

ECOLOGICAL IMPACT ASSESSMENT

Project Dragon, Port Talbot Docks

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Assessment
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REPORT

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1 INTRODUCTION

1.1 Background

- 1.1.1 RPS Planning and Development were commissioned by LanzaTech UK Ltd to prepare an Ecological Impact Assessment (EclA) for the proposed sustainable aviation fuel production facility on land at Crown Wharf, Port Talbot, South Wales (Project Dragon).
- 1.1.2 The Proposed Scheme comprises a new facility for the production of sustainable aviation fuel in the form of Alcohol to Jet Synthetic Paraffinic Kerosene (ATJ SPK and diesel), using technology and processes developed by the Applicant.
- 1.1.3 The assessment reports on the baseline conditions for terrestrial ecology, and the significance of the predicted environmental effects a result of development activities in a geographical context taking into account avoidance, mitigation and compensation incorporated into the site design.
- 1.1.4 The assessment provides details of further mitigation measures that will be required to prevent, or reduce effects, or to provide beneficial enhancement. The conclusions are provided both in terms of the residual effects and their geographic significance taking into account the secondary mitigation.

1.2 Study Area Location and Context

Study Area

- 1.2.1 In this EclA the 'Site' refers to the planning application boundary comprising the permanent development and temporary construction areas. The marine area and works to Phoenix Way have been assessed and reported separately. The planning application boundary areas are defined on Figure 1 the Development Areas Plan (ECO2340-0001_03) and in total are 17.98 hectares in extent.
- 1.2.2 The EIA Study Area Boundary includes a section of the open water dock outside of the planning application site boundary. The open water dock has only considered in relation to bird activity. All elements of the marine environment are addressed separately in Chapter 7 of the Environmental Statement.

Site Description

- 1.2.3 The Site (land within the planning application boundary) is located within the Port Talbot Docks landholding and comprises:
 - Production Development Zone
 - Crown Wharf dockside
 - Three Temporary Construction Areas (TCA1, TCA West and TCA East)
- 1.2.4 The main proposed development area is located to the south of Crown Wharf and is referred to as the Production Development Zone (PDZ). It is approximately 9.5ha and comprises regenerating willow scrub and very extensive stands of Japanese knotweed (JKW) which extend into the adjoining scrub and are encroaching into grassland. There are few areas within the PDZ where Japanese knotweed (JKW) plants are not present. A large area of sparsely vegetated bare ground (hardstanding) lies in the centre relating to ground that was left after the demolition and removal of the previous development.
- 1.2.5 The proposed Marine Loading Facility is located within the open water dock at Crown Wharf, to the north of the PDZ.

- 1.2.6 At Crown Wharf, a narrow strip of land between the port road (Phoenix Way) and the open water dock (referred to as Crown Wharf dockside) lies within the Site. Further strips of land the adjoining Phoenix Way between Crown Wharf and Margam Wharf to the east are also included in the Site.
- 1.2.7 The three Temporary Construction Areas (TCAs) are located within the wider Port Talbot Docks, and combined measure approximately 7.44ha in total.
- 1.2.8 Temporary Construction Area 1 (TCA1) is located within Margam Wharf, a previously developed parcel of land adjoining the eastern boundary of the open water dock. This wharf was an active operational area in the recent past but now supports a mosaic of bare ground, ephemeral vegetation and naturally regenerating grassland with scattered native and non-native scrub.
- 1.2.9 TCA West is split into two sections. The main part adjoins the western boundary of the PDZ and comprises a range of habitats but predominately stands of Japanese knotweed and regenerating willow scrub.
- 1.2.10 TCA East is located to the east of the PDZ on the and the southern side of Phoenix Way. It comprises a series of buildings and areas of hardstanding and bare ground. A site access road separates TCA East from the eastern boundary of the PDZ.

Wider Docks

Harbourside

- 1.2.11 Selected species surveys were undertaken on behalf of XLCC for a 23ha of post-industrial land to the west of the PDZ (referred to as Harbourside). For the purposes of the XLCC survey work in 2021, the Harbourside survey area was subdivided into four compartments (Areas A, B, C West, C East) based on their character and geographic context. At that time the PDZ was referred to as Area D but was outside of the XLCC survey area). These areas are illustrated on Figure 3. TCA West lies within the 2021 survey compartment referred to as Area C East.
- 1.2.12 Whilst not directly related to the Proposed Scheme, the surveys at Harbourside (Areas A, B, C West, C East) have been helpful in understanding the presence of protected species adjoining the Proposed Scheme.
- 1.2.13 There are also a number of common characteristics between the Site and features in the Harbourside site and the 2021 surveys have provided an understanding of the detailed nature and status of these.
- 1.2.14 Area A is a broadly triangular area of level ground with open structured naturally regenerating grassland growing on a post-industrial substrate comprise in part steel slag waste. The habitats in this area has some similarities with features in TCA1.
- 1.2.15 Area B is a former mineral extraction and has a varied topography reflecting its history with mounds, banks, ramps, low lying depressions and bunds. The lowest lying area in the centre of the former extraction flooded after operations ceased and has developed into a reedbed (approximately 1ha in extent) over the last 10 years. Many of the features in Area B are absent from the Site.
- 1.2.16 Area C (West) is a flat area of ground with a low bund on the northern boundary adjoining Phoenix Way. Post-industrial substrates with minimal soil support open grassland and flower-rich ephemeral vegetation is similar to Area A, with more established grassland, and scattered scrub in the eastern section. An artificial sand martin nest bank is located in the centre of this area below the elevated conveyor in the Tata Steel site. Features in Area C West are only found in small extents in the Site.
- 1.2.17 Area C (East) adjoins the western boundary of the PDZ. It has a varied undulating topography encompassing habitats that have established on and alongside historic railway embankments, and old trackway with a steep back forming the boundary with the Tata Steel works beyond the

southern boundary. The willow scrub, grassland and Japanese knotweed habitats in Area C East (and TCA West) show strong similarities to habitats in the PDZ and in some places are a continuation of the same habitat.

Harbour and River Afan

- 1.2.18 An enclosed harbour defined by harbour walls with a central deep-water berth lies to the west of the Harbourside site, over 1km from the PDZ. The harbour has shallow sloping stony / rocky foreshore with a strip of open grassland between the foreshore and internal port road.
- 1.2.19 The intertidal section of the River Afan lies to the north-west of the open water dock where it flows into Swansea Bay beyond the harbour wall and breakwaters.

ABP Management Works: Japanese knotweed Eradication / Advanced Reptile Relocation

- 1.2.20 A port-wide Japanese knotweed (JKW) Control Strategy is being prepared on behalf of Associated British Ports (ABP) with support from specialist contractors who are advising on the best practical options.
- 1.2.21 The JKW strategy (and associated advanced reptile relocation – see below) is being carried out in agreement between ABP and the Council. It is not directly related to Project Dragon but does form part of the landowner works to address the substantial presence of the invasive species at Harbourside. The eradication of the species will be a significant community benefit and will support the future development aspirations at Harbourside, including Project Dragon.
- 1.2.22 Japanese knotweed has been present across on ABP's landholding, including the PDZ, for many years and now forms very extensive stands. Further stands of Japanese knotweed occur in a number of other locations within Port Talbot Docks. The first phase of the control strategy includes targeted actions, being completed under permitted development rights by ABP, at the eastern section of Harbourside site where the Japanese knotweed is most extensive. These works are being undertaken on land falling within the boundary of the PDZ.
- 1.2.23 The targeted control measures are being taken to reduce the vigour of the JKW plants. Due to the spread of Japanese knotweed (encroaching into woody scrub, bramble and grassland), the dead JKW stems were cut back to ground level in spring 2022 and late winter 2023 in order to fully assess the extent of the stands and to create full access for management. Crown stripping originally programmed for spring/summer 2023 has been delayed until autumn 2023/spring 2024. In addition, other JKW stands present in the wider docks have been subject to herbicide treatments in early autumn 2023 as the first year of the implementation of the control strategy.
- 1.2.24 In advance of crown stripping, ABP are undertaking a relocation of the three native reptile species present; common lizard *Zootoca vivipara*, grass snake *Natrix Helvetica*, and slow worm *Anguis fragilis*.
- 1.2.25 ABP have identified Harbourside as a Temporary Reptile Mitigation Area for the relocation of these species in summer 2023 and early spring 2024. This area will be maintained as a Temporary Reptile Mitigation Area by ABP ahead of the permanent relocation of reptile populations to a created off-site receptor. These proposals will establish new populations in the county on suitably sited land to be allocated by ABP.
- 1.2.26 The reptile surveys in 2021 confirmed the presence of populations of the three reptile species in Harbourside with the distributions reflecting differences in habitat quality / suitability.
- 1.2.27 ABP are increasing the quality of low value areas in the Temporary Reptile Mitigation Area through selected habitat creation and enhancement. These measures extend across Areas A, B, C West and C East and include the creation of new grassland and the enhancement of areas of uniform rank grassland and dense bracken to create structural mosaics. Log piles, brash piles and

hibernacula have been created across the Temporary Reptile Mitigation Area adjacent to the areas of habitat manipulation.

- 1.2.28 Based on the results of the 2022 reptile survey for the PDZ, it is anticipated that a medium sized population of common lizard and small populations of slow-worm and grass snake will be relocated from the PDZ into the Temporary Reptile Mitigation Area.
- 1.2.29 Prior to the start of construction, small numbers of reptiles will also be relocated from TCA West, TCA East and the Crown Wharf dockside. It is anticipated that the relocation from all these areas will be into the prepared permanent off-site receptor habitats, the location of which is being determined by ABP.
- 1.2.30 ABP are in the process of defining and creating permanent off-site reptile receptor habitats to provide compensation sites for the Future Port Talbot developments across the docks including the Proposed Scheme and the Temporary Reptile Mitigation Area. ABP will be preparing a detailed strategy for the permanent translocation of reptile populations. The requirements of the individual reptile species will be built into the design specifications for the release site/s and targeted habitat creation, manipulation and enhancement will be completed ahead of the translocations.
- 1.2.31 In the interim the Temporary Reptile Mitigation Area will be managed by ABP to maintain its value for reptiles prior to the permanent relocation. Works include re-instating habitat patchworks in early spring each year and ensuring the continued functionality of the log piles and hibernacula.
- 1.2.32 The effects on reptile populations following the ABP relocation to the Temporary Reptile Mitigation Area are referenced in the assessment of residual impacts. The implementation of reptile mitigation and conservation in the Temporary Reptile Mitigation Area falls outside the control of the Applicant.

1.3 Planning Policy and Legislation Context

Planning Policy

- 1.3.1 The following national and local planning policy documents and guidance are relevant to the Proposed Scheme, and are described briefly in the sections below with reference to the particular sections applicable to nature conservation and biodiversity:
 - Planning Policy Wales¹¹
 - Technical Advice 5: Nature Conservation and Planning ; and
 - The Nature Recovery Plan for Wales 2020;
 - Neath Port Talbot Nature Recovery Plan
 - Neath Port Talbot Biodiversity Duty Plan 2017
 - • Neath Port Talbot Council Biodiversity and Geodiversity Supplementary Planning Guidance 2018;
 - • The Nature Recovery Plan for Wales 2020;
 - • Neath Port Talbot Nature Recovery Plan;
 - • Biodiversity Duty Plan 2017;
 - • Action Plan for Pollinators in Wales; and
 - Future Wales – The National Plan 2040.

Planning Policy Wales

- 1.3.2 PPW Edition 11 (Welsh Government, 2021) provides a national policy framework for Wales. Chapter 6 of PPW covers 'Distinctive and Natural Places'. The following objectives are listed in paragraph 6.4.3 of the document, of which all are relevant:
- *'Support the conservation of biodiversity, in particular the conservation of wildlife and habitats;*
 - *Ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;*
 - *Ensure statutorily and non-statutorily designated sites are properly protected and managed;*
 - *Safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and*
 - *Secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.'*
- 1.3.3 The Biodiversity and Resilience of Ecosystems Duty (Section 6 Duty) contained within the PPW states the *'Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity. In doing so planning authorities must also take account of and promote the resilience of ecosystems, in particular the following aspects: diversity between and within ecosystems; the connections between and within ecosystems; the scale of ecosystems; the condition of ecosystems including their structure and functioning; and the adaptability of ecosystems.'*
- 1.3.4 Section 6.4.3 of Planning Policy Wales also states that: - *'The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement.'*
- 1.3.5 Each development needs to achieve Net Benefits for Biodiversity (NBB) with the emphasis on proactive consideration of biodiversity and wider ecosystem benefits being integrated into site layout and design. Development proposals should demonstrate how decisions on design, siting, scale density and other key considerations have been informed by biodiversity and ecosystem resilience considerations as defined by diversity, extent, condition, and connectivity.

Technical Advice Note 5: Nature Conservation and Planning

- 1.3.6 Technical Advice Note (TAN) 5 (Welsh Assembly Government, 2009) provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN 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
 - development affecting protected and priority habitats and species.
- 1.3.7 Reference is made to developments implementing the Mitigation Hierarchy: avoidance; mitigation; compensation and enhancement.

- 1.3.8 Enhancement measures (designed to ensure net biodiversity benefit) need to be defined separately from the mitigation and compensation measures being implemented as part of the development proposal to ensure no net loss.

Local Planning Policy

- 1.3.9 The site of the development is located within the administrative area of NPTCBC. The ecological assessment reported in this chapter has had regard to the following local policy documents.
- 1.3.10 Relevant local planning policies from the Neath Port Talbot Local Development Plan 2011-2026 (Neath Port Talbot 2016) have been considered in the assessment. The key planning policies relevant to ecology and nature conservation are set out below.
- 1.3.11 Under Policy EN 6, Development proposals that would affect any of the following Sites of Interest for Nature Conservation (SINCs), sites meeting the SINC criteria for designation, or sites supporting Local Biodiversity Action Plan (LBAP) or S7 habitats or species will only be permitted where: 1. They conserve and where possible enhance the natural heritage importance of the site; or 2. The development could not reasonably be located elsewhere, and the benefits of the development outweigh the natural heritage importance of the site. Mitigation and/or compensation measures will need to be agreed where adverse effects are unavoidable.
- 1.3.12 Policy EN 7 Important Natural Features Development proposals that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows / field boundaries, watercourses or ponds will only be permitted where: 1. Full account has been taken of the relevant features in the design of the development, with measures put in place to ensure that they are retained and protected wherever possible; or 2. The biodiversity value and role of the relevant feature has been taken into account and where removal is unavoidable, mitigation measures are agreed.
- 1.3.13 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: 1. Ensuring that proposals have no significant adverse effects on water, ground or air quality and do not significantly increase pollution levels; 2. Giving preference to the development of brownfield sites over greenfield sites where appropriate and deliverable; 3. Ensuring that developments do not increase the number of people exposed to significant levels of pollution.

Biodiversity and Geodiversity Supplementary Planning Guidance 2018

- 1.3.14 Neath Port Talbot's Biodiversity and Geodiversity Supplementary Planning Guidance (SPG), 2015 provides specific direction on how biodiversity should be conserved and enhanced throughout the development control process, whilst drawing on national planning policy, and the policies contained in the Development Plan. Biodiversity must be actively considered by all development proposals.
- 1.3.15 The SPG sets out a basic framework for dealing with biodiversity and geodiversity in the planning process.
- 1.3.16 Para 3.2.8 states that *Policy EN 6 sets out the requirements for developments that would affect regionally and locally designated sites, habitats and species. Planning proposals that would not conserve or enhance the natural heritage importance of the site would need to comply with criterion 2 of the policy (i.e. show that the development could not reasonably be located elsewhere and the benefits of the development would outweigh the natural heritage importance of the site).*
- 1.3.17 Para 3.2.9 states that *In cases where it is demonstrated that criterion 2 applies, the policy requires appropriate mitigation and/or compensation measures to be agreed and implemented. Only where*

full mitigation is not possible will compensation measures be considered, firstly within the site and, as a last resort, on a suitable site elsewhere.

- 1.3.18 Para 2.2.9 states that *Whilst development can significantly impact upon biodiversity across the County Borough through direct loss of habitats and their associated species, disturbance on and off-site, and habitat fragmentation causing species isolation and the prevention of genetic exchange, it can also afford opportunities to enhance biodiversity and reverse previous damage, as well as to avoid net losses through careful planning and design.*
- 1.3.19 Para 5.1.23 states that *As a last resort, where loss of biodiversity is unavoidable despite mitigation, compensation for the residual loss will need to be agreed and implemented. Compensation will only be considered for developments that can demonstrate that all avoidance and mitigation measures have been investigated first.*
- 1.3.20 Policies reference the 'Step-Wise Approach' to decision making relating to the provision of biodiversity as part of developments in the following order.
- Safeguarding existing important habitats/species and maintaining ecological connectivity
 - designing additional biodiversity features into the development proposal.
 - adoption of mitigation to reduce the effects
 - provision of on-site compensation where effects cannot be mitigated
 - Provision of off-site compensation where measures cannot be accommodated on-site.
- 1.3.21 Measures to enhance and increase the biodiversity of the site need to be identified separately from mitigation/compensation and a quantitative assessment of biodiversity net loss is required for each important feature.

Action Plan for Pollinators in Wales

- 1.3.22 The Action Plan for Pollinators in Wales (Welsh Government, 2013) recognises that:
- 'Pollinators are an essential component of our environment. Honeybees and wild pollinators including bumblebees, solitary bees, parasitic wasps, hoverflies, butterflies and moths and some beetles are important pollinators in Wales, for crops such as fruit and oil seed rape, clovers and other nitrogen fixing plants that are important to improving the productivity of pasture systems for livestock grazing, and wildflowers.'*
- 1.3.23 It recognises the value of pollination as a contribution to the UK crop market and that bee and pollinator health and declining populations have been increasingly highlighted as a cause for concern in the UK and globally. The Welsh Government has thus worked with industry and stakeholders to look in more detail at the evidence and issues around pollinators and their conservation in Wales. The plan describes the current situation in Wales and identifies areas where action is needed. It details the Welsh Government's Vision for Pollinators in Wales and puts that into the context of the Welsh Government's priorities and policies. It also lays out an Agenda for Action comprising the outcomes and areas for action that have been identified and how the Welsh Government will work towards them.

Relevant Legislation and Guidance

- 1.3.24 The following relevant UK legislation has been considered within this assessment:
- The Conservation of Habitats and Species Regulations 2017.
 - The Environment (Wales) Act 2016.
 - The Countryside and Rights of Way Act 2000.

- Wildlife and Countryside Act 1981 (as amended).
- The Natural Environment and Rural Communities (NERC) Act 2006.
- The Well-being of Future Generations Act (Wales) 2015.

- 1.3.25 The EC Directives 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) and 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) are implemented in the UK principally through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.
- 1.3.26 All wild birds, their nests and eggs are protected under Part 1, Section 1 of the Wildlife and Countryside Act. Birds listed in Schedule 1 of this Act are subject to special protection. Wild animals listed in Schedule 5 received full legal protection and plants listed in Schedule 8 are also under this Act.
- 1.3.27 Highly invasive non-native plant species are listed under Schedule 9 of the Act.
- 1.3.28 Where species protected by the regulations would be affected by development, a licence may be granted subject to tests set out in section 55 of the Regulations. These are that:
- 1) the licence must be necessary for reasons of preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;
 - 2) there is no satisfactory alternative; and
 - 3) the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 1.3.29 The Well-being of Future Generations (Wales) Act 2015 includes a number of well-being goals (Part 2 Section 4), the second of which is 'A resilient Wales' described as:
- 1.3.30 '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).'
- 1.3.31 Part 2 Section 3 of the Act places a well-being duty on public bodies (which include the Welsh Ministers) requiring that:
- '(1) Each public body must carry out sustainable development.*
 - (2) The action a public body takes in carrying out sustainable development must include—*
 - (a) setting and publishing objectives ("well-being objectives") that are designed to maximise its contribution to achieving each of the well-being goals, and*
 - (b) taking all reasonable steps (in exercising its functions) to meet those objectives.....'*
- 1.3.32 The Environment (Wales) Act 2016 includes measures to provide an integrated natural resource management process to deliver the sustainable management of natural resources. That means the collective actions (including non-action) required for managing the maintenance, enhancement and use of natural resources in a way, or at a rate, which enables people and communities to provide for their social, economic and environmental well-being in Wales.
- 1.3.33 The Act requires public bodies to co-operate, share information, jointly plan for and jointly report on the management of natural resources, of which climate resilience and climate mitigation are key strands.
- 1.3.34 Section 6 of the Act sets out a biodiversity and resilience of ecosystems duty and replaces Section 40 of the Natural Environment and Rural Communities Act 2006. This applies to a range of public authorities such as the Welsh Ministers, local planning authorities and public bodies. This ensures

that biodiversity is an integral part of the decisions that public authorities take in Wales. It also links biodiversity with the long-term health of ecosystems and aligns to the framework for sustainable natural resource management in the Act. The Act requires all public authorities in Wales to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.

- 1.3.35 In regard to promoting the resilience of ecosystems, the Welsh Government must in particular have regard to the United Nations Environmental Programme Convention on Biological Diversity 1992.
- 1.3.36 Section 7 of the Act requires the Welsh Government to prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales, and to take measures to maintain and enhance these species and habitats. Hereafter these are referred to as 'Section 7 Species' or 'Section 7 Habitats'.

2 METHODS

2.1 Baseline Surveys

- 2.1.1 The baseline ecological conditions have been assessed for the PDZ, Temporary Construction Areas, the Crown Wharf dockside and land adjoining Phoenix Way.
- 2.1.2 A Phase 1 Habitat survey covering these areas was undertaken in summer 2022. The survey followed the standard methodology (JNCC, 2016), and as described in the Guidelines for Preliminary Ecological Assessment (CIEEM, 2017). The report is presented in Appendix A of this report.
- 2.1.3 Each of the habitats have been classified, mapped and described in terms of their structure and botanical species composition.
- 2.1.4 The following species surveys have been completed:
- Bat roost surveys (buildings) 2023 – TCA East
 - Late summer bat activity surveys – transects and remote recording 2023 (TCA West and TCA East)
 - Bat activity surveys – transects and remote recording 2022 (PDZ, TCA1, Crown Wharf);
 - Bat activity surveys – transects and remote recording 2021 (Harbourside site including TCA West);
 - Reptile presence/absence surveys 2022 (PDZ, TCA1, Crown Wharf);
 - Reptile presence/absence surveys 2021 (TCA West as part of Harbourside site)
 - Targeted surveys for badger 2022 (entire Site);
 - Surveys to assess presence/absence of otter 2022/2023 (PDZ, TCA1, TCA East, Crown Wharf);
 - Bryophyte assessment 2022 (PDZ, TCA1);
 - Great crested newt assessment (land within 250m of the Site);
 - Overwintering bird surveys 2022/2023 (open water dock adjoining Crown Wharf and Margam Wharf);
 - Overwintering bird surveys 2021/2022 (PDZ, TCA West);
 - Invertebrate survey 2021 (Harbourside site including TCA West); and
 - Invertebrate survey 2023 (TCA1, selected habitats in the PDZ, and Area C East in the Harbourside site including TCA West).
- 2.1.5 The results of these surveys are presented in the following reports:
- Phase 2 Species Surveys Report (Appendix B) covering bats, reptiles, badger, otter and great crested newts
 - Bryophyte assessment (Appendix C)
 - Breeding and overwintering bird survey (Appendix D)
 - Invertebrate assessment (Appendix E)
 - Invertebrate survey 2023 (Appendix F)

Past Surveys

- 2.1.6 A series of surveys were completed on behalf of XLCC for the Harbourside site in 2021. This included a breeding bird survey, wintering bird survey, and terrestrial invertebrate survey.
- 2.1.7 Due to the ongoing works to control/remove the extensive stands of JKW by the landowner, and cutting down of scrub habitats by Associated British Ports (ABP), any surveys for these species groups in the PDZ in 2023 would not represent the willow scrub dominated site conditions present prior to 2023.
- 2.1.8 Therefore precautionary assessments have been completed for breeding birds and invertebrates, based on the habitat types that were present prior to the initiation of JKW control works, and findings of the 2021 survey data collected for equivalent habitats in the wider Harbourside site.
- 2.1.9 The results of these precautionary assessments are included as part of the Breeding and Overwintering Bird Survey (Appendix D) and form the Invertebrate Assessment (Appendix E).

2.2 Assessment Methodology

- 2.2.1 The assessment has considered the following study areas:
- International designated sites – 10km from the planning application boundary
 - National and local designated sites – 2km from the planning application boundary
 - Legally protected species– planning application boundary and immediate surroundings (up to 500m from the boundary)
 - Other fauna – planning application boundary and immediate surroundings (up to 500m from the boundary)
 - Habitats – planning application boundary and immediate surrounds (up to 100m from the boundary)
- 2.2.2 The report follows the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2016).
- 2.2.3 The assessment identifies sites, habitats, species and other ecological features that are of value based on factors such as legal protection, statutory or local site designations such as Sites of Special Scientific Interest (SSSI) and Sites of Importance for Nature Conservation (SINCs) or inclusion as a Section 7 habitat or species under the Environment (Wales) Act 2016 or a Red Data Book species.
- 2.2.4 Each habitat or species population or assemblage has been assigned a value with reference, its distribution and status (including a consideration of trends based on available historical records) taking into account its rarity and vulnerability. This evaluation of the ecological importance is in accordance with the following scale following the CIEEM guidance:
- International;
 - UK;
 - National (Wales);
 - Regional;
 - County;
 - District;
 - Local/Parish; and/or
 - Site and immediate vicinity

- 2.2.5 The EclA sets out the potential direct and indirect effects arising from the development; taking into the final scheme design including landscaping, and SuDS.
- 2.2.6 The magnitude and nature of an impact on a habitat or species has been assessed with reference to the extent; magnitude; duration; reversibility; timing and frequency of the effects on the integrity of the ecological receptor. The assessment also considered the wider effects on ecosystem structure, function, and their future resilience.
- 2.2.7 The likely impacts of the Proposals have been assessed in terms of the:
- type of impact i.e. whether the Proposals would result in a beneficial or adverse impact on the identified IEFs;
 - magnitude of the impact, (size or intensity measured in relevant terms e.g. numbers of individuals lost or gained, area of habitat lost or created);
 - extent or spatial scope of the impact;
 - likely duration of the impact;
 - reversibility of the impact – whether the effect is naturally reversible or reversible through mitigation action; and
 - timing and frequency of the impact, in relation to ecological changes.
- 2.2.8 Table 2.1 below indicates how the magnitude of impacts has been described within this assessment, taking into account guidance provided in CIEEM (2018).

Table 2.1: Definitions of Magnitude

Magnitude of change	Typical Descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse).
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Small	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse).
	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 (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse).
	Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

- 2.2.9 The significance of the effects on the identified features have been assessed taking into account the value of the sites, habitats and species that would be affected and the predicted magnitude of impact. The nature of the effects has been classified as adverse or beneficial at a geographic scale or as a neutral effect.
- 2.2.10 Additional measures proposed to address potential adverse effects are defined including proposals outside of the Site.

- 2.2.11 The predicted significance of the residual effects has been defined with reference to the full implementation of all the proposed additional measures and commitments during construction and over the operational life of the development.
- 2.2.12 For the purposes of the assessment the following timeframes are referred to in relation to the duration of effects and/or the time required for mitigation measures to become effective:
- Short-term: Up to one year.
 - Medium-term: Between 1 and 10 years.
 - Long-term: greater than 10 years.

3 BASELINE ENVIRONMENT

3.1 Designated Sites

Statutory designated sites

- 3.1.1 There are three international statutory designated sites within 10km of the application site boundary.
- 3.1.2 Kenfig Site of Special Scientific Interest (SSSI)/ National Nature Reserve (NNR)/ Special Area of Conservation (SAC) is located 5km to the south of the Site; Crymlyn Bog and Pant y Sais SSSI/NNR/SAC located 6.6km to the north of the Site; and a part of the Cefn Cribwr SSSI/SAC lies 9.5 km to the south-west of the Site.
- 3.1.3 There are no other national statutory designated sites within 2km; the closest being Margam Moor SSSI, located 3.5km from the site to the south of the Tata Steel works.
- 3.1.4 The SAC designations have **International** importance while areas of SSSI not included within the boundary of the SAC have **National** (UK) importance.

Non-statutory designated sites

- 3.1.5 Five non-statutory Sites of Interest to Nature Conservation (SINC) are located within 2km of the application site.
- 3.1.6 The Lower River Afan Estuary SINC is 6.63ha adjoining the open water dock, located 690m to the west of the PDZ and 580m west of the TCA West at the closest points. It is primarily designated for the coastal saltmarsh and intertidal mudflats and the population of sea stock *Matthiola sinuate*. The Lower River Afan also lies with the NPT Watercourses SINC which is an extensive designation covering the watercourses and waterways across the county borough covering coastal, urban and industrial areas including those around the steelworks and docks.
- 3.1.7 Little Warren SINC is 1.47ha and lies to the north of the mouth of the River Afan and is 1km from the PDZ and 930m from TCA West. It is designated for its coastal sand-dunes with associated slacks, seepages, grassland, and scrub habitat along with an important population of sea stock. This SINC is connected to Lower River Afan Estuary SINC and the Baglan Bay Dune System SINC to the north.
- 3.1.8 Harbourside Law Courts SINC is a 3.04ha brownfield site supporting Open Mosaic Habitats on Previously Developed Land designated and the associated populations of plants, invertebrates, reptile and birds. This SINC lies 625m from both TCA1 and the PDZ.
- 3.1.9 Bryn Goytre Cycleway SINC is a 2.5 mile linear section of disused railway line in the Cwm Dyffryn Valley, over 1.3km to the east of the Site at the closest point. The SINC is primarily designated for the ancient sessile-oak/birch woodland supporting abundant ferns and a suite of ancient woodland indicator plants.
- 3.1.10 NPT Watercourses SINC is an extensive designation covering all watercourses and waterways across the county covering coastal, urban and industrial areas including those around the steelworks and docks. The River Afan falls within this SINC.
- 3.1.11 All the SINC sites have **County** importance.

Other designations

Ancient woodland

- 3.1.12 The closest area of ancient semi-natural woodland is at Tai-Bach (SS 77871 88473), a small block on the south-western side of the M4 motorway and bounded by residential housing. This woodland is located 825m from TCA1 and 1.2km from the PDZ.
- 3.1.13 Further blocks of ancient woodland are located within Bryn Goytre Cycleway SINC which lies 1.1km from TCA1 and 1.5km from the PDZ at the closest point. Combined the blocks of ancient woodland within 2km of the Site are considered to have **County** importance.

B-Lines

- 3.1.14 The steelworks and associated docks form part of a regional 'B-Line' network which is a national initiative led by Buglife for pollinators and wider biodiversity. The B-Lines in Neath Port Talbot and in and around Swansea have been identified by Buglife Cymru working in partnership with local organisations including both planning authorities. Around Port Talbot the B-Lines cover coastal, urban, and industrial land and form wide network of corridors with the objective of facilitating projects that restore, enhance and create wildflower-rich habitat for pollinators as stepping stones along the corridors.
- 3.1.15 Features located within the part of the B-Lines allocation within 2km of the Site will vary from **negligible** to **county** covering heavy industry and urban residential areas as well as SINC designations.

3.2 Habitats

Willow Scrub

- 3.2.1 Regenerating willow scrub was the most extensive habitat type within the PDZ being c3.8ha in extent and making up approximately 30% of the total vegetation cover. Additional willow scrub is present in TCA West with smaller areas within and adjoining TCA East.
- 3.2.2 The shrub willows in these areas were all multi-stemmed and form a continuous 6-10m high canopy across the habitat. The willow scrub habitat typically comprises shrubs that are even-aged less than 20 years old and dominated by a single species, grey willow. Both the structural and species diversity of the habitat is limited reflecting the recent origin of the habitat that has established on previously disturbed ground.
- 3.2.3 Other shrub species occur less frequently, most notably silver birch *Betula pendula* and goat willow *Salix caprea*. The non-native invasive butterfly bush *Buddleia davidii* has also established on the edges of the scrub.
- 3.2.4 The ground flora beneath the willow scrub is generally species-poor with large areas of sparsely vegetated ground. Dewberry *Rubus caesius* is abundant in some parts locally becoming dominant while bramble *Rubus fruticosus* is more localised. Other woodland ground flora species occur at low frequency (Yorkshire fog *Holcus lanatus*, creeping bent *Agrostis stolonifera*, rough meadow-grass *Poa trivialis*, false oat grass *Arrhenatherum elatius*, hairy sedge *Carex hirta*, spiked sedge *Carex spicata*, sand sedge *Carex arenaria*, common reed *Phragmites australis*, male fern *Dryopteris filix-mas*, and herb Robert *Geranium robertianum*).
- 3.2.5 The willow shrubs and ground flora comprises common and widespread species limiting the current value. The presence of Japanese knotweed around the edges and within the scrub habitats limits the current and future value of the habitat.

- 3.2.6 The willow scrub habitat in the Site contributes to the biodiversity value of the application site and occurs in less extensive blocks in the wider docks. Due to the extent of Japanese knotweed within the scrub habitats it has been classified as having importance for biodiversity in the context of the **Site**.

Mixed Species Scrub and Bramble

- 3.2.7 Areas of mixed species scrub and bramble scattered in the PDZ primarily associated with the margins of the regenerating grey willow with gorse dominated areas on the eastern side where the substrate is drier. The habitat extents are relatively small (bramble 0.45ha, gorse and mixed species scrub 0.45ha) but contribute to the scrub grassland habitat mosaic along with small stands of bracken.
- 3.2.8 A 0.19ha area of mixed scrub species and bramble thicket is located in the centre of TCA West. Localised areas of bramble, gorse and butterfly bush also occur in TCA East.
- 3.2.9 In TCA1, shrub species are scattered primarily on the margins. Self-sown grey willow and the non-native butterfly bush are the main species with a few small areas of gorse. All are young have not yet coalesced to form blocks of dense scrub. Outside the western boundary a strip of bramble has established, ivy and scattered scrub, have established on the engineered platform running adjoining the wall of the open water dock.
- 3.2.10 Habitats at the Crown Wharf dockside include an area of 1.5m high bramble thicket with grades into dense bracken at the western end. A small group of semi-mature multi-stemmed sycamore trees *Acer pseudoplatanus* trees and a number of individual butterfly bush shrubs grow within this habitat on the edge of the dock.
- 3.2.11 Overall the mixed species and gorse scrub habitats contribute to the biodiversity value of the Site. The bramble scrub forming thickets is a widespread low value habitat. Japanese knotweed is growing amongst these scrub habitats in the PDZ and having limited extent have been classified as having importance for biodiversity in the geographic context of the **Site**.

Invasive Non-Native Plant Species

Japanese Knotweed

- 3.2.12 Extensive stands of long-established Japanese knotweed cover approximately 40% of the PDZ with the largest expanses located in the south-western part. In many locations the stands were growing within willow scrub.
- 3.2.13 Areas with dense old growth of Japanese knotweed are widely distributed. Young shoots were noted around the edges of many of the stands and some individual young plants were noted growing in the willow scrub and grassland a significant distance from older growth.
- 3.2.14 This species is a significant negative factor adversely affecting the current biodiversity value of the PDZ. It is increasing in extent over time with the associated loss of grassland and bramble scrub. If left unmanaged, Japanese knotweed would result in the loss of all but the willow scrub.
- 3.2.15 Japanese knotweed stands make up over 2.25ha of the 9ha PDZ with multiple small stands and young shoots present in other habitats. This habitat has **Negligible** importance for biodiversity value and reduces the value of all the habitats in which it establishes.

Other Species

- 3.2.16 Montbretia *Crococsmia x crocosmiiflora* is very locally abundant in several locations in the centre of the PDZ. Wall cotoneaster *Cotoneaster horizontalis* has established in a few locations in the PDZ and forms a locally dominant cover adjoining the western boundary of the TCA.

- 3.2.17 Sea buckthorn *Hippophae rhamnoides* has colonised the boundaries of the PDZ in two locations where it will have spread into the site by seed from established stands in the wider docks. Butterfly bush is scattered within the PDZ, Crown Wharf dockside and the TCAs. These species have **Negligible** importance for biodiversity value and reduce the biodiversity value of habitats in which they occur.

Grassland

Coastal Grassland and Dune Slack Vegetation

- 3.2.18 These two habitat types are very small in extent located only in the central part of the PDZ. The coastal grassland is c0.05ha and is growing on a very sandy substrate. The grassland has an open structure with coarse grasses only present at low frequency. Dewberry is abundant with the associate species of hairy sedge, Yorkshire fog, common restharrow *Ononis repens*, creeping willow *Salix repens*, and ribwort plantain *Plantago lanceolata*. Japanese knotweed is encroaching into this habitat on all sides.
- 3.2.19 It is characterised by a high percentage cover of herbs and sedges with minimal bare ground. The overall species assemblage is moderately diverse with some variation. Locally frequent species include bird's-foot trefoil *Lotus corniculatus*, thyme-leaved sandwort *Arenaria serpyllifolia*, red fescue *Festuca rubra*, sand sedge, common restharrow, *Ononis repens*, and common storks-bill *Erodium cicutarium*.
- 3.2.20 The dune slack vegetation has established on seasonally flooded ground on the margin of the central hardstanding in an area less than 10m x 10m. The species composition is characterised by creeping willow, water mint *Mentha aquatica*, dotted sedge *Carex punctata* and glaucous sedge, sharp rush *Juncus acutus* and sea rush *Juncus maritimus*.
- 3.2.21 Other species occurring at low frequency included creeping bent, dewberry, eyebright species *Euphrasia* sp., bird's-foot trefoil, and selfheal *Prunella vulgaris*. Young willow and birch are colonising the habitat which is currently partially shaded. Over time, the shrubs will become the dominant cover with the reduction and ultimate loss of the specialist dune plants.
- 3.2.22 These two areas are located about 30m apart and divided by woodland. This assemblage of species in both areas is typically of dune grassland and slacks and are equivalent to semi-natural dune habitats that classify as Section 7 Habitats. Although small in extent the coastal grassland supported populations of 22 SINC indicators species as well as additional species that are locally uncommon. Together these two small areas of S7 habitats located only in the PDZ have importance for biodiversity in a **Local** geographic context.

Naturally Regenerated Grassland

- 3.2.23 The multiple areas of naturally regenerated grassland habitat in the PDZ and TCA West together reach c1.3 ha in extent.
- 3.2.24 The largest area lies in the eastern section of the PDZ forming a long habitat typically 10-15m wide bounded by dense scrub and patches of Japanese knotweed. Further areas of grassland are present in the western half of PDZ and in TCA West as 'glades' between the blocks of regenerating shrubs willow, stands of Japanese knotweed and bramble thicket with additional grassland glades on the southern boundary of the PDZ between willow scrub and the base of the railway embankment.
- 3.2.25 Across the PDZ the different areas of grassland show variation in the structure and species diversity. All the open structured grassland has a broadly similar composition with dewberry and hairy sedge both generally abundant.

Eastern Area (PDZ)

- 3.2.26 Eastern area of grassland a patchy sward height and areas of more sparsely vegetated ground. A wide range of herb species are widespread but only occur at lower frequency. These include the indicators St Johns wort *Hypericum* sp, yarrow *Achillea millefolium*, agrimony *Agrimonia eupatoria*, evening primrose *Oenothera* sp, meadow vetchling *Lathyrus pratensis*, heath bedstraw *Galium saxatile*, wild strawberry *Fragaria vesca*, and common knapweed *Centaurea nigra*.
- 3.2.27 In the north-eastern corner of the PDZ the substrate is drier ground with patches of bare ground. Additional indicator plants included red bartsia *Odontites vernus*, yellow-wort *Blackstonia perfoliata*, common broomrape *Orobanche minor*, fern grass *Catapodium rigidum*, sheep's sorrel *Rumex acetosella*, eyebright *Euphrasia* sp, vervain *Verbena officinalis*, and common centaury *Centaurium erythraea*. Hawkweed oxtongue *Picris hieracioides* is occasional, Two spikes of oxtongue broomrape *Orobanche picridis* (Schedule 8 WCA) was recorded in late June 2022 but none were present in this location in 2023.
- 3.2.28 Several negative indicator ruderal species were present at low frequency: spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, white clover *Trifolium repens*, ragwort *Jacobaea vulgaris*, and hogweed *Heracleum sphondylium*. Willow and butterfly bush saplings are also colonising the grassland.

North-western Area (PDZ)

- 3.2.29 The grassland in the north-western boundary of the PDZ, adjoining the internal port road has a more patchy composition with a mix of open and closed grassland. Open areas have a similar composition to the glade grasslands with dewberry and hairy sedge both frequent and in places forming the dominant cover on a sandy substrate. Patches of closed grassland are characterised by coarse grasses (hybrid sea couch and false oat-grass *Arrhenatherum elatus*).
- 3.2.30 As a whole, the north-western grassland supports a moderately diverse sward assemblage with most of further species only occurring occasionally or rarely. Pyramidal orchid *Anacamptis pyramidalis* was locally frequent in both the open and closed grasslands.

Central and Southern 'Glades' (PDZ)

- 3.2.31 The glade areas were characterised by a patchy long grass and dewberry sprawling through the sward creating a relatively closed grassland structure. Yorkshire fog and creeping bent were the Several common grass species were abundant grass. Locally frequent herbs included creeping cinquefoil *Potentilla reptans*, greater bird's-foot trefoil *Lotus pedunculatus* and hedge bedstraw *Galium mollugo*.
- 3.2.32 The more diverse areas of glade grassland areas supported populations of yarrow *Achillea millefolium*, creeping willow, evening primrose *Oenothera* sp, wild parsnip *Pastinacea sativa*, common vetch *Vicia sativa*, and greater knapweed *Centaurea scabiosa*. The species composition indicates that the substrates become seasonally waterlogged with common figwort *Scrophularia nodosa*, meadow vetchling and square stemmed St john's wort *Hypericum tetrapterum* southern marsh orchid *Dactylorhiza praetermissa*, hard rush *Juncus inflexus*, and common fleabane *Pulicaria dysentrica* also recorded.

Glades in TCA West

- 3.2.33 In TCA West several small areas of open structured grassland are bounded willow, bramble or Japanese knotweed. Dewberry is typically abundant and in places forms a virtual monoculture with 90%+ cover. The areas where grassland is developing typically have less than 10% grass cover and between 10-30% bare ground/bryophyte. A range of dry and neutral grassland herb species occur at low frequency including common restharrow, ribwort plantain, ribbed melilot, yarrow, bird's-foot trefoil, creeping cinquefoil, wild carrot, selfheal, evening primrose, common ragwort, spear thistle, field woodrush, black medick, meadow vetchling, wood sage *Teucrium scorodonium*, and agrimony. Bramble, bracken and shrub saplings are spreading into the small areas of grassland in TCA West.

TCA East

- 3.2.34 Very small areas of open regenerating grassland with scattered scrub are located in the western section of the TCA East. Species colonising an old track include bramble, and saplings including frequent butterfly bush alongside a mix of grasses, ruderals, common woodland herbs and dry grassland species.
- 3.2.35 More tussocky grassland adjoins the off-site reed in places and is characterised by Yorkshire fog and cock's-foot with a mix of grassland herbs (such as ribwort plantain, common knapweed, yarrow, wild carrot, wild parsnip) and ruderals (thistle sp, field horsetail, rosebay willowherb, hemp agrimony).

TCA1

- 3.2.36 Areas of pioneer grassland that are starting to establish in some areas of TCA1 form part of the open mosaic of habitat establishing on the previously developed ground at Margam Wharf.

Overall

- 3.2.37 Overall the generally open structured grassland areas have variable diversity. Hairy sedge and/or dewberry are typically abundant in the patches of grassland in the PDZ and TCA West. Across all the grassland areas in the PDZ, populations of over 44 SINC indicator species of grassland or post-industrial habitats were recorded (where over 20 indicator plant species is equivalent to county status).
- 3.2.38 The smaller areas of regenerating grasslands in TCA West and TCA East had lower diversity and supported fewer SINC indicator species. Japanese knotweed has established on the margins and in many areas is encroaching into the grassland areas reducing their current and future biodiversity value. Consequently the naturally regenerating grassland habitats across the Site as a whole have importance for biodiversity in a **Local** geographic context.

Seasonally Flooded Ground

- 3.2.39 Three seasonally flooded areas in the PDZ support open stands of common reed bounded by regenerating shrub willows and patches of Japanese knotweed. Combined they are 0.18ha in extent.
- 3.2.40 Each area holds water throughout winter but rapidly dry out in spring. Dense stands of seasonally dry reedbed occupying c0.09ha. Where reed growth is less dense, a small number of bryophyte species create a dense carpet below the common reed. Other aquatic plants include sea club rush *Bolboschoenus maritimus* and slender spike rush *Eleocharis uniglumis*, both indicators of brackish water. Other wetland plants present at low frequency are common spike-rush *Eleocharis palustris*, reedmace *Typha latifolia*, jointed rush *Juncus articulatus*, and water plantain *Alisma plantago-aquatica*.
- 3.2.41 These seasonally flooded areas are small in extent does not classify as Section 7 habitat as they hold water for less than half a year. They considered to have biodiversity importance in context of the **Site**.

Bare ground / Ephemeral Vegetation

- 3.2.42 An area of recolonising bare ground / hardstanding lies in the centre of PDZ (0.53ha) with smaller areas adjoining the northern boundary and in the eastern section of the PDZ (0.2ha)
- 3.2.43 Much of the larger area of bare ground area is flooded in winter and very dry in summer. A thin layer of accumulated silt on top of the hardstanding which remains largely unvegetated with

scattered plants of water mint *Mentha aquatica*, silverweed *Potentilla anserina*, hard rush *Juncus inflexus* and yellow-wort *Blackstonia perfoliata* primarily around the margins where the recolonising shrub willows are also recolonising.

- 3.2.44 The small northern area of recolonising concrete hardstanding supports ephemeral vegetation and some bryophytes. Colonising species include perforate St John's wort *Hypericum perforatum*, bird's-foot trefoil, eyebright *Euphrasia* species, hard rush, common reed, southern marsh orchid, creeping willow, creeping cinquefoil and hairy sedge.
- 3.2.45 The main area is sparsely vegetated and does not form a habitat mosaic, In contrast the northern area has some characteristics of Open Mosaic Habitat (OMH) but is less than 0.25ha in extent. Consequently neither meets the criteria for classification as this Section 7 Habitat which is associated with previously developed ground. These habitats have importance in the geographic context of the **Site**.

Open Mosaic Habitat

- 3.2.46 The regenerating vegetation in TCA1 fulfils all five of criterion for classification as the S7 habitat open mosaic habitat being over 0.25 ha in extent, with a known history of disturbance and supporting early successional communities with many stress-tolerant species and bare substrate in a habitat mosaic. This habitat type does not occur on the other areas of the Site.
- 3.2.47 TCA1 substrate is a flat expanse of unsealed made ground consisting of mix of materials including crushed concrete and waste steel slag with very localised areas of unvegetated solid bare concrete and sealed tarmac. There is negligible soil cover and much of the area supports bare ground / sparse ephemeral vegetation, with areas of mixed ephemeral vegetation. Scattered scrub has colonised in patches and an open grassland is forming around these areas.
- 3.2.48 A good assemblage of early successional plant species have colonised and spread with the nutrient-poor nature of the substrate virtual absence of soil creating conditions suitable for non-ruderal pioneer vegetation with many species adapted to dry grassland conditions where the growth of more competitive plants is severely limited.
- 3.2.49 TCA1 primarily comprises a habitat mosaic of sparse ephemeral vegetation, mixed species ephemeral vegetation, open structured grassland, and bare ground. The percentage cover of herbs, grasses and bryophytes varies across the habitat influenced by variation in the underlying substrate.
- 3.2.50 In total 39 SINC indicator species of grassland and post-industrial habitats were recorded in the open mosaic habitat in TCA1, most abundantly kidney vetch, bird's-foot trefoil, black medick *Medicago lupulina*, and hawkweed oxtongue. Eyebright, compact brome *Bromus madritensis*, fern grass. and fescues *Vulpia* spp were locally frequent. A few grasses are widely distributed but generally only form a sparse cover with creeping bent and Yorkshire fog the main colonising species.
- 3.2.51 A wide range of herb species occur at low frequency including many indicators of neutral grassland. calcareous grassland and open mosaic habitat including wild carrot *Daucus carota*, yellow-wort, common centaury *Centaureum erythraea*, hare's-foot clover *Trifolium arvense*, and hop trefoil *Trifolium campestre*. Additional indicators occurring rarely were quaking grass *Briza media*, bee orchid *Ophrys apifera*, flattened meadow-grass *Poa compressa*, tansy *Tanacetum vulgare* and sheep's fescue *Festuca ovina* which were all rare or present as localised populations.
- 3.2.52 The open mosaic habitat that has developed on recently disturbed ground has importance for biodiversity in **local/district** geographic context primarily due to the botanical diversity.

Oxtongue Broomrape

- 3.2.53 One of the colonies of oxtongue broomrape within Port Talbot Docks occurs in Margam Wharf with part of the colony located within TCA1. Surveys of the other parts of the Site confirmed the presence of two spikes in the north-eastern corner of PDZ in summer 2022 with no plants found in any of the other parts of the Site.
- 3.2.54 Oxtongue broomrape is a nationally rare plant which receives full legal protection under Schedule 8 of the WCA. It is a parasite of hawkweed oxtongue and requires good populations of the hosts species to sustain colonies.
- 3.2.55 The plant occurs at variable density in Margam Wharf associated with the sparsely vegetated areas on unsealed free draining substrate. The highest density of spikes were at the northern end of TCA1 and in the eastern section of Margam Wharf outside TCA1 but adjoining the Site. Fewer broomrape plants were present in the centre of TCA1.
- 3.2.56 Oxtongue broomrape also occurs in a number of other locations in the docks at Port Talbot and the LPA ecologist has confirmed recent records of further colonies in Port Talbot outside the docks. This plant is nationally rare with only a small number of known colonies in other locations in the UK.
- 3.2.57 The colony within TCA1 has at least **local** importance.

Lower Plants

- 3.2.58 A total of 44 species were recorded in the PDZ and TCA1 almost entirely limited to the areas of sparsely vegetated ground and open structured grassland on sandy substrates. More established naturally regenerating grassland supported fewer bryophytes (mosses and liverworts).
- 3.2.59 The open grassland habitats in TCA West are an extension of the grassland habitats in the PDZ and will support a similar assemblage of bryophyte species.
- 3.2.60 The sparsely vegetated hardstanding in the centre of the PDZ supported a ruderal communities of bryophytes and was the most diverse within the survey area but comprising common species such as *Didymodon fallax*, *Cratoneuron filicinum*, *Homalothecium lutescens*, *Schistidium crassipilum*, *Streblotrichum convolutum* and *Syntrichia ruralis*.
- 3.2.61 The small area of coastal grassland and dune slack vegetation in the PDZ only supported a narrow range of common species, such as *Homalothecium lutescens* and *Syntrichia ruralis* with *Calliergonella cuspidata* which was locally abundant. The flat topography and lack of variation in ground condition limited the diversity of mosses in this habitat.
- 3.2.62 The sparsely vegetated ground in TCA1 supported a moderately diverse with a total of 36 species.
- 3.2.63 All the open structured naturally regenerating grasslands (with above 30% grass cover) had lower diversity of bryophytes comprising only a few abundant species including *Calliergonella cuspidata* and *Homalothecium lutescens*.
- 3.2.64 Overall the epiphyte flora (species growing on tree trunks) was particularly poor, with the notable absence of common epiphytes growing on the regenerating shrubs willows. No bryophytes of species of conservation interest or assemblages of conservation interest were recorded.
- 3.2.65 Effects on bryophytes are assessed as part of the impacts and effects on the habitats in which they occur and are not considered separately in the EcIA.

3.3 Faunal Species

Bats

Roosts

- 3.3.1 The Preliminary Bat Roost Assessment undertaken in July 2023 concluded that four of the 19 buildings in TCA East had low roost potential (B1, B5, B13 and B17). The location of the buildings is illustrated on Figure 6.
- 3.3.2 Subsequent emergence / re-entry surveys assessed the presence/absence of roosts. A low conservation status day/transitional roost and feeding perch/night-roost for common pipistrelle was recorded in Building B1 with a single bat recorded to emerge during the two dusk emergence surveys.
- 3.3.3 No bats were recorded emerging from or re-entering the buildings of low potential value (B5, B13 and B17) which had a limited number of low value potential roost features.
- 3.3.4 No emergence or re-entry was recorded from any of the buildings during single dusk or dawn surveys in August 2023 indicating the likely absence of bat roosts.
- 3.3.5 There are no buildings or trees with potential roost features within the PDZ, Crown Wharf dockside, TCA1 and TCA West. All the shrub willows were multi-stemmed and had narrow diameter trunks and daytime inspections confirmed the absence of any potential roost features in the line of cypress trees on the eastern boundary of the PDZ.

Activity Summary

- 3.3.6 Five bat species were recorded within the Site during the transect surveys and/or remote recording: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule and brown long-eared bat.
- 3.3.7 Four species were recorded during surveys of the PDZ and TCA West undertaken in 2023 and 2021, common pipistrelle, soprano pipistrelle, noctule and Nathusius pipistrelle.
- 3.3.8 Four species of bats were recorded during surveys of TCA East in 2023; common pipistrelle, soprano pipistrelle, noctule and brown-long eared bat. A few passes of a fifth species Nathusius pipistrelle were also detected to the south-east of TCA East c100m from the boundary.
- 3.3.9 Three species of bat were recorded in TCA1 common pipistrelle, soprano pipistrelle, and noctule.

Common pipistrelle

PDZ

- 3.3.10 Common pipistrelle was by far the most frequently encountered species with extended foraging by a small number of bats in the north-eastern and eastern parts of the PDZ, where open grassland adjoins willow scrub, gorse and bramble and where there is shelter alongside the line of cypress trees.
- 3.3.11 In this part of the PDZ, remote detectors recorded an average of 185 common pipistrelle passes recorded per night in mid-summer. Observations from transects also confirmed that bats feed on insects around streetlights on the northern boundary of the PDZ. The scrub habitat on the southern boundary of the PDZ (adjoining the off-site embankment down from the railway sidings) and on the north-western boundary were also shown to be used as bat flight lines. Lower levels of common pipistrelle activity were recorded in other parts of the PDZ, typically limited to occasional commuting passes.

Crown Wharf and TCA1

- 3.3.12 Occasional common pipistrelle activity was also recorded at the proposed Marine Loading/Unloading Facility primarily associated with the small group of young multi-stemmed sycamore trees. In TCA1 the number of passes per night was less than 10 on all but one night when 63 passes were recorded. This increased level of activity is very likely to relate to a brief period of higher numbers of airborne invertebrates.

TCA West

- 3.3.13 Consistent with the PDZ, low levels of common pipistrelle bat activity were recorded in TCA West which is a continuation of the same habitats comprising scrub and Japanese knotweed. Activity levels were lower with no areas of extended foraging activity identified from transects or remote recording.

TCA East

- 3.3.14 The level bat activity within the majority of TCA East is very low as defined during transects along the northern boundary and by surveyors undertaken emergence surveys of buildings in the northern part of this area. Moderate levels of common pipistrelle activity were recorded on a remote recorder placed on the southern boundary of TCA East (on the edge of the off-site reedbed) in July with an average of 400 passes per night over a five night recording period. The 2023 survey found significant seasonal variation at the same location with an average of 63 passes per night during the recording period in August, reducing to an average of 6.6 and 1.8 passes per night in September and October respectively.
- 3.3.15 Foraging activity was also recorded in and around Building B1 during surveys in August and September a large open sided building in the south-western part of TCA East. A remote detector placed in B1 for five nights recorded between 115 and 215 passes per night on three of the nights confirming use of the building as a foraging habitat by common pipistrelle. In contrast, there was no bat activity in building during the night of heavy rain.

Overall

- 3.3.16 The majority of the Site is associated with very low levels of common pipistrelle activity but localised areas of the PDZ and TCA East are regularly associated with low to moderate levels of foraging activity, where small groups of bats regularly feed for extended periods.
- 3.3.17 Common pipistrelle is a commonly occurring species that will be widespread in the locality and the Site will form a small part of the total extent of foraging habitats available to the local population. Commuting activity was occasionally recorded but not important flight paths have been identified. The site has been classified as having up to **Local** value for common pipistrelle.

Other Bat Species

- 3.3.18 The four other bat species were typically recorded at very low levels across the Site. The peaks of activity recorded on the Crown Wharf dockside in late summer, with an average of 24 passes per night for soprano pipistrelle activity and an average of 3 passes per night for noctule activity. These represent low levels of activity for these species.
- 3.3.19 A single Nathusius' pipistrelle pass was detected in 2022; on a remote detector on the boundary between the PDZ and TCA West. This species was also recorded outside of TCA East in 2023.
- 3.3.20 A single brown long-eared bat pass was recorded on a remote recorder located on the southern boundary of TCA East in 2023 but was not recorded any other area of the site in either 2022 or 2021.
- 3.3.21 For these four bat species the habitats within the Site are classified as being as a resource of importance in up to a **Site** context.

Otter

- 3.3.22 Past records of otter from the River Afan confirm the presence of a local population. Otters typically hold large territories, and it is assumed that the intertidal section of the river to the north-west of Port Talbot Docks will be part of an active territory. Fish species will be present and may be abundant in the open water dock and as a potential prey species it is assumed that otters will at least occasionally use the open water dock habitats when hunting, typically at night. During the daytime, otters use holts and dense cover in undisturbed locations to lay up.
- 3.3.23 The habitats within the Site are sub-optimal for otter. The strip of terrestrial habitats alongside Crown Wharf dockside lie very close to the Phoenix Way and will be subject to high levels of indirect disturbance. The very open short vegetation with scattered scrub in TCA1 and Margam Wharf provide negligible cover. Both areas are considered unsuitable to be used as resting places.
- 3.3.24 In the PDZ and TCA West, potential dense cover at ground is limited to the localised areas of bramble scrub. Connectivity to the open water dock is limited to the northern boundary.
- 3.3.25 The stands of common reedbed in the PDZ are growing through a carpet of bryophytes and lack dense cover when an otter would remain hidden. Amphibian prey species favoured by otter are likely to absent. In addition the ground beneath the willow scrub, adjoining the reed, has a sparse vegetation and provides limited shelter.
- 3.3.26 The reedbed to the south of TCA East has higher potential value for otter. Surveys in 2023 confirmed the absence of otter paths entering the reedbed from TCA East which has negligible value for otter and potentially creates a partial barrier to movement.
- 3.3.27 Trail cameras placed on mammal paths on the northern boundary of the PDZ and in woodland close to the eastern edge of the reedbed south of TCA East recorded only fox and rabbit activity.
- 3.3.28 Searches for otter paths and potential laying up places found no evidence of activity in the PDZ, Crown Wharf dockside, TCA West, TCA East or TCA1.
- 3.3.29 The survey findings indicate that none of the habitats within the PDZ, Crown Wharf dockside or TCAs are being used by otter as a place of shelter and are classified as having **Negligible** importance for otter.
- 3.3.30 The open water dock as a whole is potentially part of a foraging territory for otters using the River Afan and under the precautionary principle is classified as potentially having importance in a **Local** context.

Badger

- 3.3.31 No signs of badger were recorded within the Site. The potential value of the habitat for the establishment of setts and as foraging habitat is sub-optimal because of the post-industrial nature of the site. The site has **Negligible** importance for badger and are not considered further in the EcIA.

Breeding Birds

- 3.3.32 A precautionary assessment of the breeding bird assemblage using the PDZ has been made based on the types of habitat and observations of activity recorded in TCA West and the adjoining scrub woodland in 2021.

Comparison with Harbourside

- 3.3.33 A breeding bird survey in the docks outside the Site in 2021 covered the 23ha area of land to the west of the PDZ. The 2021 Harbourside survey area was subdivided into Areas A, B, C West and

C East (as shown in Figure 3). TCA West forms the eastern section of the 2021 survey compartment referred to as Area C East in the 2021.

- 3.3.34 A total of 31 species were recorded across the Harbourside survey area, with 24 classified as breeding. A further six species recorded as foraging were classified as nesting in nearby habitats.
- 3.3.35 The regenerating willow scrub and grassland habitats in TCA West and Area C East are very similar in structure and composition to these habitat types in the PDZ with the willow scrub habitat overlapping the boundary. In total 11 species were recorded as breeding in Area C East, with each of these species nesting in scrub habitats.
- 3.3.36 Overall, it is estimated that at least 12 species and up to 20 species have bred in the PDZ and TCA West prior to the clearance of the willow scrub with the estimated numbers of nesting pairs higher than in Area C East due to the greater extent of scrub habitat. The predicted PDZ assemblage includes all the species that were recorded breeding in Area C East in 2021 plus selected additional breeding species based on activity recorded in other parts of Harbourside where there is equivalent habitat in the PDZ.

Predicted Breeding Bird Assemblage

- 3.3.37 The majority of nesting habitat within the Site is associated with the denser structured vegetation, principally bramble, gorse and woody hawthorn scrub which have a scattered distribution across the PDZ. The dense bracken also provides potential cover for species associated with scrub that nest on the ground.
- 3.3.38 Low levels of activity were recorded in the regenerating willow scrub in Area C East and was consistent with observations in the PDZ in 2022. The open growth structure and narrow diameter branches and generally sparse ground cover provides few nesting opportunities. The areas of open structured grassland enclosed by scrub and Japanese knotweed have negligible value for species of ground nesting birds such as skylark and meadow pipit.
- 3.3.39 Nine of the 20 species meet at least one of a range of criterion relating to nature conservation including Species of Principal Importance (Section 7, Environment Wales 2016), Birds of Conservation Concern in Wales (BoCCW) Red or Amber lists, or species protected under Schedule 1 of the Wildlife and Countryside Act 1981.

BoCCW Red List species

- 3.3.40 Goldcrest *Regulus regulus* (1 pair) - Goldcrest has been confirmed as breeding in the line of cypress conifers on the eastern boundary of the PDZ.
- 3.3.41 Linnet *Linaria cannabina* is common resident breeding species in the county. and linnet is a potentially breeding species in gorse and bramble in PDZ and TCA West. No pairs were breeding in TCA West in 2021 but the habitats in the two areas have the potential to support this species.
- 3.3.42 Whitethroat *Sylvia communis* is a confirmed breeding species in the PDZ and TCA West and is a common breeding passage migrant with an estimate of up to 8 pairs across the two areas. Bramble scrub in TCA East also has the potential to be used by nesting pairs of this species.
- 3.3.43 The observations of herring gull *Larus argentatus* on one of the buildings in TCA East indicates it is likely to have nesting on the roof in 2023. Two pairs of herring gull was also be observed with fledged young on a large industrial building on the northern side of the dock in 2021.

BoCCW Amber List species

- 3.3.44 Bullfinch *Pyrrhula pyrrhula*, dunnoek *Prunella modularis*, chaffinch *Fringilla coelebs*, and magpie *Pica pica*, are all confirmed or assumed to have nested in the PDZ and/or TCA West and are all classified common resident breeding species in the county. The small areas of scrub and bramble in TCA East will have potential value as nesting habitat for dunnoek.

Schedule 1 Species

- 3.3.45 Cetti's warbler *Cettia cetti* (Schedule 1) is regional status locally common resident with PDZ and habitats adjoining TCA East having the potential to support nesting pairs. Singing males have been briefly heard in the PDZ, TCA West and in habitats to the south-east of TCA East as well as in other locations around the docks.

Other Species

- 3.3.46 Song thrush *Turdus philomelos* is a Section 7 species was recorded on the boundary of TCA West and the PDZ in 2021 and 2023. Formerly BoCC Amber list is was reclassified as BoCC green (low conservation concern) in 2022.
- 3.3.47 The margins of the open water dock also have the value for nesting birds, most notably the areas of reedbed and dense scrub. The engineered sides to the dock at Crown Wharf, Margam Wharf and alongside Phoenix Way provide little cover and no breeding bird activity was recorded in these locations.
- 3.3.48 Species that are assumed to be nesting in reedbed and scrub habitats on the margins of the open water dock as a whole include the passerines reed warbler, sedge warbler (both BoCCW Green List), and reed bunting (BoCCW Amber List). Wetland species likely to be nesting on the margins of wider open water dock include mute swan, Canada goose, mallard, and moorhen (all BoCCW Green List).
- 3.3.49 The breeding bird assemblage within the application site is classified as having **Local** importance.

Wintering Bird Assemblage

- 3.3.50 A total of 16 species of conservation interest were recorded during monthly counts of the open water dock undertaken between October and March 2023 and during surveys of the PDZ and TCA West undertaken between October 2021 and March 2022.
- 3.3.51 The species recorded in the open water dock in 2022/ 2023 closely matched the data collected during the Wetland Bird Survey (WeBS) monthly counts completed over five year period between 2012 and 2016.
- 3.3.52 The assemblage of wetland birds regularly using the dock is small comprising species that are common and widespread in coastal/wetland habitats during winter months. All the species occur in small numbers, with the exception of the gull species.
- 3.3.53 The peak counts in the open water dock during the (WeBS) between 2012-2016 were notably higher than the peak counts in winter 2022/2023. During the WeBS counts only four wader species were recorded: lapwing (BoCCW Red List), oystercatcher, snipe and common sandpiper (BoCCW Amber List). All were infrequent visitors and recorded in small numbers with the exception of snipe, a species which will be present in habitats on the in the immediate vicinity of the dock each winter. Small numbers of snipe were recorded in the PDZ and nearby off-site land, associated with seasonally flooding. Woodcock (BoCCW Red List) was also occasionally recorded in the PDZ.
- 3.3.54 The willow and other scrub habitats are used by a range of passerine species over winter feeding on seeds and invertebrates. The BoCCW species recorded were mistle thrush, grey wagtail, magpie, snipe and woodcock.
- 3.3.55 Passerine species also occasionally feed on berries in the TCA1, especially during early winter with abundant fruit on the invasive non-native species wall cotoneaster. BoCC red or amber list species were limited to individual meadow pipit (BoCCW Red List), mistle thrush and magpie (both BoCCW Amber List). The PDZ, TCA1 and open water dock (partly located within the application site) have **Local** importance for wintering bird populations.

- 3.3.56 Outside the application site, the rocky habitats and intertidal mud and sand on the sides of the tidal section of the River Afan are used by gull flocks and some number of overwintering wader species during low tides. The rocky intertidal areas on the margins of the river channel are also foraging habitat for small numbers of waders. The small assemblage of wetland species associated with the open water dock and low tide intertidal habitats of the River Afan has importance in the context of the **Local** area.

Reptiles

- 3.3.57 Reptile surveys in 2021 and 2022 confirmed the presence of populations of three native reptile species, slow worm, grass snake and common lizard, within the Site.
- 3.3.58 All three species occur in the PDZ. Individual grass snakes and common lizard were also present on the edge of the bracken adjoining Crown Wharf, while slow-worm and common lizard occur in TCA West. No reptiles were found in the TCA1 during the seven survey visits completed in 2022 indicating likely absence in this part of the Site.

Common Lizard

- 3.3.59 The PDZ and TCA West support a good population common lizard. A peak count of 18 adults were recorded in the PDZ. Almost all the juveniles were recorded under refuges in the eastern area of grassland. The common lizard population in the PDZ and TCA West forms a small part of larger population utilising suitable habitats present to the west (Harbourside site). The common lizard population occurring within the Site has importance in a **Local** context.

Grass snake

- 3.3.60 Grass snake were confirmed to be breeding in the PDZ and the individuals also utilising the adjacent habitats at the Crown Wharf dockside. Adults were recorded in the PDZ on three occasions, with two observed during one visit. Individual juvenile grass snakes were recorded once in the PDZ and twice at Crown Wharf. Sub-adults were also recorded in the wider area around the PDZ and in the wider Harbourside site.
- 3.3.61 The reedbed adjoining TCA East, outside the Site boundary, has high potential value for grass snake but the hardstanding making up the majority of TCA East has negligible value for this species.
- 3.3.62 The areas of seasonally dry reedbed and small areas of unmanaged bracken in the PDZ are the most suitable conditions for egg laying. The winter flooding was observed to rapidly dry in late April and early May limiting their potential to support breeding populations of amphibian prey species.
- 3.3.63 The population of grass snake resident within the Site has **Local** importance.

Slow worm

- 3.3.64 Slow-worm *Anguis fragilis* were recorded in Area C East in 2021 with a peak count of seven. The majority of sightings were from outside of the TCA West associated with south and west-facing scrub edge habitat part of this population will be present in habitats in TCA West.
- 3.3.65 In comparison, only very small numbers of slow-worm were found in the PDZ in 2022 with the sightings associated with habitats on the perimeter adjoining TCA West and the railway sidings.
- 3.3.66 Two slow-worm were incidentally observed in TCA East during the habitat survey walkover in August 2023 confirming presence in the small patches of grassland and scrub bounded by hardstanding.
- 3.3.67 The slow worm population within the Site is considered to have importance in the geographic context of **Site**.

Amphibians

Great Crested Newts

- 3.3.68 No waterbodies with potential to support great crested newts *Triturus cristatus* (GCN) within 250m of the boundary of the Site.
- 3.3.69 The temporary/seasonal waterbodies located in operational yards within the Tata Steel works have negligible potential value as breeding habitat for GCN.
- 3.3.70 GCN surveys of the two waterbodies in the Harbourside site, were most recently undertaken in 2021, confirmed the very likely absence of this species. A reedbed with areas of open water in the base of a former mineral extraction (Area B) lies 250m west of habitats in TCA West at the closest point. A very small man-made waterbody, constructed below an artificial sand martin nesting bank, (Area C West) lies 250m west of habitats in TCA West at the closest point.
- 3.3.71 Based on the 2021 survey findings, GCN do not breed in either of these waterbodies and the habitats in the PDZ and TCAs have negligible importance for GCN. This species is not considered further in the EcIA.

Invertebrates

Harbourside

- 3.3.72 The terrestrial invertebrate survey of the adjoining Harbourside in 2021 (covering Areas A – C) recorded a total assemblage of 317 species from sampling in mid and late summer confirmed the presence of a number of Red Data Book (RDB), nationally scarce and Section 7 species, primarily associated with the grassland, banks, and flower-rich habitats.
- 3.3.73 The range of habitats and micro-habitats included bare sandy ground, open water, reedbed, open mosaic habitat, open structured flower-rich grassland, tussocky grassland and scrub which offer a wide range of opportunities for invertebrates.
- 3.3.74 Many invertebrate species have very precise requirements for habitat 'niches' and the range of ground conditions increases the diversity of micro-habitats available to invertebrates. Consequently the value of Harbourside for invertebrates was increased by the varied topography.

PDZ

- 3.3.75 A precautionary assessment of the species assemblage associated with habitats in the PDZ has been made based on the habitats prior to the clearance of willow scrub by ABP (following dialogue with the Council to enable the Japanese knotweed control measures).
- 3.3.76 In the 2021 survey, a total of 157 invertebrate species were recorded in Area C East over the three survey visits, which was classified as a surprisingly good diversity given the extent of regenerating even-aged scrub dominated by grey willow. Invertebrates were primarily associated with the rank grassland, mixed species scrub (including gorse and broom), open structured grassland, and a bank with a patchy vegetation cover.
- 3.3.77 A proportion of the invertebrate species recorded in Area C West will occur in the PDZ where there are equivalent habitat types, habitat structure and species composition and it is also recognised that a small proportion of the invertebrate species assemblage using the PDZ will not have been recorded in Harbourside during the 2021 survey.
- 3.3.78 The PDZ was predicted to have supported a diversity of between 145 and 155 species based on the range of habitat types and extents. This estimate took into account the extent of Japanese knotweed, the flat topography, absence of bank features in the PDZ, and homogeneity of the regenerating grey willow scrub.

- 3.3.79 The follow up invertebrate survey in 2023 covered the habitats of highest potential value for invertebrates (grassland and seasonally flooded areas). These surveyed habitats will have been the highest value habitats prior to the felling of the willow scrub.
- 3.3.80 A total of 151 species was recorded in the PDZ. Several species were only recorded in the PDZ including a rare leafhopper *Paralimnus phragmitis* and a snail-killing fly *Pherbellia knutsoni*, both of which were associated with the dry stands of common reed.
- 3.3.81 The very extensive Japanese knotweed stands meant that the actual area of habitat in the PDZ of potential value for invertebrates was limited. The regenerating willow scrub in Area C East was also reconfirmed to be a low value invertebrate habitat in 2023.
- 3.3.82 Excluding the species that no longer of have national conservation concern, the number of species of conservation concern in the PDZ in 2023 was 6 (4%) of which 4 (2.6%) were RDB species.

TCA1

- 3.3.83 The TCA1 comprises flat ground with open structured grassland, sparse vegetation and localised areas of open flower-rich vegetation growing on previous developed land that has disturbed in the recent past with close similarities to another area of the docks that was included in the survey in 2021 where a total of 85 species were recorded.
- 3.3.84 Under a precautionary approach the species diversity was expected to be broadly equivalent to Area A but with differences in the species composition. In 2023 the invertebrate survey of TCA1 and adjoining habitats recorded 86 species. Rarer species included a mining-fly *Phytomyza orobanchia* (which has recently been given provisional RDB2 status). This species was abundant in TCA1 where it occurs on the host-plant, oxtongue broomrape. Colonies of this plant species occur elsewhere on ABP land at Port Talbot and the mining fly should be present more widely within the docks.
- 3.3.85 Excluding invertebrate species that no longer have national conservation status, the number of species of conservation concern found in TCA1 in 2023 was 3 (3.5%) with only 1 (1.2%) RDB species.

TCA West

- 3.3.86 The invertebrate survey of Area C East in 2023 (incorporating TCA West) recorded a total of 156 species. As a comparison, a total of 157 species were recorded in Area C East in 2021. The highest species diversity was associated with flower-rich grassland and open, ruderal areas which is more prevalent in habitats outside the boundary of TCA West.
- 3.3.87 TCA West makes up less than 50% of the total area of Area C East and will have reduced species assemblage due to the extent of densely shading willow, Japanese knotweed and bracken.
- 3.3.88 For Area C East as a whole the number of species of conservation concern found in 2023 was 4 (2.6%) with 2 (1.3%) being RDB species, excluding the species that are no longer of national conservation concern.
- 3.3.89 Two important invertebrates were found, the flesh-fly *Macronychia polyodon* which is associated with dunes in South Wales, and the blood-bee *Sphecodes ferruginatus* which was also recorded in Area C East in 2021.

TCA East

- 3.3.90 The small areas of habitat bounding the extensive areas of hardstanding will have limited value for invertebrates and would be expected to comprise species present that will occur in other areas of the Site.

Overall

- 3.3.91 The invertebrate assemblage will contribute to the invertebrate populations associated with naturally regenerating habitats across Port Talbot Docks as a whole. A small number of species will have high conservation status due to their rarity in South Wales.
- 3.3.92 Following a precautionary approach, the application site is predicted to have **District** importance for invertebrates due to the varied conditions and micro-climates created by the habitat patchwork of scrub and naturally regenerating grassland.

4 IMPACT ASESMENT

4.1 Summary of Development Proposals of Relevance to the EcIA

- 4.1.1 The Proposed Scheme will comprise a new facility for the production of sustainable aviation fuel in the form of Alcohol to Jet Synthetic Paraffinic Kerosene (ATJ SPK) and sustainable diesel.
- 4.1.2 The proposed development comprises the primary process areas and administrative operational facilities.
- 4.1.3 As a production facility for Jet Fuel from Ethanol the development must meet the requirements of the Control of Major Accident Hazards (COMAH) Regulations to prevent major accidents involving dangerous substances.

Landscape Scheme

- 4.1.4 The layout has been designed to minimise potential fire hazards and this has included the design of the landscaped areas within the PDZ. The 12.5kW/m² thermal radiation level has been modelled around the processing areas defining the zone in which habitat features cannot be integrated into the development.
- 4.1.5 This has limited to extent of landscaping and vegetation cover which is located towards the boundaries and to maximise value the individual features have been designed to have multifunctional benefits for biodiversity, landscaping and sustainable drainage (SuDS).
- 4.1.6 The largest landscaped spaces are located within the administration area, between the truck loading area and Phoenix Way and towards the western boundary alongside a proposed internal road. The main proposed habitat is flower-rich grassland and pioneer vegetation which will be established on nutrient-poor substrates, features that should be equivalent to habitats of biodiversity value in the wider dock. The vegetation proposed is associated with industrial sites which can support key foodplants for invertebrates and provide sources of pollen and nectar. Both habitat types are suitable for periodic disturbance, with low maintenance requirements.
- 4.1.7 Site-won substrates will be used where possible (subject to the results of ground investigations), or alternatively similar inert post-industrial substrates will be sourced from the wider dock or will be imported.
- 4.1.8 The landscaping features within the PDZ will include:
 - Flower-rich grassland/pioneer vegetation
 - Modular biodiversity (bespoke gabion) walls – freestanding within grassland and used as walls for level changes on the site boundary
 - Biodiverse green/brown roof with solar on the administration building
 - Small green/brown roofs on small buildings (Site Entrance 1 and Gatehouse 1)
 - Gravel substrate rain gardens (adjoining hard landscaping)
 - Insect hotels
 - Large rock features
- 4.1.9 The design has sought to maximise value the individual features so that they have multifunctional benefits for biodiversity, landscaping and sustainable drainage (SuDS).
- 4.1.10 The modular biodiversity walls will provide a significant 3-dimensional habitat for pioneer plant communities and some invertebrate species. Fill materials will be stone/rubble with some low nutrient soil/substrate. Variation in the types of fill materials, construction techniques and ratio of

stone to soil on the faces and top will increase structural diversity and the microhabitats for invertebrates.

- 4.1.11 It is anticipated that the majority of the species will establish through natural colonisation from ephemeral habitats and open structured grassland growing on similar substrate in the locality of the development.
- 4.1.12 Open mosaic habitats comprise species that are adapted to drought stressed environments and can cope with periods of desiccation. The composition would include annuals, many of which will be spring flowering, dying back in summer and germinating from seed each year. The habitat is resilient to climate change and will adapt to changing conditions through variation in the abundance of individual species, but remaining a flower-rich habitat with low grass cover.
- 4.1.13 The Proposed Scheme will also have permeable paving (staff car parking areas), trapezoidal ditches (gravel based swales) along the Phoenix Way and macro-permeable paving (frontage of warehouses).

Enabling and Construction

Site preparation is expected to commence in 2024 (i.e. site enabling works) and require up to 3 years to construct, inclusive of commissioning of the processing plant and overall facility. As such, the Proposed Scheme is expected to be operational by 2027.

- 4.1.14 The existing topography in the PDZ will be partial reprofiled to create a broadly level site at 8m AOD. Remedial measures will be employed to address any identified contamination and unstable or compressible ground.
- 4.1.15 A temporary drainage strategy will manage surface water runoff volumes and quality during the construction stage. It is anticipated that the temporary drainage strategies for the PDZ and TCA areas will incorporate attenuation features which will remain part of the operational surface water drainage system and take advantage of any post-development attenuation SuDS without compromising the long-term operation of the SuDS features.
- 4.1.16 The core construction working hours will be from 07:00 to 19:00 across all days with potential for works outside these hours, subject to agreement with NPTCBC. Temporary construction lighting will be required in the working areas across the PDZ and the TCAs. Illumination during construction will be sufficient for safe access and working, during daytime hours and at night. Temporary light poles will be installed around buildings, and in parking area. All common areas, pathway, roads used for construction will be lit by light poles on concrete bases. Lighting locations will be planned and defined on site according to requirements. For prolonged night-time illumination will be a minimum illumination of 100 Lux. Pedestrian passages, vehicle turning, loading and unloading points will be a minimum of 50 Lux and pedestrian walkways a minimum of 5 Lux.

PDZ Operations

- 4.1.17 The sustainable aviation fuel production facility will be operational 24 hours a day, 365 days a year and will be artificially lit. The Lighting Assessment sets out the principles of operational lighting design within the PDZ.
- 4.1.18 The lighting strategy has been developed by Technip Energies which provides an overview of the proposed lighting equipment selection. All areas of the operational site will be artificially lit at night. The detailed lighting scheme will be prepared at the detailed design stage.

Operational Lighting

- 4.1.19 For operational lighting the following embedded mitigation measures will be fully adopted in the detailed lighting strategy as part of good lighting design practice.

- 4.1.20 Lower colour temperature lamps (CCT $\leq$ 4000K) have been specified for lighting limiting output on the blue / ultraviolet range to minimise potential effects on the behaviour of bats, invertebrates and birds.
- 4.1.21 The positioning and orientation of luminaires will confine lighting to the task area through the use horizontal cut-off optics and zero floodlight tilt angles);
- 4.1.22 Deflectors will be included in the detailed specifications to minimise obscure light sources and skyglow.
- 4.1.23 The normal lighting will be controlled by a timer and photo electric cell, so that the lights can only come on during set hours and only if it is dark enough for artificial lighting to be required. Therefore, these lights will only come on if required between 6am and 11pm. After 11pm, lighting will drop down to emergency lighting levels as indicated above.
- 4.1.24 Streetlights and car park lighting will be controlled by a timer and photo electric cell so that the lights can only come on during set hours and only if it is dark enough for artificial lighting to be required for safe movement around site.

Marine Unloading / Loading Facility

- 4.1.25 A marine unloading / loading facility or wharf will be constructed in the open water dock to the north of the Site with ethanol and SAF to be transported to and from the operational site via ships.
- 4.1.26 The detailed design of both the temporary construction and separate permanent operational wharf structures for the marine unloading/loading facility at Crown Wharf is not yet fixed.
- 4.1.27 The following assumptions have been made to inform the assessment, it is anticipated that the operational wharf will comprise a rectangular 'island' berth, connected to the wall at Crown Wharf, which will provide an access road to the berth and docked ships. 'Loading arms' will be located at the facility to pump ethanol and ATJ SPK to/from the docked ship. A pipe and racking system will connect the facility to the PDZ which will be installed either beneath or above the Phoenix Way.
- 4.1.28 A temporary construction wharf (with associated slipway) is likely to be installed for the purpose of unloading several larger plant/equipment (i.e., storage tanks) and will be removed prior to the start of operations.
- 4.1.29 It is assumed that there will be periodic ship movements during the construction phase. During operations average it is estimated that there will be approximately eight vessel movements a month, equating to 110 (two-way) additional vessel movement a year.
- 4.1.30 Unloading of ships will take up to 18hrs and would be undertaken once every 7 to 14 days,
- 4.1.31 For the purposes of the assessment it is assumed that the final marine loading facility and temporary construction wharf will be artificially lit.

Phoenix Way

- 4.1.32 The Proposed Scheme also includes approximately 0.28km of Phoenix Way running east-west alongside the open water dock between Crown Wharf and TCA1.

Temporary Construction Areas

- 4.1.33 The TCAs will be used throughout the construction period (c. 2.5 years). All the areas of habitat in TCA West, TCA East and TCA1 will be subject to clearance prior to their use for construction and will be returned to ABP at the end of the construction period for their use.

4.2 Assessment of Construction Effects

Statutory Designated Sites

International Designations

- 4.2.1 During the construction phase there are no identified direct or indirect pathways that could affect any qualifying features of the statutory designated nature conservation sites including functionally linked land outside the designated site.
- 4.2.2 The assessment considers the three internationally designated sites located within 10km of the development as defined in Section 3. The closest internationally designated sites are located greater than 5km from the development.
- 4.2.3 The potential for activities to have a significant effect on qualifying features and conservation objectives has been reviewed. Direct disturbance, discharges, and emissions from the Proposals have been considered. Each potential impact pathway has been screened without any consideration of mitigation/avoidance measures, in line with case-law.
- 4.2.4 This review has concluded that none of the habitats within the Site are 'functionally linked' to the life and reproduction of any primary qualifying species for which the international sites have been designated or secondary species listed under the citations.
- 4.2.5 Given the level of physical separation there are no potential impact pathways between construction activities and any internationally designated sites. Under a precautionary approach it can be concluded with confidence that there would be no adverse likely significant effects associated with construction that could impact on the interest features of the relevant internationally designated sites.

National Designations

- 4.2.6 The closest nationally designated sites are Margam Moors SSSI (supporting coastal/floodplain grazing marsh) and Eglwys Nunydd SSSI (large waterbody). Both are located over 3km to the south with the Tata Steel steelworks creates a very high degree of separation between the application site and the SSSIs.
- 4.2.7 The review of potential effects on SSSIs has concluded that there are no potential impact pathways due to the level of physical separation between the designated sites and the Proposed Scheme and the nature of the activities associated with the construction.
- 4.2.8 Under a precautionary approach it can be concluded with confidence that there would be no adverse effects on national designated sites.

Non-statutory Sites and Ancient Woodland

- 4.2.9 The Lower River Afan Estuary SINC and the adjoining Little Warren SINC, lie over 690m from the boundary of the PDZ and 580m from TCA West. These sites are primarily designated for the coastal habitats and the presence of sea stock, a nationally rare plant species also listed under Section 7. With no direct linkage between the SINC designated sites and the construction areas, there are no predicted direct impacts.
- 4.2.10 Due to the distances between the construction areas and the SINC's potential indirect effects on species using these features would be limited to noise. Effects on relevant faunal species are considered in the species sections of this version of the EcIA. The modelling of noise is presented in the Noise Assessment, (Hunter Acoustics, 2023). Dust deposition, artificial lighting and increased human activity associated with construction is anticipated to be too distant from the closest SINC (Lower River Afan Estuary) to result in any adverse effects on any of the component habitats.

- 4.2.11 Construction noise generated by activities in the PDZ and Crown Wharf will not impact on the features for which the SINCs have been designated. The activity of faunal species using habitats in the SINC could be affected by elevated noise associated with construction but are not primary reasons for the site's designation. These potential effects are assessed in the relevant species sections, primarily otter and wintering birds.
- 4.2.12 The temporary effects during construction will have a negligible magnitude impact on a county value resource and the effect would not be significant in any geographic context.

4.3 Habitats

Permanent Habitat Loss

- 4.3.1 The development of the PDZ and Crown Wharf dockside and the use of TCA West and TCA East will result in the permanent loss of the following habitat types and extents:
- Coastal grassland and dune slack vegetation (PDZ) – 0.05ha
 - Naturally regenerating grassland (PDZ, TCA West, TCA East) – 1.5ha
 - Willow scrub (PDZ, TCA West, TCA East) – 4.38ha
 - Mixed species scrub, gorse and bramble (PDZ, TCA West, TCA East, TCA 1 and Crown Wharf dockside) – 1.3ha
 - Bracken (PDZ, TCA West and Crown Wharf dockside) – 0.5ha
 - Seasonally flooded ground (PDZ) – 0.18ha
 - Japanese knotweed stands (PDZ and TCA West) – c2.65ha
 - Hardstanding/sparsely vegetated ground (PDZ) – 0.53ha
 - Ephemeral vegetation/bare ground (PDZ) – 0.26ha
 - Conifer tree line (PDZ) – 0.03ha
 - Reseeded grassland (TCA West) – 0.01ha
- 4.3.2 The habitat loss would be a permanent high magnitude impact on the assemblage of habitats. The largest extents of loss relate to regenerating willow scrub (site value) and the stands of Japanese knotweed (negligible value). The effect is classified as significant in the context of **Site** but not in terms of Japanese knotweed (the removal of this invasive species is a positive benefit of the development and wider regeneration of the port).
- 4.3.3 For the higher value habitats coastal grassland and dune slack vegetation (Section 7 habitat) and the naturally regenerating grassland (equivalent to county importance due the number of SINC indicator plant species) the high magnitude effect of their permanent loss will have significance in a **Local** context.
- 4.3.4 The losses of mixed species scrub, bramble, bracken, ephemeral vegetation including bryophytes and the seasonally flooded ground are relatively small in extent and their permanent loss from the PDZ has significance in the context of the **Site** and immediate surrounds.
- 4.3.5 The control of Japanese knotweed and other Schedule 9 invasive species will have a beneficial effect of significance in a context of the **Site** and immediate surroundings.
- 4.3.6 The use of part of Margam Wharf as TCA1 will result in the permanent loss of c2ha open mosaic habitat (OMH), over 80% of the total extent of this Section 7 habitat at Margam Wharf. Its use as a temporary construction area which will require the clearance of all vegetation ahead of the installation of protective ground measures. The existing ground is expected to remain below a

membrane and gravel/chippings for the duration of construction. Following construction, TCA1 will be returned to ABP for their use and will be under ABP management from the end of the construction period.

- 4.3.7 This loss of the OMH would be a medium magnitude, permanent impact effecting a Section 7 habitat and is classified as having significance in a **Local** context.

Oxtongue Broomrape

- 4.3.8 The population of oxtongue broomrape at Margam Wharf including TCA1 is one of the many colonies present in Port Talbot Docks and the wider area. The number / density of spikes recorded in Margam Wharf in summer 2022 represented one of larger populations, but it is noted that there is typically considerable variation between years. A smaller number of spikes were evident during site visits to TCA 1 in June 2023 compared to 2022 but a full count was not repeated.
- 4.3.9 The use TCA1 will cover a substantial proportion of the colony in this part of the dock. However, the eastern section of Margam Wharf within the ownership of Tata Steel will remain unaffected by the construction activities.
- 4.3.10 Consequently part of the oxtongue broomrape colony (and the population of the host plant, hawkweed oxtongue) will be retained at Margam Wharf adjacent to TCA1. At the end of the construction stage, all construction plant, equipment and materials will be removed from TCA1, and the protective ground layer and coverings will be removed, exposing the existing ground.
- 4.3.11 Oxtongue broomrape is a species adapted to dry sparsely vegetated ground with populations of the host species. The re-exposed of the existing substrate will create conditions which the population could re-establish but only if left undisturbed for several years.
- 4.3.12 Use of the land following the return of the temporary working area to ABP at the end of the construction period is unknown. Following a precautionary approach it is assumed that the part of the colony within TCA1 will be permanently lost. Given its wider distribution across the docks the partial loss is not considered to substantially change the overall conservation status of the plant at Port Talbot Docks. Consequently the loss of part of the total population present across the docks and wider area is considered to have a small magnitude and the effect is classified as having significance in a **Local** context.

4.4 Invasive Species (Schedule 9)

Japanese knotweed

- 4.4.1 During construction, ground levelling will result in substrate with rhizomes being moved within the site. In the absence of robust biosecurity measures there is a very high risk of plant material being spread during construction activities. On site bio-secure working practice will mitigate this risk will be detailed in the EMP.

Other Schedule 9 Species

- 4.4.2 The other non-invasive species listed under Schedule 9 have been recorded within or adjacent to the site are Montbretia, Cotoneaster species and Himalayan balsam.
- 4.4.3 Montbretia is present in localised patches in the PDZ primarily in the central sections. The dense clumps that have formed will be increasing in extent over time, typically growing on the boundary of the willow scrub.
- 4.4.4 Wall cotoneaster occurs extensively on the edge of the dock at Margam Wharf outside the boundary of TCA1 and is colonising into the open mosaic habitat within the Site, probably being spread birds which feed on the fruits. Wall cotoneaster is also present on the railway embankment

on the southern boundary of the PDZ where it has a more localised distribution and a few plants are colonising in the north-eastern section of the PDZ. A few individual cotoneaster species shrubs have been noted in the PDZ and TCA East and are also potentially species listed on Schedule 9.

- 4.4.5 Himalayan balsam has colonised habitats to the west of TCA West and is increasing in abundance. No plants of this species were recorded in the TCA West in 2023 but this species will continue to spread over time in the absence of control measures and there is potential for colonisation of TCA West prior to the start of construction.
- 4.4.6 All Schedule 9 species should be subject to systematic excavation in advance of earth movements to avoid spread. Materials could be temporarily stored and then subject to burial or removed from site. The control measures should form part of the INNS strategy and be implemented in advance of the development.
- 4.4.7 Plant materials will be disturbed during ground levelling with the potential for plant materials to more widely dispersed if appropriate measures are not incorporated into working practices and environmental protection measures ahead of earth movements with the required measures incorporated into the Environmental Management Plan (EMP).

Sea Buckthorn

- 4.4.8 Although sea buckthorn is not listed in Schedule 9 in Wales or England, it is non-native in South Wales and is an invasive species in the docks where it has colonised grassland habitats. All the established plants are spreading into the surrounding habitats and in few places form extensive stands.
- 4.4.9 Following good environmental practice enabling works and construction activities should be designed to avoid the spread sea buckthorn plant or root material capable of establishing new plants. Consequently, the sea buckthorn scrub and the root systems should be excavated and either buried on-site (in an approved location, at least 2m below ground level), or removed from site as detailed in the EMP.

4.5 Species

Bat Roost

- 4.5.1 The 19 buildings in TCA East will be demolished to enable the use of TCA for construction activities.
- 4.5.2 The demolition of Building 1 in TCA East will result in the loss of a low value transitory roost and night feeding roost used by very small numbers of common pipistrelle. A Welsh Government bat mitigation licence will need to be obtained from Natural Resources Wales (NRW) to enable the lawful demolition of Building 1.
- 4.5.3 Three of the other buildings that will be removed have low bat roost potential but the likely absence of roosting bats in these buildings was concluded from surveys undertaken in late summer 2023.
- 4.5.4 Use of roosts can change during the year. Due to the dilapidated state of Building B1, no features were found that could support higher numbers of roosting bats during the active season and the building has no features that would be suitable for hibernation. On this basis Building B1 is not considered suitable for supporting a roost of higher conservation value. The poor state of repair also means that in the medium to long term the suitability of the roost feature would be lost as the building structure continues to decline.
- 4.5.5 Buildings B5, B13 and B17 with low bat roost potential will also be demolished. From the 2023 surveys there would be no adverse effect on any roosting bats as a result of these works.

- 4.5.6 There are no construction effects on roosting bats in the PDZ, Crown Wharf dockside or other TCAs.
- 4.5.7 The magnitude of the loss of the common pipistrelle roost is small and the effect is classified as having significance in a **Site** context.

Bat Activity

- 4.5.8 The permanent loss of all habitats within the PDZ and there will be a partial loss of habitats adjoining the Crown Wharf berth and at Margam Wharf (TCA1).
- 4.5.9 Consequently the development will result in the permanent loss of localised habitat areas that are regularly used by foraging common pipistrelle, and more occasionally used by soprano pipistrelle and noctule bats. Nathusius pipistrelle and brown long eared bat were the only other bat species recorded with single passes on remote recorders.
- 4.5.10 The overall level of bat activity is generally low with localised areas of extended foraging including the streetlights on the Phoenix Way adjoining to scrub and grassland (PDZ) the line of conifers on the eastern boundary (PDZ) and the boundary of the reedbed (TCA East). With very low levels of activity associated with Crown Wharf and TCA1.
- 4.5.11 In these locations common pipistrelle foraging activity were recorded with small groups of bats feeding over extended periods. Foraging was also noted inside Building B1 (which has partially open sides) and is located at the western end of TCA East between the reedbed and conifers on the boundary of the PDZ.
- 4.5.12 In comparison, the all the areas of continuous willow scrub and extensive stands of Japanese knotweed in the PDZ were associated with very low levels of bat activity. The removal of habitats in Crown Wharf and TCA1 should only have a very minor effect on bat behaviour.
- 4.5.13 The PDZ and TCA West are located within a green corridor connected to a large 1ha reedbed to the east and further scrub and grassland to the west. The loss of linear strip of scrub on the southern boundary of the PDZ, adjoining the railway sidings, will fragment a bat flight line. A linear plantation woodland and grassland bank to south of railway sidings (c60m south of PDZ) is also likely to be east-west flight line and this feature will maintain a degree of connectivity in the immediate surroundings of the development.
- 4.5.14 The use of lighting during construction will have the potential to periodically reduce activity around scrub habitats adjoining the development area.
- 4.5.15 Lighting used for periods of construction activity outside of the core hours will requiring artificial lighting when bats will be actively foraging and commuting. Artificial lighting is already a factor in the existing site and the small number of bat species foraging in the site do not have sensitivity to lighting. During periods of night time working there will be increased light spill in the PDZ, Crown Wharf dockside and the TCAs will potentially affect the activity levels in the immediate vicinity of working areas. The effect would be highest in TCA East where working areas will be adjacent to reedbed and scrub woodland.
- 4.5.16 Common pipistrelle, soprano pipistrelle and noctule bat have low sensitivity to light and are able to cross more open ground when moving through the landscape. All are Section 7 species but will be common and widespread in habitats in the surrounding area.
- 4.5.17 The magnitude of the combined direct and indirect effects on common pipistrelle is medium in the context of the wider docks with localised effects on flightlines and a small reduction in the total extent of foraging habitat available to the local bat population. The effect is predicted to have significance in a **Local** context.
- 4.5.18 The other four species were detected at low or very low levels and the magnitude of the effect will be small and have **Negligible** significance.

European Otter

- 4.5.19 There will be increases in noise (including piling), artificial lighting, and human activity during construction period.
- 4.5.20 Direct effects on perimeter of the open water dock will be limited to a short section at Crown Wharf, while the works associated with Phoenix Way. The same is true of the wharf construction (subject to separate Marine Licence) The construction of the Proposed Scheme does not create any physical barriers to the movement of otters through the open water dock or River Afan.
- 4.5.21 There was no evidence of otters using habitats in the PDZ all of which had low potential value with no features in which a holt could be established or cover where individuals could rest in dense cover during the daytime. There is no further assessment of direct impacts on otters as a result.
- 4.5.22 Indirect effects on otters laying up in the wider dock during the day or foraging at night could arise from artificial lighting, noise, and human activity associated with construction. Terrestrial cover around the perimeter of the wider open water dock is provided by localised areas of scrub of low suitability for otter. The areas of reedbed on the margin of the dock will be permanently waterlogged and unsuitable for use during the day.
- 4.5.23 Therefore potential effects are limited to indirect disturbance of individuals hunting (primarily at night) at the eastern section of the open water dock. Noise generating activities carried out outside of the core daytime working periods would be more likely to influence otter activity if present in the open water dock. Any otters with territories extending into the open water dock will be habituated to industrial activity and the species is known to be tolerant of noise. Behavioural changes at times during construction are possible but these would not impact on the status of the local otter population.
- 4.5.24 Construction activities would be expected to periodically result in a small magnitude impact on the with **Negligible** significance to the otter population.

Breeding birds

- 4.5.25 The direct effects on breeding birds primarily relate to the loss of nesting habitat in the PDZ and TCA West, with more localised loss in TCA East. Across these areas the main habitats of potential value for nesting birds that will be removed; are principally dense scrub including gorse, bramble thicket, regenerating willow, and bracken. Clearance of habitats across the Site will remove prospective nest sites and potential foraging habitats.
- 4.5.26 The effect will be the displacement of between 13 and 20 nesting species.
- 4.5.27 Under a precautionary it is estimated that 8 BoCCW red list or amber list species would be affected including whitethroat (up to 8 pairs), goldcrest (1 pair), dunnock (up to 7 pairs) and chaffinch (up to 3 pairs) are all confirmed breeding species. Pairs of linnet, bullfinch, classified as possibly breeding in the PDZ, could also be displaced. Herring gull, classified as probably nesting on the roof of a derelict building in TCA east (B1), would also be displaced.
- 4.5.28 The loss of the relatively small areas grassland will have a negligible effect on ground nesting birds (skylark and meadow pipit) while the stands of Japanese knotweed also provide sub-optimal habitat for nesting birds with negligible effects from its removal.
- 4.5.29 Loss of habitat at Crown Wharf and in TCA1 would only have the potential to displace very small numbers of nesting birds.
- 4.5.30 Depending on the timing of the works, the clearance of vegetation and earth moving in the PDZ during the breeding season would also have the potential impact on active nest sites. For most species the breeding season runs from the start of March to the end of August. Loss of patches of dense structured scrub including bramble will result in a small reduction in extent of this habitat

type within the dock, with the anticipated use of equivalent habitats outside the Site following habitat clearance.

- 4.5.31 Indirect effects on breeding birds are possible in habitats adjoining the Site. Construction noise, construction activity and artificial lighting will change the context of adjacent habitats during the construction period. The light spill from construction lighting, is to be directed into the Site, will also only affect a 5-10m zone beyond the boundaries of the TCAs limiting the magnitude of the potential effect from lighting.
- 4.5.32 Following the establishment of TCA East, species associated with the adjoining reedbed and scrub would be expected to select nest sites in locations set back from the temporary construction works areas. The scrub woodland habitat to the north of TCA West is set back from the working area and adverse effects on activity on the edges of this habitat are less likely.
- 4.5.33 Given the existing industrial activities at TCA East, to some extent resident birds will be habituated to activities associated with operations. In this context any indirect effects would be expected to be limited.
- 4.5.34 The development will locally reduce in the extent of available habitat primarily through direct impacts but only a negligible change to the total breeding populations of these species with the docks is anticipated. All these Section 7 and BoCC species nesting within the Site are listed as common and widespread in a regional context.
- 4.5.35 Overall, the potential magnitude of impact on breeding birds during construction is defined as medium and is considered to have significance in a **Local** context.

Wintering birds

PDZ and TCAs

- 4.5.36 Wintering bird activity will be directly impacted by the loss of habitat in the PDZ, TCA West and at and indirectly effected by noise and potentially artificial lighting during activities in Crown Wharf and TCA1.
- 4.5.37 In relation to the direct effects, the main impacts relate to the PDZ. The habitats in this area are provide part of the wintering food source for a range of passerine species and also are used by small numbers of waders (snipe and woodcock).
- 4.5.38 All species will be displaced and all the habitats within the PDZ and TCAs used by wintering birds will be lost. There will be a permanent reduction in the habitats available to these species in the dock. The grey willow scrub, mixed species scrub, gorse and bramble all provide shelter and a source of food. The magnitude of the direct effects is high with an effect of significance in a **Local** context.

Open Water Dock, Crown Wharf and TCA1

- 4.5.39 The construction phase will create indirect effects on wintering birds using the open water dock. Activities within and on the edge of the dock at Crown Wharf will result in indirect disturbance through noise, human activity, movement of equipment/ships and artificial lighting. Peak average noise levels will be above 55dB across much of the open water dock throughout the construction period (see Noise Assessment, Hunter Acoustics, July 2023). At this level of noise the behaviour of wetland species would be expected to change. Variation in noise level with intermittent loud noises would also increase the chances of behavioural changes.
- 4.5.40 Most birds will show a degree of response to noise stimuli. Birds that remain in the affected area may not forage efficiently and if there are additional pressures on the birds then this may impact upon the survival of individual birds or their ability to breed (Cutts et al., 2013).
- 4.5.41 For auditory disturbance, high level constitutes sudden noise events over 60 dB at the bird or a more prolonged noise of over 72 dB. Moderate level disturbance is classified as a consistent

elevated level noise between 60-72 dB over long periods. In areas with existing background noise long-term is regularly above 72 dB disturbance may be moderate where the decibel level does not significantly vary and birds become habituated to it. Low level disturbance is considered to occur where elevated noise is between 45dB and 60dB in rural locations or between 55-72 dB in highly disturbed areas e.g. industrial or urban areas and adjacent to roads.

- 4.5.42 During construction, modelling of the different construction activities has defined the worst case noise levels around the Proposed Scheme. Within the open water dock, the levels of noise at the eastern end between Phoenix Wharf and Margam Wharf including the adjacent dockside reedbed are predicted to be between 60 and 65dB which would be a moderate level disturbance with probably sudden noise events creating periodic high level disturbance.
- 4.5.43 In the central part of the open water dock the predicted worst case noise levels are between 55dB and 60dB and in the northern and western section between 45 and 55dB. These levels equate to low level disturbance.
- 4.5.44 The open water dock lies within an industrial context and the species that currently utilise the area will be habituated to vehicle movements, general background noise from operational sites and to a lesser extent human activity, although most of the dock edge is not regularly accessed by people on foot.
- 4.5.45 It is anticipated that gull species on open water in the south-eastern part of the open water dock will move away from TCA1, Crown Wharf and Phoenix Way during construction period to use more distant parts of the open water or alternative roost sites in the wider area.
- 4.5.46 Other wetland bird species associated with the open water and reedbed would also be expected to disperse further away from construction activities generating moderate levels noise but most would be expected to remain in the wider open water dock.
- 4.5.47 Potential impacts from construction activities, artificial lighting and task lighting at the marine loading / unloading facility will create further levels of disturbance and will contribute to the level of displacement.
- 4.5.48 Worst case noise levels at the River Afan will be below 50dB at the intertidal habitats of the River Afan and below 40dB at the intertidal habitats associated with the harbour over 1km to the west. There is no expectation of dispersal or displacement of gulls, waders or other wetland species from these areas.
- 4.5.49 The open water dock is one of a number of locations in the local that will be used by wintering gulls and other common wetland species including gull roosts within the Tata Steel works.
- 4.5.50 During periods where there is elevated noise across the majority of the open water dock, temporary displacement is anticipated with birds most likely to move into adjoining intertidal habitat or to waterbodies in the surrounding area.
- 4.5.51 Low levels of existing activity are associated with the terrestrial habitats adjoining Crown Wharf and TCA1 and the direct effects on bird activity in these locations will be negligible.
- 4.5.52 The magnitude of the impact will be influenced by the frequency and duration of elevated noise events. For the assessment the magnitude of the impact is classified as medium and the effect on wintering bird populations could have significance in a **Local** context.

Reptiles

- 4.5.53 Habitat clearance ahead of construction activities in the PDZ, TCA West and Crown Wharf dockside will result in the permanent loss of habitats which support the three resident reptile species (common lizard, slow worm and grass snake). The habitats in these areas provide prey, cover, refuge and hibernation features with juveniles of all three species. Reptile species will be resident in the Site throughout the year and in the absence of appropriate species protection and mitigation there is potential for killing and injury of individuals during construction.

- 4.5.54 The habitat or primary importance for common lizard are the areas of grassland and their loss will permanently remove over 4ha area of grassland habitat that will displace a good-sized population. Common lizard is also widespread in Harbourside with the 2021 surveys confirming presence in all areas where there is a patchwork of long and short grass with areas suitable for basking.
- 4.5.55 Very small numbers of slow worm will be displaced from PDZ and TCA East but population using TCA West (and adjoining habitats) will be partly displaced during construction activities. Based on the peak count of seven adults in Area C East in 2021 only a small population will be affected.
- 4.5.56 The habitats supporting a breeding population of grass snake will be permanently lost from the Site. Effects will be centred on the PDZ but habitat clearance at Crown Wharf dockside could displace individual. TCA East has low value for grass snake but the adjoining off-site reedbed and scrub woodland are the high value habitats expected to support this species.
- 4.5.57 The reptile survey indicated the absence of reptiles from TCA1 and no predicted potential impacts on reptiles from the use of this area.
- 4.5.58 Habitat loss is the primary impact on these reptile species with all habitats within the application site subject to clearance. Indirect effects could occur on reptiles using habitats adjoining the application site. Construction effects relating to noise, human activity and ground vibration would be expected to result in individuals dispersing away from the working area.
- 4.5.59 Development in Crown Wharf will also displace very small numbers of grass snake and common lizard which form part of the populations within the PDZ.
- 4.5.60 Construction activities in the PDZ will result in the loss of the grassland areas which are generally enclosed by scrub and Japanese knotweed. Smaller areas of grassland will be lost in TCA West as well as willow, mixed species scrub and bracken.
- 4.5.61 Clearance of vegetated habitats in TCA West will displace further populations of slow-worm and common lizard.
- 4.5.62 Slow-worm and potentially grass snake occur in the small, areas of vegetated habitats in TCA East and will also be displaced from this area.
- 4.5.63 The development will result in the permanent loss of the available reptile habitat with the Site.
- 4.5.64 The direct effects during construction would have a large magnitude impact on the populations of the three species of reptile. For slow-worm the displacement of a population of site importance is an adverse effect of significance in the context of the **Site**, in the absence of mitigation.
- 4.5.65 For common lizard the magnitude of impact on common lizard population is large with adverse effect of **Local** significance, due to the larger population size.

Grass snake

- 4.5.66 For grass snake construction also would be a high magnitude impact from the loss of breeding habitats and foraging areas with an adverse effect of **up to Local** significance due the more scattered distribution of this species.

Invertebrates

- 4.5.67 The permanent loss of habitats in the PDZ, TCA West and TCA1 will result in a local reduction in the extent of habitats available to invertebrates. The habitats affected are also present outside the Site and in the context of Port Talbot Docks as a whole and can be considered partial losses.
- 4.5.68 The habitats present in the application site make a contribution to the value of the whole of the docks for invertebrates. The combination of flower-rich mosaics of open grassland, ephemeral vegetation, banks, hollows, woodland edge, rank grassland and seasonally flooded ground create a wide range of micro-habitats.

Habitat loss

- 4.5.69 Overall the permanent habitat loss will reduce the population size of less mobile species and reduce the available habitat for more mobile species. It is assumed that most species utilising habitats in the application site will disperse into the alternative habitats within the docks.
- 4.5.70 The loss of the open mosaic habitat (pioneer vegetation and open regenerating grassland) in TCA1 will result in the permanent loss of the majority of this habitat at Margam Wharf and a proportion of the invertebrate species assemblage will be lost/displaced.
- 4.5.71 The presence of similar invertebrate habitats in the docks outside the areas affected by the Proposed Scheme (pioneer vegetation and naturally regenerating grassland, regenerating willow scrub, mixed species scrub, and seasonally flooded ground) moderates the magnitude of an effect.
- 4.5.72 Reductions in the total extent of habitats could result in declines in the population sizes of some species. populations size and status of some species in the context of the docks is possible but
- 4.5.73 The small number of invertebrate species could be displaced from the docks where their distribution is centred on features within the Site for example the two species of high conservation status were recorded in the seasonally flooded areas in the PDZ were not recorded in the survey of Harbourside in 2021.

Construction Lighting

- 4.5.74 Construction lighting in the PDZ and TCAs will have localised effect in the medium term. The core working hours are outside the hours of darkness and the use of artificial lighting in spring and summer would be periodic when working hours extend beyond sunset.
- 4.5.75 Overall artificial lighting during construction would have the potential to reduce the value of habitats adjoining the boundary of the Site (through light spill). Temporary effects on invertebrate activity would be expected in the working areas and adjoining habitats.
- 4.5.76 Night time working in spring and summer would be during the flight periods for the majority of airborne species and would have a more marked effect. Artificial lighting during winter would be used for a significant proportion of the time, but at a time of year where invertebrate activity and the potential effect will be very low.
- 4.5.77 The precautionary approach assumes that invertebrates in habitats outside the Site will be attracted to construction lighting when operating.
- 4.5.78 Construction lighting on the boundary of TCA East where the working areas will adjoin reedbed and scrub woodland where there is the largest potential effect if point light sources are visible from the reedbed. Species using grassland and bank habitat to the west of TCA West could also be attracted by visible lights.
- 4.5.79 The potential effects around the PDZ and most of TCA West are be lower with fewer areas of habitat that will be affected. TCA1 lies close to an artificially lit entrance to the Tata Steel works and the Harbour Way and is not currently classified as a dark corridor and any effects in this part of the Site will be negligible.
- 4.5.80 Overall the magnitude of the combined impacts of habitat loss and lighting on invertebrate assemblage during construction are considered to be medium and the effect is classified as having potential significance in a **District** context.

4.6 Assessment of Operational Effects

Statutory Designated Sites

- 4.6.1 The potential for the operation of the development to cause a significant effect on the features and/or conservation objectives of Cefn Cribwr SSSI/SAC, Kenfig SSSI/SAC and Crymlyn Bog SSSI/SAC has been assessed.
- 4.6.2 Given the level of physical separation there are no potential direct impact pathways between activities associated with operations and any of these internationally designated sites.
- 4.6.3 Consequently emissions to air are the only potential impact pathway to be considered.
- 4.6.4 Modelling of on-site point source emissions associated with the Proposed Scheme has been used to calculate the deposition rates of sulphur (S), nitrogen (N) and acid at the three internationally designated sites located within 10km of the operational site: Kenfig Special Area of Conservation (SAC), Crymlyn Bog SAC and Cefn Cribwr SAC. Full details and methods are provided in the ES Chapter 11: Air Quality with the work consistent with Guidance AQTAG06.
- 4.6.5 The critical loads for grassland and/or forest habitats, set out on the APIS website, have been used being the most sensitive habitats relevant to the designations. The relevant deposition velocities for grassland or forest habitats have been used to convert NO_x and SO₂ emissions to S and N deposition rates.
- 4.6.6 In addition to the above, impact arising from emissions from traffic associated with the Proposed Scheme was also modelled including accounting for other relevant projects in the surrounding area that could give rise to combined impacts with the Proposed Scheme (see Chapter 11: Air Quality for full details of methodology).
- 4.6.7 As such the modelling has predicted annual mean emissions of NO_x and NH₃ at the Kenfig SAC (as this is the only designation within proximity to an affected road link), where the NO_x concentrations have been converted to N-Deposition and acid deposition. Again these values have been considered alongside the APIS critical loads for the most appropriate habitats relevant to the designated site.
- 4.6.8 All modelling has defined that the predicted operational concentrations, including emission from on-site point sources and traffic, are all less than 1% of critical level/load for any of the internationally designated sites in the wider area and that the resulting Predicted Environmental Contribution (PEC) is below 100% of the relevant critical level/load for the emission. On this basis it was concluded that all effects on designated ecological sites with respect to deposition were negligible. Given the conclusion of Chapter 11: Air Quality indirect loss or damage of features within statutory sites during operation are not considered significant and will not be considered further in the EcIA.
- 4.6.9 It is concluded that there are no direct or indirect pathways associated with operational activities that would adversely affect the conservation status of any statutory internationally designated nature conservation sites, i.e. there would be no likely significant effect (LSE).
- 4.6.10 On this basis a shadow Habitat Regulations Assessment (HRA) is not considered to be a requirement.

Non-statutory Designated Sites and Ancient Woodland

Air Quality

- 4.6.11 Chapter 11: Air Quality has undertaken modelling of on-site point source emissions associated with the Proposed Scheme, and resulting calculations of deposition rates at each of the SINC designations and blocks of ancient woodland.
- 4.6.12 In line with Guidance AQTAG06 the modelling has considered NO_x and SO₂ concentrations, deposition velocities, dry deposition rates and corresponding total acid deposition occurring at the ecological designations as a result of the Proposed Scheme.
- 4.6.13 The critical loads have been selected based on the most sensitive habitat set out on the APIS website relevant to each designated site which either grassland or forest habitats. The relevant deposition velocities for grassland or forest habitats have been used to convert NO_x and SO₂ emissions to S and N deposition rates.
- 4.6.14 The deposition rates have been compared to the site-specific critical loads for the most applicable habitat types (grassland and forest) available through the APIS website and data centre (see Chapter 11: Air Quality for full details of methodology).
- 4.6.15 The N deposition and acid deposition rates at all non-statutory designated sites and ancient woodland are below 1% of the critical loads of the relevant emissions.
- 4.6.16 The magnitude of the effect is not significant in any geographic context.

Noise

- 4.6.17 There are no potential direct effects on any SINC sites associated with the operation of the PDZ or marine unloading and loading facility due to lighting, or visual disturbance from human activity due to the distance and separation between the SINCS and the operations.
- 4.6.18 The modelling of operational noise levels generated by the main development and noise levels associated with marine loading and unloading facility (including the unloading of ships by pump over an 18 hour period has confirmed that the intertidal habitats would typically be subject to additional noise levels below 40dB Laeq during the day and night. The use of the emergency flare is the only period when the habitats associated with the SINC designation would be exposed to noise between 40dB-45dB. Very short term elevated noise would occur during ship movements on the tidal river to enter the dock.
- 4.6.19 These would only occur at high tide when there is very low levels of use by birds with no potential adversely affect any bird species or populations. Periodic ship movements into and out of the dock at high tide will not adversely affect any features for which the SINC is designated.
- 4.6.20 The intertidal habitats are the primary reason for the designation of this section of river as a SINC and the status of the designated site would remain unaffected with no significant effect at any geographic scale.

Habitats

- 4.6.21 No habitats will be retained within the application site and there are no potential additional direct effects during the operations of the proposed development.

Japanese knotweed control and eradication

- 4.6.22 Treatment of Japanese knotweed regrowth through areas of unsealed hardstanding is likely to be an ongoing requirement within the operational site for at least the first few years of operation. This

could affect the establishment of flower-rich grassland in landscaped areas around the truck loading facility, administration area and alongside the internal road on the western boundary.

- 4.6.23 It is anticipated that any Japanese knotweed shoots emerging in landscaped areas will have a localised distribution and would be subject to herbicide spot treatment or stem injection minimising the effects on other vegetation and habitats in which they occur. A glyphosate based herbicide which is absorbed by plants through foliage / stems and breaks down when in contact with soil with minimal take up by roots would enable targeted control alongside sensitive vegetation.
- 4.6.24 When the modular biodiversity walls are created a root barrier membrane will be installed beneath them to prevent Japanese knotweed growing up through these structures.

On-site habitat creation

- 4.6.25 Areas of flower-rich grassland and pioneer vegetation will be established on post-industrial substrates equivalent to similar habitats that thrive with minimal management throughout the docks. The habitats have been designed to have an open vegetation cover with herbs occurring at a high abundance than grasses.
- 4.6.26 Management actions and monitoring will be detailed in a management plan for the operational site. It is anticipated that the natural colonisation and regeneration of habitats will be subject to ongoing monitoring. Management actions will be designed to achieving and maintaining high diversity target conditions.
- 4.6.27 The green/brown roof will be designed with biodiversity features and will be subject to regular maintenance.
- 4.6.28 Good housekeeping and maintenance would remove or control potential adverse factors relating to daily operations. Standard operational use of the site will not adversely affect created habitats.
- 4.6.29 There are no predicted effects on the habitats adjoining the PDZ or Crown Wharf developments during the operational phase.
- 4.6.30 The establishment of new habitats and eradication of Japanese knotweed from the PDZ through ongoing herbicide treatment of regrowth as part of standard site maintenance operations will be **beneficial** in a **Site** context.

Faunal Species

Bats

Lighting

- 4.6.31 Disturbance to bats is expected as a result of operational noise, artificial lighting and general site activities. The plant will be operational 24 hours a day and the immediate surroundings and the industrial context will influence the behaviour of bats. Artificial lighting around the PDZ will permanently change the conditions around the boundaries of the operational site with additional lighting to be used at marine loading/unloading facility and adjoining dockside.
- 4.6.32 The operational lighting will reduce the potential value of the remaining blocks of scrub immediately adjoining the site as foraging habitat and flight lines. east-west During operation lux levels on the Site boundary will be generally between 8 and 12 Lux locally increasing to 15 lux. Around the boundary there is generally sharp drop of in Lux levels achieving 1 Lux at between 5 and 15m from the Site boundary. In the south-eastern and south-western corners of the PDZ modelling defines the 1 Lux contour up to 20 - 25m from the site boundary. The zero Lux has been modelled to be up to 45m from the site boundary in these locations.
- 4.6.33 However, the lighting modelling and assessment considers the effects of the Proposed Scheme based on a worst-case scenario. The screening by buildings and scrub has not been included in

the lighting assessment calculation the extent of light spill will be lower than the worst case scenario. The existing stands of regenerating willow scrub in both these locations means that in reality there will be a steeper drop off in Lux levels than modelled because of the screening effect of the vegetation.

- 4.6.34 The modelled Lux levels along the railway embankment to the south of the Site are around 5 Lux because of the proximity to the perimeter of the PDZ while the northern edge of the sidings will be between 5 and 1 Lux.
- 4.6.35 There is no light spill onto the grassland and tree belt on the southern side of the sidings or along the southern edge of the reedbed which will remain as a continuous linear east-west corridors and potential flight line and foraging area with negligible light spill onto these features from the PDZ.
- 4.6.36 Bat species respond differently to a ultra violet (UV) rich spectral composition depending on how reliant they are on darkness. The potential effect of operational lighting on bats would be moderated by the Site's location in an area that is subject to widespread artificial lighting within the docks and the Tata Steel works to the south. None of the species recorded foraging within the Site have high sensitivity to light consistent within the character of surroundings, with foraging by common pipistrelle bats regularly observed in the vicinity of the Phoenix Way streetlights.

Noise

- 4.6.37 Noise levels on the boundaries of the operational PDZ will be between 65 and 70dB.
- 4.6.38 Following construction there will be limited scrub habitat remaining adjacent to the Site boundary restricted to the south-western and south-eastern boundaries of the PDZ. At these locations there will be an altered context due to a combination of artificial lighting and noise and partial avoidance by bats is possible. Relatively low levels of activity were associated with the scrub habitats on the southern and western boundaries of the PDZ and the magnitude of the change would be small.
- 4.6.39 The willow scrub to the south-east of the PDZ is linked to reedbed and also forms an east-west flight line to the east of the PDZ on the northern side of the sidings.
- 4.6.40 Further to the south (50m from the PDZ) the 500m long linear tree belt and 35m wide grassland bank will remain as a continuous linear east-west corridor. The operating noise at night at the majority of the tree belt will be between 55 and 60dB but will reach between 60 and 65dB in the central section as modelled on the noise contour plans (Appendix 12.3 of the ES).

Overall

- 4.6.41 Common pipistrelle was the only species regularly foraging in the Site and immediate surroundings. The off-site tree belt is expected to continue to be used as a bat flight line and foraging habitat for common pipistrelle and soprano pipistrelle. Small numbers of noctule bats regularly fly over the docks. Although the lighting regime in the PDZ may deter bats from flying directly over the operational site the Proposed Scheme would not result in the fragmentation or loss of flightpaths over the docks.
- 4.6.42 The impact magnitude on local populations is classified as small but could have an effect of significance in the context of the **Site**.

Otter

- 4.6.43 Operational noise levels will result in an increase in noise levels across parts of the open water dock in the day and during the night time. A small part of the dock would be subject to light spill from the marine loading facility so that it is 'suitably and adequately lit'.
- 4.6.44 Otters will be primarily using the habitats in the River Afan, which is higher quality habitat with varied prey items at high and low tide. As an operational dock partially boundary by industries, any individual otters that currently use the dock will be habituated to lighting, background noise and human activity.

- 4.6.45 Otters can tolerate considerable levels of artificial lighting (they are known to travel through built-up areas), but it is recognised that in some circumstances lighting can affect otter behaviour.
- 4.6.46 The proposed development has the potential to result in a permanent localised increase in artificial lighting on one section of the dock margin. The adjoining operational land to the west is already floodlit and there many streetlights close to the edge of the dock.
- 4.6.47 There development will not create any additional physical barriers to the movement of otters between the River Afan and the open water dock. Otter activity may change during the brief periods when ships move in and out of the dock.
- 4.6.48 Environmental protection measures will ensure that water quality is not adversely affected. There will not change the abundance of prey species.
- 4.6.49 The open water dock would remain a foraging habitat available to this species with potential avoidance limited to the small section around the marine loading facility. In relation to the local otter population the potential magnitude is **Negligible** and the effect would not be significant in any geographic scale.

Breeding Birds

Lighting

- 4.6.50 Following the end of construction the localised areas of willow scrub adjoining the boundary of the PDZ will be subject to light spill. Artificial lighting is associated with changes in behaviour and potential declines in chick survival.
- 4.6.51 Under a precautionary assessment, some nesting bird avoidance of habitats directly adjoining the PDZ is likely to occur. The areas of willow scrub that would be affected have low value as nesting habitat with patches of mixed species scrub and bramble the principal habitats likely to be affected. Effects would be expected to be limited to a small number of nesting pairs, but could include BoCCW species such as whitethroat.

Noise

- 4.6.52 During standard operations the modelled noise levels at habitats in the adjacent to the PDZ are:
- The tree belt to the south of the sidings – 55-65db
 - Willow scrub to the south-west of the PDZ – 60 to 65db
 - 50% reedbed to the east of the PDZ – 50 to 60db
 - Secondary scrub woodland and grassland to north and west of TCA West – 50 to 55dB
 - Reedbed in open water dock between Crown Wharf and Margam Wharf – 50 to 60dB
- 4.6.53 The potential level of disturbance in each of these locations under normal daytime/night time operations classify as low level noise. Long term regular noise between 50and 60dB, where birds become habituated to the change in background noise levels.
- 4.6.54 There will be short periods of higher noise levels during the use of the emergency flare. At these times most of the sidings, scrub habitats to the west of TCA West and habitats to the north of the PDZ will be subject 60 to 70dB levels equating to a moderate level noise. Occasional periods of continuous elevated noise above 60dB would not be expected to affect the nest that fall within this zone.
- 4.6.55 Operational noise generated by the Proposed Scheme in the habitats around the open water dock during standard operations vary from 40dB to 60dB, only increasing to 65dB on the Crown Wharf dockside. The potential nesting habitat adjoining the marine loading and unloading facility is

limited and the lack of observations of breeding bird activity in this zone indicates that any operational effect will be negligible.

- 4.6.56 Elevated noise in the reedbed to the north of Crown Wharf could affect the selection of nest sites within this habitat but the effect would be limited to a small number of nesting pairs. Any effects related to noise are likely to be masked by existing background noise, especially for habitats situated close to Phoenix Way. The level of effect will be reduced by the industrial context of the development and existing habituation of birds to operational areas in the docks and Tata Steel works.
- 4.6.57 The assemblage of breeding species in the dock should not significantly change when the proposed scheme is operational.
- 4.6.58 Overall, the operational effects will have at most a low magnitude effect and would have significance at no more than the level of the **Site**.

Overwintering Birds

- 4.6.59 Noise modelling has been completed to a number of scenarios relating to the operation of the PDZ, periodic flaring, generator testing, marine loading and unloading facility and ship movements. The detailed modelling is presented in Appendix 12.2.
- 4.6.60 During the typical operation of the PDZ the central and eastern sections of the open water dock including part of the reedbed will be subject to only slightly elevated noise, between 50 and 55dB with lower noise levels (below 50dB) in other parts of the open water dock.
- 4.6.61 Average noise levels in the open water adjacent to Crown Wharf dockside will be between 55dB and 60dB increasing to 60-70dB in the vicinity of the dock edge from the operation of the PDZ.
- 4.6.62 During ship off-loading activities (which will take up to 18 hours and would occur once every 7-14 days) there will be periods of higher noise levels in the dock with approximately 70% of the open water subject to 50dB – 60dB with localised higher noise of 65dB to 80dB at the unloading facility and in the adjoining section of open water.
- 4.6.63 Ship movements along the tidal river at night also has predicted noise levels of 50-60dB across the open water, with higher noise directly next to the ship.
- 4.6.64 During ship off-loading activities (which will take up to 18 hours and would occur once every 7-14 days) there will be periods of higher noise levels in the dock with approximately 70% of the open water subject to 50dB – 60dB with localised high noise 65dB to 80dB at the unloading facility and in adjoining section of open water.
- 4.6.65 Ship movements along the tidal river at night also has predicted noise levels of 50-60dB across the open water, with higher noise directly next to the ship.
- 4.6.66 The development is located near to well-established industrial areas and have an industrial noise component in their existing sound climate.
- 4.6.67 The most numerous species are gulls, which have a high tolerance to industrial activities. Gull flocks should continue to roost/loaf in the parts of the open water dock where the noise levels are below 50dB with only the small area of open water closest to the loading facility is likely to be avoided. During periods of unloading the effect of displacement is expected to be more marked due to the higher levels of noise.
- 4.6.68 Outside the open water dock, a range of bird species use habitats in the Lower River Afan Estuary SINC, primarily gull flocks and but also wildfowl and wader species which generally occur small numbers at low tide; including curlew, redshank, lapwing, oystercatcher and mallard.
- 4.6.69 Ship movements will be at high tide when all the intertidal habitats will be covered and there are no anticipated effects on foraging. Individual birds roosting on the sides of the channel at high tide would be very unlikely to disperse from the area due to the movement of a ship.

- 4.6.70 Overall the magnitude of the impact will be low to medium and any effect has the potential to be significant in a **Local** context.

Reptiles

- 4.6.71 Reptiles will be present in habitats to the west of the PDZ which lie within the ABP Temporary Reptile Mitigation Area. Previous surveys undertaken on behalf of a third party (XLCC) on the land to the west of the PDZ recorded populations of slow worm and common lizard in grassland and on the boundaries of the scrub habitats.
- 4.6.72 No reptiles were recorded in the open sparsely vegetated ground in the railway sidings to the south but are present in the adjoining scrub habitats.
- 4.6.73 The habitats that are being created within the operational site will have negligible value for reptiles. No predicted additional adverse effects on reptiles associated indirect effects of lighting and background noise from the PDZ operations. No effects on reptiles are anticipated during operations.

Invertebrates

- 4.6.74 It is recognised that artificial lighting can alter the behaviour of invertebrate species and change the distribution of invertebrates with a high proportion of species being nocturnal or partially nocturnal. Many invertebrate species will move towards lights from surrounding unlit areas. This change in behaviour can have adverse effects on populations through a number of factors including an increased susceptibility to predation and depletion of populations in the surrounding habitats.
- 4.6.75 Much of the PDZ and its boundaries are currently dark, with only the eastern and north-eastern boundaries being subject to light spill from artificial lighting associated with Phoenix Way.
- 4.6.76 The operational site will emit artificial light from external lighting and there will be some level reflected light from lit surfaces within the development. The development will be lit 24hrs a day. The lighting specifications are for warm light LED units with less than 4000 kelvin which have lower effects on wildlife.
- 4.6.77 Habitats adjacent the Site boundary will be subject to light spill within a zone generally up to 15m from the Site boundary, but locally increasing to 25m based on modelling in the absence of any screening from buildings and scrub. A short section of the open water dock adjoining the marine loading and unloading facility will also be subject to low level light spill between 5 and 1 Lux from lighting in the PDZ.
- 4.6.78 The habitats subject to light spill in the immediately vicinity of the boundaries of the PDZ will have reduced value for invertebrates.
- 4.6.79 The open mosaic habitat in the railway sidings is the invertebrate habitat closest to PDZ and effects in this zone are expected. Effects are also possible in the tree belt and north-facing grassland bank to the south of the railway sidings.
- 4.6.80 Given the existing streetlighting, effects are not anticipated on any airborne invertebrates associated with the margin of the dock to the north of the PDZ.
- 4.6.81 The open grassland and low banks to the west of TCA West lie c140m from the boundary of the PDZ while the reedbed is located 100m to the east. The effects on the invertebrate assemblages associated with these habitats would be expected to be negligible given their distance from the Site.
- 4.6.82 Potential effects to the north and east of the PDZ and at the Crown Wharf dockside would have limited effect given the existing levels light spill from Hanson cement works, and the streetlights along Phoenix Way.

- 4.6.83 Floodlights in the Tata Steel works operational areas to the south of the PDZ and adjoining railway sidings also limit the extent of dark corridors in the wider context.
- 4.6.84 The landscaping being created within the operational site including the biodiversity walls and insect hotels will be subject artificial lighting and this will affect the assemblage of invertebrates species that utilise them.

Marine Loading and Unloading Facility

- 4.6.85 Lighting will also be used at the facility on the edge of the dock. Details of the operational lighting requirements have not yet been defined. The facility will be located in close proximity to the Hanson operational site on the southern side of the open water dock, to the west of Crown Wharf. The use of directional lighting for their 24 hr operational site creates very limited light spill onto the open water dock.
- 4.6.86 The marine loading and unloading facility will permanently introduce additional sources artificial light within the dock.

Overall

- 4.6.87 Overall the magnitude of the impact to invertebrates is predicted to be medium and the effect is classified as having significance in a **Site** context.

5 ADDITIONAL MITIGATION/MONITORING

5.1 Environmental Management Plans (Construction)

- 5.1.1 During construction, environmental protection will be achieved through the implementation of a detailed Construction Environment Management Plan and separate detailed Construction Waste Strategy. All surface water run-off generated during construction will be controlled on the Site to prevent pollution in accordance with Guidance for Pollution Prevention (GPPs) and will be proactively managed throughout the construction phase.
- 5.1.2 A detailed Biosecurity Plan will form an appendix to the detailed CEMP would include a very robust mandatory biosecurity procedures. The plan will be developed in consultation with JKW specialists and the contractor teams to ensure that biosecurity is fully integrated into the day to day site management. Measures to prevent the spread of invasive non-native plant species will be an important aspect of the environmental protection embedded in the CEMP and construction site management. An outline is described in Section 5.4 below.

5.2 On-site Habitat Creation and Management

- 5.2.1 Flower-rich grassland, pioneer vegetation, modular biodiversity walls and the green/brown roof(s) will be subject to annual monitoring for a minimum of five years from the start of operation to assess the extent to which plant populations are establishing in the green space.
- 5.2.2 The biodiversity objectives for the habitats and management actions/schedule will be provided in a management plan along with a programme of monitoring. The status of created habitats will be reviewed against the biodiversity objectives over a minimum of 30 years.
- 5.2.3 A low intensity management approach would be adopted for the pioneer habitats that should establish on the low nutrient substrates. Vegetation would be subject to the ongoing removal of colonising shrubs (periodic cutting) and the control of the perennial weeds (thistles, common nettle and docks). Specific control measures will be adopted for any Japanese knotweed growth.
- 5.2.4 In the long-term management, the management of the on-site habitats will be adapted to promote floristic diversity while removing weed species. Where there is grassland cover, the habitats will be subject to periodic cutting management with the removal of all arisings to reduce the dominance of competitive species and maintain diversity and value.

5.3 ABP Off-site Habitat Compensation

- 5.3.1 Separate to Project Dragon, Associated British Ports (ABP) is promoting proposals for the Future Ports: Port Talbot Programme (FPT), which encompasses the Proposed Scheme ABP has purchased land for an off-site receptor for species and delivery of new and/or improved habitat in the vicinity of Port Talbot to secure Net Biodiversity Benefit (NBB) for future development proposals. The land purchase was completed in July 2023. Part of the land is to be utilised by the Applicant for the Proposed Scheme in the form of providing off-site compensation for the proposed habitat loss.
- 5.3.2 The proposed off-site mitigation and enhancement outcomes to address the assessed ecological and biodiversity effects of the Proposed Scheme include:
- Enhancement of broadleaved woodland and scrub to mitigate loss of low-value self-sown willow scrub:
 - Restoration of plantation on ancient woodland and other broadleaved woodland.
 - Enhancement of broadleaved woodland and scrub to mitigate the loss of mixed species scrub, gorse, and bramble:

- Creation of mixed species scrubby woodland edge; partial replacement of bramble with mixed species scrub.
- Retention areas of bramble thicket as a component of more structurally diverse woodland edge.
- Grassland restoration will be undertaken to re-establish high value grassland habitats that have degraded or been lost.

- 5.3.3 The off-site mitigation and enhancement will also provide beneficial biodiversity effects for bats, nesting birds and invertebrates through a combination of habitat creation, habitat enhancement and the provision of purpose-built features.
- 5.3.4 It is expected that the delivery of the ecological mitigation for the Proposed Scheme will be subject to a suitably worded planning condition to any granting of planning permission for the Proposed Scheme that NPTCBC can ensure the mitigation occurs.
- 5.3.5 Biodiversity compensation and enhancement will be provided to ensure biodiversity gain is achieved to meet the requirements of Environment (Wales) Act 2016 and Planning Policy Wales (PPW 11).
- 5.3.6 ABP have confirmed that the necessary off-site NBB works required for the Proposed Scheme will be delivered off-site at an ABP identified site.

5.4 Lighting

- 5.4.1 An environmentally sensitive lighting scheme will be designed for the operational development to minimise artificial light spill outside the boundary of the operational areas. The permanent lighting scheme will be developed with reference to the recommendations published by the Institution of Lighting Professions and Bat Conservation Trust (BCT and ILP, 2018).
- 5.4.2 A detailed lighting strategy will be prepared for the development and would be subject to NPT approval. The secondary mitigation measures as part of good lighting design practice will comprise details of the use of deflective brackets, implementation of the control strategy including the operation of curfew periods.
- 5.4.3 These measures to reduce light spill will be incorporated into the detailed lighting design to achieve the protection of habitats on the site boundaries and avoid degradation of the potential value of adjoining habitats for bats during the operational life.

5.5 Legislation Compliance

- 5.5.1 All construction and operational activities with the potential to affect legally protected species would be subject to precautionary measures to be consistent with environmental good practice and to comply with wildlife legislation.
- 5.5.2 The presence the Japanese knotweed, wall cotoneaster, Montbretia and off-site Himalayan balsam means that there is high potential for these species to be unlawfully spread in absence of robust biosecurity procedures.

Japanese knotweed - Biosecurity Procedures

- 5.5.1 A detailed Biosecurity Plan will be prepared for all enabling works and construction activities in the PDZ. The vegetation clearance and earthworks during enabling works will high risks of spread of Japanese knotweed. Although the herbicide treatment and removal of the Japanese knotweed

crowns ahead of these activities should significantly reduce the vigour of the plant. All areas of bare soil within the PDZ construction area could contain viable Japanese knotweed rhizome.

- 5.5.2 Consequently robust cleaning procedures will be implemented and enforced for the duration of construction. All vehicles and clothing and footwear must be thoroughly cleaned, with all soil completely removed, prior to leaving the working area and moving onto the Phoenix Way.
- 5.5.3 Separate designated hard surfaced vehicle and footwear cleaning areas will be established close to all exits from the PDZ and will be operational from the outset of enabling works.
- 5.5.4 Any person entering the PDZ construction site will be legally responsible for fully adhering to the mandatory biosecurity procedures with LanzaTech holding ultimate responsibility for compliance across all contractor teams.
- 5.5.5 Other Schedule 9 Plant Species including montbretia, wall cotoneaster and other shrub cotoneasters will be subject to removal prior to the start of earthworks and ground reprofiling in the PDZ, in the TCAs and alongside Phoenix Way. The contractor will excavate all plants, corms, and roots of these species under an ecological watching brief in advance of large-scale vegetation clearance and ground remodelling. All excavated plant material of these species would be incinerated in a nominated control area within the working site.
- 5.5.6 Himalayan balsam has colonised habitats to the north of TCA West and is spreading. The presence / absence of plants within this temporary construction area will need to be regularly reviewed. Any Himalayan balsam plants growing within or on the boundary of the working area would be dug out and the plants would be incinerated.
- 5.5.7 Following good practice sea buckthorn a further non-native species (but not listed under Schedule 9) will also be treated the same way to avoid transfer of viable plant material within the PDZ.

Fauna

Bats

- 5.5.8 The Proposed Scheme will necessitate demolition of Building B1, and therefore the loss of the bat roost. Therefore, mitigation for the loss of the roost must be provided to maintain the favourable conservation status of the common pipistrelle in the application site and immediate surrounds.
- 5.5.9 A Welsh Government derogation bat licence will be obtained to enable the demolition of Building 1 supporting a common pipistrelle summer day roost (low value transitory / daytime roost and night time roost used by very small numbers of bats).
- 5.5.10 Species protection measures will be detailed in the licence application. Bats would be excluded under the supervision of the named ecologist (or their accredited agent) on the WG bat licence during the active season. Alternatively, where exclusion is impractical, the roost feature would be subject to soft demolition directly supervised by the named ecologist on the WG bat licence.
- 5.5.11 No work with the potential to damage or destroy the roost will be undertaken until the licence is obtained, and all such work would be carried out strictly in accordance with the licence method statement. Full details of the timing of measures for species protection, mitigation and demolition will be presented in the method statement submitted with the licence application.
- 5.5.12 It is anticipated that the provision of several different types of long lasting bat box installed on trees within adjacent habitat will provide mitigation for the loss of the 'low' conservation status roost.

Otter

- 5.5.13 The wider open water dock isve likely to be used by otters either foraging and/or moving through the area. Good practice measures for otter will be included in the detailed CEMP and will include:

- Construction materials will be stored a minimum of 10m from the open water dock
- Materials will be stored in a way that prevents otters gaining access or using them to rest (for example capping the ends of pipes).
- Any trenches that are left open overnight will have planks of wood or soil mounds placed at regular intervals in the base to allow otters (and other wildlife) to escape.
- All tools, food, litter and construction materials and packaging that may constitute a hazard to otters will be removed daily from the site.
- Any areas that may be suitable for use by otters will be checked immediately prior to works commencing by a suitably qualified, experienced and licensed ecologist.

Reptiles

- 5.5.14 The potential habitat loss and displacement effects assessed above related to areas within PDZ, TCA East and TCA West. With respect to the PDZ, as noted previously, the reptile population within the PDZ is subject to translocation as part of the JKW management being undertaken by ABP in the PDZ development area.
- 5.5.15 As such, ABP have been and are continuing to relocate reptiles from within the PDZ to the adjacent Harbourside site to enable ABP to undertake Japanese knotweed control measures across the habitats within the PDZ. The Harbourside site is a c23ha area of primarily grassland habitats extending to the west of TCA West and incorporating a former sand and gravel mineral extraction. ABP are using the Harbourside site as a Temporary Reptile Mitigation Area for common lizard, grass snake and slow-worm. Measures undertaken by ABP in the Temporary Reptile Mitigation Area included the creation of new grassland and the creation habitat mosaics of basking areas and cover.
- 5.5.16 Enhancements were targeted at habitats that will already support populations of prey species. Areas of uniform rank grassland and dense bracken have been modified to create patches of open ground adjacent to dense cover with extensive edge habitats in locations where there will be good populations of prey species. Multiple refuge and hibernation features have created alongside areas of habitat enhancement. All receptor habitat enhancements were completed in advance of the relocation.
- 5.5.17 ABP have installed semi-permanent reptile exclusion fencing around the boundary of the Japanese knotweed control area. The alignment of the exclusion fence is set back from the boundary of the PDZ to the south and west. Maintenance of the exclusion fence as a continuous barrier is ongoing until the start of construction.
- 5.5.18 ABP are also in the process of defining and creating permanent off-site reptile receptor habitats to provide compensation sites for the Future Port Talbot (FPT) developments across the docks. All the reptiles are being moved into the Temporary Reptile Mitigation Area in 2023/2024. In the interim the Temporary Reptile Mitigation Area will be managed by ABP to maintain its ability to continue to support the relocated population.
- 5.5.19 Prior to construction activities, ABP will relocate reptiles from TCA West, Crown Wharf dockside and vegetated areas of TCA East to off-site receptor relocations as part of the ABP permanent reptile conservation strategy.
- 5.5.20 The implementation of this reptile mitigation and conservation measures are outside the control of the Applicant, but the measures detailed above mitigate the effects of the loss of reptile habitat defined in the assessment.

Nesting birds

- 5.5.21 During bird nesting season (between the start of March to August inclusive) prior to works that involve the removal of vegetation (trees, scrub, bramble, bracken, grassland) or the initiation of

activities on extensive open ground, inspections/ surveys for nesting birds will be completed comprising inspections for nests in vegetation and observations of any territorial activity. These precautions relates to each part of the application site including the temporary construction areas; and will be required for trees, shrubs, dense ground vegetation and sparsely vegetated ground.

- 5.5.22 To avoid effects the construction programme will seek to establish cleared working areas in advance of the breeding season wherever reasonable and practicable. The construction teams will be legally responsible for protecting any active nest sites if established in the working area with a minimum stand off of 5m.
- 5.5.23 Cetti's warbler is the only species protected under Schedule 1 that could breed within the application site. The presence of an active nest of this species would require a larger buffer zone of at least 25m to avoid disturbance of adult birds at the nest.

General

- 5.5.24 Vegetation clearance in the construction area will be undertaken systematically following standard good practice to enable faunal species to disperse away from the development into surrounding habitats.
- 5.5.25 All excavations must be constructed with escape routes for wildlife to prevent entrapment which could include soil ramps or planks. Alternatively, excavations can be completely covered overnight.

6 ASSESSMENT OF CUMULATIVE EFFECTS

- 6.1.1 The following developments have been assessed for combined effects on ecological receptors from the Proposed Scheme and other existing or approved projects.
- Land West Of Junction 38 Of The M4 Port Talbot Margam SA13 2NU (planning reference P2021/1255) where a full planning application has been made for the development of a metal processing facility 3.3 km south east,
 - Land At Baglan Way Port Talbot (planning reference P2022/0470) where the erection of an industrial unit has been approved located 2.6km north west,
 - Land Adjacent To The Existing Sinter Plant Port Talbot Steelworks Margam Port Talbot SA13 2NG (planning reference P2018/1036). This application sites lies 400m south of Project Dragon and involves the demolition of existing structures (secondary dust extraction system for the sinter plant) and installation of a replacement secondary system comprising a 6 storey structure,
 - Land At Bryn And Penhydd Forest Located Between Port Talbot And Maesteg (planning reference P2021/0057). A proposed development of National Significance (DNS) in relation to a proposed Wind farm of up to 26 turbines located 3km east at the closest point,
 - Agricultural Land To The South Of Moel Ton-mawr And West Of Mynydd Margam (planning reference P2022/0567) a proposed solar and battery storage project generating 50MW located 4.5km southeast of the Site.

Land West Of Junction 38 Of The M4 Port Talbot Margam

- 6.1.2 The development will primarily affect fields that have been agriculturally improved with localised areas of marshy grassland. No equivalent habitats occur within the Site. There should be limited overlap between the species of conservation importance utilising habitats within the Proposed Scheme and those present within this development.
- 6.1.3 The loss of grassland at this development does not increase the level of effect on grassland habitats within the Proposed Scheme. No significant in combination effects on habitats or species have been identified.

Land At Baglan Way Port Talbot

- 6.1.4 This approved development is located within a 10ha of grassland on the edge of existing business park adjacent to the M4. Prior to development the approved development site would have provided a stepping stone habitat in urban and industrial landscape and for mobile species contribute the connectivity of landscape facilitating the dispersal of species. Habitats within the Site also make a contribution to this function.
- 6.1.5 The significant distance between the two developments means that any cumulative effect would be negligible. Compensation for the loss of grassland will be provided by both developments. No significant in combination effects on habitats or species have been identified.

Land Adjacent To The Existing Sinter Plant Port Talbot Steelworks

- 6.1.6 This development lies in an area of hardstanding adjoining large industrial buildings and infrastructure within highly developed part of the steelworks. The development involves the demolition of buildings with the potential for development activities to affect bats and/or nesting birds will have been addressed through surveys and where necessary mitigation.

- 6.1.7 Provision of new roost opportunities as part of the Proposed Scheme will remove the potential for a cumulative on roosts. The sinter plant development site will have low value for bat foraging and no in combination effect is envisaged.

Land At Bryn And Penhydd Forest

- 6.1.8 The proposed windfarm is located within an area of very extensive confer plantations with rides with a range of semi-natural upland habitats in Bryn And Penhydd Forest.
- 6.1.9 The upland context of the habitats within this application is very different from the post-industrial context of Proposed Scheme. The upland and woodland species found in this development site and species associated with this proposed development would generally not be expected to occur in habitats within the Proposed Scheme.
- 6.1.10 Common species that utilise a wider range of habitats will be present in both developments which would including BoCCW species such as linnet, and whitethroat.
- 6.1.11 There is also a low possibility that individuals from the same maternity bat roosts could foraging at both sites. For both bat and birds the numbers of individuals affected will be small with no potential effects on populations. There would be a negligible additional effect on habitats or species from the two projects in-combination.

Agricultural Land To The South Of Moel Ton-mawr And West Of Mynydd Margam

- 6.1.12 The proposed solar and battery storage site is located on agriculturally improved fields but with areas of higher value habitat. It is anticipated that the solar park will have limited adverse effects with the protection of the majority of field boundaries.
- 6.1.13 The ground nesting birds are typically affected but solar parks do not nest in the Proposed Scheme. There is very limited anticipated overlap between the species affected by the Proposed Scheme and species using fields on the edge of unenclosed upland. The effects would also be on different local populations given the distance between the development with negligible movement between the two. There would be a negligible cumulative effect on habitats or species from the two projects in-combination.

7 RESIDUAL IMPACTS

7.1 Residual Construction Effects

- 7.1.1 The residual construction effects on designated sites, habitats and species is presented in Table 6.1.

Designated Sites

- 7.1.2 There are no residual construction effects on any statutory designated sites or non-statutory designated sites.

Habitats

Permanent loss

- 7.1.3 Permanent loss of all habitats within the PDZ will be unavoidable. With only localised areas of landscaping possible within the built facility, there will be unmitigated residual effects on all habitats within the PDZ, Crown Wharf, and the TCAs. These specifically relate to the small scape permanent loss of coastal grassland, dune slack vegetation in the PDZ, and open mosaic habitat in TCA1 (Section 7 habitats). There will also be the permanent loss of naturally regenerated grassland (equivalent to SINC status) in the PDZ, along with the permanent loss of lower value habitats scrub habitats.
- 7.1.4 Without development the grasslands, dune slack and mixed scrub in the PDZ and TCA West will continue to be subject to the ongoing invasion by JKW, willow scrub and bramble and their biodiversity value will continue to decline over time as they eventually succeed to Japanese knotweed and regenerating young willow.
- 7.1.5 Habitat creation within the Site will help to partly offset the loss of open mosaic habitat and grassland.
- 7.1.6 The off-site compensation will enable full compensation for the remaining residual impacts. These measures together with the on-site proposals will create overall residual effect on habitats that will be beneficial in a **Local** context.

Species

- 7.1.7 Due to the nature of the built development, there will be unavoidable unmitigated residual effects on species within the application site due to the loss of habitats.
- 7.1.8 In the context of the docks, there will adverse effects of Local significance construction for common pipistrelle, breeding birds, wintering birds, reptiles and invertebrates. The off-site compensation will have direct benefits for bats, breeding birds, reptiles and invertebrates, compensating for direct effects and delivering enhancements for these species.
- 7.1.9 There will be a residual adverse effect on the oxtongue broomrape population within the docks which is considered to be of Local significance.
- 7.1.10 Adverse construction residual effects of up to local site significance will remain for the wintering bird assemblage due to habitat loss and the predicted changes in the bird activity around the open water dock from indirect impacts over the construction period.

Oxtongue broomrape

- 7.1.11 The Proposed Scheme will unavoidably result in a partial loss of one of the colonies of oxtongue broomrape (present within TCA1) but the overall conservation status of this species at Port Talbot Docks is not considered to substantially change.

- 7.1.12 This is considered to be a small magnitude of adverse change which is considered to be significant in a **Local** context.

Reptiles

- 7.1.13 Works undertaken by ABP, creating a Temporary Reptile Mitigation Area in the Harbourside site have addressed the impacts on grass snake, common lizard, and slow-worm. A residual effect of site significance is a possible outcome for grass snake while the residual effect for the other two species the residual effect would be neutral.
- 7.1.14 Only one slow worm was only recorded in PDZ development area with adults and juveniles recorded adjacent to the western boundary outside the site where there is a similar mix of grassland and scrub habitats.
- 7.1.15 The ABP relocation will move relatively small numbers of slow worm into the adjoining scrub and grassland habitats will have a low magnitude impact and the effect would not have significance in any geographic context.
- 7.1.16 The habitat or primary importance for common lizard are the areas of grassland and their loss will permanently remove over 4ha area of high-quality habitat that will displace a good-sized population. Common lizard is also widespread in the Temporary Reptile Mitigation Area with past surveys confirming presence in all areas where there is a patchwork of long and short grass with areas suitable for basking. The ABP creation of hibernacula and log refuges in close proximity to areas of enhancement where uniformly rank grassland has been modified to create more structurally varied patchworks will create new features for the relocated common lizard population.
- 7.1.17 In the context of the ABP habitat enhancement and relocation, the magnitude of the impact on the reptile species would be small and not have significance in any geographic context.
- 7.1.18 ABP are also in the process of defining and creating permanent off-site reptile receptor habitats to provide compensation sites for the Future Port Talbot (FPT) developments across the docks. All the reptiles are being moved into the Temporary Reptile Mitigation Area in 2023/2024. In the interim the Temporary Reptile Mitigation Area will be managed by ABP to maintain its ability to continue to support the relocated population.
- 7.1.19 Prior to construction activities, ABP will relocate reptiles from TCA West, Crown Wharf dockside and vegetated areas of TCA East to off-site receptor relocations as part of the ABP permanent reptile conservation strategy.
- 7.1.20 The permanent loss of breeding habitat within the PDZ is a medium magnitude impact and following habitat enhancement and relocation will have a negligible residual effect in the context of common lizard and slow worm populations within the docks and a site level effect for grass snake.
- 7.1.21 The creation of permanent off-site receptor habitats for all three species and the establishment of new populations will fully offset the on-site effect and will be designed to provide enhancement for all three species with a residual positive effect of significance at least in a **Site** context.

Invertebrates

- 7.1.22 The permanent loss of habitats in the PDZ, TCA West and TCA1 will result in a local reduction in the extent of habitats available to invertebrates. The habitats affected are also present outside the Site and in the context of Port Talbot Docks as a whole and can be considered partial losses.
- 7.1.23 Construction lighting in the PDZ and TCAs will have localised effect in the medium term. The effect would be most marked during periods of night working in spring and summer during the flight periods for the majority of airborne species. Artificial lighting during construction would have the potential to reduce the value of habitats adjoining the boundary of the Site (through light spill) and create points of light that could attract invertebrates in the wider habitats.

- 7.1.24 The ABP off-site compensation measures to offset the loss of habitat and provide biodiversity enhancement. The environmentally sensitive lighting scheme will include reduce the effects of operational lighting on the surrounding area.
- 7.1.25 Taking into the account these additional measures the magnitude of residual change resulting from habitat loss and construction lighting is considered to be adverse and significant in a **Site** context.

7.2 Residual Operational Effects

- 7.2.1 The residual operational effects on designated sites, habitats and species is presented in Table 6.1.

Designated Sites

- 7.2.2 There are no predicted residual operational effects on any statutory or non-statutory designated sites.

Habitats

- 7.2.3 The treatment of Japanese knotweed regrowth and eradication from the developed PDZ will have successfully removed a very substantial area of this invasive non-native species. Management and monitoring of the should enable the habitats being created within the PDZ (brown roofs, pioneer grassland, modular biodiversity walls) to achieve their potential biodiversity value following their creation and maintaining this value during the operational life of the development.

Species

- 7.2.4 Under a precautionary approach the residual operational effects on faunal species have been classified as negligible (adverse) on bats, and otter. No specific additional measures are proposed for these species.
- 7.2.5 For bats and breeding birds the noise and lighting associated with operations has the potential to reduce the value of retained habitats in the immediate vicinity of the PDZ and marine loading and unloading facility. Following a precautionary approach the effect has the potential to be significant in a **Site** context.
- 7.2.6 For wintering birds it is possible that the levels of use of the parts of open water dock closest to Crown Wharf could permanently change during some operational activities as a result of background noise, artificial lighting and/or human activity on the edge of the dock. It is predicted that any adverse change have significance up to a **Local** context.
- 7.2.7 For invertebrates, indirect residual effects of site significance could arise as a result of the indirect effects of operational lighting on habitats outside the operational areas. Secondary mitigation to be defined through detailed lighting design (subject to NPT approval) will reduce the residual effects. Small magnitude effects on invertebrate activity in the vicinity of the PDZ are anticipated and it is predicted that any adverse change would have significance only in the context of the **Site**.
- 7.2.8 Effects on other species and species groups during operation are considered to be Negligible.

7.3 Ecosystem Resilience

- 7.3.1 The landscaping proposals in the PDZ is designed around more diverse habitats that have naturally regenerated on post-industrial and sandy substrates across the docks. Conditions that have naturally developed species diverse and flower-rich vegetation will be replicated on the boundaries of the PDZ. The operational requirements of the facility have restricted their extent and all available land has been brought into the landscape scheme. The substrates used to create flower-rich vegetation will be varied to create different types of low nutrient substrate.

- 7.3.2 The bespoke designed modular biodiversity walls will provide a significant 3-dimensional habitat for pioneer plant communities and some invertebrate species. Fill materials will be stone/rubble with some low nutrient soil/substrate. Variation in the types of fill materials, construction techniques and ratio of stone to soil on the faces and top will increase structural diversity and the microhabitats for invertebrates.
- 7.3.3 The landscaped areas will create habitat 'stepping stones' to the south of the Phoenix Way and make a small contribution to the port-wide biodiversity strategy.
- 7.3.4 All the landscaped areas within the PDZ will also be subject to biodiversity monitoring and management aligned to maximising the value of the created features as ecosystems.
- 7.3.5 The off-site compensation proposals will be designed to create resilient ecosystems. The off-site compensation site will facilitate the restoration of many habitat types with potential high biodiversity value that are currently in unfavourable condition due to loss or degradation as a result of natural succession and agricultural management practices. Restoring diversity of high value habitat types that have been lost and increasing the extent of habitats that are in good condition is consistent with best practice to reinstate and safeguard features that would otherwise be lost. Enhancement of groups of connected habitats including grassland and woodland further increases the potential value of each of the component habitat within the ecosystem.
- 7.3.6 The off-site compensation will be designed to provide an important linkages with the key of objective of delivering landscape scale enhancement and improving biodiversity in the context of the county.
- 7.3.7 The full maintenance and monitoring of the off-site mitigation and enhancement will be secured, between ABP and LanzaTech, in collaboration with the Council. This will be an appropriate regime that responds to the detailed design of the planned biodiversity investment by ABP and LanzaTech. The regime can only be determined when the full mitigation and enhancement plan at the site is known and approved pursuant to a planning condition (or obligation). If an alternative site is used, LanzaTech would own the maintenance and monitoring regime that is put forward.

8 SUMMARY

- 8.1.1 The proposed development will deliver a net benefit for biodiversity through the combination of:
- On-site mitigation and enhancement measures including the provision of small multi-functional landscaped spaces on the boundary of Project Dragon.
 - Habitat restoration and enhancement outcomes at the chosen off-site biodiversity compensation site.
- 8.1.2 The proposed package of mitigation and enhancement will be delivered in collaboration with ABP and the Council. The proposed commercial agreement between LanzaTech and ABP confirms deliverability. A package of proposed planning conditions (or obligations) will give the Council control on delivery on all of the above.
- 8.1.3 They will also give flexibility to allow for maximum collaboration between ABP, LanzaTech and the Council. This flexibility will ensure a comprehensive approach that will maximise the quality of net biodiversity benefit delivered as part of Project Dragon, taking into account wider interests in the regeneration of the port as a whole.

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Table 6.1: Summary of Likely Environmental Effects on Ecology and Nature Conservation

Receptor	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect (Adverse unless stated)	Additional Mitigation/ Compensation	Residual Significance of effect (10 years)
Construction Phase							
Designated Sites							
Kenfig SSSI/NNR/SAC	International	None	n/a	No change	None	n/a	No change
Crymlyn Bog and Pant y Sais SSSI/NNR/SAC	International	None	n/a	No change	None	n/a	No change
Non-statutory designated sites	County	Indirect impacts from noise	n/a	Negligible	None	n/a	No change
Habitats							
Scrub (Willow)	Site	Permanent loss of regenerating willow scrub within the PDZ	Long term	High	Site	ABP off-site compensation	Site (Beneficial)
Naturally regenerating grassland	Local	Permanent loss of naturally regenerated grassland on former industrial site habitat.	Long term	High	Local	ABP off-site compensation	Site (Beneficial)
Coastal grassland and dune slack	Local	Permanent loss of small extent sof Section 7 habitat.	Long term	High	Local	ABP off-site compensation	Site (Adverse)
Mixed species scrub, gorse and bramble	Site	Permanent loss of mixed scrub, gorse bramble and bracken during construction	Long term	High	Site	ABP off-site compensation	Site (Beneficial)
Seasonally waterlogged ground	Site	Permanent loss of habitat	Long term	High	Site	None	Site (Adverse)
Open mosaic habitat (OMH) and ephemeral vegetation	Local/District	Permanent (possibly temporary) loss/disturbance of OMH for duration of construction	Long term	High	Local	Creation 0.4ha flower-rich pioneer vegetation Creation of modular biodivesity walls 350m in length Creation of biodiverse green roofs	Site (Beneficial)
		Permanent loss of 0.2ha habitat in PDZ				ABP off-site compensation to address loss of OMH	
Species							
Oxtongue broomrape	Local	Partial loss of colony in Margam Wharf for at least the duration of construction, anticipated to be permanent Partial loss of host plant population (hawkweed oxtongue)	Long term	Medium	Local/District		Local (Adverse)
Common pipistrelle	Local	Permanent loss of foraging habitat and fragmentation of flightlines (primarily associated with scrub edge habitat)	Long term	Medium	Local	ABP off-site compensation to include enhancement of foraging habitat and - habitat management for bats	Site (Beneficial)
		Temporary disruption of foraging habitats adjoining temporary construction areas	Medium term	Small			
Other bat species - Foraging	Site	Permanent loss of occasionally used foraging habitat and flightlines	Long term	Small	Negligible	ABP off-site compensation to include enhancement of foraging habitat and habitat management for bats	Site (Beneficial)
Otter	Up to Local	Noise from construction resulting in changes in foraging behaviour, temporary	Medium term	Small	Negligible	Precautionary species protecton measures in construction areas adjoining the open water dock	Negligible

Receptor	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect (Adverse unless stated)	Additional Mitigation/ Compensation	Residual Significance of effect (10 years)
		avoidance of parts of the open water dock close to development activities					
Breeding birds	Local	Permanent loss of nesting habitat (scrub, bramble, shrubs and trees). Disturbance of adjacent habitats from construction noise and lighting.	Long term	Medium	Local	ABP off-site compensation through habitat creation and managementl; including grassland management for ground nesting birds	Site (Beneficial)
Wintering birds (PDZ)	Local	Permanent loss of winter resource for birds (scrub, bramble, shrubs and trees)	Long term	High	Local	-	Site (Adverse)
		Disturbance of adjacent habitats from construction noise and lighting.	Medium term	Small		-	Site (Adverse)
Wintering birds (Open water dock)	Local	Disburbance of wintering birds associated with open water dock	Medium term	Medium	Local	-	Local (Adverse)
Common lizard	Local	Permanent loss of the population within the PDZ and Phoenix Wharf; displacement from habitat as part of treatment of extensive stands of JKW	Long term	Medium	Local	ABP capture and relocation to Temporary Reptile Mitigation Area ABP off-site compensation including the creation of new reptile receptor habitats in areas of currently low value	Site (Beneficial)
Slow worm	Site	As above	Long term	Medium	Site	As above	Site (Beneficial)
Grass snake	Local	As above	Long term	High	Up to Local	As above	Site (Beneficial)
Invertebrates	District	Permanent loss of invertebrate habitats – removal of scrub, reedbed and grassland Loss of OMH in TCA1	Long term	Medium	District	On-site creation 0.4ha flower-rich pioneer grassland and modular biodiversity walls Installation of insect hotels ABP off-site compensation including habitat creation for invertebrates	Negligible
Invasive plant species	None	Potential for spread during construction activities	Medium term	Small	Up to County	Robust biosecurity control procedures	Negligible
Operational Phase							
Designated Sites							
Kenfig SSSI/NNR/SAC	International	None	n/a	No change	No change	-	No change
Crymlyn Bog and Pant y Sais SSSI/NNR/SAC	International	None	n/a	No change	No change	-	No change
Lower River Afan Estuary SINC	County	Indirect effects from ship movements	Long term	Negligible	No change	-	Negligible
Other Non-statutory designated sites	County	None	n/a	No change	No change	-	No change
Habitats							
Open mosaic habitat/ green roof	Site	Damage / disturbance of biodiversity features from operational activities	Long term	Small	No change	On-site management of open structured grassland, biodiversity walls and green roof	Site (Beneficial)

Receptor	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect (Adverse unless stated)	Additional Mitigation/ Compensation	Residual Significance of effect (10 years)
Invasive plant species	None	Development over land contaminated by JKW encapsulating remaining rhizome	Long term	High	Site, beneficial	On-site control of any regrowth on site boundaries	Site (Beneficial)
Species							
Bats - Foraging/commuting	Site	Light spill onto habitats adjoining the PDZ and marine loading/unloading facility. Potential for localised changes in bat activity.	Long term	Small	Site		Site (Adverse)
Otter	Site	Temporary disturbance during ship movements at high tide	Long term	Negligible	Negligible		Negligible (Adverse)
Breeding birds	Site	Potential for reduction in nesting bird activity in adjoining habitats due to operational noise, lighting, loading and unloading at the dock.	Long term	Small	Site		Negligible (Adverse)
Wintering birds	Local	Potential changes in wintering bird activity in the open water dock due to operational noise, lighting, loading and unloading activities.	Long term	Small	Local		Site (Adverse)
Invertebrates	Local	Potential for invertebrates to be attracted into the site from the surrounding unlit area with the potential to affect local populations.	Long term	Small	Up to Local	Controls on artificial lighting to reduce light spill outside the PDZ through detailed design and at working procedures	Site (Adverse)

DRAWINGS



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Notes

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Legend

Application Boundary

Rev	Description	By	CB	Date



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Client LanzaTech UK Limited

Project Project Dragon SAF Production Facility

Title Development Areas

Status	Drawn By	PM/Checked By
ISSUE	OW	PT
Project Number	Scale @ A3	Date Created
ECO02340	1:3,900	SEP 2023
Figure Number		Rev
1		-

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- Legend**
- Application Boundary
 - Bare Ground/Sparsely Vegetated Ground
 - Rubble
 - Bracken
 - Bramble Scrub
 - Bramble Scrub and Japanese Knotweed
 - Broadleaved Woodland
 - Scrub Woodland (Grey Willow)
 - Buildings
 - Coastal Grassland (Rank)
 - Dune Slack Vegetation
 - Dense Scrub
 - Ephemeral Vegetation
 - Gorse Scrub
 - Hardstanding
 - Ivy/Bramble/Scattered Scrub
 - Japanese Knotweed
 - Line of trees - Broadleaved
 - Mature Conifer Tree Line
 - Naturally Regenerating Grassland
 - Naturally Regenerated Grassland (Semi-improved)
 - Neutral Grassland (Rank)
 - Non-Ruderal (Ivy and Ferns)
 - Non-native - invasive species
 - Reedbed
 - Scattered Scrub
 - Scattered Trees
 - Standing Water
 - Open Water
 - Security Fence
 - Scattered scrub
 - Scattered tree - broadleaved
 - Areas to be surveyed

Rev	Description	By	CB	Date



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Client **LanzaTech UK Limited**

Project **Project Dragon SAF Production Facility**

Title **Habitat Plan**

Status DRAFT	Drawn By OW	PM/Checked By TO
Project Number ECO02340	Scale @ A3 1:3,900	Date Created SEP 2023
Figure Number Figure 2	Rev -	

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Legend

Site Boundaries

Rev	Description	By	CB	Date



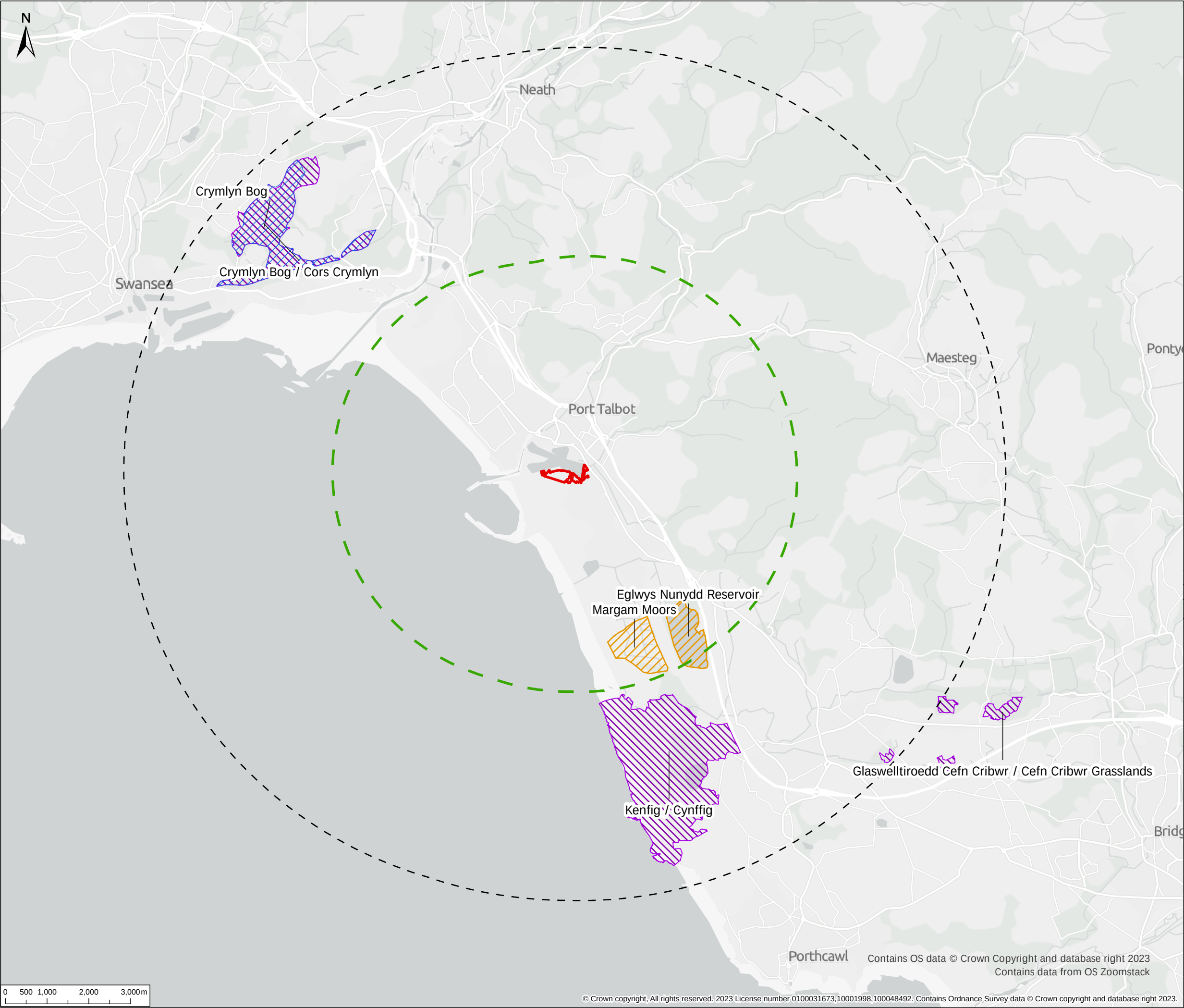
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Client	LanzaTech UK Limited		
Project	Project Dragon SAF Prod. Facility		
Title	Harbourside Areas Plan		
Status	Drawn By	PM/Checked By	
Final	HM	TO	
Project Number	Scale @ A3	Date Created	
ECO02340	1:4,500	MAY 2023	
Figure Number			Rev
Figure 3			-

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Legend

- Application Boundary
- 10km buffer
- 5km buffer
- SSSI
- RAMSAR
- SAC

Rev	Description	By	CB	Date



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Client LanzaTech UK Limited

Project Project Dragon SAF
 Production Facility

Title Statutory designations plan within
 10km and 5km radius Project
 Dragon

Status	Drawn By	PM/Checked By
Draft	OW	
Project Number	Scale @ A3	Date Created
ECO02340	1:87,000	06/09/23
Figure Number		Rev
4		-

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- Legend
- Application Boundary
 - 2km buffer
 - Ancient Semi Natural Woodland
 - NRW Priority Area (Woodland - PAWS)
 - Plantation on Ancient Woodland Site
 - Wildlife Site / SINC (Adopted)

Rev	Description	By	CB	Date



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Client LanzaTech UK Limited

Project Project Dragon SAF
Production Facility

Title Non-Statutory designations plan
within 2km radius Project Dragon

Status Final	Drawn By HM	PM/Checked By TO
Project Number ECO02340	Scale @ A3 1:18,000	Date Created 30/10/23
Figure Number 5		Rev -

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