	• poorly controlled outbreak on site leading to construction workers at risk of ill-health or death.	• population and human health.
Heatwaves	• acute high temperatures leading to dangerous working conditions, ill-health or death of construction workers; and • high temperatures impair normal operation of equipment including equipment critical to safety and or emissions controls resulting in emissions to air.	• population and human health; and • air.

Activity (risk event)	Effect	Receptor
Coastal floods	• coastal flooding leading to injury/ fatalities to personnel/dangerous working conditions; • coastal flooding leading to destruction of infrastructure/material assets, cultural heritage; and • coastal flooding damages operational systems within the port affecting normal operation of the port with secondary effects as a result of containment failure / electrical failure/ failure or safety critical equipment potentially leading to uncontrolled emissions to air, land and water.	• population and human health; • material assets, cultural heritage; and • land, air, water.
Storms	• storm conditions (heavy rainfall, snowfall, wind speed, hail) leading to dangerous working conditions or indirect injury/fatality from damage to structures; and • high wind events lead to dangerous condition in particular in relation to lift operations fundamental to the operational stage of the project.	• population and human health.
Major industrial accidents	• immediate injury/fatalities to construction workers on site; • irreversible destruction of flora/mortality of fauna; • secondary effect of damage to port operational equipment; • secondary effect of land, air and water pollution from leaks and spills; and • major business interruption.	• population and human health; • biodiversity; and • land, air, water.
Terrorist attacks	• immediate injury/fatalities to construction workers on site; • irreversible destruction to material assets, cultural heritage; • secondary effect of damage to port operational equipment; • secondary effect of pollution from leaks and spills; and • major business interruption.	• population and human health; • material assets, cultural heritage; • biodiversity; and • land, air, water.
Major protest event	• immediate injury/fatalities to construction workers on site.	• population and human health.
Construction, operation and maintenance – landside		
Inland floods	• inland flooding leading to injury/ fatalities to personnel/dangerous working conditions; • inland flooding leading to destruction of infrastructure/material assets, cultural heritage; • secondary effect of pollution from contaminated flood water; and • major business interruption.	• population and human health; and • material assets, cultural heritage.

Activity (risk event)	Effect	Receptor
Construction, operation and maintenance – marine		
Major marine vessel collision	• immediate injury/fatalities to construction workers on site/operators of marine vessel; • large scale spill/exposure to harmful materials, leading to irreversible destruction of flora/mortality of fauna; • large scale spill/exposure to harmful materials, leading to irreversible damage to water environment (sediment quality); and • major business interruption.	• population and human health; • biodiversity; and • water environment.

22.9 Resources and Receptors Scoped Out of Assessment

22.9.1 The effects proposed to be scoped out of the major accidents and disasters assessment are displayed in **Table** .

Table 156: Resources and receptors scoped out of assessment

Activity (risk event)	Effect	Receptor	Justification for scoping out
Construction, operation and maintenance			
Pandemic similar to Covid 19	Poorly controlled outbreak on site leading to construction workers at risk of ill-health or death.	Population and human health.	During construction the Contractor will develop construction risk assessments and method statements which include measures to manage any pandemic related outbreak, minimising potential impact to receptors to an acceptable level. During operation and maintenance, risk assessments and method statements should also be developed to manage any pandemic related outbreak, minimising potential impact to receptors to an acceptable level. As such, pandemic will not be assessed further within the ES during construction, operation and maintenance.
Heatwaves	Acute high temperatures leading to dangerous working conditions, ill-health or death of construction workers. High temperatures impair normal operation of equipment including equipment critical to safety and or emissions controls.	Population and human health Air	During construction the Contractor will develop construction risk assessments and method statements which consider the conditions in which work is safe to continue and operations are not impaired, minimising potential impact to receptors to an acceptable level. During operation and maintenance, risk assessments and method statements should also be developed which consider the conditions in which work is safe to continue and operations not impaired, minimising potential impact to receptors to an acceptable level. As such, effects associated with heatwaves are unlikely to be significant and heatwaves will not be assessed further within the ES during construction, operation and maintenance.

Activity (risk event)	Effect	Receptor	Justification for scoping out
Inland floods	Inland flooding leading to injury/ fatalities to personnel/dangerous working conditions. Inland flooding leading to destruction of infrastructure/material assets, cultural heritage. Secondary effect of pollution from contaminated flood water Major business interruption.	Population and human health Material assets, cultural heritage	This is considered in **Chapter 8 – Flood Risk.** The assessment of Flood Risk will be reported in the ES informed by a Flood Consequences Assessment (FCA) included with the Application and therefore a separate assessment is scoped out.
Coastal floods	Coastal flooding leading to injury/ fatalities to personnel/dangerous working conditions. Coastal flooding leading to destruction of infrastructure/material assets, cultural heritage. Coastal flooding damages operational systems within the Port affecting normal operation of the Port with secondary effects as a result of containment failure / electrical failure/ failure or safety critical equipment.	Population and human health Material assets, cultural heritage Land, air, water	This is considered in **Chapter 8 – Flood Risk**. The assessment of Flood Risk will be reported in the ES informed by a Flood Consequences Assessment (FCA) included with the Application and therefore a separate assessment is scoped out.
Storms	Storm conditions (heavy rainfall, snowfall, wind speed, hail) leading to dangerous working conditions or indirect injury/fatality from damage to structures. High wind events lead to dangerous condition in particular in relation to lift operations fundamental to the operational stage of the Project.	Population and human health	During construction the Contractor will develop construction risk assessments and method statements which consider the conditions in which work is safe to continue, minimising potential impact to receptors to an acceptable level. During operation and maintenance, risk assessments and method statements should also be developed which consider the conditions in which work is safe to continue, minimising potential impact to receptors to an acceptable level. Based on the above this matter will not be assessed further within the ES for either construction, or operation and maintenance.

Activity (risk event)	Effect	Receptor	Justification for scoping out
Major industrial accidents	Immediate injury/fatalities to construction workers on site. Irreversible destruction of flora/mortality of fauna. Secondary effect of damage to Port operational equipment. Secondary effect of pollution from leaks and spills. Major business interruption	Population and human health Biodiversity Land, air, water	Application of the mitigation measures outlined in **Table 153** and **Table 154** during construction and operation and maintenance is considered to reduce the likelihood of a major industrial accident occurring, and the reasonable worst case impact managed as far as practicable to an acceptable level and therefore this matter will not be assessed further within the ES for either construction, or operation and maintenance.
Major industrial accidents – WTG breaks free of mooring	Immediate injury/fatalities to construction or operational workers on site. Causes marine navigation incident with secondary effects such as marine water pollution incident	Population and human health Water environment	A WTG breaking free of its moorings is considered likely to represent a low frequency event, noting that for a total loss of station, all moorings would be required to fail. TPV process and existing guidance and marine navigational safety plans provide controls so that the risk would be ALARP. This matter will not be assessed further within the ES for either construction, or operation and maintenance.
Terrorist attacks	Immediate injury/fatalities to construction workers on site. Irreversible destruction to material assets, cultural heritage. Secondary effect of damage to Port operational equipment. Secondary effect of pollution from leaks and spills. Major business interruption.	Population and human health Material assets, cultural heritage Biodiversity Land, air, water	Application of the mitigation measures outlined in **Table 153** and **Table 154** during construction and operation and maintenance is considered to reduce the reasonable worst case impact as far as practicable to an acceptable level, and therefore this matter will not be assessed further within the ES for either construction, or operation and maintenance.
Major protest event	Immediate injury/fatalities to construction workers on site.	Population and human health	Application of the mitigation measures outlined in **Table 153** and **Table 154** during construction and operation and maintenance is considered to reduce the reasonable worst case impact as far as practicable to an acceptable level, and therefore this matter will not be assessed further within the ES for either construction, or operation and maintenance.

Activity (risk event)	Effect	Receptor	Justification for scoping out
Major marine vessel collision	Immediate injury/fatalities to construction workers on site/operators of marine vessel. Large scale spill/exposure to harmful materials, leading to irreversible destruction of flora/mortality of fauna. Large scale spill/exposure to harmful materials, leading to irreversible damage to water environment (sediment quality). Major business interruption.	Population and human health Biodiversity Water environment	Risk and controls in relation to marine navigation are covered in **Chapter 19 –** Navigation and Marine Transport. The assessment of Marine Navigation will be reported in the Marine Navigation Chapter of the ES and a separate assessment is therefore scoped out.

Cumulative Effects

22.9.2 The approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

22.10 Assumptions and Limitations

22.10.1 No modelling or detailed calculations were undertaken for scoping. The qualitative assessment considered the suitability of any existing risk assessments and the assessment of potential gaps, or residual risks, that are not considered to be managed using the ALARP principle.

22.10.2 Environmental effects associated with unplanned events that do not meet the definition of a major accident and / or disaster, such as minor leaks and spills are addressed in the relevant topic chapters.

22.10.3 Where information was not available, professional judgement was used to reach a conclusion.

22.10.4 It is assumed that good safety management principles would be applied during construction and operation and that all risks that have the potential to be major accidents or disasters, with potential to impact a local environmental receptor, would be mitigated such that they do not generate a significant effect.

22.10.5 The Project will be designed, and its operation directed, by industry standards and codes many of which are mandatory. Such codes require infrastructure and systems to be designed in order that risks to people and the environment are either mitigated or reduced to levels that are ALARP.

22.11 Summary

22.11.1 The proposed scope of the assessment for Major Accidents and Disasters is contained within **Table 157**.

Table 157: Proposed scope of the Major Accidents and Disasters chapter of the ES

Risk event	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Pandemic similar to Covid 19	Out	Out	Scoped out of the construction, operation and maintenance phases, as a pandemic is considered unlikely to result in a significant effect on construction or operational activities such that they would lead to impacts on receptors associated with the Project and will not be assessed further. The ES will signpost to the relevant controls mechanisms in relation to worker welfare.
Heatwaves	Out	Out	Scoped out of the construction, operation and maintenance phases, following application of appropriate control measures, heatwaves are considered unlikely to result in a significant effect on receptors associated with the Project and will not be assessed further within the ES. The ES will signpost to the relevant controls mechanisms in relation to extreme weather events (heatwave).
Inland floods	Out	Out	This will be assessed in **Chapter 8 – Flood Risk**, as such it is scoped out of the assessment of major accidents and disasters.
Coastal floods	Out	Out	This will be assessed in **Chapter 8 – Flood Risk**, as such it is scoped out of the assessment of major accidents and disasters.
Storms	Out	Out	This will be assessed in **Chapter 20– Climate**, as such it is scoped out of the assessment of major accidents and disasters.
Major industrial accidents	Out	Out	Scoped out of the construction, operation and maintenance phases, on the basis that there would be compliance with mandatory controls including: • coordination with adjacent COMAH sites in particular in relation to emergency response protocols as set out within the licensed operators Safety Plan; • operating in accordance with Port Safety Plan prepared in accordance with the PMSC; • operating in accordance with Oil Spill Contingency Plan; • operating in accordance with Emergency Preparedness Plan; • operating in accordance with Navigational Safety Plans; and • operations in accordance with specific codes and regulations pertaining to design and movement of wind turbines.

Risk event	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
			As major industrial accidents are managed by existing control measures developed to accord with existing regulations and standards this will not be assessed further. The ES will signpost to the relevant controls mechanisms in relation to major accidents and disasters.
Terrorist attacks	Out	Out	Scoped out of the construction, operation and maintenance phases, on the basis that there would be compliance with mandatory controls including: • operating in accordance with Port Safety Plan prepared in accordance with the PMSC. As the risks of malicious attacks are managed by existing control measures developed to accord with existing regulations and standards this will not be assessed further. The ES will signpost to the relevant controls mechanisms in relation to malicious attacks.
Major protest event	Out	Out	Scoped out of the construction, operation and maintenance phases, on the basis that there would be compliance with mandatory controls including: • coordination with adjacent COMAH sites in particular in relation to emergency response protocols as set out within the licensed operators Safety Plan; • operating in accordance with Port Safety Plan prepared in accordance with the PMSC; and • operating in accordance with Oil Spill Contingency Plan. As the risks of malicious attacks are managed by existing control measures developed to accord with existing regulations and standards this will not be assessed further. The ES will signpost to the relevant controls mechanisms in relation to malicious attacks or unrest.
Major marine vessel collision	Out	Out	This will be assessed in **Chapter 19 – Navigation and Marine Transport**, as such it is scoped out of the assessment of major accidents and disasters.

22.11.2 On the basis that the potential for likely significant effects arising from Major Accidents and Disasters can be scoped out from further assessment this Scoping Chapter does not include for the consideration of a Proposed Assessment Methodology.

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23 Materials and Waste

23.1 Introduction

23.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential effects on the availability of materials and their use and waste management in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

23.1.2 The effects of the Project on the following are considered:

- materials – reduction in the availability of materials, depletion of non-renewable resources, sterilisation of Mineral Safeguarding Areas (MSAs); and
- waste – temporary occupation of waste management infrastructure capacity (from treatment or for further transfer), permanent reduction in landfill void capacity (from disposal of waste).

23.1.3 This environmental topic relates to both terrestrial and marine aspects of the Project.

23.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

23.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 11 – Land Quality and Hydrogeology** and **Chapter 13 – Terrestrial and Freshwater Ecology**.

23.2 Legislation, Policy and Guidance Position

23.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of materials and waste are detailed in **Table 158**. Each item listed is applicable to both the terrestrial and marine elements of the Project.

23.2.2 For legislation, policy, standards and guidelines that are relevant to the assessment of different environmental topics of the Project, refer to **Chapter 3 – Policy and Guidelines**. The overarching European Directives and UK legislation that are applicable to the assessment of use of materials and waste generation and management have been considered. Whilst it is acknowledged that the UK has left the European Union (EU) (UK Government) it should be noted that existing legislation which transpose these Directives remains in force as Assimilated Law (Department for Business and Trade, 2024).

Table 158: Legislation, policy and guidance relevant to the materials and waste assessment

Relevant legislation/policy/ guidance	Relevance to assessment
Assimilated law	
Waste Framework Directive (2008/98/EC)	The Waste Framework Directive has been transposed into UK Legislation as Assimilated Law (The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020). It is relevant to the Project as it requires that waste is managed without endangering human health and harming the environment. The Project will be designed to adhere to the waste hierarchy, principles, targets, and requirements for sustainable and compliant waste management practices.
Landfill Directive (1999/31/EC)	The Landfill Directive has been transposed in the Environmental Permitting (England and Wales) Regulation 2016. The Landfill Directive aims to prevent, or reduce as far as possible, negative effects on the environment from the landfilling of waste. This assessment has considered disposal to landfill as the last option for waste management, prioritising the higher up options of the waste hierarchy.
Legislation	
The Environment (Wales) Act 2016	The Environment (Wales) Act 2016 mandates the separate collection of waste, prohibits the disposal of food waste to sewers and regulates waste incineration. The waste management practices during construction, operation and maintenance of the Project should comply with the Environment (Wales) Act 2016.
Waste (Wales) Measure Act 2010	The Waste (Wales) Measure Act 2010 aims to improve waste management and reduce waste in Wales. The Waste (Wales) Measure Act 2010 is applicable to the Project to ensure that all the Project activities should adhere to reduce the amount of waste and litter in Wales and adopt a more effective and sustainable approach to waste management arrangements.
The Environment Act 2021	The Environment Act 2021 (Commencement No 1 and Saving Provision (Wales) Regulation 2022): Specific provisions of the Act have been brought into force in Wales through regulations made by the Welsh Ministers ie sections related to producer responsibility obligations, management of hazardous waste in Wales. The scoping assessment for the Project has adhered to the plans and requirements of the Environment Act 2021, including separation of recyclable waste from residual waste, and appropriate management of hazardous waste (if any arises).
The Environmental Protection Act 1990 (as amended)	The Environmental Protection Act (1990) as amended defines the fundamental structure and authority for waste management and control of emissions into the environment. The assessment in this Chapter has considered the EPA 1990 definition of waste and the Environmental Protection Act 1990's requirements relating to the duty of care for the waste arising from the construction, operation and maintenance of the Project.
Waste Separation Requirements (Wales) Regulations 2023 (His Majesty's Government, 2023a)	The Waste Separation Requirements (Wales) Regulations 2023 are applicable to the Project to ensure that recyclable waste generated from Project's activities are separated properly at the source for collection.
The Prohibition on the Incineration, or the Deposit in Landfill, of Specified Waste (Wales) Regulations 2023	The Prohibition on the Incineration, or the Deposit in Landfill, of Specified waste (Wales) Regulations 2023 impose bans of separately collected waste from domestic and non-domestic sources, from incineration and landfill. Bans of materials to landfill include food waste, plastic, metals and cartons, paper and cardboard, glass, small waste electrical and electronic equipment, textiles and waste wood. The Project has to oblige with the banning of above waste arising being sent to incineration and landfills.

Relevant legislation/policy/ guidance	Relevance to assessment
The Waste (England and Wales) Regulations 2011 (as amended)	The Waste (England and Wales) Regulations 2011 (as amended) transpose the Waste Framework Directive in England and Wales. Site Waste Management Plans (SWMPs) are no longer mandatory for projects commencing after 1 December 2013. They are, however, recommended to be submitted in relation to the Project. The principles behind the regulations remain best practice and will form part of assumed mitigation for the Project.
The Hazardous Waste (England and Wales) Regulations 2005 (as amended)	The Hazardous Waste (England and Wales) Regulations 2005 (as amended) provide for the control of hazardous wastes and their movements and have been considered in this assessment in the event that hazardous waste arises from the Project's construction, operational and maintenance phases.
Waste Electrical and Electronic Equipment (England and Wales) Regulations, 2013	These regulations apply to all electrical and electronic equipment placed on the market in the UK covered by the scope of the Regulations. The Project is required to adhere to these Regulations in the event that Waste Electrical and Electronic Equipment (WEEE) waste arises from the Project's construction, and operational and maintenance activities.
Controlled Waste (England and Wales) Regulations 2012 (SI 2012/811)	These regulations are applicable to the Project to ensure waste arising from construction, and operational phases will be managed by permitted facilities and will be collected/ transferred by permitted waste carriers.
Waste (Circular Economy) (Amendment) Regulation 2020	These regulations are assimilated legislations from the EU's 2020 Circular Economy Package. They aim to promote a more sustainable and circular approach to waste management. The Project should handle materials and waste in accordance with circular economy principles favouring reuse and recycling rather than being discarded.
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020	The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 ensure that the waste and environmental permitting legislations continue to function effectively and preserves the relevant EU legislations (e.g. Waste Framework Directive (2008/98/EC) and Landfill Directive (1999/31/EC)) after the UK's exit from the EU. These regulations support the continuation of waste and permitting Regulations that are relevant for the Project.
The Merchant Shipping (Port Waste Reception Facilities) Regulations 1997	The Merchant Shipping (Port Waste Reception Facilities) Regulations 1997 are applicable to the construction, operational and maintenance phases of the Project to ensure that ports and terminals in the UK provide adequate facilities for the reception of waste from ships.
National Policy	
Towards Zero Waste (Wales) (Welsh Government, Towards Zero Waste - One Wales: One Planet, 2010)	Towards Zero Waste (Wales) is the overarching waste strategy for Wales, a long-term framework for resource efficiency and waste management to 2050. It sets out recycling and waste reduction targets for all sectors including construction which will be implemented in the construction phase of this Project.
Beyond Recycling (Wales) (Welsh Government, 2021)	Beyond Recycling (Wales) is the strategy for a circular economy. It proposes a Circular Economy Fund to help Wales reach the milestones of 70% recycling and zero waste to landfill by 2025 and 100% recycling by 2050. The strategy is focused on moving the waste up the waste hierarchy, encourages to produce less waste during construction, operational and maintenance phases, which will be adhered to for this Project.
Planning Policy Wales (Welsh Government, 2024a) (Welsh Government, 2024a)	Planning Policy Wales sets out the land use planning policies of the Welsh Government. The Project will comply with the principles listed in the planning policies around making best use of materials, promoting the circular economy, design choices to prevent waste, and sustainable waste management facilities.

Relevant legislation/policy/ guidance	Relevance to assessment
Net Zero Strategy: Build Back Greener 2021 (UK) (His Majesty's Government, 2021b)	The UK-wide Net Zero Strategy highlights the reduction of waste sent to landfill for disposal, particularly biodegradable waste, as well as the importance of resource efficiency in the construction sector. The design of the Project will consider the disposal of waste to landfill as the least preferred option for waste management.
The Clean Growth Strategy 2017 (Department for Energy Security and Net Zero & BEIS, 2017)	The Clean Growth Strategy 2017 highlights the ambition to achieve zero avoidable waste by 2050. The Project takes into account measures for an efficient use of materials aiming to minimise waste arisings from its construction, operational and maintenance activities.
Local Policy	
Neath Port Talbot Council Local Development Plan 2011-2026 (NPTCBC, 2016a)	Neath Port Talbot Council Local Development Plan 2011-2026 includes strategic policies on waste management, such as sufficient waste treatment facilities in the area, and the importance of waste reduction and increasing recycling for new developments as well as construction and demolition, which will be implemented for the Project.
NPTC Replacement Local Development Plan 2023-2038 Preferred Strategy (NPTC, 2024)	NPTC is currently in the process of developing a Replacement Local Development Plan. While not adopted as policy it provides information and update policies relating to flood risk which will inform the ES. Relevant policies include SP14: Sustainable Waste Management which promotes sustainable waste management measures, the waste hierarchy and use of reused and recycled materials.
Guidance and Standards	
Separate Collection of Waste Materials for Recycling: A Code of Practice for Wales (Welsh Government, 2024b) (Welsh Government, 2024b)	Separate Collection of Waste Materials for Recycling is a code of practice guidance document for workplaces to comply with the Waste Separation Requirements (Wales) Regulations 2023. This defines the obligations of workplaces, including construction sites, any exemptions, and the materials that must be collected for recycling during the construction. operational and maintenance activities of the Project.
Technical advice note (TAN) 21: waste (Welsh Government, 2017)	The technical advice note provides guidance on the role of land use planning in the sustainable management and control of waste in Wales. The Project will adopt waste management practices which focus on preventing waste generation, reclaiming materials and harnessing waste as a resource as recommended in the technical advice note.
SWMPs – Guidance for Construction Contractors and Clients Voluntary Code of Practice (Department of Trade and Industry, 2004)	Site Waste Management Plans (SWMPs) are no longer mandatory for projects commencing after 1 December 2013. However, the principles behind the regulations remain best practice and will be used for managing construction waste for this Project.
Construction Code of Practice for Sustainable Use of Soils on Construction Sites. (Department for Environment, Food & Rural Affairs, 2009)	Construction Code of Practice for Sustainable Use of Soils on Construction Sites provides relevant advice to protect soil resources and provides information for mitigation measures for excavated material, which will be incorporated into the design and mitigation measures of the Project where applicable.
Contaminated Land: Applications in Real Environments (CL:AIRE) Definition of Waste: Development Industry Code of Practice (DoWCoP) (CL:AIRE, 2023)	The DoWCoP provides a clear, consistent and efficient process which enables the reuse of excavated materials onsite or their movement between sites. Use of the DoWCoP supports the sustainable and cost-effective development of land. It is applicable to the Project by providing an alternative to Environmental Permits or Waste Exemptions and has been used for as part of the assumed mitigation process.
Institute of Environmental Management and Assessment (IEMA) guide to: Materials and waste in Environmental Impact Assessment (IEMA Guidance) (IEMA, 2020)	The IEMA guide to Materials and Waste in EIA will be used to identify significance criteria and support professional judgement in the assessment of the Project.

23.3 Engagement and Consultation

23.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

23.3.2 No specific engagement and consultation have been undertaken to date for the scoping exercise. No further engagement is planned to support the assessment of the use of materials and generation and management of waste.

23.4 Study Area

23.4.1 In accordance with IEMA Guidance (2020), as material sourcing and waste management is required at a regional and national level due to the scale of this Project, two geographically different study areas to examine the use of materials and the generation and management of waste have been used for the scoping assessment and will be applied to the EIA. The study areas cover both terrestrial and marine areas given that materials can be extracted from both. They are defined as follows:

- the Development Study Area; and
- the Expansive Study Area.

23.4.2 According to the definition of IEMA Guidance (2020), The Development Study Area includes terrestrial and marine areas, as well as the Jersey Marine Site and Kenfig Marshalling Yard Site, within the EIA Scoping Boundary. This area is where construction materials will be consumed (used, reused, and recycled) and waste will be generated for the construction, operational and maintenance phases of the Project. Additionally, the Development Study Area also includes areas of 500m beyond the EIA Scoping Boundary to identify potential key sources of contaminated waste from landfills and potential constraints to MSAs and peat resources. The Development Study Area is not provided in a Figure as there is no landfill site within or in close proximity, and information on MSAs is not currently available for inclusion on a figure.

23.4.3 The Expansive Study Area within which materials are sourced and waste is managed for the Project is defined further as follows:

- use of materials – the Expansive Study Area focuses primarily within Wales and extends nationally for the procurement of material where technically appropriate and economically feasible;
- the scope of the Expansive Study Area includes:
  - availability of construction material: crushed rock, sand and gravel, ready-mix concrete, asphalt – Wales; and
  - availability of steel – UK.
- waste generation and management – the Expansive Study Area focuses on an area sufficient to identify suitable waste infrastructure including materials recycling, treatment facilities and landfills, considering the proximity principle and value for money. Where sufficient landfill void

capacity is not available, the search area has been extended accordingly, based on professional judgment. An initial search area of 10km from the existing Port Talbot area (hereafter as 'the Port') is assessed for waste management facilities. This aims to support the proximity principle by highlighting appropriate waste management and disposal sites within a reasonable proximity to the Project. It is anticipated that most of the waste arising is more likely to be from the Port and hence the search for the waste management facilities has been undertaken in proximity from the Port which will also be able to accommodate waste arising from the Jersey Marine Site and Kenfig Marshalling Yard Site; and

- the scope of the Expansive Study Area includes:
  - waste management facilities – within Wales, 10km from the Port;
  - inert and non-hazardous landfills – within Wales, 50km from the Port; and
  - hazardous landfills – the entire England and Wales region (due to limited hazardous landfills present within 50km from the Port).

23.4.4 The Expansive Study Area is provided in Figure 23.1 in **Appendix A**. It should be noted that only hazardous landfills, inert landfills, non-hazardous landfills and permitted waste management facilities within 50km of the Project in Wales are shown in the figure. All other hazardous landfills in England and Wales are included within the Expansive Study Area but not shown in the Figure 23.1 in **Appendix A**.

23.5 Description of the Existing Environment

23.5.1 For the use of materials, the resources are finite virgin materials while the receptors include quarries, MSAs (sand and gravel), allocated mineral sites and their operation, as well as the finite virgin materials themselves.

23.5.2 For waste generation and management, the receptors are waste management infrastructure including landfill sites and permitted waste management facilities due to permanent reduction of landfill void capacity and also permitted waste management facilities due to temporary reduction on permitted waste management facilities.

Data Sources

23.5.3 The baseline for material and waste has been derived from the data sources set out in **Table 159**.

Table 159: Data sources

Data type	Data Source
Baseline for the use of materials	
Location of MSAs, operational sand and gravel sites	Neath Port Talbot County Borough Council (NPTC) Local Development Plan 2011-2026 (NPTCBC, 2016a) and Proposals Map (2016b)

Data type	Data Source
Wales production of minerals and number of mineral workings Sales and reserves for sand and gravel and crushed rock for aggregate use in Wales, 2019	The British Geological Society (BGS) (2024) (2021)
UK production (in million tonnes) of materials and minerals/mineral products	Mineral Products Association (MPA) (2023)
UK steel production (in million tonnes) from 2018 to 2023	World Steel Association (2025)
Baseline for waste generation and management	
Authorised and historical landfill sites in Development Study Area	Natural Resources Wales, historic landfill locations (2017)
Permitted waste management facilities within the Expansive Study Area	Natural Resources Wales, permitted waste management facilities and permitted landfills (2024a)
Waste management method of C&D waste in different regions in Wales in 2019	Natural Resources Wales, Survey of Construction & Demolition Waste Generated in Wales in 2019 (2022)
C&D waste received and removed by different regions in Wales 2023	Natural Resources Wales, Waste Permit Returns Data Interrogator (2024b)
Hazardous landfill with remaining capacity in England in 2023	Environment Agency Remaining Landfill Capacity (2024)
Permitted and operational landfill sites with remaining capacity in 2018 in the Expansive Study Area	Welsh Government, Guidance - Check the list of registered landfill site operators in Wales (2024c)
Authorised and historical landfill sites in the Development Study Area	DataMapWales (Various Dates)

Baseline Conditions – use of materials

23.5.4 The UK aggregate production has been steady over recent years, with an estimated production of approximate 280 million tonnes in 2021 based on latest available information; of which approximately 48 million tonnes were land-won sand and gravel and 148 million tonnes were crushed rocks (**Table 160**). Additionally, Wales had an estimated production of 1.9 million tonnes of sand and gravel and 14.07 million tonnes of crushed rocks in 2021.

Table 160: UK production (in million tonnes) of materials and minerals/mineral products

Mineral / mineral product	UK production (2021, unless otherwise stated)
Primary aggregates, of which:	279.8
Crushed rock	148.2
Sand and gravel (land-won)	47.7
Sand and gravel (marine)	14.3
Recycled and secondary aggregates*	69.6
Cementitious products, of which:	11.2
Cement	9.0
Other cementitious materials	2.1
Ready-mixed concrete	52.7

Mineral / mineral product	UK production (2021, unless otherwise stated)
Concrete products	24.8
Asphalt	28.3
Dimension stone*	1.0
China Clay	0.7
Slag	1.4
Apparent steel use, finished steel products (2023)	9.1

Source: Mineral Products Association (2023), World Steel Association (2025). Note: *Data for these minerals are for Great Britain only.

23.5.5 The availability of steel in the UK is presented in **Table 161**. The total production of crude steel is available for the year 2019 to 2024, with 2024 being the latest available data and presented as 4.0 million tonnes (World Steel Association, 2025). The average total production of crude steel in the UK was 6.2 million tonnes for the period 2019 to 2024. The apparent steel use in the UK was 9.1 million tonnes in 2023. The average apparent steel use, between 2018 to 2023, was 9.8 million tonnes (World Steel Association, 2025).

Table 161 UK steel production (in million tonnes) from 2018 to 2024

UK steel production	2018	2019	2020	2021	2022	2023	2024	Average
Apparent steel use (finished steel products)	10.8	10.2	8.4	11.0	9.4	9.1	NA	9.8
Total production of crude steel	NA	7.2	7.1	7.2	5.9	5.6	4.0	6.2

Source: World Steel Association (2025)

23.5.6 The production of minerals in Wales for the year 2022 and available mineral workings as of February 2024 is given in **Table 162**.

Table 162: Wales production of minerals and number of mineral workings

Mineral	Wales production (million tonnes), 2022	Number of mineral workings in Wales, as of February 2024
Igneous rock	12.72	17
Limestone and dolomite		37
Sandstone		19
Sand and gravel (both land-won and marine-dredged)	1.93	15

Source: The British Geological Society (BGS) (2024)

23.5.7 The 2019 Aggregate Mineral Survey for England and Wales assessed the demand for and supply of aggregates in Wales. **Table 163** shows the total sales and reserves for sand and gravel (both land-won and marine-dredged), as well as crushed rock for aggregates use for 2019, the latest data available.

Table 163: Sales and reserves for sand and gravel and crushed rock for aggregate use in Wales, 2019

Aggregate*	Sales (million tonnes)	Reserves (million tonnes), end 2019
Crushed rock*	12.83	720
Sand and gravel (land-won)	1.18	17
Sand and gravel (Marine-dredged)	0.63	N/A

Source: The British Geological Society (2021) Note: *Sales for non-aggregate use are not included. **Data of landbank are available for North Wales only.

23.5.8 According to the NPTC Local Development Plan 2011-2026 (NPTCBC, 2016a), (this policy has not yet been updated for the Replacement Local Development Plan 2023-2036), the MSAs are protected from other types of permanent development which would either sterilise them or hinder their extraction. However, development may be permitted to proceed within MSAs as long as developers can demonstrate to the local planning authority any of the following:

- the resource is of poor quality or quantity;
- it can be extracted satisfactorily prior to any development taking place;
- there is an overriding need for the development; or
- the scale and location of the development would not have any significant impact on the possible working of the resource.

23.5.9 Reviewing the proposal maps of the Neath Port Talbot County Borough Council (NPTC) Local Development Plan 2011-2026 (2016b), there are safeguarded coal resources and safeguarded category 1 sand and gravel mineral sites located within the Development Study Area (both within 500m and within the EIA Scoping Boundary). In addition, an operational sand and gravel site is located within the EIA Scoping Boundary. Details of peat resources are stated in **Table 57** of **Chapter 11 – Land Quality and Hydrogeology**.

Baseline Conditions – waste generation and management

23.5.10 The most recent available information relating to current waste generation in Wales and operational waste management infrastructure under environmental permits (EPRs) in Wales and England have been gathered to provide a baseline for this EIA Scoping Report.

Disturbance from existing landfill sites

23.5.11 To identify potential sources of contamination, an initial review of authorised and historical landfill sites in the Development Study Area was undertaken using the DataMapWales (Various Dates). There are no historical and authorised landfill sites in the Development Study Area that can give rise to excavated contaminated waste for the Project. Potential sources of contamination that are greater than 500m away from the EIA Scoping Boundary have not been identified, as these are considered unlikely to be affected by the Project and therefore are **scoped out for further assessment**.

Construction and demolition waste generation in Wales

23.5.12 **Table 164** indicates the construction and demolition (C&D) waste received and removed in different regions in Wales in 2024, which is the latest available information at the time of writing. The Project is located in south-west Wales.

Table 164: C&D waste received and removed by different regions in Wales 2024

Region	Waste Received (million tonnes)	Waste Removed (million tonnes)
North Wales	0.95	0.27
South-east Wales	1.80	0.45
South-west Wales	0.67	0.20
Total	3.42	0.92

Source: Natural Resources Wales (2024b)

23.5.13 According to the latest available C&D waste arisings survey (Natural Resources Wales, 2022), at the time of drafting this report the majority of C&D waste in 2019 was made up of mixed wastes (45%), soil (38%), and segregated aggregates (7%), with smaller contributions from other waste streams such as insulation and gypsum, metallic and non-metallic waste.

23.5.14 **Table 165** indicates the waste management method of C&D waste in 'mid and south-west Wales' and the entire Wales in 2019 in accordance with the latest available C&D waste arisings survey (Natural Resources Wales, 2022).

Table 165: Waste management method of C&D waste in different regions in Wales in 2019

Waste management method	Mid & south-west Wales (kilotonnes & %)	Wales (kilotonnes & %)
Preparation for Reuse, Recycling, Composting and Backfilling	924 (89%)	3,074 (90%)
Landfill	78 (7%)	213 (6%)
Treated	7 (<1%)	21 (<1%)
Incineration	5 (<1%)	19 (<1%)
Land Recovery	4 (<1%)	12 (<1%)
Other	23 (2%)	88 (3%)
Total	1,040	3,427

Source: Natural Resources Wales (2022)

23.5.15 According to latest available C&D waste arisings survey (Natural Resources Wales, 2022), an estimated 116 kilotonnes of hazardous wastes were generated by the C&D sector in 2019. This equated to 3% of the total C&D waste generation of 3,427 kilotonnes in Wales. By material, the majority of hazardous wastes were made up of soil (42%) and aggregate wastes (41%), accounting for 49 kilotonnes and 48 kilotonnes respectively. By waste management method, the majority (45%) was reported as landfilled (52 kilotonnes), 25% were sent for preparation for reuse and recycling (29 kilotonnes) and 23% were sent for Other Recovery (27 kilotonnes).

Other waste arisings

23.5.16 Japanese knotweed is present within the EIA Scoping Boundary (see **Chapter 13 – Terrestrial and Freshwater Ecology**). If off-site disposal of Japanese knotweed is required, material containing Japanese knotweed must be disposed of at licensed landfill sites (**Table 167**) according to Natural Resources Wales' guidance (Natural Resources Wales, 2023) which is in line with the Environmental Protection Act 1990 (UK Government). Any inappropriate disposal can constitute an offence under the Wildlife and Countryside Act 1981 (UK Government) by knowingly causing it to grow in the wild.

Waste management facilities

23.5.17 Approximately 38 permitted waste management facilities are within the Expansive Study Area (10km of the EIA Scoping Boundary) that reuse, recycle and/or recover waste and are set out in **Table 166**.

Table 166: Permitted waste management facilities within the Expansive Study Area

Site name (Site operator)	Location postcode	Site type	Distance from Project (km)
Talbot Wharf (Associated British Ports)	SA13 1RE	S0803: Household, Commercial and Industrial Transfer Station (including treatment)	1.54
Llewellyn's Quay Recycling Centre (Construction Recyclate Management Ltd)	SA13 1RA	S0803: Household, Commercial and Industrial Transfer Station (including treatment)	1.61
Asbestos Store (Avalon Insulation Services)	SA13 1RF	Hazardous Waste Transfer Stations (including treatment)	1.65
Byass Works (A W D Group Ltd)	SA13 1RS	S0814: Materials Recycling Facility	1.78
Old Byass Works (Cuddy Recycling Ltd)	SA13 1RS	A20: Metal Recycling Site (mixed MRS's)	1.78
Margam Green Energy Plant (Margam Green Energy Ltd)	SA13 2NR	B03: Co-Incineration (Non-Haz)	3.74
Former BP site - Baglan Bay (QDS Contracting Limited)	SA12 7BR	A23: Biological Treatment Facility	4.32
G Davies Skip Hire (Glenville Davies)	SA12 9DE	A11: Household, Commercial & Industrial Waste Transfer Station	4.34
Gwent Demolition & Construction Ltd (Gwent Demolition & Construction Ltd)	SA13 2PE	A20: Metal Recycling Site (mixed MRS's)	6.33
Briton Ferry Household Waste Recycling Centre (FCC Waste Services (UK) Limited)	SA11 2HZ	A11: Household, Commercial & Industrial Waste Transfer Station	6.73
Briton Ferry Shipping Services Ltd (Briton Ferry Shipping Services Ltd)	SA11 2LP	A9: Special Waste Transfer Station	7.04
Crymlyn Burrows (Neath Port Talbot County Borough Council)	SA1 8PT	A15: Material Recycling Treatment Facility	7.48
Stiens Skip And Recycling Facility (Stiens Haulage Ltd)	SA1 8QQ	S0801: HCI Waste Transfer Station	7.50
Penhydd Farm (Penhydd Farm Recovery Ltd)	SA13 2RT	A15: Material Recycling Treatment Facility	7.56
Trojan Electronics 2018 Limited	SA1 8QA	S0823: WEEE treatment facility	7.94

Site name (Site operator)	Location postcode	Site type	Distance from Project (km)
Gower Chemicals Ltd (Gower Chemicals Ltd)	SA1 8PT	Hazardous Waste Transfer Stations (including treatment)	8.17
Morris & Co (Handlers) Ltd (Morris & Co (Handlers) Ltd)	SA10 6BL	A20: Metal Recycling Site (mixed MRS's)	8.41
Kings Dock (South West Wood Products Limited)	SA1 8QT	A16: Physical Treatment Facility	8.50
Neath Abbey Wharf (Sims Group U K Ltd)	SA10 6BL	A20: Metal Recycling Site (mixed MRS's)	8.51
Glass Tech Recycling Ltd (Glass Tech Recycling Ltd)	SA10 6EN	Use/treatment of inert waste for land reclamation or construction	8.53
Asbestos Store (Cuddy Demolition & Dismantling Ltd)	SA10 6EN	S0809: Asbestos Waste Transfer Station	8.55
Fordpad Scrap (Fordpad Ltd)	SA11 1AU	A20: Metal Recycling Site (mixed MRS's)	8.68
E P S Scrap Export Facility (EPS Materials Recovery Ltd)	SA1 8QT	A20: Metal Recycling Site (mixed MRS's)	8.91
Recycling and Recovery Facility (Derwen Recycling Ltd.)	SA10 6BL	A15: Material Recycling Treatment Facility	9.01
Celsa Swansea Scrap Yard (Celsa Manufacturing (UK) Ltd)	SA1 1QR	S0821: Metal recycling site	9.20
The Old Forge (Jonathan Mark Rees)	SA10 7DW	A20: Metal Recycling Site (mixed MRS's)	9.49
Davies Skips Ltd (Davies Skips Ltd)	SA11 1LJ	S0803: Household, Commercial and Industrial Transfer Station (including treatment)	9.45
Celtic Recycling Ltd (Celtic Recycling Ltd)	CF33 6BZ	A15: Material Recycling Treatment Facility	9.55
Swansea Drydocks Ltd (Swansea Drydocks Limited)	SA1 1LY	A20: Metal Recycling Site (mixed MRS's)	9.63
Cox Skip And Waste Management (Paul Andrew Gareth Cox)	CF33 6BP	A11: Household, Commercial & Industrial Waste Transfer Station	9.73
Glass Tech Recycling Ltd (Wern Tarw Recycling Ltd)	SA1 8RU	A15: Material Recycling Treatment Facility	9.77
Graigola Wharf (Stenor Environmental Services Ltd)	SA1 1QR	S0803: Household, Commercial and Industrial Transfer Station (including treatment)	9.81
Wern Tarw Recycling Ltd (Wern Tarw Recycling Ltd)	CF33 6BN	S0803: Household, Commercial and Industrial Transfer Station (including treatment)	9.84
Scott Waste Ltd (Scott Waste Ltd)	CF33 6BL	A11: Household, Commercial & Industrial Waste Transfer Station	9.89
Parc Stormy Anaerobic Digestion Facility	CF33 4RS	SR2010 No15: Anaerobic digestion facility <75,000 tonnes per year	10.00
Gavin Griffiths Recycling Ltd (Gavin Griffiths Recycling Ltd)	SA5 7LE	A11: Household, Commercial & Industrial Waste Transfer Station	10.00
Perdue Recycling Ltd (Perdue Recycling LTD)	SA6 8QF	A11: Household, Commercial & Industrial Waste Transfer Station	10.00
Swansea Baling Plant	SA6 8QN	A15: Material Recycling Treatment Facility	10.00

Source: Natural Resources Wales (2024a)

23.5.18 Nine operational permitted landfill sites have been identified within the Expansive Study Area (50km of the EIA Scoping Boundary) that can receive waste to be disposed of, of which six are non-hazardous landfills, two are inert landfills and one is a hazardous landfill (**Table 167**). As the most recent data available for estimated remaining landfill capacity is from 2018 (Natural Resources Wales, 2019), further desktop based baseline studies will be undertaken during the EIA process to confirm whether these landfills have available remaining void capacity as per **Table 167**.

Table 167 Permitted and operational landfill sites with remaining capacity in 2018 in the Expansive Study Area

Site name (License Holder)	Landfill type	Distance from the EIA Scoping Boundary (km)	Estimated remaining void space as of 2018 (cubic metres)
Morfa Tip/Port Talbot Landfill (TATA Steel UK Ltd)	Non-hazardous	2.1	122,843
Pwllfawatkin landfill (FCC Waste Services UK Ltd)	Non-hazardous landfill	21.1	74,492
Tir Canol Landfill site (JLA Disposal Ltd)	Non-hazardous landfill	22.6	11,132
Bryn Pica (Cynon Valley Waste Disposal Company Ltd)	Non-hazardous landfill	30.3	2,162,048
Aberthaw Quarry (RWE Generation UK Plc trading)	Non-hazardous	34.4	520,584
Trecatti Landfill (Biffa Waste Services Ltd)	Non-hazardous landfill	37.9	441,915
Hendy Quarry Landfill (Tarmac Trading Limited)	Inert Landfill	30.0	792,126
Whitehall Landfill Old Port Road	Inert landfill	38.9	33,750
Morfa Tip/Port Talbot Landfill (TATA Steel UK Ltd)	Hazardous	2.1	13,868

Source: Natural Resource Wales (2019), Welsh Government (2024c)

23.5.19 Not all treatment facilities may be suitable for accepting waste generated by the Project, but an initial desktop study suggests that numerous treatment facilities are available within the surrounding areas of the Project. Activities during the construction, operation and maintenance of the Project that may generate waste have not been confirmed. This will be determined and assessed through the EIA process and will be reported in the ES.

23.5.20 Due to the scale of the Project and the presence of only one hazardous landfill with remaining void capacity in Wales, hazardous landfills with remaining void capacity in England by end of 2023 have also been considered when establishing the baseline and is reported in **Table 168**.

Table 168: Hazardous landfill with remaining capacity in England in 2023

	Hazardous merchant	Hazardous restricted	Total
Number	11	3	14
Remaining capacity (cubic meters)	9,680,003	694,790	10,374,793

Source: Environment Agency (2024)

Next Steps

23.5.21 Most up-to-date baseline information for MSA and peat resources are currently not available publicly. This will be further requested from the NPTC to establish a complete baseline to inform the environmental impact assessment. No further surveys or studies will be needed to be undertaken. Baseline information will however be updated with the latest information available where applicable as the Project progresses.

23.6 Future Baseline

23.6.1 As set out in **Chapter 5 – Approach to Assessment,** future baseline scenarios will be established to understand the potential situation without the Project. The materials and waste chapter of the Environmental Statement (ES) would seek to explain what the environmental change, in terms of materials and waste, would likely be in the future if the Project were not to go ahead.

23.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence.

23.6.3 Policies and local or national plans provide guidance on use of recycled/ secondary materials, reduction in generation of waste and the management of waste that supports circular economy. Policies like the Beyond Recycling (Wales) provides guidance on requirement of reaching 70% of recycling and zero waste to landfill by 2025 and 100% recycling by 2050. While future policies can influence the availability of recycled materials and waste infrastructures, what will be achieved will remain uncertain and hence it will impose a limitation to future baseline.

23.6.4 According to MPA (2023), ‘a key factor influencing the future long-term supply of aggregates, and therefore other mineral products manufactured using the aggregates, is the operation of the mineral planning system. A complementary indicator, the replenishment rate of permitted reserves, provides a useful insight into the long-term availability of supply, which will be used to establish the future baseline for aggregates.

23.6.5 For establishing the future baseline for steel, an average of the apparent steel use data available for five years will be considered for the future baseline study.

23.6.6 Climate change is associated with environmental effects like flooding of quarries and waste management infrastructures causing the non-availability of raw materials from quarries and waste infrastructures for management of waste. This will also be considered when establishing a future baseline.

23.6.7 Any future changes to the permitted remaining landfill void capacity and throughput are uncertain. It is also difficult to assess the available capacity due to the commercial sensitivity of existing contracts and the timescales over which waste would be produced. It is likely that additional capacity will become available in future years, however, it is not currently possible to

predict the timeframes for when these new waste management facilities would become available and, therefore, how many of these sites will be available if the Project were to go ahead and to accommodate waste arisings from the Project. The Project will rely on information for future baseline provided by the NPTC, if available.

23.7 Mitigation Measures

23.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for materials and waste will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

23.7.2 This section sets out the potential controls relevant to materials and waste, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Design Measures

23.7.3 The Project will be designed to drive resource efficiency, aligned with the waste targets required by legislation, and drive a circular economy approach to construction and operation. In line with Wales Towards Zero Waste Policy, the targets include:

- zero waste to landfill;
- recycling targets of 70% for commercial and industrial waste by 2025; and
- continue to exceed the recycling target of 90% for C&D waste which was set for 2020.

23.7.4 Embedded mitigation (primary mitigation) which may be incorporated into the Project design development is likely to include but not limited to:

- seeking opportunities to maximise resource efficiency and minimise waste in following the circular economy approaches and waste hierarchy principles; and
- delivering design which enables reuse and recovery of materials (e.g. minerals resource) both on site and off site to minimise raw material usage and waste generation.

Construction Controls

23.7.5 Possible mitigation measures (including primary, secondary and tertiary mitigation) which may be embedded into the Project at the construction phase include (but not limited to):

- developing design with objectives to reduce the volume of materials consumed, and to minimise the risk of associated adverse impacts;

- incorporating management of minerals and soils through an outline Construction Environmental Management Plan (CEMP) will be developed;
- a materials management strategy which sets out principles for resource-efficient management of materials generated by the Project will be developed (e.g. measures to use site-won materials and minimise import materials from off-site, enabling more sustainable procurement options for materials); Best Practical Environmental Option for dealing with dredge arisings is likely to be undertaken by the contractor that follows the waste hierarchy and circular economy principles to minimise waste arising;
- reusing all suitable excavated material in the construction of the Project and in landscaping features along the Project, wherever feasible. This should aim to reduce the requirement to import material assets for construction and to reduce the need to remove surplus materials from the Project site;
- exploring options of reuse of excavated material that is surplus to requirement within neighbouring projects to avoid disposal in landfill wherever possible;
- procuring secondary or recycled material assets where available if site-won material is not available or suitable for reuse;
- use of pre-cast elements should be used, where practicable, to ensure efficient use of materials and avoid generation of waste arisings from off cuts;
- avoiding temporary stockpiling of fill materials prior to incorporation in the Project where possible, to ensure double handling and damage is minimised and, therefore, avoiding waste. However, where required, materials should be stockpiled in accordance with best practice and managed appropriately to limit the likelihood of damage or contamination;
- apply circular economy approaches such as design for off-site construction, design for reuse and recovery, design for modularisation and standardisation;
- the Project works not directly introducing contaminants to the marine environment. Good practice measures noted above, such as those described in Guidance for Pollution Prevention: Works and Maintenance in or Near Water (GPP5) (NRW, NIEA, and SEPA, 2018), will be used to minimise the potential for accidental spillages during dredging and disposal; and
- minimising the potential risk of spillages throughout the application of environmental best practice management measures specified in the CEMP and minimising the waste arisings.

23.7.6 Required construction environmental control and protection measures will be defined in an adaptive environmental management plan (AEMP) for both terrestrial and marine areas (**Chapter 5 – Approach to Assessment** provides further information on management plans for the Project). Under

this plan, contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to be included in CEMP and Waste Management Plan for both terrestrial and marine areas.

Operational and Maintenance Controls

23.7.7 Operational and maintenance environmental control and protection measures (including primary, secondary and tertiary mitigation) will be defined in an outline Operational Environmental Management Plan (oOEMP). This would include best practice measures and techniques; any specific measures identified through EIA. At the operational phase, opportunities to increase material use efficiencies and reduce waste are mostly around behavioral change and providing infrastructure to maximise reuse and recycling. In relation to materials and waste the types of measures within the oOEMP may include:

- training of staff to encourage correct recycling;
- ban on the use of single use materials within the Port of Port Talbot (the Port) (refer to Section 2.2 of **Chapter 2 – Description of Development** for description of the Port);
- setting up of small manufacturing units that encourage recycling of scrap metals;
- encourage reuse and recycling through reuse and recycling hubs in Port Talbot;
- creating a composting area; and
- separate collection for food waste from office canteen.

23.7.8 Operators would be required to prepare detailed plans for approval that accord with the approved oOEMP. These may include the development of Operational Waste Management strategies, such as a port-wide estate waste management plan.

23.7.9 On the basis that the operation of the Project would be in accordance with approved plans and any necessary environmental permits, no other mitigation is considered necessary to prevent significant effects.

23.8 Potential Likely Significant Effects

23.8.1 The sections below set out the potential likely significant effects related to use of materials and waste generation and management for the construction, operational and maintenance phases for both terrestrial and marine areas. These take into account the control measures set out within Section 23.7. The construction phase considers site preparation, demolition and construction activities.

Use of materials – Construction and Operational Phases

23.8.2 The following potential effects related to use of materials should be assessed:

- reduction in the regional/national availability of materials;
- the depletion of non-renewable resources; and
- direct and indirect effects on MSAs, operational sand and gravel sites, allocated mineral sites and operations (for construction phase only).

23.8.3 The use of materials for both terrestrial and marine areas include raw materials such as aggregate and minerals from primary, secondary and recycled sources, and manufactured construction products. Manufactured products are likely to include the materials required like pre-cast elements, pipework, fencing, materials for construction of floating offshore wind turbines etc.

23.8.4 The Project is likely to require a large quantity of materials for construction and operational phases, and should, therefore, have the potential for some direct adverse impacts on the environment, through the potential reduction in the availability of materials and the potential depletion of natural resources.

23.8.5 The construction phase could generate resources during the initial excavations and levelling works.

23.8.6 The key construction materials likely to be required for the Project include (but not limited to):

- aggregates;
- steel;
- concrete; and
- cement.

23.8.7 Due to the nature of the Project and quantity of construction materials required, it is likely that a large proportion will be primary materials. Although quantities of materials have not been quantified at this phase, it is assumed, as worst-case scenario, larger proportions of finite raw material will be sourced compared to recycled or reused aggregate for the construction of the Project.

23.8.8 Material use during the operational phase has not yet been quantified. Maintenance activities within the Port will also be present during the operational phase. Potential significant adverse effects could arise from the use of finite; non-renewable materials associated with activities that would take place on site once operational. Similar to the construction phase, this could be for example, through the use of aggregates to form the foundations of the FLOW turbines.

23.8.9 Taking into account that information on type and quantities of materials required is currently unavailable, the potential impacts from the use of materials for both terrestrial and marine areas for the construction, operational and maintenance phases has been based on professional judgement.

23.8.10 The potential likely significant adverse effects for the use of materials for construction and operational phases are given in **Table 169**. The potential

effects for peat are addressed in **Chapter 11 – Land Quality and Hydrogeology.**

Table 169: Potential likely significant effects for use of materials

Activity	Use of materials and potential to generate significant impacts	Receptors
Terrestrial construction activities, which are likely to include: • making provision for various temporary construction compounds; • service diversions (e.g. sewer diversion) and the provision of new utility infrastructure; • upgrades to the existing vehicular access points and road infrastructure; • completion of remediation works; and • reprofiling majority of the large terrestrial area and strengthening works in some areas.	Potential direct adverse effects associated with the import and use of construction material, may result in the depletion of non-renewable resources. There is a risk of sterilisation of the MSA, as it is located within the EIA Scoping Boundary.	• Material resources themselves; • Quarries and other sources of minerals, and other finite virgin material resources; and • MSA, operational sand and gravel site, allocated mineral sites and their operations.
Marine area construction activities, are likely to include: • enabling works; • construction of main quay wall, protection revetments and upgrades to main breakwater; • dredging; • reclamation of land; • construction of bored pile relieving platforms, mooring dolphin; commissioning berth; and • installation of marine habitat enhancement features, new navigation marks, quayside moorings and fenders.		
Terrestrial operational and maintenance activities, are likely to include: • delivery of supply chain materials; • movement of assembled steel substructure; and • operation and serving of administrative/office facilities.	Operational activities in this case include maintenance activities. Potential direct adverse effects associated with the import and use of materials similar to construction activities (those listed in paragraph 23.8.6), may result in the depletion of non-renewable resources.	• Material resources themselves; and • Quarries and other sources of minerals, and other finite raw material resources.
Marine areas operational and maintenance activities, are likely to include: • delivery of turbine and foundation components; • integration of wind turbine generator (WTG); and • ongoing maintenance dredging.		

Waste generation and management - construction and operational phases

23.8.11 The potential likely effects arising from generation and management of waste are:

- temporary occupation of waste management infrastructure capacity (from treatment or for further transfer); and
- permanent reduction in inert, non-hazardous and hazardous landfill void capacity (from disposal of waste).

23.8.12 For the construction phase, waste is likely to be generated from Project site preparation and construction activities, described in **Chapter 2 – Description of Development**. The construction activities of the Project may result in waste arisings mainly related to surplus materials or materials not used for their expected uses, damaged stocks or off cuts. There may be material arising from demolition/clearance of existing features not needed, which will produce materials such as soil, concrete and steel, requiring sending to appropriate facilities for treatment.

23.8.13 For the operational and maintenance phases, waste is expected to be generated from manufacturing and industrial processes for the construction and assembly of wind turbines on site. It is therefore expected that a potentially significant amount of waste may be generated during operation, the type and volume of the waste generated will be confirmed at the ES stage. The oOEMP will be developed during the EIA phase for the Project which will define principles of the approach recycling, treatment and disposal of all waste produced on the site during operation in line with the waste hierarchy.

23.8.14 For both construction and operational phases, some waste is likely to arise from on-site offices, such as paper, cardboard, plastic, cans and food waste which may be recycled as well as non-recyclable waste for disposal.

23.8.15 Although waste quantities for construction, operational and maintenance phases have not been quantified yet, it is anticipated that not all waste arisings will be suitable for further treatment and, therefore, will be required to be disposed of in landfills as the least preferred option in line with waste hierarchy, reducing the landfill capacity in the surrounding areas.

23.8.16 Estimates of the amount of inert, hazardous and non-hazardous wastes arising from the construction, operational and maintenance phases will be determined through the EIA process and reported in the ES. These will be sent to appropriate treatment facilities that are licensed to handle different waste streams. Waste from site offices such as paper and card, plastic, cans and glass are likely to be recycled.

23.8.17 Some of the waste arising from all the proposed activities on site may not be suitable for recycling or other treatment facilities. These wastes may have to be landfilled to inert, non-hazardous and hazardous landfill sites. The landfills should be licensed to take such material to prevent adverse effects on the environment, for example chemicals leaking out to leachate or chemical reactions causing harmful gas build-up. Hazardous materials will be sent to a licensed hazardous waste landfill where applicable.

23.8.18 The potential likely significant effects for the generation and management of waste for both terrestrial and marine areas during the construction, operational and maintenance phases are given in **Table 170**.

Table 170: Potential likely significant effects for generation and management of waste

Activity	Waste arisings and potential to generate significant impacts	Receptors
Terrestrial construction activities	The construction phase of the project may result in the following waste arisings: • the production of waste from site clearance, e.g. green waste, contaminated soils, inert waste; • materials brought to site that are not used for their intended purpose, e.g. damage items, offcuts, and surplus materials; • excavated materials such as soil which may be contaminated, unsuitable or surplus to requirements; and • Waste arisings from dredging activities	The receptors likely to be subject to impacts as a result of waste generation and its management are the landfills and other waste management infrastructure as per IEMA Guidance.
Marine areas construction activities		
Terrestrial operational and maintenance activities	Operation in this case includes maintenance activities. Waste is likely to arise and have potential direct adverse effects associated from general and maintenance operation of the activities that are within the EIA Scoping Boundary and construction of the FLOW.	
Terrestrial areas operational and maintenance activities		

23.9 Resources and Receptors Scoped Out of Assessment

23.9.1 No resources or receptors are proposed to be scoped out of the assessment for use of materials and generation and management of waste.

23.10 Proposed Assessment Methodology

23.10.1 The construction, operation and maintenance of the Project can result in environmental effects associated with the consumption and use of materials, and the management of waste that is generated. The assessment will be in line with the industry guidance available from the Institute of Sustainability and Environmental Professionals (ISEP) (formally IEMA) for materials and waste generation (IEMA, 2020). The proposed assessment methodology is in line with **Chapter 5 – Approach to Assessment**.

23.10.2 The EIA for use of materials and the management of waste that is generated from both terrestrial and marine areas for the construction, operational and maintenance phases are similar and is applicable for all the phases.

Assessment for use of materials

23.10.3 The assessment for use of materials will consider the following:

- types and quantities of materials required for the Project, where known. When unknown, types and quantities of materials required for the Project will be estimated based on assumptions;
- details of the source or origin of materials, site-won materials to replace virgin materials, materials from secondary or recycled sources, or virgin or non-renewable sources, if known;
- cut and fill balance (import of fill material is envisaged);
- surplus materials falling under regulatory controls;
- the impacts that will arise from the issues identified in relation to materials; and
- identification of mitigation measures based on the assessment of the likely significance of effects for the identified impacts, using worst-case assumptions.

23.10.4 In addition, professional judgement will be used to provide an assessment of effects based on several factors, including:

- the availability of the materials; and
- the type of materials required, e.g. primary or virgin materials, manufactured materials, recycled materials.

Assessment for waste generation and management

23.10.5 The assessment for waste generation and management will consider the following:

- forecast of non-hazardous, hazardous, and inert waste arisings;
- surplus waste falling under regulatory controls;
- waste that requires storage on site prior to reuse, recycling and disposal;
- waste to be pre-treated on site for reuse within the Project;
- waste requiring treatment or disposal off site;
- the impacts that will arise from the issues identified in relation to waste; and
- identification of mitigation measures which are applicable to the Project.

23.10.6 In accordance with IEMA Guidance (2020), for waste management the assessment for the effect of magnitude for the Project will be based on the remaining landfill capacity method as:

- the Project is a complex development;
- it is a robust approach based on availability of industry data; and
- it is a detailed methodology.

23.10.7 In addition, professional judgement will be used to provide an assessment of effects based on several factors, including:

- the type of waste generated, e.g. inert, non-hazardous or hazardous; and
- the availability of suitable facilities within close proximity to the Project to treat the waste generated.

Assessment for sensitivity and magnitude

23.10.8 IEMA guidance for sensitivity (**Table 171**) and for magnitude (**Table 172**) will be used for the assessment for materials and waste.

Table 171: IEMA guidance for sensitivity for use of materials and waste generation

Significance category	Description
Negligible	Use of materials: the key materials required for the construction and/or operation of a development: • are forecast (through trend and analysis and other information) to be free from known issues regarding supply and stock; and/or • are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*. Waste generation: across construction and/or operational phases, the baseline / future baseline of regional (or where justified, national): • inert and non-hazardous, landfill capacity void is expected to remain unchanged or is expected to increase through a committed change in capacity. • hazardous landfill capacity void is expected to remain unchanged or is expected to increase through a committed change in capacity.
Low	Use of materials: the key materials required for the construction and/or operation of a development: • are forecast (through trend and analysis and other information) to be generally free from known issues regarding supply and stock; and/or • are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials. Waste generation: across construction and/or operational phases, the baseline / future baseline of regional (or where justified, national): • inert and non-hazardous landfill capacity void is expected to reduce minimally by <1% as a result of waste forecast. • hazardous landfill capacity void is expected to reduce minimally by <0.1% as a result of waste forecast.
Medium	Use of materials: the key materials required for the construction and/or operation of a development: • are forecast (through trend and analysis and other information) to suffer from some potential issues regarding supply and stock; and/or • are available comprising some sustainable features and benefits compared to industry-standard materials. Waste generation: across construction and/or operational phases, the baseline / future baseline of regional (or where justified, national): • inert and non-hazardous landfill capacity void is expected to reduce noticeably by 1-5% as a result of waste forecast. • hazardous landfill capacity void is expected to reduce noticeably by 0.1- 0.5% as a result of waste forecast.

Significance category	Description
High	Use of materials: the key materials required for the construction and/or operation of a development: • are forecast (through trend and analysis and other information) to suffer from some potential issues regarding supply and stock; and/or • comprise little or no sustainable features and benefits compared to industry-standard materials. Waste generation: across construction and/or operational phases, the baseline / future baseline of regional (or where justified, national): • inert and non-hazardous landfill capacity void is expected to reduce considerably by 6-10% as a result of wastes forecast. • hazardous landfill capacity void is expected to reduce considerably by 0.5 - 1% as a result of wastes forecast.
Very High	Use of materials: the key materials required for the construction and/or operation of a development: • are known to be insufficient in terms of production, supply and/or stock; and/or • comprise no sustainable features and benefits compared to industry-standard materials. Waste generation: across construction and/or operational phases, the baseline / future baseline of regional (or where justified, national): • inert and non-hazardous landfill capacity void is expected to reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand. • hazardous landfill capacity void is expected to reduce very considerably (by >1%); end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.

Source: IEMA (2020) Note: *Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts

Table 172: IEMA guidance for magnitude of impact for use of materials and waste generation

Significance	Description
No change	Use of materials: no materials required. Waste generation: • based on void capacity: for inert, non–hazardous and hazardous waste, zero waste generation and disposal from the development.

Negligible	Use of materials: no individual material type is equal to or greater than 1% by volume of the regional or where justified national baseline availability.
	Waste generation:
	• based on void capacity, the development will reduce:
	  ○ regional or where justified national landfill void capacity baseline for inert and non – hazardous by <1%; and
	  ○ national landfill void capacity baseline for hazardous waste by <0.1%.

Significance	Description
Minor	Use of materials: • one or more materials is between 1-5% by volume of the regional or where justified national baseline availability; and/or • the development has the potential to adversely and substantially* impact access to one or more allocated mineral site (in their entirety), placing their future use at risk. Waste generation: • based on void capacity, the development will reduce: o regional or where justified national landfill void capacity baseline for inert and non – hazardous by 1-5%; and o national landfill void capacity baseline for hazardous waste by <0.1-0.5%.
Moderate	Use of materials: • one or more materials is between 6-10% by volume of the regional or where justified national baseline availability; and/or • the allocated mineral site is substantially* sterilised by the development rendering it inaccessible for future use. Waste generation: • based on void capacity, the development will reduce: o regional or where justified national landfill void capacity baseline for inert and non – hazardous by 6-10%; and o national landfill void capacity baseline for hazardous waste by <0.5-1%.
Major	Use of materials: • one or more materials is >10% by volume of the regional or where justified, national baseline availability; and/or • more than one allocated mineral site is substantially* sterilised by the development rendering it inaccessible for future use. Waste generation: • based on void capacity, the development will reduce: o regional or where justified national landfill void capacity baseline for inert and non – hazardous by >10%; and o national landfill void capacity baseline for hazardous waste by >1%.

Source: IEMA (2020) Note: *Justified using professional judgement, based on the scale and nature of the allocated mineral site being assessed

23.10.9 The effect thresholds defined by IEMA are presented in **Table 173**; while the environmental effect based on the effect thresholds are presented in **Table 174**.

Table 173: Effect thresholds defined by IEMA Guidance

Sensitivity (or value) of receptor	Magnitude of impact				
	No change	**Negligible**	**Minor**	**Moderate**	**Major**
Very high	Neutral	Slight	Moderate or large	Large or very large	Very large
High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or large
Low	Neutral	Neutral or Slight	Neutral or slight	Slight	Slight or moderate
Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Source: IEMA (2020)

Table 174: The environmental effect based on the effect thresholds used by IEMA Guidance

Effect	Materials	Waste
Neutral	Not significant	Not significant
Slight		
Moderate	Significant	Significant
Large		
Very large		

Source: IEMA (2020)

Cumulative Effects

23.10.10 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the Project identified to date that may give rise to potential cumulative effects.

23.10.11 The scale of the other projects and their year of construction will be used to consider projects that will be included in the cumulative assessment. Information regarding materials to be used, waste management undertaken will be considered for projects that are of large scale and have similar construction timeline for cumulative assessment. For in-combination effects, it is unlikely that other aspects will have an effect along with materials and waste.

23.11 Assumptions and Limitations

23.11.1 Where materials are consumed and waste is generated, indirect adverse effects may arise from haulage, noise, dust, nuisance, traffic, vehicle emissions and water pollution. Such effects will be assessed by other environmental topics and report in associated ES chapters.

23.11.2 The EIA will not assess the impact of materials use and waste associated with the manufactured goods required by the Project as these are likely to be subject to their own separate consenting and regulatory controls at the place of production and their environmental effects would have been assessed at their place of production.

23.11.3 The EIA will not consider the environmental effects associated with the off-site extraction of raw materials used for the off-site manufacture of products as these environmental impacts would have been assessed at their place of production.

23.11.4 Given the early phases of design, estimates relating to the quantity of materials required and the quantity of waste arisings anticipated are likely to be provided at the EIA phase as the design progresses. As such, a detailed assessment of the use of materials and the waste generation and management from the Project will be carried out and reported in the ES.

23.11.5 Quantities of construction materials required by the Project will be based on Project information and experience from similar projects.

23.11.6 Quantities of general construction waste produced by the Project will be estimated including quantities of MSW arising from temporary compound and site office wastes. These will be based on estimates from a materials and waste forecast.

23.11.7 Where wastes are described as contaminated (or potentially contaminated), on a precautionary basis these will be assumed to be hazardous.

23.11.8 It is noted that any future changes to the permitted landfill remaining void capacity and throughput are uncertain. It is also difficult to assess the available capacity due to the commercial sensitivity of existing contracts and the timescales over which waste would be produced. It is likely that additional capacity will become available. However, it is not currently possible to predict the timeframes for when these new waste management facilities will become available and, therefore, how many of these sites will be available to accommodate waste arisings from the Project if the Project were to go ahead. Similarly, it is also possible that some of the existing waste management facilities might close or be unavailable. The Project will rely on information for future baseline provided by the NPTC, if available.

23.12 Summary

23.12.1 The proposed scope of the assessment for use of materials and generation and management of waste is contained in **Table 175**.

Table 175: Proposed scope of assessment for the use of Materials and Generation and Management of Waste Chapter of the ES

Receptor	Scoped in or out for construction	Scoped in or out for operation and maintenance	Justification for scoping in or out
Materials			
Reduction in the availability of materials	In	In	Construction of the Project will potentially require large quantities of material for both terrestrial and marine areas. Potential direct adverse effects associated with the import and use of primary aggregates and fill material for site preparation works, which may result in the depletion of non-renewable resources for both terrestrial and marine areas. There are MSAs and operational sand and gravel sites located within 500m of the Project (for terrestrial).
Depletion of non-renewable resources	In	In	
Sterilisation of MSAs	In	In	
Waste			
Temporary occupation of waste management infrastructure capacity (from treatment or for further transfer)	In	In	Construction and operation of the Project for both terrestrial and marine areas will generate waste arisings which will have to be sent to different waste management infrastructures and landfill sites.
Permanent reduction in landfill void capacity (from disposal of waste)	In	In	

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24 Ornithology

24.1 Introduction

24.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential terrestrial, freshwater and inshore marine ornithology effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

24.1.2 The effects of the Project on the following are considered:

- statutory sites designated for their international, national or local importance for birds;
- non statutory designations with birds as a notable feature; and
- protected and notable birds.

24.1.3 This environmental topic relates to both terrestrial and marine aspects of the Project.

24.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

24.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 6 – Air Quality, Chapter 7 – Airborne Noise and Groundborne Vibration; Chapter 13 – Terrestrial and Freshwater Ecology; Chapter 9 – Freshwater Environment; Appendix I: Underwater Noise and Vibration; Chapter 14 – Coastal Processes; Chapter 17 – Marine Ecology; Chapter 18 – Marine Water Quality and Sediment Quality;** and **Chapter 20 – Climate Change**.

24.2 Relevant Legislation, Policy and Technical Guidance

24.2.1 The legislation, policy, standards and guidelines considered to be relevant to the assessment of ornithology are detailed in **Table 176**.

24.2.2 Information regarding Planning Policy in Wales 2024 and Neath Port Talbot County Borough Council (NPTC) Local Development Plan 2011 – 2026 is provided in **Chapter 1 - Introduction** and **Chapter 3 – Legislative and Policy Framework**.

Table 176: Legislation, policy and guidance relevant to ornithology

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
The Environment (Wales) Act 2016	This Act sets out that public bodies (including ABP as a statutory harbour master) are required to seek to maintain and enhance biodiversity and promote the resilience of ecosystems in Wales when carrying out their normal functions (the "Section 6 Duty"). In addition, under Section 7, a list of species of 'principal importance' (henceforth referred to as 'Priority Species') to the conservation of biodiversity in Wales was drawn up which acts as an aid to guide public bodies in implementing their duty. This legislation is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
The Conservation of Habitats and Species Regulations 2017 (as amended)	These are the main pieces of legislation regarding the protection of species and habitats in Wales. Together this legislation affords protection to sites designated for nature conservation interest, including Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSI), as well as affording protection to certain bird species. Ramsar sites are wetlands of international importance and are treated the same as SPAs. Note that the Conservation of Habitats and Species Regulations 2017 (as amended) is retained EU law. Both pieces of legislation are relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
The Wildlife and Countryside Act (WCA) 1981 (as amended)	
Annex 1 of the European Council Directive 2009/147/EC on the conservation of wild birds (Birds Directive)	Annex 1 of the Birds Directive details those bird species which are protected due to: being in danger of extinction, vulnerable to specific changes in their habitats, considered rare due to small populations or restricted local distribution and those requiring particular attention for reasons of the specific nature of their habitat requirements. Member States are required to ensure the conservation of the most suitable habitats for these species. This is retained EU law that is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project. At the time of its introduction, the Birds Directive highlighted a significant lack of understanding of where the most important sites for birds were and stimulated an effort to identify and document them. The Important Bird and Biodiversity Areas (IBA) programme was therefore developed to guide the identification of areas of significance for birds in the European Union, and so from the outset sought to delineate discrete sites that can be managed through conservation action.
The Invasive Species (Enforcement and Permitting) Order 2019 (as amended)	Invasive non-native species (INNS) in the UK are regulated via a combination of Schedule 2 of this 2019 Order and also Section 14/Schedule 9 of the WCA 1981(as amended). The list of invasive species in Schedule 2 were removed from Schedule 9 of the WCA 1981 (as amended) as an amendment in 2019 so both pieces of legislation should be referenced but the offences and requirements are consistent between the two. This legislation is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
National Policy	
Technical Advice Note 5 (TAN5): Nature Conservation and Planning (Welsh Assembly Government, 2009)	Additional guidance on designations is included in TAN5 which should be read alongside national policy. TAN5 relates to nature conservation and planning (Welsh Assembly Government 2009) and provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. TAN5 provides advice for local planning authorities on: • the key principles of positive planning for nature conservation; • nature conservation and Local Development Plans; • nature conservation in development management procedures; • development affecting protected internationally- and nationally-designated sites and habitats; and • development affecting protected and priority habitats and species. This national policy is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
Local Policy	
NPTC Local Development Plan 2011-2026 Biodiversity and Geodiversity Supplementary Planning Guidance (Neath Port Talbot County Borough Council, 2018)	Together, these documents set out the importance and protection afforded to local non-statutory sites, priority habitats and species (including birds) and also important natural features (such as woodland, trees and ponds), as well as identifying priorities for nature conservation and enhancement. Most notably the draft Green Infrastructure Strategy and State of Nature and Nature Recovery Action Plan set out key biodiversity targets and priority areas for habitat creation and/or targeted ecological enhancement. This local policy is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
NPTC Local Development Plan 2011-2026 Landscape and Seascape Supplementary Planning Guidance (Neath Port Talbot County Borough Council, 2018)	
NPTC Biodiversity Duty Plan (2023 – 2026) (Neath Port Talbot County Borough Council, 2023)	
NPTC draft Green Infrastructure Strategy (reviewed in draft) (Neath Port Talbot County Borough Council, 2024)	
The State of Nature and Nature Recovery Action Plan for NPTC (Neath Port Talbot County Borough Council , 2023)	
Guidance and Standards	
Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland –2nd edition (Chartered Institute of Ecology and Environmental Management, 2018)	The guidelines developed by the CIEEM aim to promote good practice in Ecological Impact Assessment relating to terrestrial, freshwater, coastal and marine environments in the UK and Ireland. This guidance is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Birds of Conservation Concern Wales 4 (BoCCW4): the population status of birds in Wales (2022) (Johnstone, 2022)	The fourth review of the population status of birds in Wales, complements Birds of Conservation Concern 5 (Stanbury, 2021) in the UK. Birds that breed, winter, or regularly migrate through Wales were assessed against standardised criteria, using data from monitoring and surveillance Projects and citizen science initiatives. Each was assigned to Green, Amber, or Red lists, indicating increasing levels of conservation concern. Levels of concern use data for Wales, so far as possible, and are based on abundance and distribution change, as well as current population size, localised distribution, and international importance (extinction risk was not a criterion). This guidance is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
Defra and Welsh Government Guidance: Duty to provide and protect habitat for wild birds (2021) (Department of Environment and Rural Affairs and Welsh Government, 2021)	Guidance for competent authorities on providing, protecting and restoring habitats for wild birds. This will help to make sure there are healthy populations of wild birds in their natural habitats across England and Wales. This guidance is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
Bird Survey Guidelines for assessing ecological impacts (Bird Survey & Assessment Steering Group, 2025)	Guidelines used to inform appropriate breeding and non-breeding bird survey methodology. This guidance is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
Rare breeding birds in the UK in 2021 (Eaton, 2023)	This report documents the status of 111 species and subspecies of rare or scarce native birds that bred, or showed signs of breeding, in the UK in 2021. This guidance is relevant to the terrestrial, freshwater, inshore and offshore marine elements of the Project.
Scottish Natural Heritage recommended bird survey methods to inform impact assessment of onshore wind farms (Scottish Natural Heritage, 2017)	This guidance replaces the original Survey Methods for Use in Assessing the Impacts of Onshore Wind farms on Bird Communities (2005) and is written for developers, ecological consultants and staff within SNH and consenting authorities. It is part of a package of ornithological guidance for renewable energy developments. This guidance is relevant to the survey methodology adopted to gain baseline information on bird activity within the tidal harbour (inshore marine areas), where wind turbines will be stored during testing and commissioning.
Joint advice note from the Statutory Nature Conservation Bodies (SNCBs) regarding bird collision risk modelling for offshore wind developments (Joint Nature Conservation Committee, Natural England, Natural Resources Wales, NatureScot, 2024)	This guidance from SNCBs provides recommendations on how the Offshore Wind Farm industry should apply the available evidence on turbine collision risk to the impact assessment process. This is an updated advice note that covers the input parameters required for collision risk modelling, including updated avoidance rates. This guidance is relevant to inshore marine elements of the Project and considers the potential impacts of the wind turbine units during testing and commissioning in the tidal harbour.
Through-the-tidal-cycle and Night-time Waterbird Counts as part of the London Gateway Assessment (Armitage, 2002).	As part of the Environmental Impact Assessment (EIA), it has been proposed that through-the-tidal-cycle counts during the day, and night are used to determine how the distribution of waterbirds varies with the tidal and diurnal states in the immediate vicinity of the affected area. This EIA Scoping Report provides a preliminary assessment of the birds' distribution and investigates the feasibility of such an approach. This guidance is relevant to inshore marine elements of the Project.

24.3 Engagement and Consultation

24.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

24.3.2 Discussions with NPTC ecologists were undertaken in April and May 2024 and Natural Resources Wales (NRW) in February and April 2024 in relation to ornithology and included discussions on the ornithology survey scope within the EIA Scoping Boundary which consists of the Port of Port Talbot, Kenfig Marshalling Yard Site and Jersey Marine Site.

24.3.3 Consultation will continue with NPTC ecologists and NRW regarding baseline field survey results in 2024 and proposed mitigation measures and compensation in relation to ornithology. Any outcomes will be considered as part of the assessment and reported in the Environmental Statement (ES). Consultation with non-statutory stakeholders may also be required.

24.4 Study Area

24.4.1 Ecological Impact Assessment (EcIA) is a process of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions on habitats, species and ecosystems.

24.4.2 The current guidance on EcIA (CIEEM, 2018) recommends that all ecological features that occur within a 'zone of influence' (ZoI) for a proposed development are investigated. The ZoI includes:

- areas directly within the land take for the proposed development and access;
- areas which will be temporarily affected during construction;
- areas likely to be impacted by hydrological disruption;
- areas where there is a risk of pollution and anthropogenic disturbance during construction and/or operation; and
- areas where there is a collision risk during operation.

24.4.3 For ornithology, the following ZoI will be used to inform the assessment during construction and operation of the Project:

- statutory sites designated for their international and national importance for birds. These are SPAs, Ramsar sites, Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR). A ZoI of 20km will be used from the EIA Scoping Boundary, covering the terrestrial, inshore and offshore marine areas;
- statutory sites designated for their local importance for birds. These are Local Nature Reserves (LNR). A ZoI of 5km will be used from the EIA Scoping Boundary, covering the terrestrial, inshore and offshore marine areas;
- non-statutory sites protected or notified for birds. These are Sites of Importance for Nature Conservation (SINC). A ZoI of 5km will be used from the EIA Scoping Boundary, covering the terrestrial, inshore and offshore marine areas;

- desk study records for protected and notable birds. A ZoI of 10km will be used within and from the EIA Scoping Boundary, covering the terrestrial, inshore and offshore marine areas; and
- protected and notable birds evidence. This has been recorded within the EIA Scoping Boundary and on the mouth of the River Afan (to the north) and Margam Sands (to the south). Protected and notable bird evidence has been recorded beyond the viewshed of the EIA Scoping Boundary on the mouth of the River Afan (to the north) and Margam Sands (to the south).

24.4.4 It was agreed with NPTC ecologists on 5th April 2024 that apart from the mouth of the River Afan and Margam Sands, no survey work will be proposed outside of the existing EIA Scoping Boundary (see Figure 2.2 in **Appendix A**). This is on the rationale that the other surrounding land use is from the steelworks, residential developments (separated by the River Afan) and roads. These areas are not considered likely to support particularly sensitive ornithological receptors, due to the lack of supporting habitats present and current levels of baseline noise and lighting disturbance.

24.4.5 The national and international designations study area for birds is provided in Figure 13.2 in **Appendix A**. The study area includes terrestrial and marine areas.

24.4.6 The extent of the study area will be refined, as necessary during the EIA and will be kept under review as the Project progresses, including in relation to the potential requirement for a marine disposal site and wet storage area.

24.5 Description of the Existing Environment

24.5.1 For the aspect of ornithology, the resources and receptors are:

- statutory designated sites of international importance to birds (within 20km of the EIA Scoping Boundary);
- statutory designated sites of national importance to birds (within 20km of the EIA Scoping Boundary);
- statutory designated sites of local importance to birds (within 5km of the EIA Scoping Boundary);
- non-statutory designations with birds as a notable feature (within 5km of the EIA Scoping Boundary); and
- protected and notable bird species.

Data Sources

24.5.2 The baseline for ornithology has been derived from the data sources set out in **Table 177**.

Table 177: Data sources

Data type	Data source
Species records from within 5km of the EIA Scoping Boundary	South and East Wales Biodiversity Records Centre (SEWBReC) (South and East Wales Biodiversity Records Centre , 2023)
British Trust of Ornithology (BTO) data report of relevant 10km grid squares for the EIA Scoping Boundary (SS79 and SS78)	BTO (British Trust for Ornithology, 2024)
Statutory and non-statutory site information from within 20km of the EIA Scoping Boundary	Multi Agency Geographical Information for the Countryside (MAGIC) (Department for Environment, Food and Rural Affairs, 2025)
Statutory and non-statutory site information from within 20km of the EIA Scoping Boundary	Joint Nature Conservation Committee (JNCC) (Joint Nature Conservation Committee, 2024)
Existing ecological reports completed for the LanzaTech site (planning application reference P2023/0858, see Chapter 2 – description of Development for further information) and Ornithology reports produced for the Applicant by BSG-ecology for within the EIA Scoping Boundary, including landside and inshore marine areas	BSG-ecology (BSG-ecology, 2022b; BSG-ecology, 2023; BSG-ecology, 2022a)
Species records from within 5km of the EIA Scoping Boundary	South and East Wales Biodiversity Records Centre (SEWBReC) (South and East Wales Biodiversity Records Centre , 2023)

Baseline Conditions

24.5.3 Important ornithological receptors are considered to be those species that are associated with the broad habitat types within the EIA Scoping Boundary and the ZoI (including scrub, reedbed, freshwater pools, neutral grassland, coastal grassland, broadleaved woodland, sand and shingle, dune slack vegetation, rocky shore, lowland fen, mudflats, subtidal habitats, gravel piles and bare ground, plus infrastructure) and that fall into one or more of the following categories:

- Schedule 1 of the WCA 1981 (as amended) which includes over 80 bird species;
- Schedule ZA1 of the WCA 1981 (as amended) which includes three bird species;
- Environment (Wales) Act 2016 Section 7 listed species;
- Local Biodiversity Action Plan priority species;
- species that are a reason for the designation of a statutory nature conservation site;
- species that are a reason for the designation of a non-statutory nature conservation sites (including Important Bird and Biodiversity Areas [IBAs]);
- Annex 1 of the Birds Directive (European Union, 2024);
- regular, occasional and potential breeding species meeting the Rare Breeding Birds Panel selection criteria (Eaton, 2023); and
- a species with a notable proportion of its range and/or abundance in the 10km grid squares for the EIA Scoping Boundary (SS79 and SS78), compared to the 10km grid squares in GB, Wales, regional or the relevant county and/or vice-county.

The Port

24.5.4 The port of Port Talbot covers an area of approximately 160ha and comprises of terrestrial (scrub, neutral grassland, coastal grassland, broadleaved woodland, bare ground and gravel piles), freshwater (reedbed, freshwater pools and open water) and marine habitats (sand and shingle, rocky shore, mudflats and subtidal habitats), plus infrastructure.

24.5.5 A suite of ecological survey work has been undertaken within the EIA Scoping Boundary (notably from the LanzaTech development planning application). BSG-ecology completed breeding and non-breeding bird transect and vantage point surveys within the EIA Scoping Boundary and covering inshore marine areas from 2020 to 2024. Baseline surveys were completed in 2024 to understand the ecological baseline for the terrestrial areas of the EIA scoping boundary (see **Appendix H**).

24.5.6 An initial assessment of international designations notable for birds (SPAs and Ramsar sites) within the ZoI of the EIA Scoping Boundary (20km) is set out within the Report to Inform a Habitats Regulations Assessment (HRA) Stage 1 Screening (**Appendix D**).

24.5.7 Based on the defined ZoI including the EIA Scoping Boundary and covering the terrestrial, inshore and to offshore marine areas (see Section 24.4), the desk study and field survey results for ornithology are summarised in **Table 178**. This includes statutory and non-statutory designated sites (see Figure 13.2 and 13.3 in **Appendix A** respectively), protected and notable bird species records from SEWBReC and protected and notable bird species records from field surveys. The table includes a high-level summary of the ecosystem function and importance of designated sites for ornithology, and likely importance informed by species records and survey data to inform how this receptor will be assessed.

Table 178: Ornithology baseline summary

Designated sites (ornithology receptors)	Summary	Ecosystem function and importance
Statutory designated sites of international importance to birds (within 20km)	Two statutory designated sites of international importance to birds are present within the ZoI of the EIA Scoping Boundary, where birds are a designated/notable feature. These are: • Burry Inlet Special Protection Area (SPA) and Ramsar – located approximately 19km north-west of the EIA Scoping Boundary, qualifies under Article 4.2 of the Birds Directive by supporting internationally or nationally important wintering populations of shelduck *Tadorna tadorna*, wigeon Anas penelope, teal *Anas crecca*, pintail *Anas acuta*, shoveler *Anas clypeata*, oystercatcher *Haematopus ostralegus*, grey plover *Pluvialis squatarola*, dunlin *Calidris alpina,* curlew *Numenius arquata*, redshank *Tringa tetanus* and turnstone *Arenaria interpres*. Also during passage migration, the site supports nationally important numbers of whimbrel *Numenius phaeopus*, greenshank *Tringa nebularia*, sandwich	These designations are all of international (SPA and Ramsar I) importance for nature conservation. Their functional value is variable according to the habitats present and designated interest features, whilst vulnerability to external pressures also varies according to designation.

Designated sites (ornithology receptors)	Summary	Ecosystem function and importance
	tern *Thalasseus sandvicensis*, common tern *Sterna hirundo*, arctic tern *Sterna paradisaea*, little tern *Sternula albifrons* and black tern *Chlidonias niger*. This is relevant to terrestrial and marine elements of the Project; and • Crymlyn Bog Ramsar site and SSSI – located approximately 6.5km north-west, notable for supporting summer populations in excess of 400 pairs of reed warblers *Acrocephalus scirpaceus* and 200 pairs of sedge warblers *Acrocephalus schoenobaenus.* This is relevant to terrestrial and marine elements of the Project.	
Statutory designated sites of national importance to birds (within 20km)	Sixt statutory designated sites of national importance for birds are present within the ZoI of the EIA Scoping Boundary. These are: • Blackpill SSSI – approximately 11.4km west of the EIA Scoping Boundary, notable for overwintering and passage waders including ringed plover *Charadrius hiaticula*, sanderling *Calidris alba* which are present in numbers exceeding 1% of both British and Western European populations. This is relevant to terrestrial and marine elements of the Project. • Burry Inlet and Loughor Estuary Site of Special Scientific Interest (SSSI)– located approximately 19km north-west of the EIA Scoping Boundary, notable for supporting wintering birds. This is relevant to terrestrial and marine elements of the Project; • Gwrhyd Meadows SSSI – approximately 18km north of the EIA Scoping Boundary, notable for breeding birds such as redstart *Phonecards phoenicurus*, tree pipit *Anthus trivialis*, willow warbler *Phylloscopus trochilus* and siskin *Spinus spinus*. This is relevant to terrestrial elements of the Project; • Kenfig SSSI and Kenfig Pool and Dunes National Nature Reserve (NNR), notable for breeding birds - located approximately 4.2km south-east of the EIA Scoping Boundary. This is relevant to terrestrial and marine elements of the Project; • Eglwys Nunydd Reservoir SSSI - located 3.5km south-east of the EIA Scoping Boundary, notable for non-breeding waterfowl and passage migrants. This is relevant to terrestrial and marine elements of the Project; and • Crymlyn Burrows SSSI and Crymlyn Bog and Pant-y-Sais NNR– located 6.5km north-west of the EIA Scoping Boundary, notable for supporting non-breeding small waders and a diversity of birds within the extensive reedbed habitat present. This is relevant to terrestrial and marine elements of the Project.	These designations are all of national (SSSI and NNR) importance for nature conservation. Their functional value is variable according to the habitats present and designated interest features, whilst vulnerability to external pressures also varies according to designation.

Designated sites (ornithology receptors)	Summary	Ecosystem function and importance
Statutory designated sites of local importance to birds (within 5km)	A statutory designated site of local importance for birds is present within the ZoI of the EIA Scoping Boundary. This is: • Kenfig Pool and Dunes LNR notable for breeding birds – located approximately 4km south-east of the EIA Scoping Boundary. This is relevant to terrestrial and marine elements of the Project.	
Non-statutory designations with birds as a notable feature (within 5km of the EIA Scoping Boundary)	Seven non-statutory designated sites are present within the ZoI of the EIA Scoping Boundary, where birds are a notable feature. These include: • Harbourside Law Courts Sites of Importance for Nature Conservation (SINC). Important species noted are starling *Sturnus vulgaris* and linnet *Linaria cannabina.* This is relevant to terrestrial and marine elements of the Project; • Margam Country Park SINC. Skylark *Alauda arvensis* present on site. This is relevant to terrestrial elements of the Project; • Baglan Bay SINC. Supports one of the largest populations of lapwing *Vanellus Vanellus* in Wales and is therefore, considered nationally important. This is relevant to terrestrial and marine elements of the Project; • Brunel Dock Reedbed SINC. Reedbed habitat that supports breeding birds including Cetti's warbler *Cettia cetti*. This is relevant to terrestrial and marine elements of the Project; • Eglwys Nunydd SINC. Supports a diversity of migrant and resident birds. This is relevant to terrestrial and marine elements of the Project; • Panasonic SINC. The site has previously supported breeding This is relevant to terrestrial and marine elements of the Project. lapwing and a variety of other birds; and • The Waun, Cimla SINC. Recorded taxa includes 73 bird species. This is relevant to terrestrial and marine elements of the Project.	Functional value lies with the habitat type but also the connectivity between them, forming an interconnected network.
Protected and Notable Bird Species records (SEWBReC) (within 5km of the EIA Scoping Boundary)	Within the EIA Scoping Boundary multiple habitats are present that could support a diverse range of bird species including terrestrial, freshwater and inshore marine areas. Offshore marine areas within the ZoI (5km) also could support a diverse range of bird species. A total of 164 species records were received from SEWBReC within the EIA Scoping Boundary plus the defined ZoI (5km). This includes 47 WCA 1981 (as amended) Schedule 1 species, 35 Environment (Wales) Act 2016 Section 7 listed species, 33 Annex 1 species of the Birds Directive, 44 BoCCW4 Red list species, 70 BoCCW4 Amber list species, 10	Requirements are species-dependent but a mosaic of habitats comprising a combination of bare ground, scrub, trees, grassland, gravel piles, waterbodies / watercourses and grassland plus structures offer a range of nesting, roosting and foraging opportunities, plus supporting habitat during migration. A diverse terrestrial and aquatic invertebrate assemblage typical of open mosaic habitats offer a vast foraging resource for a

Designated sites (ornithology receptors)	Summary	Ecosystem function and importance
	International Union for Conservation of Nature (IUCN) Critically Endangered species, 26 Endangered species and 31 Vulnerable species. A BTO data report was obtained of relevant 10km grid squares for the EIA Scoping Boundary (SS79 and SS78). During 2007-2011, 110 species were recorded in the vicinity of the EIA Scoping Boundary during the breeding season, at various spatial scales. Of those species, 88 were recorded with breeding evidence in the site's relevant tetrads. Within 2km of the EIA Scoping Boundary four WCA 1981 (as amended) Schedule 1 species, one Annex 1 species of the Birds Directive and 14 BoCCW4 Red list species were recorded. During 2020-2024, 167 species were recorded in the vicinity of the site in the breeding season at various spatial scales. Within 2km of the EIA Scoping Boundary 11 WCA 1981 (as amended) Schedule 1 species, five Annex 1 species of the Birds Directive and 20 BoCCW4 Red list species were recorded. This is relevant to terrestrial and marine elements of the Project.	range of bird species. Minimal anthropogenic disturbance is preferred by the majority of bird species. The use of intertidal areas by waders, wildfowl, gulls and other waterbirds will be dependent on food availability, the location of suitable roosting sites, and exposure and tolerance of anthropogenic disturbance. The use of offshore and coastal habitats by seabirds will be dependent on food availability and exposure and tolerance of extreme weather conditions and anthropogenic disturbance.
Protected and Notable Bird Species records (BSG-ecology surveys, 2020 – present)	Vantage point, high and low tide counts, and breeding bird surveys have been completed by BSG-ecology within the EIA Scoping Boundary, covering terrestrial, freshwater and inshore marine areas from 2020 to2024. During vantage point and high/low tide counts of the foreshore from 2020 to 2023 a maximum of 31 notable species were recorded. Notable species were defined as WCA 1981 (as amended) Schedule 1 and Annex 1 raptors/owls of the Birds Directive, migratory wildfowl and waders. A total of 15 WCA 1981 (as amended) Schedule 1 species were recorded either within the EIA Scoping Boundary or within the ZoI of the Site from 2020 to 2023. Some key notable species including WCA 1981 (as amended) Schedule 1, Annex 1 species of the Birds Directive, BoCCW4 Amber and Red List and Environment (Wales) Act Section 7 listed species include (considered by supporting habitat type and not limited to this list): • reedbed: Cetti's warbler, reed bunting *Emberiza schoeniclus* and kingfisher *Alcedo atthis;* • artificial sand bank: sand martin *Riparia riparia;* • neutral grassland: skylark and meadow pipit *Anthus pratensis;* • scrub: Whitethroat *Sylvia communis*, dunnock *Prunella modularis*, kestrel *Falco tinnunculus*, linnet and house sparrow *Passer domesticus*	

Designated sites (ornithology receptors)	Summary	Ecosystem function and importance
	• broadleaved woodland: Willow warbler and song thrush *Turdus philomelos;* • sand and shingle: Curlew, whimbrel, oystercatcher, dunlin, ringed plover and merlin *Falco columbarius; and* • infrastructure: Peregrine *Falco peregrinus* and black redstart *Phoenicurus ochruros*. This is relevant to terrestrial and marine elements of the Project.	

Mott MacDonald, 2024

Kenfig Marshalling Yard Site

24.5.8 Kenfig Marshalling Yard Site is the former Margam Railway Sidings. It is accessed via an existing track off the B4283, Water Street. It passes under the M4 and the existing railway line and into the southern end of the land parcel.

24.5.9 It covers an area of approximately 24ha and comprises a mosaic of habitats including dune slack vegetation, lowland fen, reedbed, naturally regenerating grassland, coastal grassland and areas of ephemeral vegetation alongside areas of dense and scattered scrub, woodland and hardstanding.

24.5.10 In terms of designations, Kenfig Marshalling Yard Site is surrounded by a number of sites of ecological value for birds, including Kenfig SSSI which is adjacent and notable for breeding birds and Eglwys Nunydd Reservoir SSSI which is notable for non-breeding birds and approximately 280m north-east from Kenfig Marshalling Yard Site.

Jersey Marine Site

24.5.11 Jersey Marine Site covers an area of approximately 24 ha and is an area of undeveloped land crossed by the existing M4 and A48 with the River Neath to the east. The eastern part of the Jersey Marine Site is crossed by a surface pipeline as well as existing overhead lines. This Jersey Marine Site is accessed by a secondary road off the B4290. The access route into the site crosses the canal and over the railway line, passes through an industrial site and then into the north of the site via an existing bridge which is located under the elevated section of M4.

24.5.12 Jersey Marine Site largely comprises a mixture of grassland, scrub and woodland habitats. In addition, some areas of remnant heath are present and a large area of saltmarsh in the northeast.

24.5.13 In terms of designations, Jersey Marine Site is located approximately 1km north of Crymlyn Burrows SSSI, notable for breeding reed warbler.

Next steps

24.5.14 The Port: Further breeding and non-breeding survey work is ongoing. The results of these surveys will be included and considered in the ES.

24.5.15 Kenfig Marshalling Yard Site and Jersey Marine Site: As the proposed works at these sites comprise habitat creation, enhancement and ongoing management to compensate for anticipated habitat loss within the Port, a full suite of ornithological baseline surveys has not been proposed. Instead, an assessment of habitat suitability for ornithological receptors is proposed. This has been agreed with NPTC ecologists.

24.5.16 There may be a requirement for additional ornithology surveys in relation to the potential requirement for a marine disposal site and wet storage area.

24.6 Future Baseline

24.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The ornithology chapter of the ES would seek to explain what the environment change, in terms of ornithology, would likely be in the future if the Project were not to go ahead.

24.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence.

24.6.3 These predicted environmental changes will be reviewed alongside current ornithological baseline information to assess how these predicted changes might impact on sensitive ornithological receptors. This will also be considered alongside any anticipated changes in local and national policy and legislation.

24.6.4 For ornithology, any changes to baseline conditions will be kept under review and reconfirmed through the EIA process.

24.7 Mitigation Measures

24.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for ornithology will be identified as the Project progresses and those taken forwarded recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principle and types of mitigation, and how mitigation will be taken forward and secured.

24.7.2 This section sets out the potential controls relevant to ornithology, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

24.7.3 An assessment will be made as part of the EIA process to establish the level of mitigation, compensation and enhancement required. This will be informed by the baseline breeding and non-breeding bird surveys, the on-site mitigation and compensation and anticipated impacts. It will also be informed by stakeholder engagement. This assessment will determine the level of off-site mitigation, compensation and enhancement required.

Design Measures

24.7.4 Embedded mitigation (primary mitigation) for terrestrial, freshwater, inshore and offshore marine areas (if relevant) which may be incorporated into the Project design development is likely to include:

- safeguarding of ecological features, habitats, connectivity and function for protected species through avoiding and minimising key areas within the EIA Scoping Boundary. This will include implementing sensitive lighting design, inclusion of strategic movement corridors considering flight paths in the Project;
- inclusion of ecological on-site compensation through landscaping and habitat creation embedded into the masterplan and infrastructure (modular biodiversity units, Sustainable Urban Drainage Systems, brown roofs etc.); and
- once all on-site options have been exhausted and compensation still required, off-site compensation will be included. For this Project, it is acknowledged that off-site compensation is integral to the biodiversity strategy given the baseline ecological value, the scale of potential impacts and limited space within the Project footprint to deliver strategic or significant compensation on-site alongside the proposed development. It is anticipated that the off-site compensation will comprise a package of measures including some habitat creation alongside other potential measures to be confirmed (but could include community engagement, research and survey to further the local body of research and/or investment in management of existing ecological areas in the wider landscape).

24.7.5 Embedded mitigation will be kept under review as the Project progresses to ensure that a proportionate approach is adopted.

Construction Controls

24.7.6 Refer to **Chapter 5 – Approach to Assessment** where appropriate for details on Code of Construction Practice (CoCP).

24.7.7 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) for terrestrial, freshwater, inshore and offshore marine areas (if relevant) which may be incorporated into the Project at the construction stage include:

- construction programming to avoid key sensitive periods for priority/notable birds (core breeding period from March to August, however, nesting activity can vary and extend beyond this defined sensitive period) or design working measures to minimise potential effects and associated impacts (e.g. implementing best practice pollution safeguards); and
- construction safeguards such as timing of work restrictions (avoiding vegetation removal during the breeding bird season where possible), species specific buffer zones and ecological supervision.

24.7.8 These measures will be set out in a Construction Environmental Management Plan (CEMP).

Operational and Maintenance Controls

24.7.9 Possible mitigation opportunities (including primary, secondary and tertiary mitigation) for terrestrial, freshwater, inshore and offshore marine areas (if relevant) which may be incorporated at the operational stage include:

- detection and monitoring solutions for birds via camera and radar monitoring of wind turbines; and
- consideration of viability for wind turbine shut down during high detection rates, poor weather conditions and particularly sensitive ecological timeframes such as during peak migration.

24.7.10 Operation controls will be kept under review as the Project progresses to ensure that a proportionate approach is adopted.

24.8 Potential Likely Significant Effects

24.8.1 The potential likely significant effects for ornithology are described in **Table 179**. These take into account the expected control measures set out within Section 24.7. These activities and associated effects have been scoped in due to the likelihood of requiring additional mitigation measures beyond adherence to best practice and embedded design.

24.8.2 The activities, effects and receptors will be kept under review as the Project progresses, including in relation to the potential requirement for a for a marine disposal site and wet storage area.

Table 179: Potential Likely significant ornithology effects

Activity	Effect	Receptor
Construction		
Permanent land take	Direct loss of nesting, roosting, foraging and migratory bird habitat within the terrestrial, freshwater and inshore marine habitats.	Breeding and non-breeding birds (including populations associated with statutory and non-statutory designated sites). and supporting habitats.
	Habitat fragmentation within the terrestrial, freshwater and inshore marine habitats.	
	Reduced resilience to climate change of retained ecosystems within the terrestrial, freshwater and inshore marine habitats.	
	Direct killing and injury of protected and notable birds within the terrestrial, freshwater and inshore marine habitats.	
	Disturbance to protected and notable birds from noise, vibration and visual disturbance within the terrestrial, freshwater, inshore and offshore marine habitats.	
	Damage or degradation of retained supporting habitats and ecosystems within the terrestrial, freshwater, inshore and offshore marine habitats.	
Temporary land take	Direct loss of nesting, roosting, foraging and migratory bird habitat within the terrestrial, freshwater and inshore marine habitats.	Breeding and non-breeding birds (including populations associated with statutory and non-statutory designated

Activity	Effect	Receptor
	Habitat fragmentation within the terrestrial, freshwater and inshore marine habitats.	sites). and supporting habitats.
	Reduced resilience to climate change of retained ecosystems within the terrestrial, freshwater and inshore marine habitats.	
	Direct killing and injury of protected within the terrestrial, freshwater and inshore marine habitats. and notable birds	
	Disturbance to protected and notable birds from noise, vibration and visual disturbance within the terrestrial, freshwater, inshore and offshore marine habitats.	
	Damage or degradation of retained supporting habitats and ecosystems within the terrestrial, freshwater, inshore and offshore marine habitats.	
Increased vehicle and vessel movements	Changes in air quality causing damage or degradation of retained supporting habitats and ecosystems within the terrestrial, freshwater, inshore and offshore marine areas.	Breeding and non-breeding birds (including populations associated with statutory and non-statutory designated sites). and supporting habitats.
Increased lighting	Disturbance to protected and notable birds from lighting and skyglow within the terrestrial, freshwater, inshore and offshore marine habitats.	Breeding and non-breeding birds (including populations associated with statutory and non-statutory designated sites).
Operations and Maintenance		
Commissioning of wind turbines	Collision of birds with turbines resulting in killing and/or injury of protected and notable birds present in the inshore marine area	Breeding and non-breeding birds (including populations associated with statutory and non-statutory designated sites).
Operation of the site	Damage or degradation of retained supporting habitats and ecosystems within the terrestrial, freshwater and inshore marine areas.	Breeding and non-breeding birds (including populations associated with statutory and non-statutory designated sites). and supporting habitats.
	Disturbance to protected and notable birds from lighting and skyglow within the terrestrial, freshwater, inshore and offshore marine areas.	
	Disturbance to protected and notable birds from noise, vibration and visual disturbance within the terrestrial, freshwater, inshore and offshore marine areas.	
	Air quality impacts on supporting habitat within the terrestrial, freshwater, inshore and offshore marine areas.	

24.9 Resources and Receptors Scoped Out of Assessment

24.9.1 The resources or receptors that are proposed to be scoped out of the assessment for ornithology are set out within **Table 180**.

Table 180: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Construction			
Increased vehicle and vessel movement	Injury and/or mortality due to collision with vehicles and vessels	Breeding and non-breeding birds	The Port of Port Talbot is used by differing sized vehicles (cars and trucks) and vessels, such that species present are likely habituated to regular vehicle and vessel movements. Given the baseline context, it is considered unlikely that increased construction traffic would lead to significant changes in collision risk to species present.

24.10 Proposed Assessment Methodology

24.10.1 The assessment methodology to assess importance of ornithological receptors, magnitude of impacts and significance of effects will follow the same approach as outlined in **Chapter 13 – Terrestrial and Freshwater Ecology**, which draws from the CIEEM (2018) guidance.

Cumulative Effects

24.10.2 The approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects** which includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

24.10.3 The potential for significant cumulative effects will also be considered in the ES, in accordance with CIEEM (2018) guidance. Other developments within the Project ZoI (20km) will be considered where the potential effects on ornithological receptors are the same as the Project. Reference will be made to ornithological survey reports and ecological assessment prepared for the other relevant developments or if not publicly available, professional judgement will be used to assess the potential cumulative effects on ornithological receptors.

24.11 Assumptions and Limitations

24.11.1 The key assessment assumptions and limitations in relation to Ornithology are summarised below:

- baseline breeding bird survey reports for 2024 cover both terrestrial and coastal habitats via transect and vantage point survey methods. A reasonable “worst-case” assumption has been made that any ornithological receptors covered by the surveys undertaken need to be scoped in and could be affected by works. Once the breeding bird survey reports have been finalised, survey results will refine the list of important ornithological receptors and clarify any impact pathways that can be scoped out;
- there are limitations in the ornithological baseline data recording that are relevant to the EIA, namely that surveys are only ever a snapshot of

activity and desktop records can by their nature be ad-hoc and so can be used for presence but not absence of species;

- information will also be provided to enable the competent authority (NRW) to undertake a Stage 2 Appropriate Assessment, assessing the effects of the proposed works on the qualifying features SPAs and Ramsar sites within the ZoI. The HRA will be provided as a technical appendix to the ES. A HRA Stage 1 Screening has been undertaken as part of this EIA Scoping and is provided in **Appendix D**;
- the time of year and frequency of testing is not known and therefore, is a limitation on the assessment as the collision risk posed by the installation of turbines to birds will vary temporally (based on sensitive periods for birds such as during passage migration) and with the frequency of testing (number of weeks within a year that turbines are tested and therefore, in-situ posing a collision risk to birds).

24.12 Summary

24.12.1 The proposed scope of the assessment for ornithology is contained within **Table 181**.

Table 181: Proposed scope of the Ornithology Chapter of the ES

Receptor	Construction scoped in or out	Operation and maintenance scoped in or out	Justification for scoping in or out
Statutory designations (relevant to birds)	In	In	Impact pathways are present.
Non-statutory designations (relevant to birds)	In	In	Impact pathways are present.
Breeding and non-breeding birds	In	In	Impact pathways are present to both breeding and non-breeding birds.

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25 Population and Human Health

25.1 Introduction

25.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential population and human health effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

25.1.2 The following potential significant effects and receptors relating to the Project are considered in this chapter:

- **effects** on the ability of community facilities / social infrastructure, public services and recreational resources to operate, and for users to access the same level of services as before construction (relating to Community and recreational facilities and their users (including residents, visitors and employees in the area as **receptors**);
- **effects** on the health and wellbeing (via health pathways) of local residents, visitors and employees (as **receptors**) as a result of changes to the environment and accessibility in the area;
- **effects** on the accommodation market relating to demand for temporary accommodation (private residential and visitor accommodation), on the local accommodation market (as a **receptor**)

25.1.3 This environmental topic relates to both terrestrial and marine aspects of the Project.

25.1.4 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment**.

25.1.5 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 6 – Air Quality**; **Chapter 7 – Airborne Noise and Groundborne Vibration**; **Chapter 12 – Onshore Traffic and Transport**; **Chapter 15 – Commercial and Recreational Fisheries**; **Chapter 18: Marine Water and Sediment Quality**; **Chapter 19 – Navigation and Marine Transport**; **Chapter 20 – Climate Change**; **Chapter 22 – Major Accidents and Disasters**; and **Chapter 26 – Socio-economics**.

25.1.6 The population and human health chapter is distinct from **Chapter 26 – Socio-economics**, which considers the economic effect of employment, including skills, and supply chain benefits on the local, regional and national economy as receptors. That effect is one element contributing to a positive health pathway on local residents and employees as receptors, which is considered in this chapter.

25.2 Relevant Legislation, Policy and Technical Guidance

25.2.1 The legislation, policy, standards and guidelines considered (in addition to those set out in **Chapter 3 – Legislative and Policy Framework** of this EIA Scoping Report) to be relevant to the assessment of population and human health are detailed in **Table 182**.

Table 182: Legislation, policy and guidance relevant to population and human health

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Well-being of Future Generations (Wales) Act 2015	The Wellbeing of Future Generations Act identifies seven well-being goals that are relevant to the consideration of population and human health effects from the Project including the effects of economic prosperity, employment and skills, environmental improvement, reduction of socio-economic inequality and the promotion of positive health outcomes. These regulations are relevant to the terrestrial and marine elements of the Project.
The Marine Works (Environmental Impact Assessment) Regulations 2007	The Marine Works EIA Regulations require that certain types of projects with the potential to significantly affect the environment must have an EIA before a Marine Licence decision is made, which must include an assessment of likely significant effects on population and human health. These regulations are relevant to the marine elements of the Project.
The Environmental Permitting (England and Wales) Regulations 2016	These provide a framework for controlling activities that could harm the environment or human health. These regulations are relevant to the terrestrial and marine elements of the Project.
National Policy	
Future Wales: The National Plan 2040 (Welsh Government, 2021)	The National Plan sets the Welsh Government's strategic and spatial choices for addressing key national priorities through the planning system. An overarching priority is to tackle health and socio-economic inequality through sustainable growth, promoting access to jobs and services and creating inclusive and healthy places. For South West Wales, it recognises that there are both regional and local disparities in terms of health and community indicators within the region and particularly acute inequality relating to socio-economic deprivation in Port Talbot. These policies are relevant to the terrestrial elements of the Project.
Planning Policy Wales (Edition 12) (Welsh Government, 2024)	Reiterates many of the objectives of the National Plan to promote economic, social, environmental, and cultural well-being by providing employment and sustainable economic development and facilitating accessible and healthy environments while limiting environmental impact. These policies are relevant to the terrestrial elements of the Project.
Technical Advice Note (TAN) 16: Sport, Recreation and Open Space 2009 (Welsh Government, 2009)	This TAN advises on the role of the planning system in making provision for sport and recreational facilities and informal open spaces, as well as protecting existing facilities and open spaces in

Relevant legislation / policy / guidance	Relevance to assessment
	urban and rural areas in Wales, including public parks and gardens, sports facilities, play areas, allotments and water. These policies are relevant to the terrestrial and marine elements of the Project.
Wales National Marine Plan (Welsh Government, 2019)	The Welsh National Marine Plan provides the planning framework to support proposals and license applications, as well as public authorities for decision making. The plan identifies a number of measures which would reduce the impacts of shipping on causes of human health effects (e.g. air quality). These policies are relevant to the marine elements of the Project.
UK Marine Policy Statement (HMGovernment , 2011)	The MPS is the framework for preparing Marine Plans and taking decisions affecting the marine environment and requires the consideration of environmental effects of marine development on human health (including from changes in noise and air quality). These policies are relevant to the marine elements of the Project.
Local Policy	
Neath Port Talbot County Borough Council (NPTC) Adopted Local Development Plan (Adopted January 2016) 2011-2026 (NPTC, 2016)	The Local Development Plan provides the basis for decisions on land use planning in the County Borough up to 2026, which includes population and human health factors and policy areas relevant to the assessment reported in the Environmental Statement (ES). The Plan sets specific strategic polices for health and sustainable communities of which the following are likely to require consideration within scope of this assessment: • Strategic Policy SP2 Health; • Strategic Policy SP3 Sustainable Communities; • Strategic Policy SP4 Infrastructure; and • Strategic Policy SP10 Open Space. These policies are relevant to the terrestrial and marine elements of the Project.
Neath Port Talbot Council Replacement Local Development Plan (RLDP) 2023-2038 (NPTC, 2023)	As part of the evidence base for the Revised Local Development Plan (RDLP), Neath Port Talbot Council has undertaken a consultation on its key issues, Vision and Objectives (highlighting the key issues the authority faces); potential Growth Options (which sets out how many houses and jobs are needed) and potential Spatial Options (where we will grow) for the plan period of 2023 – 2038. While not adopted as policy it provides material information relating to priorities for addressing community, social and health/wellbeing inequalities and will inform the ES on drivers of baseline inequality such as the prevailing age profile, obesity and low level of physical activity. These policies are relevant to the terrestrial elements of the Project.
Neath Port Talbot Council Replacement Local Development Plan (RLDP) 2023-2038 Preferred Strategy (NPTC, 2024)	Following the consultation on the RDLP summarised above, Neath Port Talbot Council has undertaken a consultation on the Preferred Strategy. While not adopted as policy it provides material information relating

Relevant legislation / policy / guidance	Relevance to assessment
	to preferred strategy in terms of priorities for addressing community, social and health / wellbeing inequalities and will inform the ES on drivers of baseline inequality such as the prevailing age profile, obesity and low level of physical activity. These policies are relevant to the terrestrial elements of the Project.
Neath Port Talbot Wellbeing Plan 2023-2028 (NPTC, n.d.)	The Wellbeing Plan sets long-term objectives for public health and wellbeing outcomes in Neath Port Talbot, relating to social, environmental and economic drivers of good and bad health. This includes an extensive local assessment of wellbeing undertaken in 2022 that will be used to inform the baseline for the ES. The Plan sets objectives based on the fundamental aspects of the Well-being of Future Generations Act (2015) that will be material to the health and wellbeing effects of the construction and operation of the Project in terms of the sensitivity of receptors and areas of focus (which include environmental improvement and prosperity through employment and skills). These policies are relevant to the terrestrial elements of the Project.
Guidance and Standards	
Healthy Urban Development Unit Rapid Health Impact Assessment Tool (NHS, 2019)	Published guidance will be used to identify potential health and wellbeing pathways and determine the methodology and approach to identifying significance for public health effects during construction, operation and decommissioning. This guidance also draws upon and effectively updates preceding guidance published by Public Health England and the Institute of Public Health which may be referenced directly within the ES. These guidance/standards are relevant to the terrestrial and marine elements of the Project.
IEMA Determining Significance For Human Health in Environmental Impact Assessment (IEMA, 2022)	
IEMA Effective Scoping of Human Health in Environmental Impact Assessment (IEMA, 2022)	
Mental Wellbeing Impact Assessment Toolkit (National MWIA Collaborative (England), 2011)	

25.3 Engagement and Consultation

25.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

25.3.2 No consultation or stakeholder engagement has been undertaken to date with specific reference to the population and human health assessment, other than to obtain baseline data and a fully coordinated stakeholder engagement exercise is to be undertaken in due course.

25.3.3 The population and human health assessment will be informed by consultation with stakeholders including Local Authority officers including Public Health Officers, and local and regional NHS organisations.

25.4 Study Area

25.4.1 The study areas for the population and human health assessment will be influenced by several factors:

- the availability of public datasets for the presentation of population and human health data, which is likely to be determined by administrative and statistical geography including Lower-Level Super Output Areas, Wards and Districts;
- the spatial extent of combined environmental effects from other topics which may contribute to health, wellbeing and community effects; and
- the location relative to the Project, and area of influence or catchment of community and recreational facilities or public services (the former influenced by the type of facility, the latter by administrative geography).

25.4.2 As such, the geographical study area will be different for different types of effects and may develop over time as further information is available. For the purposes of this scoping report, it is considered likely that the following spatial extents will be presented and assessed:

- a 'local' study area determined by best-fit wards within 1km of the Project in order to capture the likely environmental effects of the Project on people, subject to review on progression of those environmental assessments (in this case Sandfields East, Aberavon, Port Talbot and Margam & Tai-bach wards); and
- district-level (Neath Port Talbot).

25.4.3 Baseline data and assessments will be benchmarked as appropriate (e.g. to the national (Wales) average) to influence sensitivity criteria for receptors.

25.5 Description of the Existing Environment

Resources and Receptors

25.5.1 For population and human health, the resources and receptors are:

- Residents living within the study area;
- Employees working within the study area;
- Employees of the Project during construction and operation phases; and
- Operators and users of community facilities and commercial and recreational facilities (marine and terrestrial).

Data Sources

25.5.2 The baseline for population and human health has been derived from the data sources set out in **Table 183**.

Table 183: Data Sources

Data type	Data Source
Demographic, population, housing and economic indicators	ONS Census 2021 (where applicable and available) (Office for National Statistics, 2022); Annual Popuation Survey (APS) (Office for National Statistics, 2024)
Population and household estimates	Popualtion and household estimates, Wales: Census 2021 (ONS, 2022)
Indicators of health and wellbeing in the population	Office for Health Improvement and Disparities (OHID) (UK Government, n.d.) Public Health Wales Observatory (NHS, n.d.) Wales Public Health Rapid Overview Dashboard (NHS, 2023)
Information on tourist accommodation stock and occupancy	Visit Wales Accommodation Occupancy (Visit Britain, 2023) Information on Accommodation Bedstock in Wales (Welsh Government, 2022)
The official measure of relative deprivation for small areas in Wales	Welsh Index of Multiple Deprivation (IMD) (Welsh Government, 2019)
Number, type, capacity and characteristics of community facilities, public services and private and public community resources	Local Authority websites, site visits and online research from public databases (such as the National Health Service (NHS) and Department for Education (DfE)

25.5.3 The population and human health baseline will draw on a range of public data sources and information relating to existing conditions at and around the EIA Scoping Boundary to establish the prevailing population and human health conditions – including (but not limited to) those referenced in **Table 183**.

25.5.4 Where more up-to-date data is available than stated in **Table 183**, these will be used. The baseline will draw upon published population forecasts at a national and local scale to inform assumptions on localised and national trends in productivity, sectoral change and overall employment and output growth.

25.5.5 The ES will include a health-focused baseline profile (drawing on publicly available information from the Office for National Statistics (ONS), OHID; and any local evidence base such as published material from local and regional health co-ordination frameworks).

25.5.6 All baseline information will be presented in its primary form as published from National Statistics or derived from published materials and fully referenced.

Baseline Conditions

25.5.7 The baseline assessment for the population and human health chapter of the ES will consider relevant social, housing and community conditions for the EIA Scoping Boundary (based on best-fit administrative geographies for population-based public data).

25.5.8 Data will be presented at appropriate geographies determined by the availability of data, and the location, capacity and catchment of receptors which includes policy-led standards for access to public healthcare services, education services and community facilities.

25.5.9 **Table 184** provides a high-level summary of population and human health indicators, which will be described, contextualised and interrogated within the ES.

Table 184: Summary of existing population and human health baseline

Indicator / Source	Local Area	Neath and Port Talbot	Wales
Population (2021 Census)	25,928	142,290	3,107,492
Population aged <16 (2021 Census)	4,779 (18.4%)	25,107 (17.6%)	548,078 (17.6%)
Population Aged >64 (2021 Census)	5,191 (20.0%)	30,134 (21.2%)	662,043 (21.3%)
Homes (2021 Census)	11,614	62,377	1,347,117
Social Rented Homes (2021 Census)	19.5%	19.2%	16.5%
Private Rented Homes (2021 Census)	18.0%	13.9%	17.0%
Tourist sector bedspaces (2022, Welsh Government)	N/A	2,838	605,211
Self-reported general health ‘good’ or ‘very good’ (2021 Census)	75.6%	75.8%	78.6%
Self-reported general health ‘bad’ or ‘very bad’ (2021 Census)	8.9%	8.8%	6.9%

25.5.10 It is noted that the above published data can also be cross-tabulated (for example considering general self-reported health by socio-economic characteristics) to provide a fine-grained and multi-faceted understanding of the correlation between health and other demographic and socio-economic factors and this will be included as proportionate within the ES.

25.5.11 Further population and human health indicators will include those presented via the Wales Public Health Rapid Overview Dashboards (NHS, 2023) including physical activity rates, mortality rates and life expectancy, obesity, lifestyle behaviours, and child health indicators.

25.5.12 In terms of the approach to identifying significance, it is notable that (influencing the sensitivity of receptors) several communities around the EIA Scoping Boundary (including within Sandfields East, Aberavon, Port Talbot and Margam & Tai-bach wards that comprise the local study area) currently experience social, economic and health inequalities with deprivation indicators well below the national average (i.e. more deprived).

25.5.13 Most of the area within 1km of the EIA Scoping Boundary is within at least the 30% most deprived areas in Wales, and some communities immediately to the north and west (in Port Talbot ward, Sandfields East

ward, and Aberavon ward) are within the top 10% and 20% most deprived communities in Wales according to the 2019 Index of Deprivation. Deprivation in these areas is driven by a number of factors – most notably (for this assessment) domains of health, barriers to services, crime and living environment.

25.5.14 The EIA will also report the number, type and location, and any relevant characteristics of the operation of community facilities, recreational facilities and other social infrastructure within the Study Area including:

- nurseries and Primary/Secondary Schools – there are no schools or childcare facilities anticipated within the EIA Scoping boundary, but several within 1km across the Local Study Area to the north and east of the EIA Scoping Boundary (e.g. Tywyn Primary School, Central Primary School);
- acute and Primary Healthcare Facilities – including GP surgeries, hospitals, pharmacies, dentists and opticians;
- other public community facilities including community centres and libraries;
- Public Rights of Way (PRoW) (by type and policy status) – there are PRoW in areas adjacent to (e.g. PRoWs 58/WCP/5 and 39/WCP/3) or within (5/WCP/4) the periphery of the EIA Scoping boundary;
- public open spaces and natural, accessible spaces including parks and play areas, allotments, public sports facilities and informal recreation (terrestrial and marine); and
- commercial recreation facilities including private sports facilities and leisure facilities.

25.5.15 Within the EIA Scoping Boundary, Port Talbot Docks supports recreational uses (includes fishing, sailing & rowing – specifically at Port Talbot Sea Cadets; and other water sports through Port Talbot YMCA Water sports facility). There is also some recreational use of terrestrial and marine areas around the EIA Scoping Boundary which may be changed in terms of environment or accessibility as a result of construction activity, and these uses and users will be reported and considered in terms of the type and frequency of use via desk-based and survey information.

25.5.16 The ES will also draw upon – but not simply re-produce – baseline data collected by other relevant EIA topics that may influence health pathways including noise, air quality, land contamination, traffic and transport, water environment and socio-economics.

Next Steps

25.5.17 Further work will be undertaken to include a review of updated and new public datasets released by sources listed in **Table 183**.

25.5.18 In addition, site visits will be undertaken to ground-truth community facilities and associated infrastructure, services and resources.

25.6 Future Baseline

25.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The Population and Human Health Chapter of the ES would seek to explain what the environmental change, in terms of air quality, would likely be in the future if the Project were not to go ahead.

25.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project commences.

25.6.3 For population and human health, changes in access to residential properties, community resources, businesses and open space and recreational areas will be relevant to the future baseline. Additionally, potential changes to work patterns, such as how often people choose to commute to work, is relevant to understanding impacts on business activity and the value placed on local recreational resources.

25.6.4 The future baseline will be established by considering reasonably forecastable population estimates and any policy relating to the future delivery and operation of community facilities (for example as identified by Local Plan spatial policies).

25.7 Mitigation Measures

25.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for population and human health will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

25.7.2 This section sets out the potential controls relevant to population and human health, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list of will be kept under review through the EIA process and is non-exhaustive at this stage.

25.7.3 Through appropriate mitigation and design, effects on human health can be managed and potentially give rise to either neutral or beneficial effects on human health at the population scale. For example, active travel measures, secured by design measures and provision of spaces that encourage physical activity and social mixing (usually during the operational phase) could have a beneficial effect on human health, although this is unlikely to be significant at the population level.

Design Measures

25.7.4 Embedded (primary) mitigation which may be incorporated into the Project design development is likely to include those measures referenced in other chapters of this EIA Scoping Report, aimed at reducing or avoiding environmental effects which may be experienced by people living, working

or visiting the area during the construction and operational and maintenance phase. This is likely to include – subject to finalisation – planting, screening, lighting design, and traffic management measures (such as preference for transporting materials by sea). Measures provided for the purposes of environmental management or mitigation may also have indirect benefits for human health and wellbeing subject to their design and accessibility.

25.7.5 For example, as set out in **Chapter 7 - Airborne Noise and Groundborne Vibration**, the Project would be designed to reduce the impact of noise through careful site layout and using buildings as noise barriers, implementation of Best Practicable Means (BPM) of noise control, careful design of potential noise sources and sound power level limits included in plant specifications that would reduce the potential for noise-related health impacts on receptors.

Construction Controls

25.7.6 Potential mitigation (including primary, secondary and tertiary mitigation) for environmental effects of the construction phase on health include those measures that are intended to control, avoid, manage and reduce environmental emissions and traffic related to construction activity. For example, possible mitigation opportunities which may be incorporated into the Project at the construction phases include the implementation of best practice construction measures in order to control dust and particulate matter emissions produced during construction activities and emissions from site plant. Full details of the approach to management in these topic areas is set out within **Chapter 6 – Air Quality, Chapter 7 – Airborne Noise and Groundborne Vibration**, **Chapter 11 – Land Quality and Hydrogeology** and **Chapter 12 – Onshore Traffic and Transport** of this Scoping Report.

25.7.7 These best practice construction measures will be included in an adaptive environmental management plan (AEMP). The mitigation incorporated within the AEMP will be informed by topic-specific guidance and thresholds and could include prevention measures such as carrying out regular inspections, planning site layout so that machinery and dust causing activities are located away from receptors and setting out requirements for ongoing monitoring and liaison with the local community, and NPTC.

25.7.8 Required construction environmental control and protection measures will be defined in the AEMP included as part of the application. Under this plan contractors would be required to prepare detailed plans for approval that accord with the approved AEMP. These detailed plans are expected to include but not be limited to a Construction Environmental Management Plan (CEMP), Air Quality Management Plans, and Flood Management Plans

25.7.9 These management plans and strategies would represent best practice and would be designed in order to remove, reduce or offset environmental effects related to e.g. noise, air quality and land contamination in-line with

legal and policy-led thresholds that take into consideration health pathways.

25.7.10 Any additional mitigation or monitoring required by relevant individual EIA topics will be taken into account for the population and health assessment as it develops through production of the ES.

25.7.11 It is not anticipated that there would be a requirement for further mitigation to avoid, prevent or reduce potentially significant adverse population and human health effects during construction phases.

Operational Controls

25.7.12 Possible mitigation (including primary, secondary and tertiary mitigation) opportunities which may be incorporated at the operation and maintenance phase include:

- operational environmental control and protection measures in relation to emissions to air, soil and water as defined in an outline operational environmental management plan (oOEMP);
- written management systems which include plans and procedures describing measures to avoid, reduce and eliminate potential environmental impacts associated with the activities covered by environmental permits associated with later phase developments that could introduce manufacturing. These plans are expected to include management plans that includes measures for the control of emissions to air, odour and noise; and
- A Site Travel Plan will be prepared to include a targeted set of behaviour change initiatives to incentivise and maximise use of sustainable transport modes.

25.7.13 It is not anticipated that there would be a requirement for further mitigation to avoid, prevent or reduce potentially significant adverse population and human health effects during the operation and maintenance phase.

25.8 Potential Likely Significant Effects

25.8.1 The potential likely significant effects for Population and Human Health are described in **Table 185**. These take into account the expected control measures set out within Section 25.7.

Table 185: Likely significant population and human health effects

Activity	Effect	Receptor
Environmental and accessibility changes as a result of construction activity - Construction Phase	Potential temporary, adverse effect on the ability of community facilities / social infrastructure, public services and recreational resources to operate, and for users to access the same level of services as before construction (Terrestrial and marine)	Community and recreational facilities and their users (including residents, visitors and employees in the area)
	Potential temporary, adverse effects on the health and wellbeing (via health pathways) of local residents, visitors and employees as a result of changes to the environment and accessibility in the area (Terrestrial and marine)	Local residents, employees and visitors

Activity	Effect	Receptor
Increased demand for accommodation from a temporary, non-local construction workforce - Construction Phase	Potential temporary adverse or beneficial effects on the accommodation market relating to demand for temporary accommodation (private residential and visitor accommodation) (Terrestrial)	Local accommodation market (private residential and visitor accommodation)
Environmental and accessibility changes as a result of operational and maintenance activity - Operation and maintenance phase	Potential permanent, adverse or beneficial effect on the ability of community facilities / social infrastructure, public services and recreational resources to operate, and for users to access the same level of services as before construction (Terrestrial and marine)	Community and recreational facilities and their users
	Potential permanent, adverse or beneficial effects on the health and wellbeing (via health pathways) of local residents, visitors and employees as a result of changes to the environment and accessibility in the area (Terrestrial and marine)	Local residents, employees and visitors

25.9 Resources and Receptors Scoped Out of Assessment

25.9.1 The scope of the population and human health assessment intends to consider construction and operation and maintenance phase impacts that relate to changes in community facilities, recreational facilities and social infrastructure and their users in terms of continuity of operation, amenity and access. It will also consider the effect of the Project on health pathways in-line with existing guidance. The resources or receptors that are proposed to be scoped out of the assessment for Population and Human Health are set out within **Table 186**.

Table 186: Resources and receptors scoped out of assessment

Activity	Effect	Receptor	Justification for scoping out
Potential for construction activity to result in the displacement of residential properties and their residents – terrestrial	Effects relating to any land-take required by the construction of the project which could result in the displacement of residents and their homes.	Local residents	The Project does not require the demolition or acquisition of properties as a result of either land take or environmental effect.
Flood risk relating to construction activity – terrestrial and marine	Effect of flooding on the operation and accessibility of community facilities; and public health (in terms of injury, incident or disease)	Local residents, employees and visitors	An assessment of the risk and consequence of flooding will be prepared to support the ES. As this will consider all forms of flooding arising from the Project and set out ways in which these will be managed and mitigated, it is considered that there will be no residual risk of flooding that could be potentially harmful to health
Increase in crime relating to construction activity and land use change - terrestrial	Effect of changing the land use resulting in the potential for crime relating to the construction activity related to the Project	Local residents, employees, businesses and visitors	Compliance with the requirements set out the Construction (Design and Management) Regulations 2015 and appropriate levels of security (personnel / CCTV) to be provided. Therefore, there are unlikely to be significant effects in relation to crime and these will not be considered further.
Major accidents and disasters relating to construction activity – terrestrial and marine	Effect of major accidents and disasters on the operation and accessibility of community facilities; and public health (in terms of injury, incident or disease)	Local residents, employees and visitors	The potential for accidents to occur during the construction will be identified and dealt with through appropriate risk assessment and environmental measures (applying the hierarchy of controls) as required to comply with UK health and safety legislation and environmental legislation.
Increased employment as a result of operational and maintenance activity - terrestrial	Demand for local accommodation and public services due the permanent workforce	Community facilities, public services and accommodation market	It is assumed that additional jobs as a result of the operational phase will be filled by people living within commuting distance, or by those moving permanently to the area, and as such would not result in a net increase in demand for public services, community facilities or accommodation.
Major accidents and disasters relating to operational and maintenance activity – terrestrial and marine	Effect of major accidents and disasters on the operation and accessibility of community facilities; and public health (in terms of injury, incident or disease)	Local residents, employees and visitors	The potential for accidents to occur during the operational and maintenance phase will be identified and dealt with through appropriate risk assessment and environmental measures (applying the hierarchy of controls) as required to comply with UK health and safety legislation and environmental legislation.

Activity	Effect	Receptor	Justification for scoping out
Flood risk relating to operational and maintenance activity – terrestrial and marine	Effect of flooding on the operation and accessibility of community facilities; and public health (in terms of injury, incident or disease)	Local residents, employees and visitors	An assessment of the risk and consequence of flooding will be prepared to support the ES. As this will consider all forms of flooding arising from the Project and set out ways in which these will be managed and mitigated, it is considered that there will be no residual risk of flooding that could be potentially harmful to health

25.9.2 The assessment of potential population and human health effects will cover a number of different aspects of the Project on different sensitive receptors including people, facilities and spaces.

25.9.3 Subject to development of assumptions, effects on the operation, environmental amenity of, and access to community facilities, recreational facilities and social infrastructure and their users in the vicinity of the EIA Scoping Boundary during the operational phase may be scoped out. A statement will be included in the ES regardless to justify this and demonstrate no likely significant effects.

25.9.4 Subject to development of assumptions, effects on public health relating to operational activity (including but not limited to noise, air quality, traffic and transport and socio-economics) may be scoped out. A statement will be included in the ES to justify this and demonstrate no likely significant effects, along with a description of effects relating to health which may be a combination of positive, neutral and adverse effects.

25.10 Proposed Assessment Methodology

25.10.1 The assessment of potential population and human health effects will cover a number of different aspects of the Project on different sensitive receptors including people, facilities and spaces.

25.10.2 There is no single specific guidance available which establishes a methodology for undertaking an assessment of the various potential likely significant population effects of a Project. Accordingly, the approach to be adopted for this assessment will be based on professional experience and best practice, and in consideration of the policy and baseline context of each type of effect and characteristics of each receptor.

25.10.3 For health and well-being effects, the approach will be determined by a ‘source – pathway – receptor’ model in-line with IEMA guidance (IEMA, 2022) which provides a framework for considering the probability and plausibility of potential effects, and the magnitude of effects and sensitivity of receptors.

25.10.4 Different spatial scales will be relevant to the assessment of different potential population and human health effects. This is influenced by the existing conditions experienced by the receptor and its sensitivity to change.

25.10.5 All effects will be considered in terms of their magnitude (the scale of absolute change) and sensitivity of the receptor. The sensitivity will be determined by pre-existing social and health inequalities, policy status (for importance) and the nature of different community facilities and their existing capacity and ability to experience change.

25.10.6 **Table 187** sets out the proposed approach to determining the sensitivity of receptors for this assessment:

Table 187: Definition of Receptor Sensitivity levels for Population and Human Health

Sensitivity Level	Description
Very High	**Human Health** The affected population is defined as having: • very high levels of deprivation (including pockets of deprivation); • existing wide inequalities between the most and least healthy; • a community whose outlook is predominantly anxiety or concern; • people who are prevented from undertaking daily activities; and • people with very poor health status; and/or people with a very low capacity to adapt. **Population / Community** • The community facility, resource, infrastructure or service is important and requires access and operation for the population daily. Alternatives are not available; and users (receptors) have no resilience to the impact through an inability to adapt to change and / or an inability to access alternative facilities or no alternative resources provided locally.
High	**Human Health** The affected population is defined as having: • high levels of deprivation (including pockets of deprivation); • existing wide inequalities between the most and least healthy; • a community whose outlook is predominantly anxiety or concern; • people who are prevented from undertaking daily activities; and • people with very poor health status; and/or people with a very low capacity to adapt. **Population / Community** • The community facility, resource, infrastructure or service is used by the majority of the population daily. Alternatives are only available outside the local planning authority area; and users (receptors) have low resilience to the impact through an inability to adapt to change and/or an inability to access alternative facilities or no alternative resources provided locally.
Medium	**Human Health** The affected population is defined as having: • moderate levels of deprivation; • existing widening inequalities between the most and least healthy; • a community whose outlook is predominantly uncertainty with some concern; • people who are highly limited from undertaking daily activities; • people providing or requiring a lot of care; and • people with poor health status; and/or people with a limited capacity to adapt. **Population / Community** • The community facility, resource, infrastructure or service is used by the majority of the population monthly. Limited alternative facilities are available at a local level within adjacent communities; and users (receptors) who have limited resilience to the impact through a limited ability to adapt to change and/or a restricted ability to access alternative resources or a shortage of alternative resources locally.
Low	**Human Health** The affected population is defined as having: • low levels of deprivation; • existing narrowing inequalities between the most and least healthy; • a community whose outlook is predominantly ambivalence with some concern;

Sensitivity Level	Description
	• people who are slightly limited from undertaking daily activities; • people providing or requiring some care; and • people with fair health status; and/or people with a high capacity to adapt. **Population / Community** • The community facility, resource, infrastructure or service is used infrequently (less than monthly). Alternative resources are available at a local level within the wider community; and users (receptors) have an average resilience to adapt to change and/or have a slightly restricted ability to access alternatives resources.
Negligible	**Human Health** The affected population is defined as having: • very low levels of deprivation; • existing narrow inequalities between the most and least healthy; • a community whose outlook is predominantly support with some concern; • people who are not limited from undertaking daily activities; people who are independent (not a carer or dependent); and • people with good health status; and/or people with a very high capacity to adapt. **Population / Community** • The community facility, resource, infrastructure or service is used very infrequently (a few occasions yearly). Many comparable and accessible alternative options exist at both the local level and wider community; and users (receptors) have a generally adequate capacity to experience impacts without incurring a significant effect.

25.10.7 **Table 188** sets out the proposed approach to determining the magnitude of impacts for this assessment.

Table 188: Definition of Impact Magnitude levels for Population and Human Health

Sensitivity Level	Description
Major	**Human Health** The effects are described as having: • high exposure or scale; • long term duration or a continuous frequency; • severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/ injury outcomes; • majority of population affected; • a permanent change; and • substantial service quality implications. **Population / Community** • loss of resource and/or quality and integrity of facility, resource, infrastructure or service; severe damage to key characteristics and amenity, features or elements, e.g. direct acquisition and demolition of buildings and direct development of land to accommodate the Project; and • an impact that has the potential to result in loss or be substantially disruptive/ beneficial to the way in which a community facility, resource, infrastructure or service is currently used by users.
Moderate	**Human Health** The effects are described as having: • low exposure or medium scale; • medium term duration or frequent events; • severity predominantly related to moderate changes in morbidity or major change in quality-of-life; • large minority of population affected; • gradual reversal of effects; and • small service quality implications.

Sensitivity Level	Description
	Population / Community • partial loss of / damage to key characteristics and amenity, features or elements, e.g. partial removal or substantial amendment to access or acquisition of land compromising viability of community facility, resource, infrastructure or service; and • an effect that has the potential to be considerably disruptive or beneficial to the way in which a community facility, resource, infrastructure or service is currently used by users
Minor	**Human Health** The effects are described as having: • very low exposure or small scale; • short term duration or occasional events; • severity predominantly related to minor change in morbidity or moderate change in quality-of-life; • small minority of population affected; • rapid reversal of effects; and • slight service quality implications. **Population / Community** • a discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics and amenity, features or elements that do not compromise the overall viability of the community facility, resource, infrastructure or service; and • an impact that has the potential to noticeably change (positively or negatively) the way in which a community resource is currently used by users, but the overall purpose of the facility, resource, infrastructure or service is unchanged.
Negligible	**Human Health** The effects are described as having: • negligible exposure or scale; • very short-term duration or a one-off frequency; • severity predominantly relates to a minor change in quality-of-life; • very few people affected; • immediate reversal of effects once activity complete; and • no service quality implication. **Population / Community** • very minor loss or detrimental alteration to one or more characteristics and amenity, features or elements, not directly affecting the viability of the community facility, resource, infrastructure or service; and • anticipated to make little or no difference or no discernible change to the way a community facility, resource, infrastructure or service is currently used by users.
No Change	No perceptible change to human health or no material effect on the operation or accessibility of community facilities, resources, infrastructure or service.

25.10.8 In most cases quantitative assessment will be undertaken. Other qualitative assessments will draw upon professional judgement where necessary but will seek, so far as is possible, to identify quantitative criteria as to the level of change.

25.10.9 An effects significance is identified taking account of the impact magnitude and the receptor's sensitivity following the significance matrix shown in the following table. Potential effects are assessed as neutral, slight, moderate large or very large significance. Impacts that are of moderate or greater significance are considered significant in EIA terms. It should be noted that the definition of effect significance, whilst guided by the significance criteria matrix in **Table 189**, is largely qualitative and based on professional judgement.

Table 189: Significance Criteria Matrix

Environmental Value (Sensitivity)	Magnitude of Potential Impact (Degree of Change)				
	No Change	**Negligible**	**Minor**	**Moderate**	**Major**
Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Construction

Effects on Community and Recreational Facilities and their Users

25.10.10 The ES will review local effects of the construction phase on community receptors in terms of individual environmental topics/aspects such as noise/vibration, air quality, landscape and visual and traffic effects.

25.10.11 There is no appropriate methodology to quantitatively combine these effects, and as such the population and human health chapter will not be able to quantify the in-combination effect of these aspects on amenity but will summarise those effects in one place to qualitatively conclude on potential changes in the accessibility, amenity and operational function of community and recreational facilities likely to experience change.

25.10.12 The assessment will qualitatively consider the individual characteristics of each type of receptor including its catchment, policy status (importance), operational capacity, alternatives and ability to react to and/or absorb change in order to identify sensitivity. Magnitude will be determined by the combined environmental effect using significance assessments from across the EIA, and any additional quantitative measures (for example in terms of displacement).

Public Health Effects

25.10.13 In line with IEMA Guidance on the Effective Scoping of Human Health in Environmental Impact Assessment (IEMA, 2022) the human health element of the assessment will focus on significant residual adverse effects identified through the wider EIA process which could have an impact on human health at the population level (determined by the study areas of each assessment and/or the extent of potential likely significant effects identified on receptors, combined).

25.10.14 The assessment will set out the context of how developments of this nature can impact on health, identifying relevant pathways towards health outcomes. The assessment would set out how the design of the Project, and any mitigation measures required, would address any potential negative effects on health and promote beneficial health outcomes where

relevant. This assessment would be set in the context of the local demographic and health baseline.

25.10.15 Where people live and work could have impacts on their health, particularly in areas of existing poor health conditions. Poor health outcomes could arise from, for example, demolition and construction impacts such as noise, dust or pollution from construction traffic. Poor design and access could also have negative effects on health outcomes.

25.10.16 At the wider societal level, greater access to employment – which is likely to be a significant, beneficial effect in socio-economic terms - may be positively correlated with good health.

25.10.17 Many of the standards and criteria against which EIA topics are assessed are based on thresholds which are informed by what is and is not acceptable in terms of human health. For example, air quality considers the impacts of a Project in relation to pollutants such as nitrogen oxide (NO_2) and fine particulates (PM_{10}) which are known to have detrimental effects on human health as well as more generally on the environment. As such, measures will be identified as part of the technical assessment to reduce and/or minimise pollutants and adverse environmental effects resulting from the Project which could impact on human health.

25.10.18 Some environmental assessments within the ES will consider changes to the environment that may lead to effects on public health, but that do not directly consider human receptors in their assessments, and with standards, methodologies and thresholds that do not necessarily consider effects on health. In this case – for example in terms of marine water quality (see **Chapter 18 – Marine Water Quality and Sediment Quality** of the EIA Scoping Report) – the population and human health assessment will use the assessment undertaken in the ES and consider the findings in relation to potential effects on human health.

25.10.19 Residual effects on human health at the population level are not likely to be significant but are anticipated to be included within the assessment at this stage subject to further development of the scale of effects and mitigation required.

Effects on the Housing Market

25.10.20 The Project is likely to support construction employment. The extent to which this workforce will be drawn from the resident labour market (i.e. not requiring people to temporarily move to the area) will be determined as part of the socio-economic assessment. The residual workforce may require accommodation in the local area which has the potential to lead to both beneficial and adverse effects (for example in generating income for under-occupied tourist accommodation or increasing demand for affordable private rented accommodation).

25.10.21 This assessment will be determined by the magnitude of demand and the sensitivity of the housing market based on workforce accommodation assumptions and public data to compare demand with supply. Given the scale of available construction labour and the high propensity to travel

longer distances to work, the residual demand is not likely to be significant but has been identified as a potential effect at this stage while assumptions are being developed in the lead up to submission of the ES.

Operation and Maintenance

Effects on Community and Recreational Facilities and their Users

25.10.22 This assessment would be similar in approach and methodology to construction phase effects referenced above, and it is anticipated that due to less significant effects being identified during this phase, effects on existing community and recreational receptors are not likely to be significant, subject to confirmation within the ES.

Public Health Effects

25.10.23 It is noted that despite the links that have been identified between new development and health, the potential effects of a new operational development on health would be largely determined by the way the Project's buildings and spaces are used and further determined by lifestyle factors which cannot be accurately quantified or controlled at the planning stage. Use of the Project by operators and employees will be carefully controlled and subject to health and safety and risk assessment appropriate to the environment.

25.10.24 This assessment would be similar in approach and methodology to construction phase effects referenced above, and it is anticipated that due to fewer significant adverse effects being identified during this phase (as a result of operation and maintenance activities creating less noise, air quality and transport/traffic disruption during this phase and the development being set within a completed design), effects on existing community and recreational receptors are not likely to be significant, subject to confirmation within the ES.

25.10.25 There would likely be permanent, beneficial effects related to health pathways generated from employment and skills supported directly and indirectly by the Project.

25.10.26 The Project is likely to permanently change existing land uses including access to the natural environment for residents, visitors and workers at and around the uses within the EIA Scoping Boundary and in nearby developments. The Terrestrial Ecology and Biodiversity assessment will consider the approach to Net Biodiversity Benefit (NBB) which may include a strategy for enhancing or compensating within existing and new ecological opportunity areas in and around the EIA Scoping Boundary. As recognised by policy and research, access and experience of the natural environment can have an effect on health and wellbeing. As such, subject to details on design and accessibility of environmental mitigation, this assessment may draw on the Terrestrial Ecology and Biodiversity assessment to inform this element of the population and health assessment qualitatively and support the development of a the NBB strategy.

Cumulative Effects

25.10.27 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

25.10.28 The cumulative assessment for health will consider committed developments that have potential to impact access to services (including health, social care and education facilities), result in temporary and permanent changes to the local environmental effect health and wellbeing, change local economic conditions or effect social cohesion.

25.10.29 Where available, information on significant health impacts of cumulative developments will be collated, specifically available Health Impact Assessments (HIAs). This will be considered alongside the conclusions of the health assessment and professional judgement to assess the potential for cumulative effects arising from the Project.

25.11 Assumptions and Limitations

25.11.1 There is no single standard technical significance criteria relating to the assessment of population and human health effects. The assessment will be made against a benchmark of current and future baseline conditions prevailing at, within, or around the appropriate spatial study area for each effect.

25.11.2 Where possible, quantitative assessments will be undertaken to determine the anticipated degree of change against a dynamic baseline (with its sensitivity informed by both its current prevailing level of deprivation/inequality and its ability to respond to change). As such, a degree of professional judgement will be used supported by literature review, benchmarks and guidance where relevant.

25.11.3 As with any dataset, baseline data will always change over time. The most recent published data sources will be used in this assessment; however, it should be noted that in some instances this data may be older than the true baseline. This is an unavoidable limitation that is not considered to adversely impact the validity of the assessment undertaken to identify the likely significant population and human health effects.

25.11.4 In addition, it is noted that the most granular and reliable source of public data – the ONS Census – was heavily influenced by the Covid-19 pandemic which influenced population, health and residential data. As such, these will be taken into account and compared to more recent datasets (which may be less granular) wherever possible and presented with a caveat otherwise.

25.12 Summary

25.12.1 The proposed scope of the ES for population and human health is contained within **Table 190**.

Table 190: Proposed scope of the population and human health chapter of the ES

Effects	Construction – Scoped in or out	Operation and Maintenance – scoped in or out	Justification for scoping in or out
Effect on the ability of community facilities / social infrastructure, public services and recreational resources to operate, and for users to access the same level of services as before construction (Terrestrial and marine)	Scoped In	Scoped In	The environmental effects are currently not known and therefore have the potential to result in significant effects on the receptor. Subject to development of assumptions, this may be scoped out from the Operation and Maintenance phase (with a statement included in the ES regardless to justify this and demonstrate no likely significant effects).
Effects on the health and wellbeing (via health pathways) of local residents, visitors and employees as a result of changes to the environment and accessibility in the area (Terrestrial and marine)	Scoped In	Scoped In	The environmental effects are currently not known and therefore have the potential to result in significant effects on the receptor. Policy, guidance and legislation requires this to be assessed within the EIA. Subject to development of assumptions, this may be scoped out (with a statement included in the ES regardless to justify this and demonstrate no likely significant effects).
Potential temporary adverse or beneficial effects on the accommodation market relating to demand for temporary accommodation (private residential and visitor accommodation) (Terrestrial)	Scoped In	Scoped Out	Construction employment may be of a scale to result in demand for local accommodation and services – as a result this has been scoped in subject to development of project information. It is assumed that additional jobs as a result of the operational phase will be filled by people living within commuting distance, and as such would not result in a net increase in demand for public services, community facilities or accommodation.
Effects relating to any land-take required by the construction of the project which could result in the displacement of residents and their homes.	Scoped Out	Scoped Out	The Project does not require the demolition or acquisition of properties as a result of either land take or environmental effect.

Effects	Construction – Scoped in or out	Operation and Maintenance – scoped in or out	Justification for scoping in or out
Effect of flooding on the operation and accessibility of community facilities; and public health (in terms of injury, incident or disease)	Scoped Out	Scoped Out	An assessment of the risk and consequence of flooding will be prepared to support the ES. As this will consider all forms of flooding arising from the Project and set out ways in which these will be managed and mitigated, it is considered that there will be no residual risk of flooding that could be potentially harmful to health
Effect of changing the land use resulting in the potential for crime relating to the construction activity related to the Proposed Development	Scoped Out	Scoped Out	Compliance with the requirements set out the Construction (Design and Management) Regulations 2015 and appropriate levels of security (personnel / CCTV) to be provided. Therefore, there are unlikely to be significant effects in relation to crime, and these will not be considered further.
Effect of major accidents and disasters on the operation and accessibility of community facilities; and public health (in terms of injury, incident or disease)	Scoped Out	Scoped Out	The potential for accidents to occur during the construction and operational and maintenance phases will be identified and dealt with through appropriate risk assessment and environmental measures (applying the hierarchy of controls) as required to comply with UK health and safety legislation and environmental legislation.
Demand for local accommodation and public services due to the permanent workforce	Scoped Out	Scoped Out	It is assumed that additional jobs as a result of the operational phase will be filled by people living within commuting distance, and as such would not result in a net increase in demand for public services, community facilities or accommodation.

Chapter 25 References

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26 Socio-economics

26.1 Introduction

26.1.1 This Chapter sets out the proposed scope and approach to be used to assess the potential socio-economic effects in relation to the construction, operation and maintenance of the Project (see **Chapter 5 – Approach to Assessment**). It provides details of the relevant background, legal and policy framework and datasets to be used to inform the assessment, presents an overview of baseline conditions, sets out the likely significant effects to be considered within the assessment, discusses how these likely significant effects would be assessed and managed for the purpose of the Environmental Impact Assessment (EIA), and identifies any matters proposed to be scoped out of the assessment.

26.1.2 The scope of the socio-economic assessment will consider construction and operational and maintenance phase impacts that relate to the generation of economic output in the form of employment (overall and by industry and occupational skill), wages, Gross Value Added (GVA), spending and supply chain effects.

26.1.3 Other potential socio-economic effects could relate to the effect of economic activity and environmental change on other sectors and businesses, which may include existing sectors in and around the Port or identified within policy as priority growth sectors (such as tourism) during the construction phase. These will be included within the assessment and are referenced in this Scoping Report.

26.1.4 The following potential significant effects and receptors relating to the Project are considered in this Chapter:

- Effects of direct, on-site employment supported in the local, regional and wider labour market during the construction and operational and maintenance phases.
- Effects of worker spending in the local economy during the construction and operational and maintenance phases.
- Effects relating to wages, supply chain and GVA benefits on UK-wide, national (Wales), regional (South Wales) and local economies during the construction and operational and maintenance phases.
- Effects on local businesses and sectors during the construction and operational and maintenance phases.

26.1.5 This environmental topic relates to both terrestrial and marine aspects of the Project.

26.1.6 The approach to the scoping exercise is set out in Section 5.3 of **Chapter 5 – Approach to Assessment.**

26.1.7 The socio-economic assessment will draw on other environmental assessments within the ES where there may be an indirect effect on such

sectors (for example where effects on cultural heritage or the water environment may influence tourism).

26.1.8 The assessment presented in this Chapter has linkages with the following environmental topics which should be considered when reading this Chapter: **Chapter 6 – Air Quality**; **Chapter 7 – Airborne Noise and Groundborne Vibration**; **Chapter 12 – Onshore Traffic and Transport** ; **Chapter 10 – Terrestrial Historic Environment**; **Chapter 15 - Commercial and Recreational Fisheries**; **Chapter 21 – Landscape, Seascape and Visual Amenity** and **Chapter 25 – Population and Human Health**. It also has linkages to the **Equality Impact** Assessment. The socio-economic chapter is distinct from **Chapter 25 – Population and Human Health**, which uses the outcomes of this chapter (i.e. the effects of economic change – jobs, supply chain and wider economic effects on the local, regional, national and UK economy) as an input to determine and assess health pathways on local residents, employees and visitors (as receptors).

26.2 Relevant Legislation, Policy and Technical Guidance

26.2.1 The legislation, policy, standards and guidelines considered (in addition to those set out in **Chapter 3 – Legislative and Policy Framework**) relevant to the assessment of socio-economics are detailed in **Table 191**.

Table 191: Legislation, policy and guidance relevant to the socio-economics assessment

Relevant legislation / policy / guidance	Relevance to assessment
Legislation	
Well-being of Future Generations (Wales) Act (2015)	The Wellbeing of Future Generations Act identifies well-being goals that are relevant to the consideration of effects from the Project which include the effects of economic prosperity, employment and skills, reduction of socio-economic inequality. The Act requires public bodies in Wales to think about the long-term impact of their decisions, to work better with people, communities and each other, and to prevent persistent problems such as poverty, health inequalities and climate change. These regulations are relevant to the terrestrial and marine elements of the Project.
National Policy	
Future Wales: National Plan 2040 (2021)	The National Plan provides a strategy for addressing national priorities through the planning system including sustaining and developing a vibrant economy to prepare the Welsh economy for the markets of the future. The National Plan is spatial, highlighting areas 'Where Wales will grow' (Policy 1) allocating national and regional growth areas for employment and housing growth. For South West Wales, it is recognised that the area comprising Neath, Port Talbot, the City of Swansea and Llanelli will be the primary growth area for the region and that port areas will an important role supporting the maritime sector and the national economy. These ports are important national infrastructure and supporting their future role locally, regionally and nationally is a key consideration. These regulations are relevant to the terrestrial and marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Planning Policy Wales, Edition 12 (Welsh Government, 2024)	Reiterates many of the objectives of the National Plan to promote economic, social, environmental, and cultural well-being by providing employment and sustainable economic development. To support this aim, Planning Policy Wales supports the increase of employment land and, in particular, seeks to ensure that there is sufficient supply to meet needs of a range of future employment scenarios to create a Prosperous Wales. These regulations are relevant to the terrestrial and marine elements of the Project.
Technical Advice Note 23: Economic Development (February 2014)	The Technical Advice Note defines economic development broadly so that it can include any form of development that generates wealth, jobs and income including energy generation as well as traditional employment uses (such as Class B). It recognises that: Strategic, market-led planning is important to enable economic development beyond Local Authority scale. Local Authorities should consider how many jobs are accommodated in new developments, and whether the development would make a special contribution towards policy objectives. These regulations are relevant to the terrestrial and marine elements of the Project.
Prosperity for All	The national strategy for Wales which reflects new ways of working to deliver five priority areas (early years, housing, social care, mental health, and skills and employability) under four key themes - Prosperous and Secure; Healthy and Active; Ambitious and Learning; and, United and Connected. These regulations are relevant to the terrestrial and marine elements of the Project.
Prosperity for All: Economic Action Plan	Delivery of Prosperity for All is supported by the Economic Action Plan. The Plan sets out a vision for inclusive growth based on strong foundations, future industries, and productive regions. It aims to build resilience and future proof the economy. The Plan also identifies that several persistent issues impact the Welsh economy including economic inactivity, relatively low levels of productivity, and uneven distribution of growth and opportunity across the regions. It is explicit that new approaches are required and defines five “Calls to Action”: • Decarbonisation; • Innovation, Entrepreneurship and Headquarters; • Exports and Trade; • High Quality Employment, Skills Development, and Fair Work; and • R&D, Automation, and Digitalisation. The Plan identifies three national priority sectors (tradable services, high-value manufacturing, and enablers) and four “foundation” sectors providing essential goods and services (tourism, food, retail, and care). The Plan commits to developing and delivering policy through a regional approach to economic development and land-use planning. These regulations are relevant to the terrestrial and marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Local Policy	
Regional Economic Framework for South West Wales (2021)	The Regional Economic Framework for South West Wales supports a regionally-focused model of economic development and sets economic priorities or 'missions' of which the first is to establish South West Wales as a UK leader in renewable energy and the net zero economy and the second is to build a strong, resilient and 'embedded' South West Wales business base. It recognises that advanced manufacturing capabilities exist for example at Llanelli, and Port Talbot with a deep water harbour and significant capacity for future growth combined with the region's two Enterprise Zones at the Haven Waterway and Port Talbot Waterfront. These policies are relevant to the terrestrial and marine elements of the Project.
South West Wales Regional Economic Delivery Plan (2022)	The Regional Economic Delivery Plan builds on the Regional Economic Framework and identifies measures and metrics for the achievement of the 'missions' that will be relevant to the socio-economic assessment within the Environmental Impact Assessment (EIA) It highlights areas of existing strength - for example the concentration of manufacturing in Neath Port Talbot – and challenges - such as a productivity 'gap' and concentrations of socio-economic disadvantage. It notes that: *"Many of these concentrations are persistent over time and reflect the long-term impact of industrial change: while they highlight the importance of 'supply-side' measures to reduce economic inactivity and bring people back into the labour market, most households on low incomes are already in work. For a regional economic strategy, driving demand and creating "better jobs, closer to home" is a key goal and challenge."* These policies are relevant to the terrestrial and marine elements of the Project.
NPTC Local Development Plan 2011-2026 (Neath Port Talbot County Borough Council, 2016)	The Local Development Plan provides the basis for decisions on land use planning in the County Borough up to 2026, which includes socio-economic factors and policy areas relevant to the socio-economic assessment within the EIA. Section 5.2 sets specific strategic polices for the economy of which the following are likely to require consideration within scope of this assessment: • Strategic Policy SP11 Employment Growth; and • Strategic Policy SP13 Tourism. These policies are relevant to the terrestrial and marine elements of the Project.
Neath Port Talbot Replacement Local Development Plan (RDLP) 2023-2028 (Consultation Draft: Key Issues, Vision and Objectives, Growth and Spatial options (2024)	As part of the evidence base for the RLDP Neath Port Talbot Council has undertaken a consultation on its "key issues, vision and objectives" (highlighting the key issues the authority faces); "potential growth options" (which sets out how many houses and jobs are needed) and "potential spatial options ("where we will grow") for the plan period of 2023 – 2038. While not adopted as policy it provides material information relating to growth scenarios that would be material to the socio-economic assessment within the EIA, including the extent to which local economic factors are included within future baseline projections for economic growth. These policies are relevant to the terrestrial and marine elements of the Project.

Relevant legislation / policy / guidance	Relevance to assessment
Neath Port Talbot Replacement Local Development Plan (RDLP) 2023-2028 Preferred Strategy (2024)	As part of the evidence base for the RLDP Neath Port Talbot Council has undertaken a consultation on its Preferred Strategy for the plan period of 2023 – 2038. While not adopted as policy it provides material information relating to growth scenarios that would be material to the socio-economic assessment within the EIA, including the extent to which local economic factors are included within future baseline projections for economic growth. These policies are relevant to the terrestrial and marine elements of the Project.
Neath Port Talbot Economic Recovery Plan (February 2022)	The Economic Recovery Plan sets out how Neath Port Talbot Council and its partners will seek economic prosperity over the long term, as part of a coordinated approach to wellbeing. The Plan is important in contextualising the socio-economic baseline, and will be drawn on within the ES to identify prevailing socio-economic characteristics relating to sectors, productivity, skills and business stocks, and in terms of identifying wider development priorities relevant to the likely significant effects. These regulations are relevant to the terrestrial and marine elements of the Project.
Neath Port Talbot Local Economic Action Plan	Although not yet published, Neath Port Talbot Council and the Tata Steel / Port Talbot Transition Board[37] are developing a Local Economic Action Plan to inform on what local priorities and interventions are needed to help protect jobs, grow the local economy and develop the right infrastructure to support high quality employment opportunities and business growth in the future. These policies are relevant to the terrestrial and marine elements of the Project.
Neath Port Talbot Wellbeing Plan 2023-2028 (2023)	The Wellbeing Plan sets strategic objectives for Neath Port Talbot that link health and wellbeing to environmental, social and economic improvements – the later includes an objective to "*ensure there are more secure, green and well paid jobs and that skills across the area are improved*". These policies are relevant to the terrestrial and marine elements of the Project.
Neath Port Talbot Destination Management Plan 2023-2028	The Destination Management Plan sets the baseline and characteristics of the tourist sector in Neath Port Talbot, and will be given regard in understanding the potential for the Project to interact with the strengths, weaknesses, opportunities and threats identified for the sector. These policies are relevant to the terrestrial and marine elements of the Project.

[37] The Transition Board has a specific role defined by its terms of reference – accessible online: https://beta.npt.gov.uk/tata-steel-transition-information-hub/tata-steel-transition-board/terms-of-reference/

Relevant legislation / policy / guidance	Relevance to assessment
Guidance	
HM Treasury's Green Book for Economic Appraisal and Evaluation	The Green Book will be referenced in the approach to estimating employment and wider economic effects. The Green Book sets out the approved approach to estimating gross, net and direct, indirect and induced employment. This guidance is relevant to the terrestrial and marine elements of the Project.
Homes and Communities Agency (HCA') Additionality Guide	Additionality guidance (consideration of how much of the gross economic effect would be retained in the local area, how much would be displaced, leaked or substituted and therefore not contributing to overall net change, and what the supply chain multiplier effect would be) will be used to inform the assessment of net additionality in terms of employment and Gross Value Added (GVA - the value generated by any unit engaged in the production of goods and services). This guidance is relevant to the terrestrial and marine elements of the Project.
Construction Industry Training Board (CITB) Labour Market Mobility Studies	CITB Labour Market Mobility information has been used as guidance towards the consideration of construction travel time/distance which will inform the approach to defining the study area for the socio-economic assessment. This guidance is relevant to the terrestrial and marine elements of the Project.

26.3 Engagement and Consultation

26.3.1 The general Project engagement and consultation undertaken to date and proposed future engagement and consultation is presented in **Chapter 4 – Consultation and Engagement**.

26.3.2 Engagement will be undertaken to ascertain the extent of existing businesses within and around the EIA Scoping Boundary where this information is not otherwise available in the public domain. This may include engagement with businesses directly.

26.3.3 Engagement will be undertaken with relevant officers from the Local Planning Authority regarding emerging economic policy and strategy.

26.4 Study Area

26.4.1 The study areas for the socio-economic assessment will be influenced by several factors:

- availability of public datasets for the presentation of socio-economic data. This is likely to be determined by administrative and statistical geography including Lower Level Super Output Areas, Wards and Districts; and
- functional economic geography for labour markets and supply chains:
- construction effects specifically (i.e. on labour market / workforce and supply chain) this will be informed by survey information on construction workforce mobility at a regional scale; and

- construction and operational supply chains, this will be informed by the nature and ability of supply chains to fulfil the goods/services requirements of the Project.

26.4.2 It is anticipated that study areas will include the following areas relative to the EIA Scoping Boundary:

- a Local Study Area - the Local Authority area hosting the Project and the public body with statutory responsibility for employment, skills and education (Neath Port Talbot County Borough Council, NPTCBC);
- a Wider Study Area for construction labour – based on the likely scale of the construction labour market. It is noted that in Wales the average (mean) distance from construction workers' current residence (taking into account temporary residences) to their current site is 20 miles, but that some workers travel further; and
- a regional (South Wales), National (Wales) and UK study area for supply chain effects.

26.4.3 The study areas for the baseline will be based on best-fit administrative geographies for workplace and population-based public socio-economic data; and the EIA Scoping Boundary itself for information related to the existing uses within the EIA Scoping Boundary.

26.4.4 Baseline data and assessments will be benchmarked as appropriate (e.g. to the national (Wales) and UK average) to understand the extent to which the local area is different from wider scales, thereby influencing sensitivity criteria for receptors at those scales.

26.5 Description of the Existing Environment

26.5.1 For the aspect of socio-economics the resources and receptors are:

- local, regional (South Wales), national (Wales) and UK-wide labour markets (residents and employees);
- local, regional (South Wales), national (Wales) and UK-wide economy including supply chains (noting that some effects may occur outside of the UK economy); and
- local businesses and sectors.

26.5.2 The existing environment refers to the terrestrial environment (in terms of the location of demographic and economic characteristics of people, jobs and business) but notes that some receptors interact with the marine environment.

Data Sources

26.5.3 The baseline for socio-economics has been derived from the data sources set out in **Table 192**.

Table 192: Data sources

Data type	Data Source
2021 Census (where applicable and available)	Population and household estimates, Wales: Census (ONS, 2021)[i]
Employee and employment estimates	Business Register and Employment Survey (ONS, 2024)
Information on the structure and distribution of earnings in the UK from Annual Survey of Hours and Earnings	Annual Survey of Hours and Earnings (ONS, 2024)
Information on businesses broken down by employment size band, industry and legal status	UK Business Counts (nomis, UK Business Counts (Enterprises and Local Units) Available at: https://www.nomisweb.co.uk/sources/ukbc, 2024)
Information related to unemployment	Claimant Count (nomis, 2024) / Jobseekers Allowance (nomis, 2024)
Information related to economic activity and inactivity	Annual Population Survey (ONS, 2024) 2021 Census (2021, ONS)
Information related to occupational skill, industry, qualification level of residents	Annual Population Survey (ONS, 2024) 2021 Census (2021, ONS)
Information on construction labour market mobility and characteristics	CITB (2022) Workforce Mobility and Skills in the UK Construction Sector 2022 – Wales Report
Annual estimates of balanced UK regional gross value added	Regional Gross Value Added by Industry (ONS, 2024)
The official measure of relative deprivation for small areas in Wales	Welsh Indices of Multiple Deprivation (IMD) (StatsWales, 2019)

26.5.4 Where more up-to-date data is available at the time of preparation of the EIA than stated in **Table 192**, these will be used. The baseline will draw upon published economic and population forecasts at a UK-wide, national (Wales), regional (South Wales) and local scale to inform assumptions on localised and national trends in productivity, sectoral change and overall employment and output growth.

Baseline Conditions

26.5.5 The baseline for the construction phase will be informed by a consideration of active construction activity observed or planned within the Site based on site visits and desk-based review of planning consents.

26.5.6 The baseline for the operational and maintenance phase employment will be quantified though application of industry standard jobs-per floorspace ratios to existing floorspace, or survey information of occupiers where available. Subject to confirmation at the time, the EIA Scoping Boundary may include existing tenants and leaseholders which would be considered within the baseline subject to their status at the time of the start of construction.

26.5.7 All other baseline information will be presented in its primary form as published from National Statistics or derived from published materials and fully referenced.

26.5.8 The baseline for socio-economics has been derived from the data sources set out in **Table 193**.

Table 193: Data sources

Data type	Data Sources
Information on the demographic, economic and employment characteristics of local residents	ONS (2021) Census ONS (2024) Annual Population Survey ONS/DWP (2024) Claimant County
Information on the economic and employment characteristics of local jobs including industrial sector and occupational classification	ONS (2021) Census ONS (2024) Business Register and Employee Survey (BRES)
Information on relative deprivation – overall and by economic subdomain	Welsh Index of Multiple Deprivation (IMD) (2019)

26.5.9 Data will be presented at appropriate functional economic geographies determined by:

- the availability of data;
- the operation of labour markets and supply chains; and
- the location of receptors, which includes policy-led areas for enhancement of employment and training opportunities.

26.5.10 **Table 194** provides a high-level summary of socio-economic indicators, which will be described, contextualised and interrogated within the ES.

Table 194: Summary of Existing Socio-economic Baseline

Indicator / Source	Neath and Port Talbot	Wales
Working Age Population (16-64) (APS, 2024)	87,300	1,927,000
Economic Activity Rate (i.e. those aged 16-64 either in work or actively seeking work or in full time education) (APS, 2023)	63,400 (72.6%)	1,466,800 (76.1%)
Employment Rate Aged 16-64 (APS, 2024)	61,800 (70.7%)	1,413,600 (73.4%)
Unemployment Rate Aged 16-64 (APS, 2024)	1,600 (2.6%)	53,100 (3.6%)
Employed Residents in Higher Skilled Occupations (ONS, 2021)	21,300 (36%)	555,000 (41%)
Employed Residents in Lower Skilled Occupations (ONS, 2021)	11,800 (20%)	251,000 (18%)
Employed Residents in Construction Jobs (ONS, 2021)	5,500 (9%)	118,000 (9%)
Employed Residents in Manufacturing Jobs (ONS, 2021)	6,600 (11%)	119,000 (9%)
Total Jobs (employment) (BRES, 2023)	51,400	1,344,000
Construction Jobs (employment) (BRES, 2023)	2,800	68,000
Manufacturing Jobs (employment) (BRES, 2023)	9,000	140,000
Claimant Count / Rate per 16-64 resident (DWP, August 2025)	2,790 (3.2%)	63,880 (3.3%)

26.5.11 Neath Port Talbot's residential population and employment is concentrated around coastal areas with lower densities inland and in the valleys. As such, district-wide indicators identify population factors of the communities closest to the Project. In summary:

- Neath Port Talbot has a high number and concentration of manufacturing jobs at present, mainly in steel fabrication and production sectors – though this is likely to decline in subsequently produced datasets due to the cessation of blast furnace activities at the steelworks.
- The local area has a lower proportion of high-skilled resident workforce, and a slightly higher proportion of lower skilled resident workforce than the average for Wales.
- Economic inactivity, unemployment and claimant count data reflects a similar scale of local unemployment to levels across Wales, albeit slightly higher across all types of worklessness (i.e. including all people out of work, not just those classified as unemployed).
- In terms of the approach to identifying significance, it is notable that (influencing the sensitivity of receptors) the area immediately around the EIA Scoping Boundary currently experiences social, economic and health inequalities with deprivation indicators well below the national (Wales) average (i.e. more deprived).

26.5.12 Most of the area within 1km of the EIA Scoping Boundary is within at least the 30% most deprived areas in Wales, and some communities immediately to the north and west (in Port Talbot ward, Sandfields East ward, and Aberavon ward) are within the top 10% and 20% most deprived communities in Wales according to the 2019 Index of Deprivation. Deprivation in these areas is driven by a number of factors – most notably (for this assessment) domains of employment, education, income and health inequality.is within at least the 30% most deprived areas in Wales, and some communities immediately to the north and west (in Port Talbot ward, Sandfields East ward, and Aberavon ward) are within the top 10% and 20% most deprived communities in Wales according to the 2019 Index of Deprivation. Deprivation in these areas is driven by several factors – most notably (for this assessment) domains of employment, education, income and health inequality.

Next Steps

26.5.13 Further work will be undertaken to include a review of updated and new public datasets released by sources listed in **Table 193**. Additional review of businesses and employment located within the EIA Scoping Boundary will be undertaken prior to the reporting of effects in the ES to provide an up-to-date baseline of employment and businesses.

26.6 Future Baseline

26.6.1 As set out in **Chapter 5 – Approach to Assessment**, future baseline scenarios will be established to understand the potential situation without the Project. The socio-economics chapter of the ES would seek to explain what the environmental change, in terms of socio- economics, would likely be in the future if the Project were not to go ahead.

26.6.2 The future baseline will include natural changes to the environment, and existing development that is complete and operational at the time when construction of the Project is due to commence.

26.6.3 The approach to establishing the future baseline for socio-economics will be by considering reasonably forecastable population and employment/economic estimates and any policy relating to employment and skills (for example as identified by Local Plan policies). It will also draw upon assumptions about local employment change and interventions in the market that are reasonably foreseeable and reliable at the time of undertaking the EIA.

26.7 Mitigation Measures

26.7.1 The Project design is an iterative process adhering to the principles of the mitigation hierarchy. Control measures for socio-economics will be identified as the Project progresses and those taken forward recorded in a mitigation register. **Chapter 5 – Approach to Assessment** provides further information on the mitigation hierarchy principles and types of mitigation, and how mitigation will be taken forward and secured.

26.7.2 This section sets out the potential controls relevant to socio-economics, which have been informed by the assessment undertaken as part of this EIA Scoping Report, the mitigation hierarchy principles and best practice from other projects. This list will be kept under review through the EIA process and is non-exhaustive at this stage.

Enhancement Opportunities

26.7.3 The Applicant recognises that there is potential to enhance positive outcomes for local residents and businesses from the Project during the construction and operation and maintenance phases and will seek to develop an evidence-based and collaborative approach to measures that could promote employment, training, skills (such as outreach engagements and access to Science, Technology, Engineering and Maths (STEM) courses and careers), local business and supply chain benefits of the project, in-line with identified policy areas for intervention.

Design Measures

26.7.4 At this stage, no Design Measures have been identified to avoid or reduce socio-economic effects as it is not anticipated that there would be a requirement for mitigation to avoid, prevent or reduce potentially significant adverse socio-economic effects during the construction or operation.

Construction Controls

26.7.5 At this stage, no Construction Controls have been identified to avoid or reduce socio-economic effects.

Operational and Maintenance Controls

26.7.6 At this stage, no Operational and Maintenance Controls have been identified to avoid or reduce socio-economic effects.

26.7.7 Employment and supply chain opportunities supported by the construction and operational and maintenance phases would operate within best practice and legal frameworks such as the Equality Act 2010, the Employment Rights Act 1996, and National Minimum Wage Act 1998 (among others) such that discrimination is not permitted and workers' rights and wages are protected.

26.8 Potential Likely Significant Effects

26.8.1 The potential likely significant effects for socio-economic are described in **Table 195** and take into account the expected enhancement measures set out within Section 26.7.

Table 195: Likely significant Socio- economics effects

Activity	Effect	Receptor
Construction		
Construction employment and supply chain procurement; Construction environmental effects	Direct beneficial effect of direct, on-site construction employment supported in the local, regional and wider labour market	Residents and employees across labour markets
	Indirect beneficial effect of construction worker spending in the local economy	Local and regional economy
	Indirect beneficial supply chain and wider economic effects (including wages and GVA)	Local, regional, national and UK-wide economy
	Indirect beneficial/neutral/adverse effects on local businesses and other sectors as a result of other environmental changes assessed within the EIA.	Local and regional economy
Operation		
Operation and maintenance employment and supply chain procurement	Direct beneficial net effect of direct, on-site operational employment supported in the local, regional and wider labour market	Residents and employees across labour markets; Local busine
	Indirect beneficial effect of operational worker spending in the local economy	Local and regional economy
	Indirect beneficial supply chain and wider economic effects (including wages and GVA)	Local, regional, national and UK-wide economy
Environmental change	Indirect beneficial/neutral/adverse effects on local businesses and other sectors as a result of other environmental changes assessed within the EIA.	Local and regional economy

26.8.2 The local supply chain benefits and wider economic effects will be assessed fully and reported as part of the socio-economics ES chapter once full detailed information on the economic inputs (including labour cost, value of goods, and operational employment capacity) is confirmed.

26.8.3 The assessment will consider the potential for environmental change to affect sectors and businesses such as tourism and abstraction. The socio-economic assessment will draw on other environmental assessments within the EIA where there may be an indirect effect on such sectors (for example where effects on cultural heritage or the water environment may influence tourism; and using the information contained in the marine water and sediment quality assessment to consider effects on abstraction licences within the marine environment).

26.9 Proposed Assessment Methodology - Receptors

26.9.1 There is no single specific guidance for assessing the socio-economic effects of a project on receptors, and in most cases professional judgement is used, drawing on an assessment of the scale of change relative to the scale of the receptor, and the factors that influence its sensitivity.

26.9.2 The assessment of potential socio-economic effects will be influenced by the existing conditions experienced by receptors and their sensitivity to change.

26.9.3 All effects will be considered in terms of their magnitude (the scale of absolute change) and sensitivity of the receptor.

26.9.4 In general, the **sensitivity** of the socio-economic receptors takes account of the importance attached to each receptor which may include the priority and importance attributed by policy, and the ability of the receptor to absorb or respond to change.

26.9.5 **Table 196** sets out the proposed approach to determining the sensitivity of receptors for this assessment:

Table 196: Definition of Receptor Sensitivity levels for Socio-economics

Sensitivity Level	Description
Very High	**The socio-economic receptor** is considered highly important / critical in national or local policy terms and/or **has** no **capacity to absorb or respond to change without** substantial **socio-economic loss or gain.**
High	The socio-economic receptor is considered important in national or local policy terms and/or has limited capacity to absorb or respond to change without noticeable socio-economic loss or gain.
Medium	The socio-economic receptor is considered recognised in national or local policy terms and/or has some capacity to absorb or respond to change and may result in some perceptible socio-economic loss or gain.
Low	The socio-economic receptor has the capacity to absorb or respond to change with hardly perceptible socio-economic loss or gain.
Negligible	The socio-economic receptor has the capacity to absorb or respond to change with no socio-economic loss or gain.

26.9.6 The **magnitude** of change upon each receptor will be determined by considering the change experienced from the baseline conditions, subject to the consideration of embedded mitigation. The criteria used for the assessment of magnitude of change, can either be positive (beneficial), neutral or negative (adverse).

26.9.7 **Table 197** sets out the proposed approach to determining the magnitude of impacts for this assessment:

Table 197: Definition of Impact Magnitude levels for Socio-economics

Sensitivity Level	Description
High	**Substantial change to the socio-economic receptor in terms of employment levels, output or productivity.**
Medium	**Notable change to the socio-economic receptor in terms of employment levels, output or productivity.**
Low	**Slight change to the socio-economic receptor in terms of employment levels, output or productivity.**
Negligible	hardly perceptible **change to the socio-economic receptor in terms of employment levels, output or productivity.**
No Change	No change to the socio-economic receptor in terms of employment levels, output or productivity.

26.9.8 In most cases quantitative assessment will be undertaken. Other qualitative assessments will draw upon professional judgement where necessary but will seek, so far as is possible, to identify quantitative criteria as to the level of change in relation to the current capacity of the area.

26.9.9 The level of significance takes account of the impact magnitude and the receptor's sensitivity. Potential effects are assessed as neutral, slight, moderate, large or very large significance. Impacts that are of moderate or greater significance are considered significant in EIA terms. It should be noted that the definition of effect significance, whilst guided by the significance criteria matrix (**Table 198**), is largely qualitative and based on professional judgement.

Table 198: Significance Criteria Matrix

Environmental Value (Sensitivity)	Magnitude of Potential Impact (Degree of Change)				
	No Change	**Negligible**	**Minor**	**Moderate**	**Major**
Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

26.9.10 This assessment will recognise the dynamic nature of the socio-economic environment with which the Project would interact, which is influenced by externalities such as economic cycles, national policy and strategy, and localised factors.

26.10 Proposed Assessment Methodology – Construction and Operation

Construction

Direct On-site Construction Employment

26.10.1 An estimate of construction employment will be broadly based on estimates of capital expenditure on construction and average turnover required to support an employee in the construction sector.

26.10.2 The peak effect represents the maximum on-site jobs but will also be presented in terms of Full-Time Equivalent (FTE) positions per year over the course of the construction phase. Additionality will be accounted for using methodology that is compliant with the Homes and Communities Agency (HCA) Additionality Guide and the more recently published HM Treasury's Green Book for Economic Appraisal and Evaluation. These sources establish that direct jobs created by developments may be subject to a degree of 'displacement'[38], 'leakage'[39], and multiplier effects[40].

26.10.3 Construction employment is highly mobile and transient with short tenure employment and longer than average commuting times. Published data from sources including CITB (see below) along with experience of similar civil construction projects will be used to estimate likely spatial distribution of effects and to provide commentary on potential skill breakdown over the construction phase.

26.10.4 For construction, and especially for specialist construction, travel-to-work patterns are far wider than average with Construction Industry Training Board ('CITB') surveys showing workers travelling up to 50 miles / around 90-minutes daily on a regular basis. Research from the same report sets out that 7% of construction workers working in Wales region currently live outside Wales. As such, it is appropriate to consider construction employment effects on a Regional (i.e. South Wales, based on multiple Local Authority Districts) or National (Wales) scale.

26.10.5 The methodology includes a review of the existing mobility of the construction workforce in Wales in order to develop the approach to estimating the extent of local employment.

26.10.6 This may be supplemented by methodology including using the CITB Labour Forecasting Tool which estimates construction labour output by skill-type based on benchmarking construction costs to a database of sectorally similar developments.

[38] The level of existing employment likely to be lost, moved or adversely affected by the employment created as a result of the Project

[39] Referring to the number of jobs likely to be taken up by people who live outside of the area

[40] The net additional economic benefit that will be created as a direct result of the income earned and spent and output produced by the employment supported, and as an indirect result of spend on materials in the supply chain

26.10.7 GVA resulting from direct jobs (construction phase) can be calculated by applying the average GVA per worker (specific to the construction sector) in Wales to the number of direct construction jobs supported by the Project.

Construction Worker Spending

26.10.8 Spending during the construction phase will be based on a per-employee rate based on industry standard rates as observed by relevant published survey information (which would be scaled up for inflation).

Supply Chain and Wider Economic Effects (including wages and GVA)

26.10.9 Assessments of 'supply and use' will be considered using public datasets to identify the scale of supply chain benefit across different sectors relating to construction activity in terms of goods and labour.

26.10.10 It may not be possible to precisely quantify and spatially report supply chain and procurement effects accurately, as the level of information required either may not be available, or may be subject to change or uncertainty, and as such this will be a qualitative assessment based on the quantitative scale of opportunity (comparing the scale and type of supply chain contracts with the ability of the market to provide them at various scales).

26.10.11 The spatial context of supply chain effects can range from local to national (noting that some effects may occur outside of the UK) depending on the supply and sourcing of construction materials.

Effects on Local Businesses and Other Sectors

26.10.12 An assessment that considers the status and operation of existing leasehold tenants within the EIA Scoping Boundary during the construction phase, and any potential residual environmental amenity effects on their operation during this phase, will be undertaken.

26.10.13 Effects on other sectors may include short-term, temporary effects (beneficial or adverse) on the tourist/visitor economy which will be considered qualitatively drawing on public data on the relative scale and characteristics of the Neath Port Talbot visitor economy, and likely potential significant effects reported in other assessments within the ES on tourist receptors – for example those referenced in the Scoping Report at **Chapter 22 – Landscape and Seascape and Visual Amenity**, **Chapter 12 – Onshore Traffic and Transport**, **Chapter 7 – Airborne Noise and Groundborne Vibration** and **Chapter 10 – Terrestrial Historic Environment.**

Operation

Direct, On-site Operational Employment

26.10.14 A quantitative estimate of operational employment, by industry and occupation, FTE and headcount, will be set against labour market and policy considerations and considering additionality (i.e. multipliers, leakage, displacement).

26.10.15 ONS tables cross-referencing Standard Industrial Classification to Standard Occupational Classification may be used to estimate the skills profile of employment opportunities generated in the operational and maintenance phase.

Operational Worker Spending

26.10.16 Spending during the operational and maintenance phase will be based on a per-employee rate based on industry standard rates as observed by relevant published survey information[41] (which would be scaled up for inflation).

Supply Chain and Wider Economic Effects (including wages and GVA)

26.10.17 Operational supply chain employment and GVA is dependent on assumptions around occupiers of the operational Project and the extent to which they source materials and goods from different sectors and locations.

26.10.18 Estimates of supply chain employment and GVA will be presented on this basis with an element of uncertainty and likely to be estimated for the whole of the UK based on assumptions about the value of UK market capture and the typical turnover to support one year's worth of employment in a given relevant industry sector.

Effects on Local Businesses and Other Sectors

26.10.19 Effects on other sectors may include existing businesses and sectors in and around The Port (such as abstraction) or identified within policy as priority growth sectors (such as tourism). The socio-economic assessment will draw on other environmental assessments within the EIA where there may be an indirect effect on such sectors (for example where effects on cultural heritage or the water environment may influence tourism; and using the information contained in the marine water and sediment quality assessment to consider effects on abstraction licences within the marine environment).

Cumulative Effects

26.10.20 The Project approach to the assessment of cumulative effects is presented in **Chapter 27 – Cumulative and In-combination Effects**. This Chapter includes details of the proposed developments identified to date that may give rise to potential cumulative effects.

26.10.21 The approach to identifying cumulative developments relevant to the assessment of socio-economic effects is based on a review of projects of local and wider regional significance within the labour market areas.

26.10.22 Determining a Zone of Influence (ZoI) for certain topic areas is less appropriate because of the nature of the assessment. The cumulative impact assessment for socio-economic effects is based on a different approach from other environmental topics of the EIA, in that it utilises broader "macro"

[41] such as Visa Europe (2014) UK Working Day Spending Report

projections of cumulative influences relevant to particular potential effects (e.g. effects on local and regional labour market), rather than focusing on potential cumulative effects of specific developments on individual receptors.

26.10.23 This will be combined with any known or derived information on the scale of construction and operational employment, GVA potential and supply chain activity from cumulative schemes identified as likely to interact with the Project.

26.10.24 Primarily, cumulative socio-economic effects (related to employment, skills, supply chain and GVA) are driven by the potential for net additional (i.e. above trend) changes to demand for labour and skills during the construction phase particularly at the regional level.

26.10.25 For some potential cumulative effects (such as worker expenditure, and supply chain / GVA), there is substantial uncertainty about the spatial and temporal effects that may combine to affect the receptors identified as being potentially sensitive to change. These effects will likely be beneficial but not significant in EIA terms, and any additional cumulative effect is likely to result in slight but unquantifiable additions to this beneficial effect.

26.11 Assessment assumptions and limitations

26.11.1 The assessment will consider reasonable worst-case assumptions. This will influence the socio-economic assessment in terms of the scale of employment-generating floorspace to be assessed and the footprint of the EIA Scoping Boundary with respect to existing local businesses.

26.11.2 There are no standard technical significance criteria relating to the assessment of socio-economic effects. The assessment will be made against a benchmark of current and future socio-economic baseline conditions prevailing at, within, or around the appropriate spatial study area for each effect.

26.11.3 Where possible, quantitative assessments will be undertaken to determine the anticipated degree of change against a dynamic baseline (with its sensitivity informed by both its current prevailing level of socio-economic inequality and its ability to respond to change in a dynamic economy). As such, a degree of professional judgement will be used supported by literature review, benchmarks and economic theory where relevant.

26.11.4 As with any dataset, baseline data will always change over time. The most recent published data sources will be used in this assessment; however, it should be noted that in some instances this data may be older than the true baseline. This is an unavoidable limitation that is not considered to adversely impact the validity of the assessment undertaken to identify the likely significant socio-economic effects.

26.11.5 In addition, it is noted that the most granular and reliable source of public data – the ONS Census – was heavily influenced by the Covid-19 pandemic which influenced workforce travel patterns, employment and residential data. As such, these will be taken into account and compared to more recent

datasets (which may be less granular) wherever possible and presented with a caveat otherwise.

26.11.6 This Scoping Report is based on assumptions around the design set out within **Chapter 2 – Description of Development**. As such, subject to change and evolution of the design, the scope of the assessment may change to relate to the final design for which consent is to be sought.

26.11.7 Financial compensation for businesses affected where this meets the Statutory Compensation Code would be available under existing statutory arrangements and is not a consideration in the assessment of presented within the ES.

26.12 Summary

26.12.1 The proposed scope of the assessment for socio-economics is contained within **Table 199**.

Table 199: Proposed scope of the socio-economic chapter of the ES

Receptor / Matter	Construction – Scoped in or out	Operation and Maintenance – scoped in or out	Justification for scoping in or out
Beneficial effect of direct, on-site employment supported in the local, regional and wider labour market	Scoped in	Scoped in	Employment supported would be net additional and substantial during construction and operation.
Beneficial effect of worker spending in the local economy	Scoped in	Scoped in	Spending related to the additional net workforce would be perceptible during construction and operation.
Indirect beneficial supply chain and wider economic effects (including wages and GVA)	Scoped in	Scoped in	The scale of construction and operational activity will likely result in a significant level of GVA being supported.
Indirect beneficial / neutral / adverse effects on local businesses and other sectors as a result of other environmental changes assessed within the EIA	Scoped in	Scoped in	Effects on existing businesses and sectors are likely to occur as a result of displacement activity during construction, and as a result of environmental effects related to construction activity.

Chapter 26 References

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27 Cumulative and In-combination Effects

27.1 Introduction

27.1.1 This Chapter of the Environmental Impact Assessment (EIA) Scoping Report provides a summary of the proposed methodology for the assessment of cumulative and in-combination effects arising from the Project. The following is provided in this Chapter:

- the proposed methodology for the assessment of cumulative and in-combination effects arising from the Project (Section 27.3);
- the findings of an initial assessment, setting out existing and/or approved developments that may cause a cumulative effect that needs to be assessed further (Section 27.4); and
- the assessment principles that will be considered when refining the assessment methodology, so that an appropriate and proportionate approach is applied (Section 27.4).

27.1.2 Cumulative effects result from multiple actions on receptors or resources occurring in combination over time and can be beneficial or adverse. The assessment considers the following types of effect:

- **In-combination (combined) effects:** these effects occur where a single receptor or resource is affected by more than one source of effect from different aspects of the Project. An example of this is where a local resident is affected by dust, noise and increased journey times during the construction of the Project, with the overall result being a greater adverse effect than when each individual effect is considered in isolation; and
- **Cumulative effects:** these effects occur as a result of one or more developments, which individually may not cause a significant effect, but when considered together with the Project, a significant cumulative effect on a shared receptor or resource could be caused. An example of a cumulative effect could be where a local resident is affected by emissions emitted from the construction traffic of the Project as well as from other development.

27.2 Legislation, Policy and Guidance

Legislation

27.2.1 The Project is subject to mandatory EIA as per the following regulations (see **Chapter 3 – Legislative and Policy Framework**, for more information):

- the Marine Works (Environmental Impact Assessment) Regulations 2007 - Schedule 3 part 5 (e) *'the cumulation of effects with other existing or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resource'*.

27.2.2 The EIA Regulations include a requirement for an Environmental Statement (ES) to include a description of the likely significant effects of the development (the Project) on the environment resulting from, inter alia the cumulation of effects with other existing and/or approved projects (referred to as 'other development' in this Chapter), taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected.

27.2.3 The Well-being of Future Generations (Wales) Act 2015 seeks to deliver improved social, economic, environmental and cultural well-being of Wales. It requires public bodies to adopt the sustainable development principle, thinking long-term and about cumulative impacts of decisions on Wales' social, economic, environmental, and cultural well-being. For EIA this means making sure assessments consider not only individual impacts but also the combined effects of multiple projects and policies over time.

Policy

27.2.4 Future Wales The National Plan 2040 Policies 17 and 18 support the development of renewable energy projects, including wind turbines, and emphasize the need for cumulative impact assessments to ensure sustainable development and minimise negative effects on the environment and communities (Design Commission for Wales, 2023).

27.2.5 Marine Policy Statement (MPS) 2011 provides the framework for marine plans and taking decisions (HMGovernment, 2011). The following sections are relevant to cumulative effects:

- Section 2.3.2.1 highlights the need for decision makers to take into account any multiple and cumulative impacts of proposals in light of other projects and activities when considering potential beneficial and adverse effects;
- Section 3.4.11 explains the need for decision makers to consider the contribution that the development would make to national, regional or local need for port infrastructure against expected adverse effects, including consideration of cumulative effects.

27.2.6 The Welsh National Marine Plan (WNMP) policy relevant to the consideration of cumulative effects is Policy GOV_01. This policy specifically addresses the need to consider cumulative effects. It requires that proposals for marine activities assess the combined impact of their activities along with other existing or planned activities (Welsh Government, 2020).

27.2.7 Developers must demonstrate how they have identified, assessed, and mitigated cumulative effects. This includes considering the combined impacts on marine ecosystems, socio-economic factors, and cultural heritage. Relevant public authorities are tasked with ensuring that cumulative effects are taken into account during the decision-making process.

27.2.8 Planning Policy Wales (PPW) (Welsh Government, 2024) includes several policies refer to the consideration of cumulative effects to ensure sustainable development and environmental protection. It also links the seven goals and

five ways of working of the Well-being of Future Generations Act (2015), integrating the Act into national planning policy:

- Policy 6.2.1 emphasises the need to consider cumulative impacts in the assessment of development proposals. It requires that the combined effects of multiple developments are evaluated to understand their overall impact on the environment and communities;
- Policy 6.2.2 focuses on the cumulative effects of developments on biodiversity and ecosystems. It mandates that planning authorities assess how multiple projects might collectively affect habitats and species; and
- Policy 6.2.3 addresses the cumulative visual and landscape impacts of developments, particularly in sensitive areas such as national parks and National Landscapes.

27.2.9 Neath Port Talbot Local Plan 2011 – 2026 (Neath Port Talbot Council, 2016) policies that address the consideration of cumulative impacts:

- Policy SP1 (Climate Change) emphasises the need to consider the cumulative impacts of development on climate change. It requires that all new developments contribute to reducing greenhouse gas (GHG) emissions and adapt to the effects of climate change;
- Policy EN8 (Pollution and Land Stability) mandates the assessment of cumulative impacts related to pollution and land stability. It ensures that developments do not exacerbate existing pollution issues or create new ones; and
- Policy BE1 (Design) includes provisions for assessing the cumulative visual and landscape impacts of new developments. It aims to ensure that the design of new buildings and structures is sensitive to the surrounding environment.

Guidance

27.2.10 Currently, there are a range of public sectors and industry-led guidance documents available on how to approach Cumulative Effects Assessment (CEA), but no single, industry standard method. Taking into account to the scale and nature of the Project, the Planning Inspectorate's (PINS) Advice on CEA (Planning Inspectorate, 2024) provides the most relevant repeatable and demonstrable systematic methodology for CEA that can be adopted across the industry. NRW signposts to the PINS advice when guiding applicants on how to undertake an EIA (NRW, 2024). The methodology presented in this Chapter has therefore considered and applied the PINS advice.

27.3 Approach to Cumulative and In-combination Effects Assessment

27.3.1 The methodology presented in this Chapter aims to ensure a proportionate, realistic and meaningful assessment is undertaken as part of the EIA, and the findings can be clearly set out in the ES in a manner that can be readily understood by interested parties and stakeholders. The PINS Advice has

been used as a basis to inform the assessment methodology of cumulative effects, which sets out a staged process to assessment. The methodology will be refined throughout the EIA process, taking into consideration further assessment work and stakeholder feedback.

Assessment of In-combination Effects

27.3.2 The assessment of in-combination effects will consider whether a single environmental receptor or resource would likely be affected by more than one source of effect from different aspects of the Project. The assessment will consider both the construction and operational phases. As discussed in **Chapter 5 – Approach to Assessment**, the decommissioning phase has been scoped out of the EIA.

27.3.3 The assessment for in-combination effects will be undertaken in two stages, Stage 1 is 'Scoping' and Stage 2 is 'Assessment'. The following sections provides information for each stage.

Stage 1 Scoping

27.3.4 The purpose of the in-combination effects scoping stage is to identify sensitive receptors or resources that may be affected by more than one source of effect from different aspects of the Project, based on the findings of the EIA.

27.3.5 Environmental topics scoped into the EIA will be considered in the in-combination effects assessment. A review of the assessment of the environmental topics will be undertaken to determine shared receptors or resources. Where a receptor or resource is shared between two assessments, it will be taken forward for assessment (Stage 2). Conversely, where a receptor or resource is only considered in the assessment under one environmental topic, this receptor or resource will be scoped out of the assessment and not taken forward to Stage 2, as no in-combination effects is likely.

27.3.6 The assessment will be based on the study areas identified within the relevant environmental topics assessed in the EIA.

27.3.7 Some environmental topics within the EIA would address interactions between different types of impact relating to specific environmental resources and receptors as part of the assessment. These will be clearly identified in Stage 1 and presented in the ES without being considered in Stage 2 to avoid duplication.

Stage 2 Assessment

27.3.8 Stage 2 involves the assessment of the potential in-combination effect on a shared receptor or resource. The assessment will be informed by the findings of the EIA. The proposed approach is to consider the predicted effects of 'slight, 'moderate' 'large' or 'very large' significance (see Table 5.5 in **Chapter 5 – Approach to Assessment**, noting that some environmental topics have applied their own methodology). It is assumed that those effects

assessed to be of 'neutral' significance, are unlikely to realistically result in an in-combination significant effect.

27.3.9 Individual conclusions from the assessment of each environmental topic considered within the EIA will be reviewed, and potential impact interactions identified in order to identify potential in-combination effects.

27.3.10 The assessment will consider the likelihood of in-combination significant environmental effects by considering potential for change in effects to the sensitive receptor or resource due to combining more than one source of effect from different aspects of the Project. Professional judgement will be used to determine whether effects are significant or not.

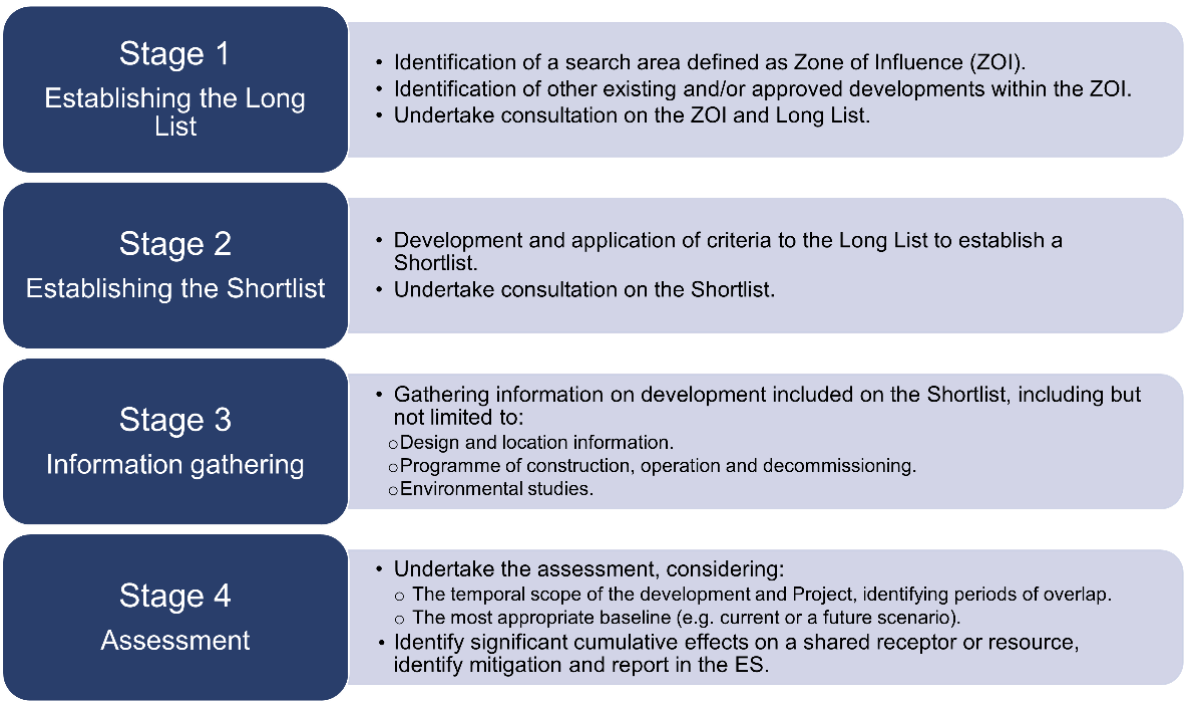
27.3.11 The finds of the assessment will be presented in a matrix format, setting out the rationale of the conclusions.

Assessment of Cumulative Effects

27.3.12 In accordance with the guidance contained within the PINS Advice (Planning Inspectorate, 2024), the approach to the CEA would follow a staged approach, as summarised in **Figure 27.1**. Each stage is discussed further in the following sections.

27.3.13 Stage 1 has been undertaken to inform this Scoping Report. This is an initial assessment, the results of which are presented in Section 27.4. This will be revisited and updated during the EIA process and reported in the ES.

Figure 27.1: Staged Approach to Cumulative Assessment



Source: Mott MacDonald, 2024

Stage 1: Establishing the Long List

27.3.14 Stage 1 of the cumulative assessment involves creating a Long List of other existing and, or approved developments (referred to as 'other development' from herein) that could cause an effect on a receptor or resource in combination with the Project. To develop this list, a Zone of Influence (Zol) for the CEA is established. This sets out a spatial area that can be applied to identify other development allocations. The ZoI will be based on the study areas associated with the environmental topics considered in the EIA.

27.3.15 Developments included on the initial Long List will be based on the following criteria, as guided by the Inspectorate's Advice (Planning Inspectorate, 2024):

- development under construction at the time of submission;
- approved applications that have not been implemented at the time of the EIA, covering the past five years and taking account of those that received planning consent over three years ago and are still valid but have not yet been completed;
- submitted applications not yet determined;
- refused applications, subject to appeal procedures not yet determined;
- EIA development not yet submitted but subject of EIA Screening and/or Scoping Request;
- developments on the National Infrastructure Planning Programme of Projects;
- development identified in the relevant Development Plan (and emerging Development Plans); and
- development identified in other plans and programmes which set the framework for future development consents/ approvals, where such development is reasonably likely to come forward.

27.3.16 The template, 'Annex 1', provided by the PINS Advice (Planning Inspectorate, 2024) will be used to document the Long List and Shortlist, setting out the systematic approach and decision-making process.

27.3.17 To avoid double counting other developments considered in the Future Baseline, the Long List will exclude existing development that will be complete and operational at the time when construction of the Project commences. In addition, other development within the existing Port of Port Talbot boundary (hereafter referred to as 'the Port') that will likely be in the operational phase, will also be excluded from the Long List and considered in the Future Baseline. Section 5.7 in **Chapter 5 – Approach to Assessment** provides further information.

27.3.18 It is expected that the following proposed developments based within the Port boundary will be excluded from the Long List (**Chapter 5 – Approach to Assessment** provides further detail on each development). This list will be further refined through the EIA process:

- LanzaTech (Project Dragon); and
- Electric arc furnace (EAF).

27.3.19 The following sources will be reviewed to identify existing and, or approved developments for the Long List (note other sources may be identified through the EIA process):

- Neath Port Talbot Council Planning Portal;
- Swansea Council Planning Portal;
- Bridgend County Borough Council Planning Portal;
- Rhondda Cynon Taf County Borough Council Planning Portal;
- Vale of Glamorgan Council Planning Portal;
- Marine Management Organisation (MMO) Public Register;
- Natural Resources Wales (NRW) Public Register; and
- National Infrastructure Planning data base for The Planning Inspectorate (PINS).

27.3.20 The sources and criteria used to identify and filter other developments will be reviewed through the EIA process and set out within the ES.

27.3.21 Consultation with relevant consultation bodies will be undertaken to ensure the Long List is considered suitable for refinement into the Shortlist. Additional developments may be added to the Long List as a result of stakeholder knowledge. This will occur as part of the pre-application process and may be undertaken further through the EIA process.

27.3.22 A cut-off date for finalising the Long List will be set during the next stage of the EIA process and reported in the ES. It is likely that this will be three months prior to the submission of the planning application. In the event that further developments are submitted past this cut-off date, but prior to the validation of the Project's application, further environmental information may need to be submitted to include an update to the CEA.

27.3.23 Section 27.4 provides further information on potential approaches for the cumulative effect assessment methodology of the Project, building on the finds of the initial assessment (Stage 1).

Stage 2: Establishing the Shortlist

27.3.24 Following Stage 1, criteria will be applied to the Long List in order to establish the Shortlist of other developments to be assessed. The criteria proposed have been identified to enable an assessment that is proportionate, realistic and meaningful. The proposed criteria may be refined during the EIA once consultation with stakeholders and further assessment has been undertaken:

- the existing and, or approved development has a construction and operation phase concurrent with the Project;
- the existing and, or approved development and the Project share sensitive receptors/resources and have the potential to be significantly affected by the combination of the developments; and
- the existing and, or approved development has sufficient environmental assessment information freely and publicly available to inform the assessment, or likely to have it through requests to the local authority.

27.3.25 Where information is insufficient for consideration in the assessment, an assessment will not be undertaken to determine the potential effects of those developments as it is assumed the output would unlikely be meaningful or realistic.

27.3.26 Consultation with relevant stakeholders will be undertaken to ensure the Shortlist is considered suitable for the assessment. The cumulative effects chapter in the ES will include a summary of the consultation undertaken and evidence any agreements reached, or changes made to the methodology.

Stage 3: Information gathering

27.3.27 A desk-top study of publicly available sources will be undertaken to gather information on the developments in the Shortlist. This stage may occur in parallel to Stage 2, through identifying whether the development has sufficient information to be taken forward for assessment. The desk-top study will seek to identify the following information about each development:

- proposed design and location;
- proposed construction, operation and decommissioning programme; and
- environmental studies setting out baseline data and effects arising from the development.

27.3.28 Should relevant information not be publicly available, missing information will be requested from the stakeholders (e.g. local authorities) as part of consultation. Where data about other development is incomplete, a precautionary but reasonable approach may be taken based on the best available evidence.

27.3.29 If information cannot be obtained or is unsuitable for use in providing a meaningful assessment (noting the precautionary approach), the development may be screened out of the Shortlist. The rationale behind this decision making will be captured in ‘Annex 1’.

Stage 4: Assessment

27.3.30 Developments on the Shortlist are taken forward for assessment. The spatial and temporal scope of development will be considered in the assessment. When considering the temporal scope to be assessed, the following will be considered:

- the anticipated Project’s programme and phasing of the works, e.g. Phase 1 operations may be in parallel to future phases of construction; and
- the likely programmes of other developments. These will be reviewed against the Project’s programme, and periods of overlap identified.

27.3.31 In addition to the above, the most appropriate baseline (current or future scenario) will be applied to determine the potential effects of those developments that may occur in future years (Section 5.8 in **Chapter 5 –**

Approach to Assessment provides further information on approach to identifying Future Baseline).

27.3.32 The proposed approach to the assessment is to primarily focus on identifying the likely significant cumulative effects on a shared receptor or resource between the Project and other development in relation to one environmental topic. For example, construction vehicle emissions from the Project and other development could result in a cumulative adverse effect on the shared receptor of people using a school. This assessment will be undertaken by the technical specialists and will be informed by the findings of the EIA. The ZoI for the CEA will be applied to determine shared sensitive receptors and resources for the environmental topic.

27.3.33 Where a shared receptor or resource is unaffected by the same environmental aspect (topic) from the Project and other development (such as visual effects from both), the assessment will then consider other environmental aspects of other development that may affect that shared receptor or resource (e.g. vibration from piling works from the construction of the Project and visual impacts from the other development). This will also include instances where a significant in-combination effect arising from the Project occurs, such as visual effects and vibration effects from the Project, and visual effects from other development.

27.3.34 The predicted effects of ‘slight, ‘moderate’ ‘large’ or ‘very large’ significance (see **Table 8** in **Chapter 5 – Approach to Assessment** for further information, noting that some environmental topics have applied their own methodology) will be considered in the assessment. It is assumed that those effects assessed to be of ‘neutral’ significance, are unlikely to realistically result in a cumulative effect with other developments.

27.3.35 The assessment will not aim to assign a level of significance to any cumulative effects identified. Rather a judgement will be made on whether the cumulative effects are likely to be more or less significant than the effects identified for the Project alone. This will be determined using professional judgement and be reported in a qualitative manner.

27.3.36 Where significant cumulative effects are identified, mitigation measures to reduce or offset these effects will be identified, noting measures to avoid or prevent would likely be exhausted from the assessment of each environmental topic. Where possible, the Applicant will consider opportunities to develop holistic mitigation strategies in collaboration with other developers and relevant bodies.

27.3.37 Annex 2 provided by the PINS Advice (Planning Inspectorate, 2024) will be considered for use to summarise the potential adverse or beneficial cumulative effects of the Project with other developments. Mitigation measures will also be described with the means of securing delivery explained.

27.3.38 As provided in the PINS Advice (Planning Inspectorate, 2024), some assessments, such as transport and associated assessments of vehicle emissions (including air and noise), may inherently be cumulative as they incorporate modelled traffic data growth for future traffic flows. Where these

assessments are thorough and include a worst-case assessment, no additional cumulative assessment of these aspects is required and will be scoped out of assessment.

27.4 Scoping Assessment Output

27.4.1 This section sets out the initial assessment of Stage 1. By undertaking this stage in the pre-application phase, the following is achieved when the assessment is undertaken during the EIA:

- the type of developments likely to result in a cumulative effect with the Project have been reviewed and subsequently the methodology refined to ensure a proportionate approach is applied;
- determine if there is potential for significant cumulative effects to occur and inform the scope of the EIA; and
- consult on the developments to be considered in the assessment and proposed assessment.

In-combination Stage 1 Scoping

27.4.2 Some individual environmental topic assessments or aspects of those assessments consider in-combination effects as part of their methodology. As such, to avoid double counting, these instances will be scoped out of the CEA.

27.4.3 The current understanding of in-combination effects assessments undertaken as part of individual environmental topic assessment is shown in **Table 200**. This list is indicative and will be finalised during the next stage of the assessment and reported on in the ES.

Table 200: Assessment aspects proposed to be scoped out of the in-combination assessment

Environmental topics	In-combination effects assessment
Air Quality Terrestrial and Freshwater Ecology Marine Ecology Ornithology	Assessment of road traffic and marine vessel emissions during construction and operation of the Project undertaken as part of the Air Quality assessment will consider potential effects on sensitive ecological receptors at statutory and non-statutory designated ecology sites where the qualifying features are sensitive to air pollution.
Flood Risk Climate Resilience	Flood risk model which will be used as the basis of the flood consequence assessment will consider climate change uplifts.
Terrestrial and Freshwater Ecology Climate Resilience	Assessment of effects on terrestrial and freshwater ecology will consider the resilience of ecosystems that will be created or enhanced as part of the project to climate change.
Climate Change – Climate Resilience	In-combination climate change impact assessment will consider the effects of the Project on receptors identified by the individual environmental topic assessment and how the impact of the future climate conditions will affect the outcomes of those assessments. For example, will the impacts of the project on the receptor be greater, lesser or no different under a future climate baseline. The outcomes of these assessments will be reported on in the relevant individual ES chapters.
Major Accidents and Disasters	The assessment of flood risk and navigation and marine transport will consider the potential for major accidents and disasters relevant to each chapter.

Environmental topics	In-combination effects assessment
Population and Human Health Air Quality Airborne Noise and Groundborne Vibration Onshore Traffic and Transport Landscape, Seascape and Visual Amenity	The assessment of Population and Human Health considers the in-combination effects from air quality, noise, traffic and transport and landscape, seascape and visual amenity impacts on receptors.
Socio-Economics Air Quality Airborne Noise and Groundborne Vibration Onshore Traffic and Transport Landscape, Seascape and Visual Amenity	The assessment of Socio-Economics considers the in-combination effects from air quality, noise, traffic and transport and landscape, seascape and visual amenity impacts on receptors.

Cumulative Effects

Inherent cumulative considerations

27.4.4 As explained in paragraph 27.3.38, some assessments are inherently cumulative. To avoid double counting or repeating assessment, these instances have been identified, reviewed and scoped out of the CEA and not discussed further. This is summarised in **Table 201**.

Table 201: Assessment aspects proposed to be scoped out of the cumulative assessment

Environmental Topic	Aspect	Justification for scoping out
Air Quality	Impact of road traffic emissions on air quality	Committed developments with potential to generate road traffic will be incorporated into the traffic model developed for this Project. Traffic model data will be used as the basis of the assessment of road traffic emissions on air quality, and, as such, this will not be further considered as part of the cumulative assessment.
Airborne Noise and Groundborne Vibration	Change in traffic noise in the local road network	Committed developments with potential to generate road traffic will be incorporated into the traffic model developed for this Project. Traffic model data will be used as the basis of the assessment of traffic noise in the local network and, as such, this will not be further considered as part of the cumulative assessment.
Onshore Traffic and Transport	Operational and construction traffic	Committed developments with potential to generate road traffic will be incorporated into the traffic model developed for this Project. As such, the assessment of construction and operational traffic is inherently cumulative and will not be assessed separately as part of the cumulative assessment.
Terrestrial and Freshwater Ecology	Internationally designated sites	Impacts upon internationally designated sites and the associated cumulative assessment with other developments will be undertaken and presented within the HRA stage 2 – appropriate assessment if impact pathways are identified that could result in likely significant effects on the qualifying features or supporting habitats of designated sites.

Environmental Topic	Aspect	Justification for scoping out
Climate Change	Effects on Climate	As the ultimate receptor of carbon emissions is the global climate, GHG emissions do not result in a regional effect on climate. Therefore, the effect of the Project's emissions on climate would not differ when combined with other developments in the area and, as such, a cumulative effects assessment is not required.
	Climate resilience	Climate resilience considers long term changes beyond the timescales of typical cumulative assessment and therefore will not be further considered as part of the cumulative assessment. The climate resilience assessment will however consider how the project aligns with available long term strategic plans for wider development in the region and any potential cumulative effects such as wider scale flooding or urban heat island effects.

Stage 1: Establishing the Long List

Project's Zone of Influence

27.4.5 The ZoI applied to establish the Long List has been developed by considering the ZoI of each environmental topic considered in this Scoping Report (acknowledging the reduced scope presented in **Table 201**). The ZoI has generally been taken from the EIA Scoping Boundary which is defined in Section 5.4 of **Chapter 5 – Approach to Assessment**.

27.4.6 The largest ZoIs within the environmental assessments that influence the cumulative assessment ZoI are:

- 30km for Protected Species (connected via functionally linked land);
- International Council for Exploration of the Sea (ICES) statistical rectangles 32E6, 31E5, 32E5 and 31E6 for Commercial and Recreational Fisheries;
- Port Talbot Statutory Harbour Authority (SHA) limits for Navigation and Marine Transport; and
- 20km for Landscape, Seascape and Visual Amenity.

Table 202: Zone of Influence for other existing and/or approved development

Environmental topic	EIA Scoping report study area

Air Quality	Construction dust:
	• a 'human receptor' within:
	  ○ 250m from the EIA Scoping Boundary; or
	  ○ 50m from the route(s) used by construction vehicles on the public highway outside the EIA Scoping Boundary, up to 250m from the EIA Scoping Boundary entrance(s).
	• an 'ecological receptor' within:
	  ○ 50m from the EIA Scoping Boundary; or
	  ○ 50m from the route(s) used by construction vehicles on the public highway outside the EIA Scoping Boundary, up to 250m from the EIA Scoping Boundary entrance(s).
	Road emissions:
	• assessment of sensitive human and ecological receptors at locations up to 200m from an affected road where air quality impacts are likely to be greatest.
	Shipping emissions:
	• consider relevant exposure within 250m from the berths and main areas of manoeuvring where there are more than 5,000 large ship movements per year; and/or
	• consider relevant exposure within 1km from areas where there are more than 15,000 large ship movements per year.

Airborne Noise and Groundborne Vibration	Construction noise - 300m from the EIA Scoping Boundary. Vibration – 100m from vibration sources. Integration and operation of wind turbines – 800m from the Port boundary. Construction and operation traffic – 300m from traffic routes where a noise change is greater than 1dB.
Flood Risk	500m from the EIA Scoping Boundary. This is subject to finalisation of hydraulic modelling as part of the Flood Consequence Assessment and will be reviewed and refined during the assessment stage.
Freshwater Environment	1km from the EIA Scoping Boundary (landside only).
Terrestrial Historic Environment	1km from the EIA Scoping Boundary.
Land Quality and Hydrogeology	250m from the EIA Scoping Boundary.
Onshore Traffic and Transport	Site access points to the Port site and Talbot Wharf and the existing and proposed roads within the EIA Scoping Boundary. The study area will also include key junctions on the A4241 (Harbour Way/Harbourside Road), Water Street and the A48 connecting to the M4 at junctions 38 and 41.
Terrestrial and Freshwater Ecology	Sites locally, nationally or internationally designated for their habitat value or for non-mobile species: • 5km from the EIA Scoping Boundary, and • 200m from any road anticipated to be affected by increased traffic volumes exceeding 1,000 AADT. Sites designated for their international importance for bats, otter or other mobile species as a qualifying feature: • 30km from the EIA Scoping Boundary (connected via Functionally Linked Land) Protected species: • 5km from the EIA Scoping Boundary

Environmental topic	EIA Scoping report study area
Coastal Processes	Near-field region within Port Talbot harbour and the far-field region covering the remainder of Swansea Bay. This is subject to the results of the numerical modelling during the assessment stage.
Commercial and Recreational Fisheries	ICES statistical rectangles 32E6, 31E5, 32E5 and 31E6 (see Figure 15.1 in Appendix A for exact spatial extent of the ICES statistical rectangles).
Marine Historic Environment	1km from the EIA Scoping Report Boundary.
Marine Ecology	Area over which potential direct and indirect effects of the Project are predicted to occur during the construction and operational periods: • direct effects - within the footprint of the Project. • indirect effects - those that may arise outside this footprint, such as the potential underwater noise effects on fish and marine mammals during construction.
Marine Water Quality and Sediment Quality	Near-field region within Port Talbot harbour and the far-field region covering the remainder of Swansea Bay. This is subject to the results of the numerical modelling during the assessment stage.
Navigation and Marine Transport	Port Talbot SHA limits (refer to Figure 19.1 in Appendix A).
Underwater Noise and Vibration	15km from the EIA Scoping Boundary.
Landscape, Seascape and Visual Amenity	20km from the Port site as part of the EIA Scoping Boundary.
Major Accidents and Disasters	2km buffer from the EIA Scoping Boundary.

Materials and Waste	Development study area – EIA Scoping Boundary and the 500m buffer from the EIA Scoping Boundary.
	Expansive study area:
	• use of materials: Wales (availability of construction materials) and UK (availability of steel)
	• waste generation:
	  ○ waste management facilities – within Wales, 10km from the EIA Scoping Boundary.
	  ○ inert and non-hazardous landfills – within Wales, 50km from the EIA Scoping Boundary.
	  ○ hazardous landfills – England and Wales region.

Ornithology	Statutory sites designated for their international and national importance for birds (SPA, Ramsar sites, SSSI, NNR) – 20km from the EIA Scoping Boundary. Statutory sites designated for their local importance for birds (LNR) – 5km from the EIA Scoping Boundary. Non-statutory sites protected or notified for birds (SINC) – 5km from the EIA Scoping Boundary. Protected and notable birds – 10km from the EIA Scoping Boundary.

Environmental topic	EIA Scoping report study area
Population and Human Health	Local study area - wards within 1km of the Project. District study area - Neath Port Talbot.
Socio-Economics	Local Study Area - The Local Authority area hosting the Proposed Development and the public body with statutory responsibility for employment, skills and education (Neath Port Talbot County Borough Council). Wider Study Area for construction labour – based on the likely scale of the construction labour market. It is noted that in Wales the average (mean) distance from construction workers' current residence (taking into account temporary residences) to their current site is 20 miles, but that some workers travel further. Regional (South Wales), National (Wales) and UK study areas for supply chain effects.

27.4.7 For the purpose of developing an initial Long List, a proportionate ZoI of 20km from the Port area has been applied in the first instance for both the terrestrial and marine environment.

27.4.8 As part of this initial assessment, the boundaries of the two ecological off-site compensation sites of Kenfig Marshalling Yard and Jersey Marine have not been used as a reference point to establish a 20km ZoI. If considered, the 20km ZoI would be expanded further from the Port where the main works are being undertaken, resulting in a wider study area that may result in identifying other development unlikely to cause a significant cumulative effect. This approach will be revisited during the EIA process.

27.4.9 It is acknowledged the ICES statistical rectangles (ZoI for Commercial and Recreational Fisheries) and Port Talbot Statutory Harbour Authority limits (ZoI for Navigation and Marine Transport) are not considered in full at this stage. Considering existing and, or approved development in the extensive ZoIs was deemed disproportionate for the purpose of this initial assessment.

27.4.10 Through consultation with stakeholders and consideration of the conclusions of the scoping assessment, the methodology for cumulative effects, including the ZoI to be applied, will be refined throughout the EIA process. For example, setting a wider ZoI than 20km and applying thresholds of the type of development to consider.

Thresholds Applied

27.4.11 At the Scoping Stage, the aim is to understand the scale and nature of other development and whether there is potential for a cumulative effect to occur. Thresholds were therefore not applied at this stage, other than screening out minor small scale developments such as domestic extensions or garages, as it is a reasonable assumption that any effect arising from this type of development would unlikely cause a significant effect when considered alongside the Project.

27.4.12 The application of thresholds to screen the type of development (taking into consideration the nature and scale) that could interact with shared receptors, will be considered when establishing the Long List. These may be applied to allocated ZoIs to enable the Long List to be proportionate. These ZoIs will consider the environmental topic's ZoIs applied in the EIA as discussed in paragraph 27.4.5.

27.4.13 The following type of developments will be considered, with the potential to include further thresholds such as area of development:

- Significant Infrastructure Projects as defined under the Infrastructure (Wales) Act 2024 and Planning Act 2008;
- developments considered EIA development or those that could be over the threshold of Schedule 2 development as defined in the Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU), but may not require EIA;
- local plan allocations (adopted and emerging);
- Marine Licence activities or development; and
- other development that does not meet the preceding thresholds, but may have a shared receptor or resource with the Project and due to the type of development may result in an effect that would need to be considered further.

27.4.14 Professional judgement will also be used to supplement the threshold criteria. The decision making will be documented in the tabulated Long List.

Desk Study

27.4.15 The initial 20km ZoI includes five local councils: Swansea, Bridgend, Neath Port Talbot, Rhondda Cynon Taf and the Vale of Glamorgan. The majority of the ZoI is covered by the former three and therefore were the focus of the initial Long List. A period of five years has been applied when searching for other development on the councils' planning portals. This temporal scope ensures identified development meets the criteria set out in paragraph 27.3.15.

27.5 Assumptions and Limitations

27.5.1 The assessment would be based on the best available data relating to other developments as set out in PINS Advice (Planning Inspectorate, 2024) which is in the public domain or has been provided to the Project team. The assessment would assume that publicly available information is accurate.

27.5.2 The assessment would be reliant on collaboration with a range of statutory consultees, neighbouring authorities and other developers to identify changes in information which may be pertinent to the assessment.

27.5.3 Where there are specific limitations associated with available data, these would be highlighted within the assessment that would be presented in the ES.

Chapter 27 References

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