CARNEYSWEENEY

PLANNING AND REGENERATION

Porth Teigr: Information to support RLDP Allocation

Client Name: Welsh Government

Site Address: Porth Teigr

Date: September 2026

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Document control

Document Version Control				
Revision No.	**Project Stage (if applicable)**	**Prepared by**	**Approved by**	**Date Issued**
A	FINAL	PJW	PJW	29.9.2026

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SECTION 1

Context

1.0 Context

1.1.1 In August 2021 a candidate site submission was made for an area of land collectively known as Porth Teigr and Alexandra Head, comprising the following areas:

- Southeastern edge of Roath Basin;
- Bute Dry Dock; and
- Warehousing storage/disused land adjoining Cardiff Docks.

1.1.2 The land was proposed for a range of uses, including 2,310 dwellings and was held in three ownerships (Welsh Ministers, Cardiff City Council / Harbour Authority and Associated British Ports).

1.1.3 Cardiff Council supported the submission and the draft RLDP contains a draft allocation H2.5 of the Site for 2,310 dwellings, 1,310 of which are anticipated to be delivered within the RLDP Plan Period.

1.1.4 At the time of the candidate site submission, the Welsh Ministers' element of the Site (Porth Teigr) was vested in the Property and Infrastructure department. However, following formation of the Land Division in 2019 internal discussions were commenced regarding transfer of the land to the Land Department within Place Division. That transfer is imminent.

1.1.5 The Land Department within Place Division is specifically tasked with increasing the number of new homes built across Wales whilst also taking opportunities to deliver new zero carbon developments. This shift in emphasis has resulted in the Welsh Government focussing on that part of the candidate site which it controls (Porth Teigr) and at the same time increasing the focus on residential development (albeit continuing to recognise that a mixed use approach is still entirely appropriate for the context and in order to achieve desirable placemaking outcomes).

1.1.6 The Welsh Government recognises the potential for Porth Teigr to support its Programme for Government commitment to deliver 20,000 homes in four years. As such it will consider every opportunity to maximise the use of Porth Teigr and accelerate delivery of homes in that location.

1.1.7 Following initial Hearings into the soundness of the RLDP, the Inspectors put the examination into abeyance and published a list of action points (ID11) and next steps for the examination (ID12). A deadline for that work to be completed was agreed and set as 30 September 2026.

In order to assist in responding to the published action points, this document describes the site's attributes and in so doing introduces the site's opportunities and constraints in Section 2. Current thinking on development and residential capacity for the Porth Teigr element of the draft allocation is set out in Section 3.

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SECTION 2

Site Description

2.0 Site Description

2.1 Existing Land Use

2.1.1 The Porth Teigr site (the "Site") measures approximately 9.8 hectares and extends from the lock between the Roath Dock and the Roath Basin at the northern extent, covering the area of land between Roath Basin and Cargo Road (excluding the completed BBC Roath Lock Drama Village and Studios), and ending at the southern end of Channel Dry Dock.

2.1.2 The following areas of the draft Porth Teigr and Alexandra Head allocation are not within the Site boundary considered within this report:

- The warehousing and industrial uses (owned by Associated British Ports) situated on the north-western edge of Queen Alexandra Dock
- The BBC Studios development located between Cargo Road and Porth Teigr Way; and
- The part of the draft allocation south of the southern end of Channel Dry Dock (Alexandra Head).

2.1.3 The Site is shown on the Concept Masterplan Option 05 (WSP, May 2024) attached at **Appendix A**.

2.1.4 Existing land uses on and adjacent to the Site are:

- BBC Roath Lock Drama Village and Studios (already developed);
- Gloworks (already developed);
- South eastern edge of Roath Basin / south western end of Roath Dock – disused land, scrubland;
- Bute Dry Dock – public realm, coffee shop, Teigr Yard food court;
- Warehousing and storage, currently within ABP land, and adjacent disused land; and
- Wales Coast Path passes through the Site along the south-western boundary.

2.1.5 The area to the east of the Site is predominantly used for industrial and dockland purposes. Cardiff Bay is situated to the west, with the Cardiff Bay Wetlands Local Nature Reserve approximately 450m west of the Site. The main Cardiff Bay Area is located to the north west of the Site where there are a number of notable, high profile and historic buildings, including the Millennium Centre, Pierhead Building, the Senedd, St David's Hotel and the Norwegian Church.

2.2 Topography

2.2.1 The Site is generally flat at a height of approximately 9 mAOD (metres above Ordnance Datum), but has a slight east to west gradient with an average slope of 1 in 200.

2.3 Transport and Access

Vehicular Access

2.3.1 The Site is connected to the Queens Gate Roundabout, which is a key junction within Cardiff's strategic road network, and links to the Eastern Bay Link, Cardiff Bay Link Road (A4232) and Central Link (A4234). The spur roads from the roundabout provide a connection to the wider strategic highway network, including the M4, and all key destinations contained within the city region. The Site also has good links to the A4119 and Lloyd George Avenue via the junction at The Flourish, which provides additional connections to the city centre and the west of Cardiff.

2.3.2 The only access point to the Site itself for general vehicles is via Tyneside Road, which is a single carriageway, 20 mph, unclassified road. Tyneside Road crosses the Roath Basin via a swing bridge, which can be raised to allow water bound vessels to access the Basin, blocking traffic movement. Once inside the dockland area, Tyneside Road splits at a three-arm roundabout with a 'straight on' priority lane to continue ton Cargo Road.

2.3.3 The interior roads, Cargo Road and Porth Teigr Way, provide access to Cardiff Port and serve as the primary access roads into the development Site. Porth Teigr Way also connects to Harbour Drive and Britannia Quay to the west of the development via a bollard controlled bridge across the southern access/egress point of Roath Basin. The bridge only provides access to the Site for buses and cycles, as general traffic use is prohibited.

Pedestrian Access

2.3.4 The roads which are contained within and connect to the development Site are bounded by ample footway space and connect to key locations and transport links. The footways connect to the Bay Barrage Link and the expansive pedestrianised footway network contained within the Cardiff Bay development. At present, the footways within the Site attract a relatively low volume of pedestrian footfall, which reflects the number of units delivered to date. There are a number of points along Porth Teigr Way and Harbour Drive where dropped kerbs, tactile paving and at-grade road surfacing is present to facilitate crossing opportunities.

2.3.5 The Wales Coast Path (WCP) passes through the Site; the Taff Trail joins the WCP at Roald Dahl Plass in Cardiff Bay, which then travels over the Cardiff Bay Barrage, where it continues along the coast.

Cyclist Access

2.3.6 Porth Teigr/Alexandra Head is well connected to cycling infrastructure. The development has good cycle links to surrounding residential areas, the city centre and the main Cardiff Bay development.

2.3.7 The majority of the cycling infrastructure surrounding the Site is made up of trails and dedicated lanes, with very few routes containing 'bicycle-friendly roads', which can limit the uptake of cycling as they are dependent on individual cyclist confidence.

2.3.8 The main cycle connections to the Site include the Bay Barrage Link, the Eastern Bay Link, Lloyd George Avenue and the Cardiff Bay Link Road (A4232). All the routes are either traffic-free or segregated from the main carriageway via a raised kerb or traffic barrier. However, there is a gap in the cycling provision on Tyneside Road, where cyclists are required to dismount to cross the swing bridge which connects to the development Site.

2.3.9 The Site is well connected to NCN (national cycle network) via route 8 (Cardiff Bay) and 88 (Penarth Marina). A number of 'loop' cycle locks exist on Porth Teigr Way and Harbour Drive to enable secure cycle storage.

Rail Access

2.3.10 Cardiff Central Rail Station is a key transport hub on the South Wales Main Line, and is served by a number of local, regional and national services to key locations across the UK.

2.3.11 The closest rail station to the Site is Cardiff Bay Railway Station. The station is currently undergoing substantial upgrading to provide second platform as well as new signage, customer information screens and other enhancements. Overhead line equipment (OLE) is being installed that will power the smoother and faster tram-trains. The tram-trains will offer increased acceleration speeds and enable delivery of faster and more frequent services delivered through a new Metro timetable. By the end of the project, six trains per hour will operate between Cardiff Bay and Cardiff Queen Street. These new trains also offer increased capacity on board, with a capacity of 256 people on board a 3-car unit, alongside level boarding capabilities from train to platform.

2.3.12 While historically there has been no direct link between Cardiff Bay Station and Cardiff Central, with passengers needing to change services at Cardiff Queen Street to travel to Cardiff Central, the Cardiff Crossrail project will address this deficiency. The first phase of the scheme (which started in summer 2026) will be built between Cardiff Central train station and Cardiff Bay. This will make sure that Cardiff Bay is well connected to the city centre through the new tramway, giving better access to residents and visitors in the city. This phase of the scheme will deliver:

- A new two-platform station stop located in the southern car park of Cardiff Central railway station.
- A new tramway from the southern car park at Cardiff Central station, crossing through Callaghan Square to join the existing Cardiff Bay line.
- An additional third platform at Cardiff Bay railway station (in addition to the second platform)

2.3.13 In the future, the Cardiff Crossrail will run from the northwest of the city, all the way to the east of the city connecting with the proposed Parkway railway station.

Bus Access

2.3.14 The Baycar, service number 6, links the Site to the city centre via Lloyd George Avenue. The service stops outside Roath Lock Studios and the former Doctor Who Experience building, and operates on a 12-minute frequency from Monday to Friday and 15-minute frequency on the weekend. The service stops at key locations in the city centre including; Westgate Street, Lower St Marys Street and the rear of Cardiff Central station.

2.3.15 Service 8 and 9 also provide access to the Cardiff Bay area. Although neither service runs directly to the Porth Teigr, they do stop at locations which are in close proximity to the Site, and provide access to key employment, retail, leisure and healthcare services. The services run from Heath Hospital to Mermaid Quay and the International Sports Village for services 8 and 9, respectively. The services run on parallel routes from Clare Road onwards and travel to the hospital via the city centre, City Road, Crwys Road and Whitchurch Road. The services operate approximately every 20 minutes from Mermaid Quay Monday to Sunday, and every 20 minutes on weekdays and every 40 minutes on weekends from the International Sports Village.

2.4 Townscape Context

2.4.1 The Site is not located within any designated townscape/landscape areas.

2.4.2 The current composition of the Site is a mosaic of industrial uses and historic warehouses, with some non-accessible open space and waterfront setting adjacent to the historic docks and Cardiff Bay. Large areas of the Site comprise of disused and derelict scrub land. There are no significantly tall buildings located on the Site, however, taller structures are present to the northern side of Roath Basin.

2.4.3 The study area lies entirely within the National Landscape Character Area (NLCA35): Cardiff, Barry and Newport (National Resources Wales). This designation covers a vast area of land spanning the three major ports, coastal lowlands and the edge of the South Wales Valleys. Development of the Site of the scale envisaged is not anticipated to have significant effects on a character area at the National Scale.

2.5 Visual Context

2.5.1 The Site is visually exposed, due to its location on the western shoreline of Cardiff Bay. The flat topography of the local area and lack of mature vegetation within the Site results in the Site being visible from much of the wider area.

2.5.2 Receptors from the water-edge of Cardiff Bay, residential and leisure spaces in the surrounding vicinity and areas at higher topography are considered to have the potential to experience a significant visual effect as a result of the Proposed Development at construction and operation phase and should therefore be assessed further as part of any application for development.

2.6 Historic environment

2.6.1 The 19th century saw the increase in need for accessible wharves in Cardiff. Several wharves were opened including Roath Basin and Roath Dock. The industrial success of the port was brought to an end by the First World War. The export and trade of coal declined after 1914 and Roath Basin was discontinued. Only Roath Dock and Queen Alexandra still function for the same purpose that they were built for, around 100 years ago.

2.6.2 The majority of historic assets date from this period. For example, the follow Grade II listed assets are associated with Roath Basin; Workmans Hut (LB14061) and the Dock Walls of Roath Basin (LB14062) – both within the Site - and Locky's Cottage (LB14060), Norwegian Church (LB87910), Former H.M.Customs and Excise Office (LB14059) and Sloping Stone Sea Wall (LB14058) outside of the Site but close by. The scheduled remains of the Queen Alexandra dock harbour defence gun emplacement (GM618), is dated to the modern period and lies outside of the Site, south of Queen Alexandra dock.

2.6.3 There are three Conservation Areas within 2km of the Site. The Mount Stuart Conservation Area is located approximately 880m north west of the Site, and the Pierhead Conservation Area is approximately 580m north west. The Penarth Conservation Area is approximately 1.6km south west of the Proposed Development, within the administrative boundary of VOGC.

2.6.4 We understand a total of four non-designated below ground heritage assets have been identified within the Site:

- Coal Staithe and Railway Sidings;
- Timber pond;
- Crown Fuel Works an Engine House; and
- Timber Yard Railway Sidings.

2.6.5 We understand a total of four built heritage assets are located within the Site:

- Bute Dry Dock which is a part of the Grade II Listed structure of the Dock Walls of Roath Basin (LB14062);
- Jetty;
- Dolphins;
- Historic Warehouses.

2.7 Noise

2.7.1 There are no Noise Action Planning Priority Areas (NAPPAs) within proximity of the Site.

2.7.2 WSP were appointed by the Welsh Government to carry out a baseline noise survey over a week-long period in 2019, to determine the local noise environment. The main noise sources were identified as activity from Cardiff Port, road traffic on roads within the Site and in the surrounding area, pedestrians and seagulls. There are noise sensitive receptors within a 1km

radius of the Site, including on the opposite side of Roath Basin. While the survey related to the southern area of the Porth Teigr Site and Alexander Head, one of the long-term monitoring locations was located within the Porth Teigr Site Close to the southern end of Bute Dry Dock). The results were used to determine the noise exposure categories (NECs) for the areas of the Site, in accordance with the guidance from TAN 11 (1997).

2.7.3 The noise levels measured were reasonably low during daytime night-time periods. The noise climate was characterised by distant port activity, distant road traffic, seagulls and individuals walking by. It is noted that the daytime noise levels fall within the middle of the range for NEC A which states "Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable."

2.7.4 The night-time LAmax noise levels were attributable to seagulls and individual heavy vehicle movements. The measured levels fall into NEC B, which states "Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection."

2.7.5 The noise environment of the wider Porth Teigr Site is not considered to be dissimilar to the above location.

2.7.6 As there are residential properties proposed as part of the development, consideration will need to be given to the operational impact of the development on the proposed residential uses. The scheme will be built over several years and further assessment will be required as part of the phased construction. However, the Site as a whole is considered to be suitable for residential use, and suitable internal noise levels can be achieved by adopting a good acoustic design process, which includes consideration of internal layouts within individual flats/houses, creating screening options to reduce noise levels on certain façades and provision of sound insulation measures (glazing, ventilators).

2.8 Air Quality

2.8.1 Air quality within is generally good. The nearest Air Quality Management Area (AQMA) comprises Cardiff City Centre AQMA (north-west of the development), designated due to exceedances of the annual mean AQS objective for nitrogen dioxide (NO2).

2.8.2 CC monitors air quality using a combination of continuous monitoring stations (CMS) and passive ("non-automatic") diffusion tubes. The two closest monitoring Site to the Site (both non-automatic) are Sites 263 (Pierhead Street) and 265 (Green Giraffe Nursery, Cardiff Bay). Neither Site shows an exceedance of NO2 concentrations and Cardiff Council's "Cardiff 2025 Air Quality Progress Report" (September 2025) states that: "There were no exceedances in either the annual or short-term air quality objectives for NO2 at any automatic and non-automatic monitoring Site during 2024. When examining average NO2 concentrations at non-automatic

diffusion tube Sites across Cardiff, we are now experiencing pollutant concentrations at levels lower than those experienced during the pandemic, and an overall decreasing trend in NO2 concentrations is seen since 2020."

2.9 Ecology

2.9.1 An Extended Phase 1 habitat survey of the Site (and an additional area of land to the north) was carried out on 17 March 2023 (Tomson Environmental Consultants, June 2023) – See **Appendix B**. The survey covered the entire Site including boundary features. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). In addition, as part of the Extended Phase 1 Habitat Survey, trees, buildings and structures within the Site were assessed for their potential to support roosting bats, albeit not by a formal Preliminary Roost Assessment (PRA).

Designated Sites

2.9.2 Although no formal desk study has been completed, it has been determined that no statutory designated Sites are found on or within 50m of the Site boundary. Three European statutory Sites (Severn Estuary SAC, Severn Estuary SPA and Severn Estuary Ramsar), are located approximately 188 m east of the Site.

2.9.3 Any developments that are close to (or within) the boundary of a SAC may require a Habitat Regulations Assessment if they are likely to have an adverse effect on the Site. While the Site does not lie within the Severn Estuary SAC, development but may affect the SAC via increased access and recreation activity.

Non-statutory Sites

2.9.4 Nine non-statutory nature conservation Sites (Site of Importance for Nature Conservation (SINC)) within 2 km of the Site. The nearest of these is the Cardiff Bay Wetlands Reserve SINC, located approximately 577 m west of the Site. River Taff SINC is 1.2 km to the west and River Ely SINC is 1.8 km to the south west but are connected to the Site by Cardiff Bay.

Habitat

2.9.5 A total of 28 habitat types were identified during the extended Phase 1 habitat survey with the dominant habitats comprising hard standing, standing water and ephemeral mosaics (see Figure 2). During the survey, one priority habitat was identified comprising open mosaic habitats on previously developed land which is a habitat of principal importance for the conservation of biodiversity in Wales under Section 7 of the Environment (Wales) Act 2016. This occurs on land east of Roath Basin and while the report recommends that these habitats are maintained and left in situ, it is considered more likely that alternative habitat creation will be required to facilitate development of the Site while meeting requirements of the Stepwise Approach.

Protected and Notable Species

2.9.6 No targeted surveys have yet been undertaken as part of this proposed development. However, potential for the Site to support legally protected species and notable species has been assessed.

2.9.7 Four bird species were identified within the Site boundary which are likely to breed on Site. Breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended). Furthermore, rabbit and a red fox were recorded during the survey, which receive partial protection under The Wild Mammals (Protection) Act 1996.

2.9.8 The Site contains habitats with the potential to support additional protected and priority species comprising invertebrates, common reptiles, bats, and European hedgehog.

Further Surveys

2.9.9 The following list of surveys are likely to be required to support redevelopment proposals:

- An updated extended Phase 1 habitat survey should be carried out;
- A full desk study should be undertaken for statutory and non-statutory designated Sites and biological records for protected and priority species within a specified radius of the proposed development;
- A terrestrial invertebrate survey should be conducted on the Site;
- A reptile presence or likely absence survey of the Site or areas affected by development should be conducted;
- A breeding and wintering bird survey should be conducted depending on the extent of the development;
- A Preliminary Ground Level Roost Assessment (PGLRA) of all trees within the Site boundary will likely be required. Further surveys to determine the use of the Site by bats may also be required;
- A Preliminary Roost Assessment (PRA) of buildings B14 (adjacent to the Harbour Drive bridge), B15 (adjacent to the eastern corner of Roath Basin) and B16 (adjacent to the Tyneside Road swing bridge) should be conducted to assess the potential of the structures to support roosting bats.

2.10 Hydrology and Flooding

2.10.1 The Site is situated between the Roath Basin, Queen Alexandra Dock, Cardiff Bay and the Severn Estuary. Both the Afon Taff and the Afon Ely outfall into Cardiff Bay which is an impounded water body controlled by the tidal barrage. Queen Alexandra Dock connects via lock gates into the Severn Estuary bypassing the tidal barrage, on its upstream side it connects to Roath Basin via Roath Dock. Both docks are fed from the Afon Taff via the Dock Feeder Canal after it has passed through Bute East Dock.

2.10.2 The Site is predominantly within Flood Zone 1 with Roath Basin itself and areas adjacent, in Flood Zone 3 and small areas of Flood Zone 2 in the lower areas around the docks. TAN15 notes that:

- allocations for highly vulnerable development in Zone 3 should generally be avoided but may be made in exceptional circumstances where it is essential to the strategy of an LDP.
- allocations for redevelopment in Zone 2 may be made for new development and redevelopment of any vulnerability that is necessary to implement the strategy of an LDP, a strategy to regenerate or revitalise existing settlements or to achieve key economic or environmental objectives, provided that a Strategic Flood Consequences Assessment has identified an acceptable level of risk.

2.10.3 When examining the flood risk from surface water it can be seen from the NRW map that areas around and within the Site may be susceptible to flooding and scheme design and land raising is likely to be required to ensure vulnerable development is kept outside of the flood extent.

2.11 Ground Conditions and Contamination

2.11.1 Existing Ground Investigation data is summarised below.

Made Ground

2.11.2 Made Ground is anticipated across the whole Site. Previous investigation data suggest there is likely to be a significant thickness (average of 7m thickness) of Made Ground present comprising waste materials from the local area such as industrial waste, furnace ash, building rubble, dock silts and marine dredgings associated with former Site operations and infilling of former docks.

Superficial Deposits

2.11.3 The superficial deposits underlying the entire Site comprise of Tidal Flat deposits, including mud flat and sand flat deposits, unconsolidated sediment, mainly mud and/or sand.

2.11.4 During previous investigations, superficial deposits were generally encountered as:

- Soft silt and soft to firm silty clay with occasional shell fragments and organic matter traces (average thickness: 5m);
- Medium dense to very dense fine to coarse sand and gravel with cobbles (average thickness: 6m).

2.11.5 The recorded thickness of estuarine alluvium varied between 0.4 and 9.2m across the Site. This unit was noted to generally comprise very soft and soft, locally soft to firm and firm, grey slightly sandy slightly gravelly organic clay/silt. Glacial gravels were encountered below the Alluvium with a maximum thickness of 9.3m recorded. The thickness of the glacial gravel was considered to increase toward the south and southwest. The glacial gravels were described to be comprised of medium dense to very dense grey and brown clayey sandy fine to coarse gravel with localised inclusions of cobbles.

Bedrock

2.11.6 The solid geology of the area comprises the Mercia Mudstone (Triassic in age) described as predominantly red mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite are widespread and sandstones are also present.

2.11.7 Previous investigation data suggests the upper surface mudstone is present over 18m bgl.

Hydrogeology

2.11.8 Shallow groundwater is anticipated. Previous records suggest the water table lies between 0.4m and 3m bgl. Groundwater is likely to be in continuity with the tidal waters of the Severn Estuary and Cardiff Bay Barrage. The superficial tidal flats are classified as a Secondary Undifferentiated Aquifer, assigned in cases where it has not been possible to attribute either category A or B to a rock type.

2.11.9 The bedrock of the Mercia Mudstone is classified as a Secondary B Aquifers, defined as predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

2.11.10 There are no Source Protection Zones (SPZ) within 1km of the Site.

2.11.11 There are no groundwater abstractions within 500m of the Site.

Contamination

2.11.12 Potential sources of contamination are expected across the entire Site and in the immediate surrounds.

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SECTION 3

Description of Proposed Development

3.0 Description of Proposed Development

3.1 Introduction

3.1.1 The Proposed Development comprises a mixed-use development, including uses such as residential, retail, leisure and hotel and associated parking.

3.1.2 The detailed design is currently unknown, however an indicative masterplan produced by WSP (May 2024) shows buildings spread across the Site varying in size and height with the tallest building having eight floors.

3.1.3 The May 2024 masterplan was prepared prior to the Site being vested in the Land Department within the Welsh Government's Place Division. As noted above, the Land Department is specifically tasked with increasing the number of new homes built across Wales. This shift in emphasis has resulted in an increased the focus on the extent of residential development which can be accommodated within the Site. As a result, the 2024 masterplan is in the process of being amended to reduce the quantum of commercial business space (Class B1) and increase the number of residential units. While a draft of the schedule of development has been produced (replicated below), the accompanying plan at Appendix A has not yet been amended to reflect the changes. Accordingly, plots A, B, C, I, J and N were previously proposed for commercial business development and have been illustrated as such at Appendix A. those same plots are now proposed to deliver c.498 additional dwellings.

3.2 Proposed Development

3.2.1 The indicative masterplan provides over 162,000 m^2 of new space, compromising residential dwellings, retail space, a hotel, creative workspaces, office space, cafes, and leisure space.

3.2.2 The Site is shown to have the potential for the development to include the following amount of floor space:

- Retail (Class A1 and A3) – 6,741 m^2
- Business (Class B1) – 13,020 m^2
- Hotel (Class C1) – 16,200 m^2
- Residential – 99,616 m^2
- Assembly and Leisure (Class D2) –4,366 m^2
- Car Park – 22,936 m^2

3.2.3 The notional residential makeup comprises 1310 units as follows:

- 670no 1 bed units
- 550no 2 bed units
- 90no 3 bed units

3.2.4 The indicative masterplan divides the Site into 22 development plots, A to V, ranging from high-rise residential buildings to pavilion commercial/retail space. The breakdown of floorspace is as follows:

			Land Uses							Appartment units				CP
Building	GFA (sqm)	Floors	Residential C3 a,b+c	Business B1	Retail A1,A3	Hotel C1	Assembly + Leisure D2	Multi Storey Carpark (sqm)	TOTALS (sqm)	1 bed	2 bed	3 bed	Total Units	Nos
A	8,656	6 (2+4)	6504					2152	**8,656**	50	36	6	**92**	105
B	11,312	6 (2+4)	10192					1120	**11,312**	70	59	9	**138**	55
C	11,312	6 (2+4)	10192					1120	**11,312**	70	59	9	**138**	55
D	10,500	6 (2+4)	8348					2152	**10,500**	46	40	6	**92**	105
E	2,500	2		2500					**2,500**					
F	10,808	6 (2+4)	6504		1076		1076	2152	**10,808**	44	36	6	**86**	105
G	11,312	6 (2+4)	9472		360		360	1120	**11,312**	64	53	9	**126**	55
H	11,312	6 (2+4)	9472		360		360	1120	**11,312**	64	53	9	**126**	55
I	3,048	6	2518					530	**3,048**	18	11	2	**31**	25
J	3,048	6	2518					530	**3,048**	18	11	2	**31**	25
K	6,096	6 (2+4)	3976		560		500	1060	**6,096**	27	22	4	**53**	50
L	7,840	7	6720		1120				**7,840**	45	36	6	**87**	0
M	1,440	2			720		720		**1,440**					
N	4,960	8	4960						**4,960**	31	32	5	**68**	0
O	6,840	6						6840	**6,840**					325
P	12,360	8 (2+6)	10560		450		450	900	**12,360**	71	59	10	**140**	43
Q	16,200	9				16,200			**16,200**					
R	9,560	8 (2+6)	7680		640		300	940	**9,560**	52	43	7	**102**	45
S	7,200	6		4800	600		600	1200	**7,200**					58
T	225	1			225				**225**					
U	5,720	8		5720					**5,720**					
V	630	2			630				**630**					
Totals	162,879		99,616	13,020	6,741	16,200	4,366	22,936	**162,879**	670	550	90	**1310**	**1,106**

3.3 Phasing

3.3.1 A phasing plan for Porth Teigr was agreed following the successful original outline planning application in 2008. While this permission has since lapsed, the approach to phasing remains appropriate. The 2008 approach showed phasing starting with the BBC Studios Site (since delivered) and then proceeding north to south. Accordingly, the currently envisaged phasing would be as follows:

- Phase 1: Plots A-D
- Phase 1a: Plot E (dependant on tenant demand for the commercial office space)
- Phase 2: Plots F-K
- Phase 3: Plot L
- Phase 4: Plots M and N
- Phase 5: Plots P and R
- Phase 6: Plots O and Q (dependant on tenant demand for the hotel space)
- Phase 7: Plots S and U (dependant on tenant demand for the commercial office space)
- Phase 8: Plots T and V (dependant on tenant demand for the retail space)

3.3.2 While not the focus of this report, any further residential development proposed for Alexandra Head beyond the end of the RLDP plan period would then naturally follow on from the above phasing, continuing to be delivered from north to south.

3.4 Viability Assessment

3.4.1 A high-level assessment of the site's viability has been prepared by Savills to assess the viability of the development proposals (see Appendix C). This has been based upon the above development mix.

3.4.2 The scheme revenue is estimated to be approximately £304M, with total development costs (before finance) of £282.4M. The appraisal therefore produces a modest residual figure of around £11.8M (4% of costs).

3.4.3 A policy-compliant level of affordable housing on the site, to be transferred at Cardiff Council's transfer values (2026). Housing mix will be needs-based and in accordance with WDQR standards.

3.4.4 Parcels which are proposed for solely commercial uses (E, M, O, Q, S, T, U, and V) have been excluded from the residual appraisal. Current market conditions make delivery of these uses highly challenging; including them in the appraisal would artificially impact the viability of other parcels, which could otherwise come forward for development. We would expect these commercial parcels to be delivered as and when market conditions become more favourable, or where significant anchor tenants can be procured and/or grant support deployed.

CARNEYSWEENEY

Appendix A – Concept Masterplan Option 05 (WSP, May 2024)

PORTH TEIGR, CARDIFF BAY

Concept Masterplan Option 05 - Adjusted Redline

May 2024
Scale: 1:2500
Site Area: 9.8ha

Llywodraeth Cymru
Welsh Government

wsp

CARNEYSWEENEY

Appendix B – Roath Basin Extended Phase 1 Habitat Survey (Tomson Environmental Consultants, June 2023)

Thomson
environmental
consultants

Overall Site Risk Rating: Medium

Extended Phase 1 Habitat Survey

Roath Basin

For

VINCI Facilities

Project No.: VNF001-014

June 2023

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Project Number	Report No.
VNF001-014	082

Revision No.	Date of Issue	Author	Reviewer	Approver
001	14/06/2023	Tom Walsh	Laura Meer	Jonathan Reeves

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Table 1 Management Actions

Figure 1: Site Location (Roath Basin)
Figure 2: Extended Phase 1 Habitat Survey Results (Roath Basin)
Figure 3: Photographs of the Site (Roath Basin)
Figure 4: Ecological Risk Rating (Roath Basin)

1. Summary and Recommendations

1.1 Summary

1.1.1 VINCI Facilities, working on behalf of the Welsh Government, manage a 12.61ha site known as Roath Basin in Cardiff Bay (shown on Figure 1) and commissioned Thomson Environmental Consultants to undertake an extended Phase 1 habitat survey of the site. A Habitat Management Plan can be found in Appendix 1.

1.1.2 Although no formal desk study has been completed, it has been determined that no statutory designated sites are found on or within 50m of the site boundary. Non-statutory locally designated sites, however, could not be determined because this information is not provided within the Cardiff Local Development Plan 2006 – 2026.

1.1.3 A total of 28 habitat types were identified during the extended Phase 1 habitat survey with the dominant habitats comprising hard standing, standing water and ephemeral mosaics (see Figure 2). During the survey, one priority habitat was identified comprising open mosaic habitats on previously developed which is a habitat of principal importance for the conservation of biodiversity in Wales under Section 7 of the Environment (Wales) Act 2016.

1.1.4 Four bird species were identified within the site boundary which are likely to breed on site. Breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended). Furthermore, rabbit and a red fox were recorded during the survey, which receive partial protection under The Wild Mammals (Protection) Act 1996.

1.1.5 The site contains habitats with the potential to support additional protected and priority species comprising invertebrates, common reptiles, bats, and European hedgehog.

1.1.6 Recommendations for management or future development including further surveys are given below.

1.2 Recommendations

1.2.1 The recommendations for mitigation (including avoidance, mitigation and compensation) measures given in this section are based on the findings of the desk study and extended Phase 1 habitat survey. It may include precautionary mitigation measures for some species which could occur on site but excludes discussion of the mitigation measures that may be required following the results of the further surveys recommended below.

1.2.2 This section is broken down into four subsections covering management, future development, enhancement and the ecological risk rating.

1.3 Recommendations for Management

Priority Habitats

1.3.1 The site contains one habitat of principle importance comprising parcels of open mosaic habitats on previously developed land (ESP/DS/BG1, ESP/DS/BG2 and ESP/SNG/BG1 and

ESP/SNG/BG2). It is therefore recommended that these habitats are maintained and left *in situ*. Should management be required the following is recommended:

- The management should take place on a two-year rotational basis whereby only 50% of the vegetation is cut each year;
- Rather than a complete clearance it is advised that swards are cut to various heights although no cutting should occur below 150mm;
- Management of scrub is recommended to prevent it from developing greater than 10% of the total area; and
- If removal of ephemeral mosaics is required these habitats should be replaced on a like-for-like basis within the site (or elsewhere if this cannot be achieved) with the same or increased species diversity.

Protected and Priority Species

Invertebrates

1.3.2 Where the management of suitable habitats of ephemeral mosaics (ESP/DS/BG1. ESP/DS/BG2, ESP/SNG/BG1 and ESP/SNG/BG2), grassland and grassland and tall ruderal mosaics (SNG1, SI1 and TR/SS1) is required these areas should be cut on a two-year rotation whereby one half of the vegetation in any given area should be cut each year between September and February. This will enable the regeneration of vegetation including the fruiting and flowering of plants and give invertebrates time to recolonise. It may also be beneficial to prevent scrub taking over by removing species of butterfly-bush and white poplar (*Populus alba*) within the areas of dense scrub.

Reptiles

1.3.3 If management is required within habitats suitable for reptiles (PCW1, DS1 to DS3, SS/ESP1, SMW/DS1, SNG1, SI1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, ESP/SNG/BG1 and ESP/SNG/BG2) it is recommended that vegetation is cut no lower than 150mm to avoid killing and injuring the reptiles between November and February inclusive. Potential features that could be used as refugia for reptiles (i.e. rubble piles at target notes TN1 and TN2) should be left *in situ* and buffered by 2m within which no works takes place.

1.3.4 If management of vegetation below 150mm, between March and October include and/or within hibernation or refugia areas (i.e. rubble pile at target notes TN1 and TN2) is required further surveys may be necessary which are discussed below in Section 1.4.

Birds

1.3.5 All management operations within areas with trees (PCW1, SBW/IS1, SMW/DS1, IS/SBW1, IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1 and AM/SBW1), scrub (DS1 to DS3, SS/ESP1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, and HS/IS/SBW1) and grassland (SNG1, SI1, ESP/SNG/BG1 and ESP/SNG/BG2) should be completed outside the bird breeding season (September to February inclusive). If works are required between March to August inclusive, an

ecologist should be present to check for nests. Where nests are identified these should be protected by a suitable buffer zone (species dependent) until the young have fledged or the nest is no longer active.

Bats

1.3.6 If management is required to trees, scrub and shrub mosaics (PCW1, DS1 to DS3, SS/ESP1, SBW/IS1, SMW/DS1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, IS1, IS/SBW1, IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1 and HS/IS/SBW1), the connectivity of these habitats should be maintained to the wider landscape to keep existing foraging and commuting flight lines intact by leaving strips of vegetation in place that connect habitats across the site and to the wider countryside. Furthermore, should works be required at buildings B14 to B16 or to any mature trees within habitats of PCW1, SBW/IS1 and SMW/DS1, further surveys should be completed prior to works.

European Hedgehog

1.3.7 It is advised that precautions are taken for the welfare of the European hedgehog during all management operations and if works are required during the hibernation season (October to March inclusive), a 2m exclusion zone within which no work takes place should be implemented around potential hibernation features (i.e. the piles of rubble at target notes TN1 and TN2).

Other Mammals

1.3.8 If any mammal burrows are encountered within the site which require excavating, they should first be assessed by soft stopping the holes with grass to see if the entrances are in use. If it is possible to demonstrate that the burrow is not in use, then the burrow can be destroyed without any risk of causing harm to mammals. If a burrow is active, it may be necessary to destroy the burrow by hand or using a mini-digger under an ecological watching brief.

1.4 Further Survey for Management

Reptiles

1.4.1 The site contains suitable habitat to support common reptile species therefore, if vegetation clearance is required below 150mm or between March and October inclusive, a reptile presence or likely absence survey should be conducted. The survey will require a minimum of seven site visits during suitable weather conditions which should be conducted between April to September inclusive. Refugia surveys involve the deployment of 0.5m x 0.5m squares of roofing felt at a density of 50/ha to assist in the identification of the species on site.

Bats

1.4.2 Should any tree within the PCW1, SBW/IS1 and SMW/DS1 parcels require felling or management, a Preliminary Ground Level Roost Assessment (PGLRA) should be undertaken

following best practice guidelines to determine the potential of each tree to support roosting bats and to inform the need, or otherwise, for further surveys. Similarly, if any works are required at buildings B14 to B16, a Preliminary Roost Assessment (PRA) should be undertaken to determine their potential to support roosting bats, and to inform the need, or otherwise, for further surveys. Should roosting bats be recorded within the buildings or trees, further surveys and/or mitigation may be necessary which could include the requirement to apply to Natural Resources Wales for a European Protected Species licence (EPSL).

1.5 Recommendations for Future Development

Priority Habitats

1.5.1 The recommendations provided in Section 1.3.1 should be followed to ensure that priority habitats are protected during development.

Invertebrates

1.5.2 Development proposals of the site are unknown therefore specific recommendations for invertebrates cannot be given. Further surveys for invertebrates, however, may be required which are discussed below in Section 1.6.

Reptiles

1.5.3 The development proposals for the site are presently unknown therefore specific recommendations for reptiles cannot be given although further surveys may be required, which are discussed in Section 1.6 below.

Birds

1.5.4 The recommendations given in Section 1.3.5 should be followed to ensure birds, their eggs and nests are protected during development. Further surveys may also be required which are discussed below.

Bats

1.5.5 The development proposals for the site are presently unknown, therefore specific recommendations for bats cannot be given. Further surveys, however, may be required which are discussed in Section 1.6 below.

European Hedgehog

1.5.6 The recommendations provided in Section 1.3.7 should be followed to ensure that European hedgehog is protected during development.

Other Mammals

1.5.7 The recommendations provided in Section 1.3.8 should be followed to ensure that additional mammals such as red fox and rabbit are protected during development.

1.6 Further Survey for Future Development

1.6.1 Plans for the future development of the site are presently unknown, therefore the following list of surveys are preliminary and subject to amendment:

- A full desk study should be undertaken for statutory and non-statutory designated sites and biological records for protected and priority species within a specified radius of the proposed development;
- If works are required 24 months after the issue of this report or site conditions change an updated extended Phase 1 habitat survey should be carried out;
- A terrestrial invertebrate survey should be conducted on the site;
- A reptile presence or likely absence survey of the site or areas affected by development should be conducted;
- A breeding and wintering bird survey should be conducted depending on the extent of the development;
- A PGLRA of all trees within the site boundary will likely be required. Further surveys to determine the use of the site by bats may also be required;
- A PRA of buildings B14 to B16 should be conducted to assess the potential of the structures to support roosting bats; and
- The development layout should be designed to avoid impacts on the higher value habitats present within the site. Moreover, mitigation and/or compensation for habitat loss may also be required.

1.7 Ecological Enhancement

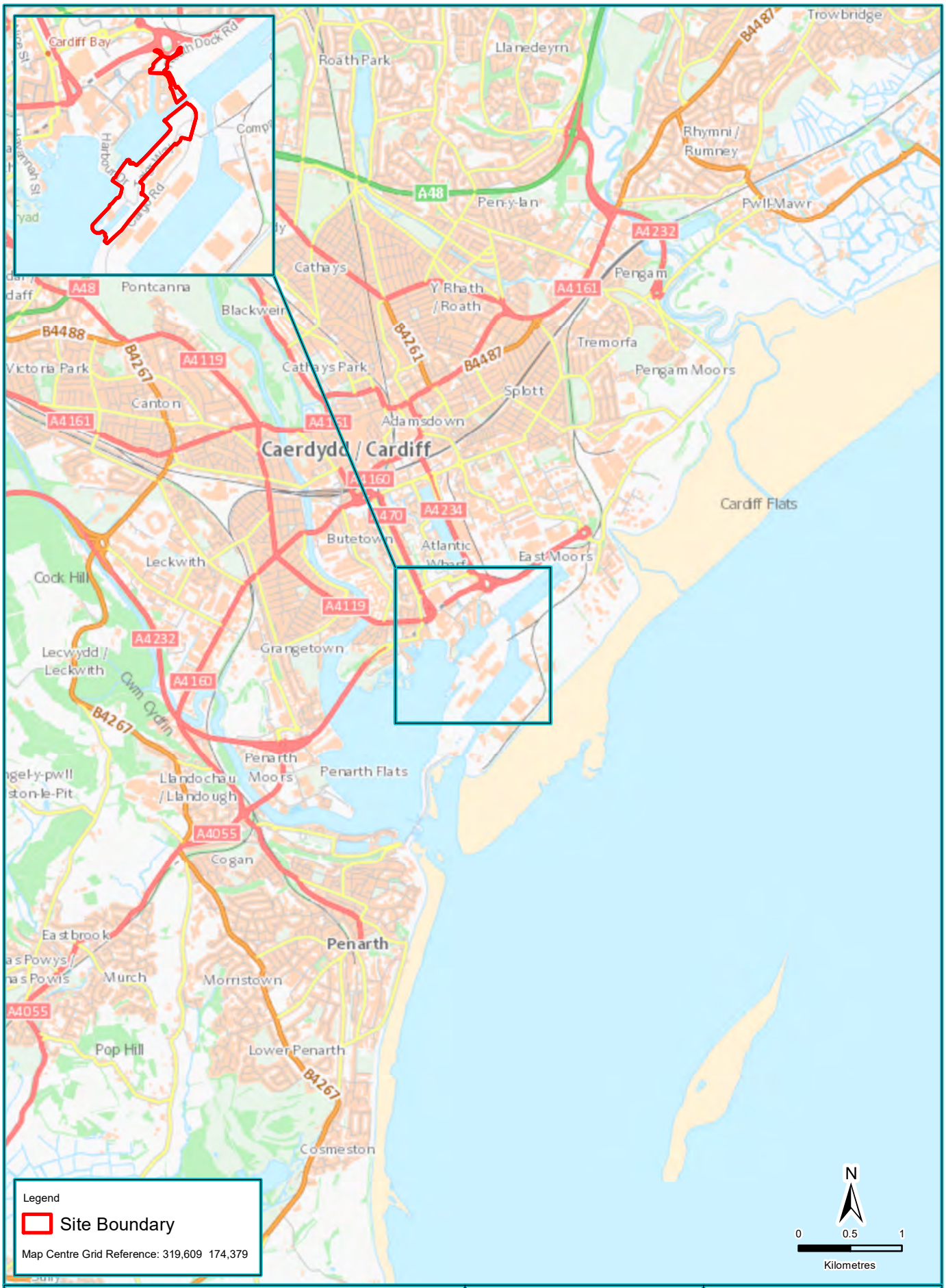
1.7.1 For the Welsh Government to fulfil its biodiversity duties (see Section 5) the following ecological enhancements for the site are recommended:

- The creation of south facing log piles on the edge of the mosaic habitats which can be suitable for a range of species including amphibians, reptiles, small mammals and invertebrates. Log piles can be created from a mixture and sizes of logs and ideally constructed in the winter months when wildlife is less active. The refugia can be created by digging a hole approximately 50cm deep and 1.5m wide which should be filled with logs, branches, bricks and rocks;
- Berry-producing trees and shrubs should be planted within the site including hawthorn (*Crataegus monogyna*), guelder rose (*Vibernum opulus*), blackthorn (*Prunus spinosa*), dogwood (*Cornus* sp), buckthorn (*Rhamnus* sp.), elder (*Sambucus* nigra), yew (*Taxus baccata*), holly (*Ilex aquifolium*), bird cherry (*Prunus padus*) and wild cherry (*Prunus avium*). These can replace current areas of introduced shrub which provide limited value to native biodiversity; and
- The provision of bird and bat boxes on suitable buildings and fence posts within the site.

1.8 Ecological Risk Rating

1.8.1 The site has been given an overall ecological risk rating of Medium (amber) due to the presence of a priority habitat (open mosaic habitats on previously developed land) and the potential of the site to support protected and priority species comprising invertebrates, reptiles, birds, European hedgehog, red fox and rabbit. This risk rating, however, may change depending on future management and the outcome of any further surveys that are undertaken.

1.8.2 An explanation of this risk rating is given in Appendix 4 and Figure 4 gives a further breakdown and justification for this rating.



Legend

Site Boundary

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		Date: 14/06/2023	Date: 14/06/2023

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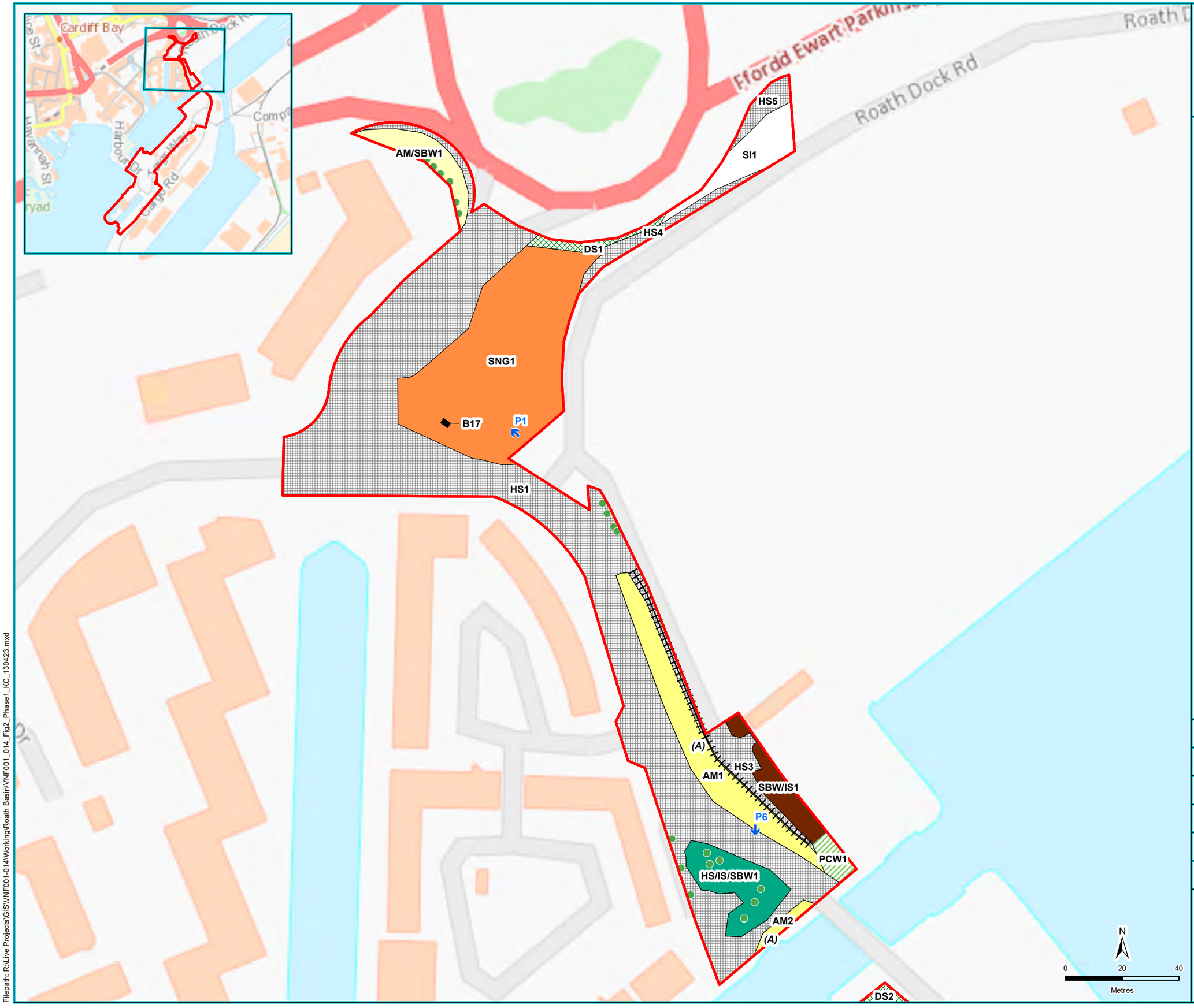

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Legend

- Photograph Location and Direction
- Scattered Broadleaved Tree
- Fence
- Scattered Broadleaved Trees and Introduced Shrub Mosaic
- Amenity Grassland and Scattered Broadleaved Woodland Mosaic
- Hard Standing, Introduced Scrub and Scattered Broadleaved Woodland Mosaic
- Plantation Coniferous Woodland
- Dense Scrub
- Semi-Improved Neutral Grassland
- Poor Semi-Improved Grassland
- Amenity Grassland
- Building
- Hard Standing
- Site Boundary

Map Centre Grid Reference: 319,756 174,796

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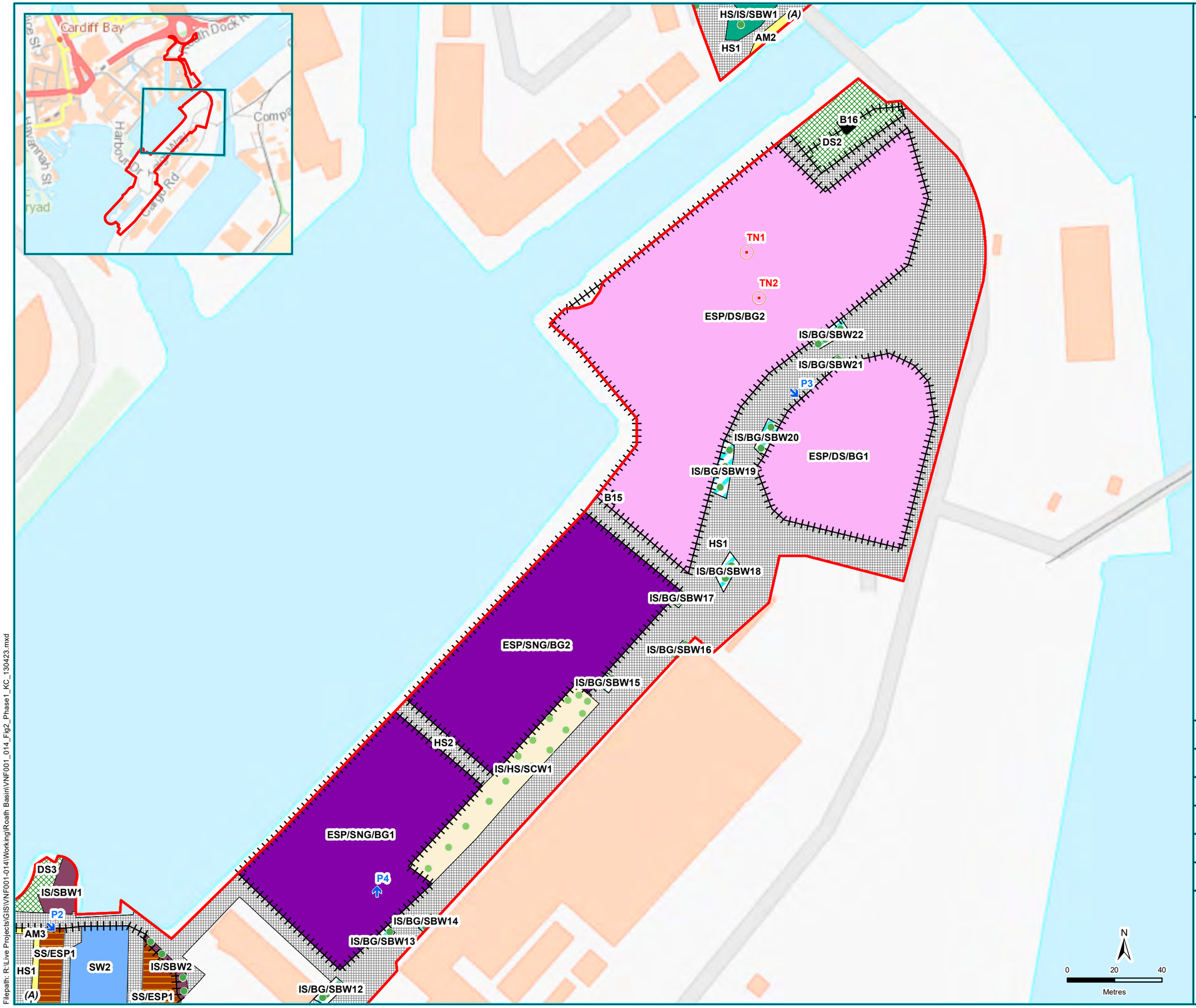

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Legend

- Photograph Location and Direction
- Scattered Broadleaved Tree
- Scattered Coniferous Tree
- Target Note
- Fence
- Introduced Shrub and Scattered Broadleaved Trees Mosaic
- Hard Standing, Introduced Scrub and Scattered Broadleaved Woodland Mosaic
- Scattered Scrub and Ephemeral/ Short Perennial Mosaic
- Ephemeral/Short Perennial, Dense Scrub and Bare Ground Mosaic
- Ephemeral/Short Perennial, Semi-improved Neutral Grassland and Bare Ground Mosaic
- Introduced Shrub, Bare Ground and Scattered Broadleaved Woodland Mosaic
- Introduced Shrub, Hardstanding and Scattered Coniferous Woodland Mosaic
- Dense Scrub
- Standing Water
- Amenity Grassland
- Building
- Hard Standing
- Site Boundary

Map Centre Grid Reference: 319,748 174,447

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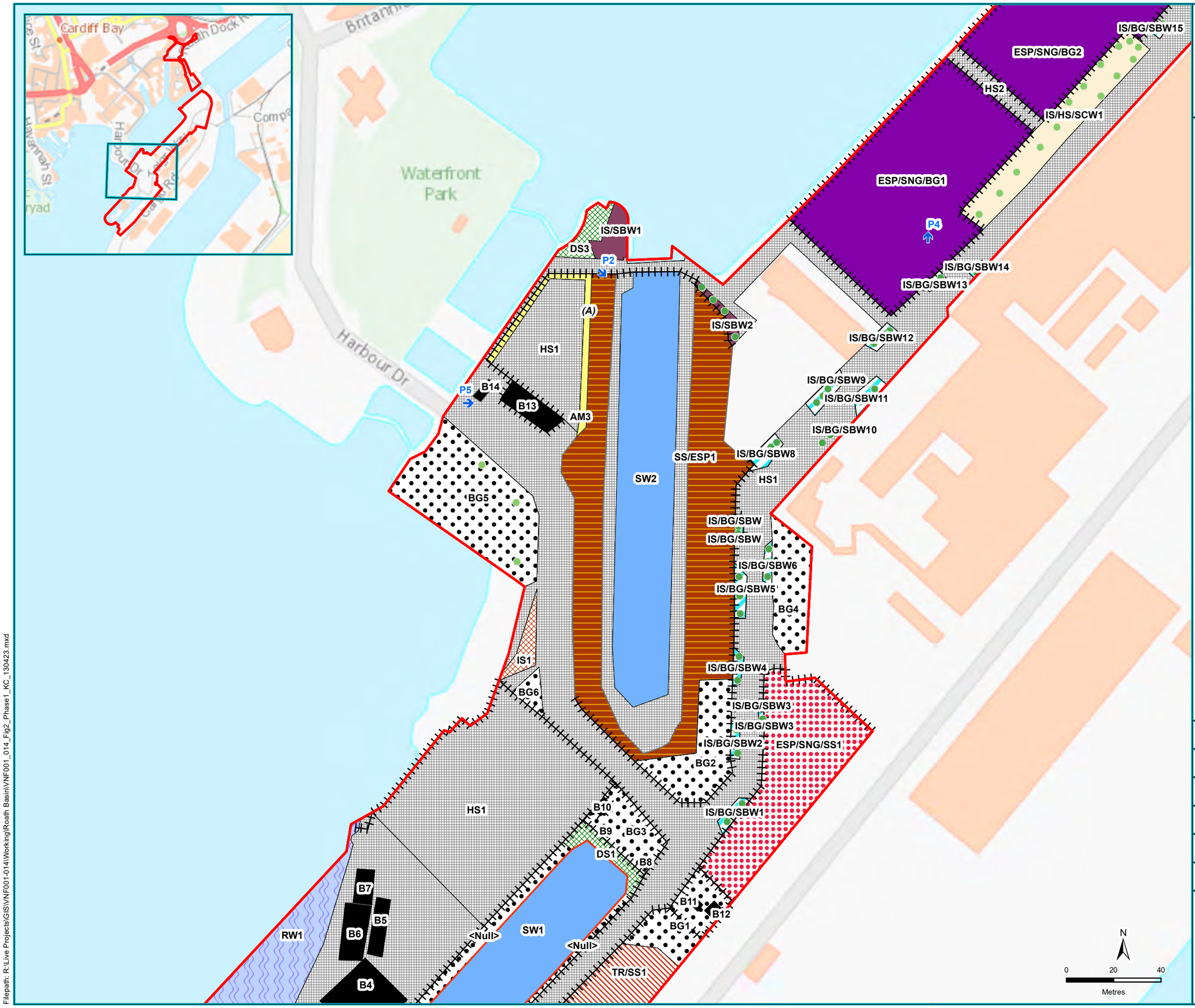

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Legend

- Photograph Location and Direction
- Scattered Broadleaved Tree
- Scattered Coniferous Tree
- Fence
- Wall
- Tall Ruderal and Scattered Scrub Mosaic
- Introduced Shrub and Scattered Broadleaved Trees Mosaic
- Scattered Scrub and Ephemeral/ Short Perennial Mosaic
- Ephemeral/Short Perennial, Semi-improved Neutral Grassland and Bare Ground Mosaic
- Ephemeral/Short Perennial, Semi-Neutral Grassland and Scattered Scrub Mosaic
- Introduced Shrub, Bare Ground and Scattered Broadleaved Woodland Mosaic
- Introduced Shrub, Hardstanding and Scattered Coniferous Woodland Mosaic
- Dense Scrub
- Standing Water
- Running Water
- Amenity Grassland
- Introduced Shrub
- Building
- Bare Ground
- Hard Standing
- Site Boundary

Map Centre Grid Reference: 319,515 174,170

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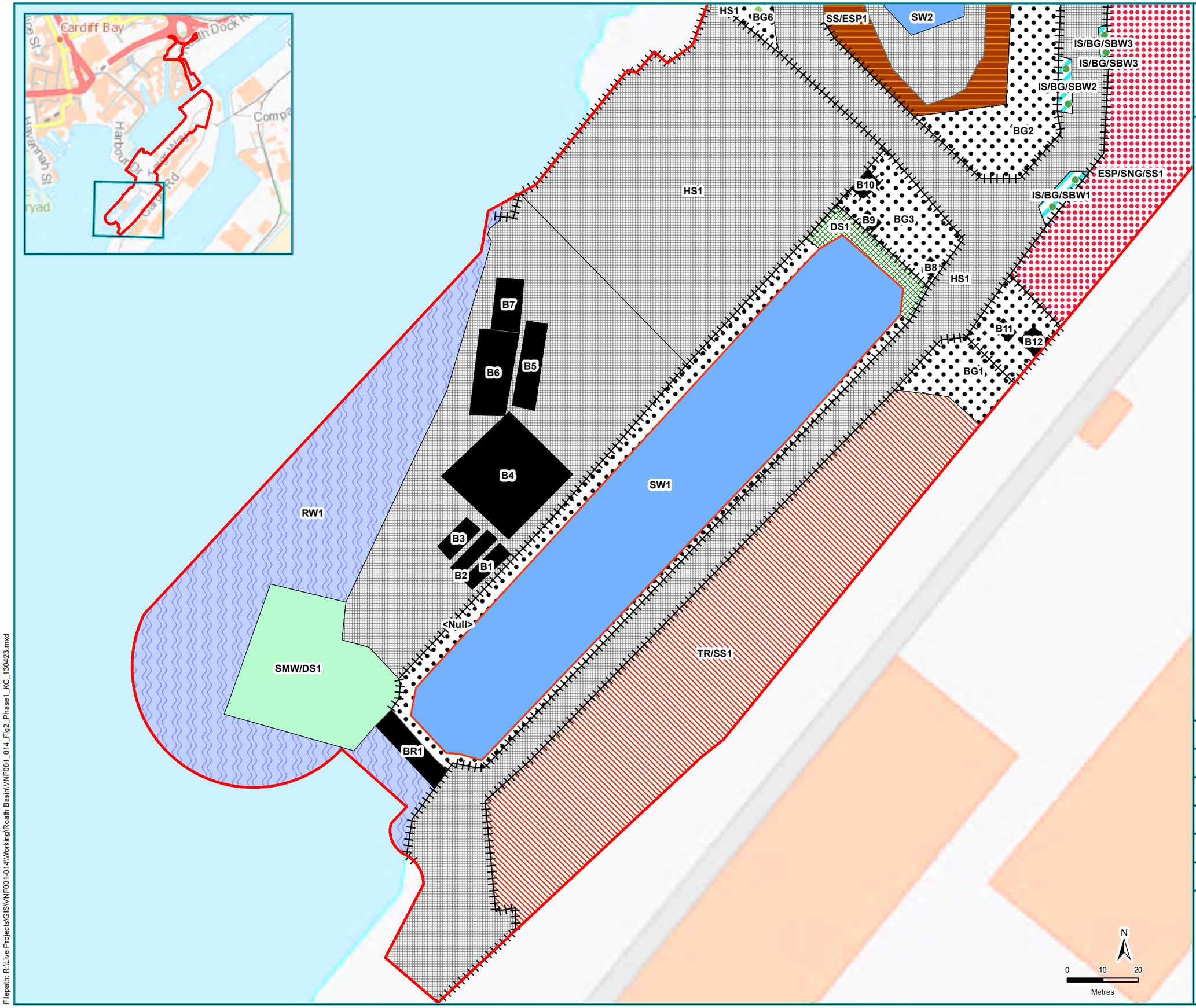

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Legend

- Scattered Broadleaved Tree
- Scattered Coniferous Tree
- Fence
- Wall
- Tall Ruderal and Scattered Scrub Mosaic
- Scattered Scrub and Ephemeral/ Short Perennial Mosaic
- Ephemeral/Short Perennial, Semi-Neutral Grassland and Scattered Scrub Mosaic
- Scattered Mixed Woodland and Dense Scrub
- Introduced Shrub, Bare Ground and Scattered Broadleaved Woodland Mosaic
- Dense Scrub
- Standing Water
- Running Water
- Building
- Bare Ground
- Hard Standing
- Site Boundary

Map Centre Grid Reference: 319,441 173,952

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Client	VINCI Facilities Ltd
Figure Number	2d
Figure Title	Extended Phase 1 Survey Results (Roath Basin)

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Photograph 1:
View of semi improved neutral grassland (SNG1) looking north west.

Photograph 2:
View of standing water (SW2) and scattered scrub and ephemeral/short perennial mosaic (SS/ESP1) looking south east.

Photograph 3:
View of ephemeral/short perennial, dense scrub and bare ground mosaic (ESP/DS/BG1) looking south east.

Photograph 4:
View of ephemeral/short perennial, semi-improved neutral grassland and bare ground mosaic (ESP/SNG/BG1) looking north.

Photograph 5:
View of one of the buildings on site (B13) looking east.

Photograph 6:
View of hard Standing, introduced shrub and scattered broadleaved woodland mosaic (HS/IS/SBW1).

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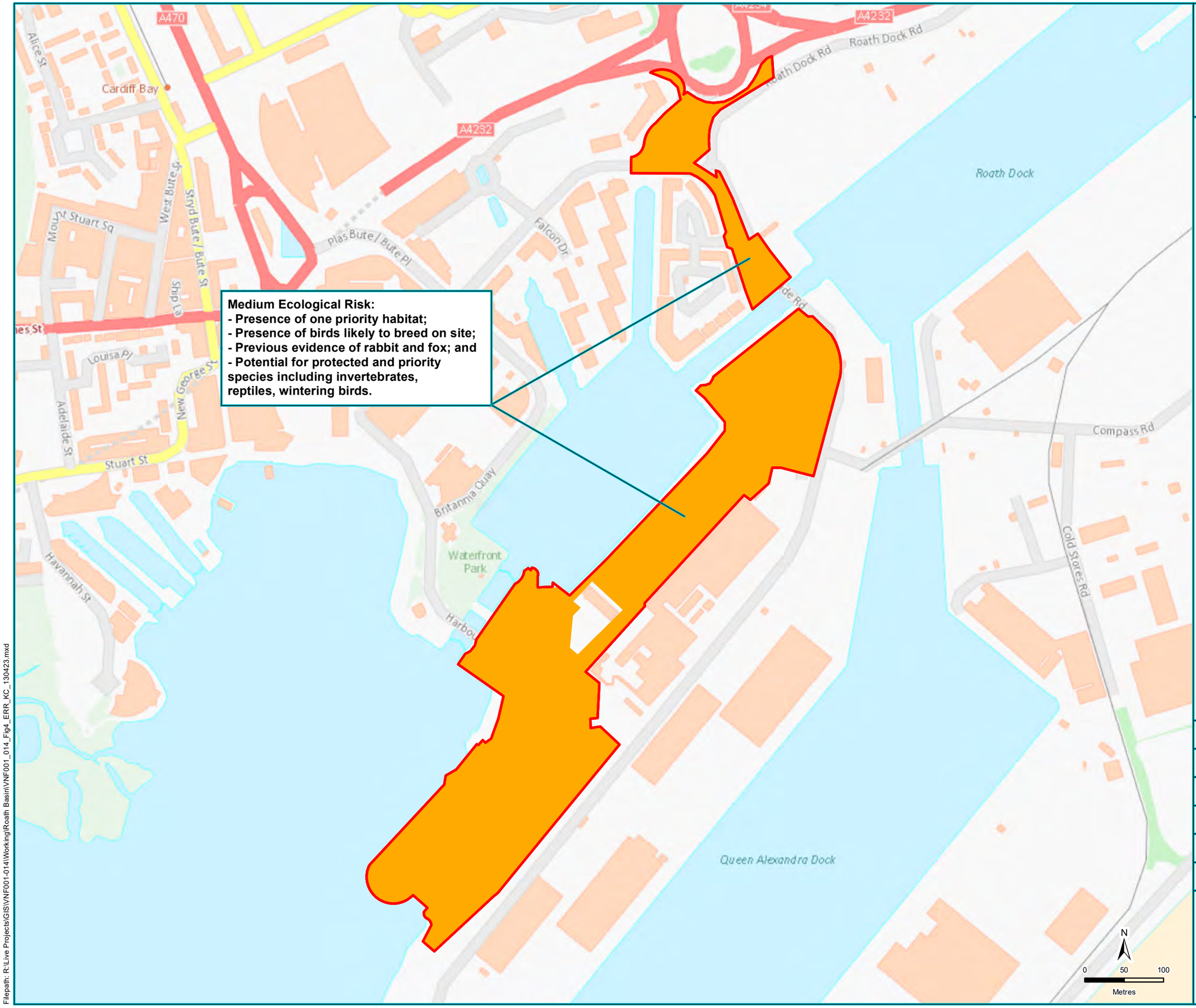
Figure Number: 3	Drawn: TW	Checked: LM	www.thomsonec.com enquiries@thomsonec.com
Figure Title: Photographs of the Site	Date: 05/05/2023		



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Legend

Ecological Risk Rating

- Medium
- Site Boundary

Map Centre Grid Reference: 319,609 174,379

Contains Ordnance Survey data
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Drawing Ref	VNF001-014/402428/1
Scale at A3	1:4,500
Drawn: KC	Checked: AS
Date: 13/04/2023	Date: 13/04/2023
Client	VINCI Facilities Ltd
Figure Number	4
Figure Title	Ecological Risk Rating (Roath Basin)

Filepath: R:\Live Projects\GIS\VNF001-014\Working\Roath Basin\VNF001_014_Fig4_ERR_KC_130423.mxd

2. Introduction

2.1 Development Background

2.1.1 VINCI Facilities Ltd has taken over the five-year framework to manage a portfolio of Welsh Government owned sites (referred to as 'assets') across Wales. As part of the framework approximately 170 assets require an extended Phase 1 habitat survey to establish the baseline ecology within each site, and identify the ecological risks and opportunities relating to the management and potential development of an asset. A Habitat Management Plan for the site has also been written which can be found in Appendix 1. The asset featured in this report is Roath Basin.

2.1.2 The principle objectives of the survey and report are to inform:

1. Requirements for vegetation and infrastructure management to maintain the current condition of the asset;
2. Ecological constraints to future development of the asset;
3. Potential for enhancement of the asset for biodiversity; and
4. An ecological risk rating of the asset, highlighting the risks when undertaking management or development via a traffic light system.

2.1.3 The activities associated with managing the habitats and infrastructure on site are hereafter referred to as 'the works'. Any future development plan for the asset is presently unknown.

2.1.4 The works are located on a 12.61ha area of land along Caspian Way, Tyneside Road and either side of Porth Teigr Way adjacent to Roath Basin in Cardiff, Wales (Grid Reference ST197744). The area affected by the works is hereafter referred to as 'the site' which is shown on Figure 1.

2.2 Ecology Background

2.2.1 The site was previously surveyed by Thomson Environmental Consultants on 22nd and 25th September 2020, (Thomson Environmental Consultants, 2020) during which the site was given an overall ecological risk rating of Medium (amber), due to the presence of a priority habitat and invasive species on site, presence of birds likely to breed on site, evidence of rabbit and fox on site, and potential for the site to support protected and priority species comprising invertebrates, reptiles, wintering birds, bats and hedgehog.

2.3 The Brief and Objectives

2.3.1 VINCI Facilities commissioned Thomson Environmental Consultants on 2nd March 2022 to undertake an extended Phase 1 habitat survey of the site. The brief was to:

- Carry out an extended Phase 1 habitat survey to include all habitats present, recording the ten most dominant plant species present within each habitat type, any additional plant species covered by national legislation and target noting ecological constraints;

- Prepare a survey report, supported by appropriate digitised mapping, to include an introduction, methodology, the results of the survey, a discussion of any relevant legal or planning policy considerations;
- Provide a traffic light risk rating for the site that considers both risks of harm to biodiversity, risks of further costs regarding ecology surveys and potential constraints to developing a site; and
- Produce a Habitat Management Plan including recommendations to conserve, manage and where appropriate improve the habitats present on site.

2.4 Limitations

2.4.1 Although no specific desk study has been completed as part of this report, a summary has been provided if statutory designated sites are present either on or within 50m of the site boundary, or ancient woodland is present on site. The source of this information is the DataMapWales (Welsh Government and Natural Resources Wales, 2023) website which displays geo-spatial data on the environment. It should be noted that information on ancient woodland and priority habitats are limited to that which is available on the website. The site has, however, been assessed by the surveyor for priority habitats therefore this is not seen as a significant limitation.

2.4.2 Non-statutory locally designated sites have not been considered within this report because this information is not included within the Cardiff Local Development Plan 2006 - 2026. If a future planning application is required a full desk study for statutory and non-statutory designated sites should be carried out which will ensure that this limitation is addressed.

2.4.3 The desk study does not identify designated statutory protected site beyond 50m from the site boundary therefore sites such as Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) which are protected under The Conservation of Habitats and Species Regulations 2017 (as amended) may not have been identified. The recommendations provided in Section 7, however, should ensure that this limitation is addressed.

2.4.4 Some areas within the site could not be accessed due to locked gates or fences obstructing the entrance to assess potential further ecological constraints (particularly around the basins and in the south of the site). This is not seen as a significant limitation because the main habitat types were identified from adjacent land parcels to assess the potential for protected and priority species.

2.4.5 The extended Phase 1 habitat survey was undertaken in March, a sub-optimal time of year for botanical survey, and it is therefore possible that plants that are seasonal in nature will not have been recorded. This is not seen as a significant limitation as it is still possible to identify most plant species from dead material to determine the appropriate Phase 1 habitat type, however certain protected or invasive plant species may have been missed.

2.4.6 This report is based on the site boundary shown on the file '6123 Roath Basin, Cardiff. pdf' as provided by VINCI Facilities on 7th of January 2020. Any subsequent changes to the site boundary may result in a requirement to reassess the potential impact of the works and the requirements for avoidance, mitigation and enhancement.

2.5 Surveyor

2.5.1 The extended Phase 1 habitat survey was conducted by Warren Packer BSc (Hons) MSc ACIEEM.

3. Methodology

3.1 Desk Study

3.1.1 A full desk study was not undertaken because this is outside the scope of this report. A summary, however, has been provided if statutory and/or non-statutory designated sites are present either on or within 50m of the site boundary, or ancient woodland is present on site. The source of this information is the DataMapWales , a free online tool that displays geospatial data on the environment.

3.2 Field Survey

3.2.1 A survey area was defined as an area that encompassed the site boundary. The survey area is shown on Figure 2.

3.2.2 A Phase 1 habitat survey (JNCC, 2010) was conducted throughout the survey area. Phase 1 habitat survey is a standard technique for rapidly obtaining baseline ecological information over a large area of land. It is primarily a mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present. For this survey, the technique was modified (or extended) to provide more detail over a smaller area and gave further consideration to fauna (IEA, 1995).

3.2.3 The dominant and readily identified species of higher plant species from each habitat type within the survey area were recorded and their abundance was assessed on the DAFOR scale:

D Dominant

A Abundant

F Frequent

O Occasional

R Rare

3.2.4 These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2019).

3.2.5 Target notes were made for any features which were too small to map or were of particular ecological interest.

3.2.6 Incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support protected species and other species of conservation concern, including priority species. However, no specific faunal surveys were undertaken.

3.2.7 The survey was conducted on 17th March 2023.

4. Results

4.1 Background

4.1.1 The contents of the results section are the factual results of the desk study and extended Phase 1 habitat survey. Excluded from this section is the assessment of the site to support species of conservation concern not recorded during the survey. Instead, potential further ecological issues are discussed in Section 6.

4.2 Desk Study

Designated Sites

4.2.1 No statutory designated sites were identified either on or within 50m from the site boundary. Locally designated non-statutory sites could not be identified however (see Section 2.4).

Ancient Woodland outside Designated Sites

4.2.2 No parcels of ancient woodland were identified within the site.

4.3 Field Survey

Habitats and Flora

4.3.1 The following Phase 1 habitat types were identified:

- Plantation coniferous woodland (PCW1);
- Dense scrub (DS1 to DS3);
- Scattered scrub and ephemeral/short perennial mosaic (SS/ESP1);
- Scattered broadleaved trees;
- Scattered coniferous trees;
- Scattered broadleaved trees and introduced shrub mosaic (SBW/IS1);
- Scattered mixed woodland and dense scrub mosaic (SMW/DS1);
- Semi-improved neutral grassland (SNG1) (see Photograph 1 on Figure 3);
- Poor semi-improved grassland (SI1);
- Tall ruderal and scattered scrub mosaic (TR/SS1);
- Standing Water (SW1 and SW2) (see Photograph 2 on Figure 3);
- Running water (RW1);
- Amenity Grassland (AM1 to AM3);
- Amenity grassland and scattered broadleaved woodland (AM/SBW1);
- Ephemeral/short perennial, dense scrub and bare ground mosaic (ESP/DS/BG1 and ESP/DS/BG2) (see Photograph 3 on Figure 2);

- Ephemeral/short perennial, semi-improved neutral grassland and bare ground mosaic (ESP/SNG/BG1 and ESP/SNG/BG2) (see Photograph 4 on Figure 3);
- Ephemeral/short perennial, semi-improved neutral grassland and scattered scrub mosaic (ESP/SNG/SS1)
- Introduced shrub (IS1);
- Introduced shrub and scattered broadleaved trees mosaic (IS/SBW1 and IS/SBW2);
- Introduced shrub, bare ground and scattered broadleaved woodland mosaic (IS/BG/SBW1 to IS/BG/SBW22);
- Introduced shrub, hard standing and scattered coniferous woodland mosaic (IS/HS/SCW1);
- Fences;
- Wall (W1);
- Buildings (B1 to B17) (see Photograph 5 on Figure 3);
- Bare ground (BG1 to BG5);
- Hard Standing (HS1 to HS5);
- Hard Standing, introduced shrub and scattered broadleaved woodland mosaic (HS/IS/SBW1) (see Photograph 6 on Figure 6); and
- Bridge (BR1).

4.3.2 The distribution of these habitats and mosaics is given on Figure 2 and photographs of the site provided on Figure 3. Species lists can be found in Appendix 2.

Fauna

4.3.3 The following records of fauna were made during the survey, or during the previous survey:

- Feral pigeons (*Columba livia domestica*) recorded flying over HS1;
- Swifts (*Apus apus*) recorded flying over HS1;
- Black-headed gull (*Chroicocephalus ridibundus*) recorded on the wall edge of the SW2 parcel during the previous survey;
- Goldfinch (*Carduelis carduelis*) observed within the ESP/DS/BG2 parcel during the previous survey;
- Pied wagtail (*Motacilla alba*) recorded widely throughout the site during the previous survey;
- Kestrel (*Falco tinnunculus*) recorded within the ESP/DS/BG2 parcel during the previous survey; and
- Red fox (*Vulpes vulpes*) recorded emerging from dense scrub within the ESP/DS/BG2 area during the previous survey.

Target Notes

4.3.4 Two rubble piles were target noted within the site (see TN1 and TN2 on Figure 2).

5. Legislation and Planning Policy Considerations

5.1 Background

5.1.1 The content of the legislation and planning policy section is the legislation and planning policy considerations that we know are relevant based on this extended Phase 1 habitat survey. The legislation and policy considerations that might arise following further surveys are excluded. Potential further ecological considerations are discussed in Section 6. A detailed description of the method for this section is given in Appendix 3.

5.1.2 Protected sites, habitats and species are covered by a range of legislation and policy which is described below. In addition to specific legal protections, the Environment (Wales) Act 2016 places a 'duty' (the biodiversity and resilience of ecosystems duty) on public authorities (such as the Welsh Government) to "*seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions*", As part of Section 7 of the Act, the Welsh Ministers have listed a number of priority species and habitats that should be taken into consideration as part of the management and future development of a site; public authorities should "*take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section and encourage others to take such steps*". Therefore, maintenance and enhancement for biodiversity, including species and habitats of principal importance, should be considered with regards to potential management, future development and enhancement of the site.

5.1.3 For developments where planning permission is sought, Planning Policy Wales (2021) (PPW) states "*Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means that development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity*" which could mean that permission is refused. PPW (2021) also states that "*planning authorities must have regards to the list of habitats……of principal importance for Wales, published under Section 7 of the Environment (Wales) Act 2016*". This is reflected in Policy EN7 of the Cardiff Local Development Plan 2006-2026.

5.1.4 This section is broken into three subsections covering management, future development and enhancement.

5.2 Legal and Planning Considerations and Constraints to Site Management

Priority Habitats

5.2.1 A single type of priority habitat was recorded on site comprising open mosaic habitats on previously developed land (ESP/DS/BG1, ESP/DS/BG2, ESP/SNG/BG1 and ESP/SNG/BG2) which is a habitat of principal importance in Wales for the conservation of biodiversity as taken into consideration under Section 7 of the Environment (Wales) Act 2016. The management of the site has the potential to damage or destroy this habitat therefore recommendations have been provided in Section 7.

Birds

5.2.2 During the survey feral pigeon and swift were recorded and are likely to breed on site due to the presence of suitable habitat including woodland (PCW1, SBW/IS1, SMW/DS1, IS/SBW1 and IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1, AM/SBW1 and HS/IS/SBW1), scattered broadleaved and coniferous trees and buildings and bridges (B14 to B16, BR1).

5.2.3 A further four bird species including kestrel were recorded during the previous survey within the site which are likely to breed due to the presence of suitable habitat including woodland (PCW1, SBW/IS1, SMW/DS1, IS/SBW1 and IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1, AM/SBW1 and HS/IS/SBW1), scrub (DS1 to DS3, SS/ESP1, TR/SS1, ESP/DS/BG1 to ESP/DS/BG2), scattered broadleaved and coniferous trees and grassland (SNG1, SI1, ESP/SNG/BG1 and ESP/SNG/BG2).

5.2.4 All birds, their eggs and nests are protected under the Wildlife and Countryside Act 1981 (as amended) against killing and injury and damage and destruction. Furthermore, kestrel in addition to wintering birds such as wigeon (*Anas Penelope*) which have the potential to breed on site are species of principal importance for the conservation as taken into consideration under Section 7 of the Environment (Wales) Act 2016 and therefore priority species in Wales. These species, however, do not receive any additional protection above and beyond the protection afforded to all birds under the Wildlife and Countryside Act 1981 (as amended).

5.2.5 Site management has the potential to injure or kill birds, damage or destroy their nests or eggs and remove suitable foraging habitat (i.e. grass) for priority species such as kestrel therefore recommendations are provided in Section 7 to ensure legal compliance.

Other Mammals

5.2.6 Evidence of rabbits was found within the site boundary during the previous survey in the form of droppings within the TR/SS1 mosaic. Furthermore, red fox was observed within the ESP/DS/BG2 parcel of ephemeral/short perennial, dense scrub and bare ground mosaic. Both species are partially protected under the Wild Mammals (Protection) Act 1996 from certain types of deliberate harm including crushing, drowning and asphyxiation. Management, including the tracking of heavy machinery, has the potential to cause harm therefore recommendations are provided in Section 7.

5.3 Legal and Planning Policy Considerations to Future Development

Priority Habitats

5.3.1 In addition to the legal protection discussed above in Section 5.2.1 priority habitats are given further consideration through PPW (2021) and Policy EN7 of the Cardiff Local Development Plan 2006-2026. Recommendations are therefore given in Section 7 to ensure that priority habitats are protected during development.

Protected Species

Birds

5.3.2 In addition to the legal considerations discussed above in Section 5.2.2 birds, their eggs and nests are given further consideration through PPW (2021) and Policy EN7 of the Cardiff Local Development Plan 2006-2026. Recommendations are therefore given in Section 7 to ensure that birds, their eggs and nests are protected during development.

Other Mammals

5.3.3 In addition to the legal considerations discussed in Section 5.2.5 mammals are given further consideration through PPW (20121) and Policy EN7 of the Cardiff Local Development Plan 2006-2026. Recommendations are therefore provided in Section 7 to ensure that mammals are protected during development.

5.4 Opportunities for Enhancement

5.4.1 As discussed in Section 5.1, under the Environment (Wales) Act 2016, public bodies have a duty to enhance biodiversity in the exercise of their functions. This is also supported by the PPW (2021) and Policy EN6 of the Cardiff Local Development Plan 2006-2026, which makes it an important consideration regarding future development and management of the site. Opportunities for enhancement of the site have been suggested in Section 7.

6. Potential Further Ecological Considerations

6.1 Background

6.1.1 This section sets out our assessment of the potential of the site to support protected species and other species of conservation concern which were not detected during the extended Phase 1 habitat survey, either because their presence is seasonal or because specialist survey techniques are required. Further survey work or appropriate mitigation is likely to be required before these issues can be addressed. Further information on the methods of assessment is given in Appendix 3.

6.1.2 This section is broken down into three subsections covering management, future development and enhancement.

6.2 Potential Further Ecological Considerations and Constraints to Management

Invertebrates

6.2.1 Ephemeral mosaics (ESP/DS/BG1 and ESP/DS/BG2, ESP/SNG/BG1 and ESP/SNG/BG2) in addition to grassland and grassland and tall ruderal mosaics (SNG1, SI1, TR/SS1) offer suitable habitat for terrestrial invertebrates. These areas offer flowering plants and diversity of vegetation at different sward heights. Several invertebrate species including moths, bees, spiders and beetles which have the potential to occur may be species of principal importance for the conservation of biodiversity under Section 7 of the Environment (Wales) Act 2016 and therefore priority species in Wales.

6.2.2 Although not strictly protected, priority invertebrate species are an important component of biodiversity and greatly contribute towards ecological balance, therefore recommendations are made in Section 7 to safeguard these species during site management.

Reptiles

6.2.3 The site contains suitable habitat for foraging and basking common reptile species such as slow worm (*Anguis fragilis*), and common lizard (*Zootoca vivipara*). These habitats include areas with trees and scrub mosaics (PCW1, DS1 to DS3, SS/ESP1, SMW/DS1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2), grassland and their mosaics (SNG1, SI1, ESP/SNG/BG1 and ESP/SNG/BG2). Moreover, two piles of rubble (target notes TN1 and TN2) were recorded within the site which provide suitable refugia features for the species.

6.2.4 Common reptile species are protected under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill or injure these species. Moreover, reptiles are species of principal importance for the conservation of biodiversity as taken into consideration under Section 7 of the Environment (Wales) Act 2016 and therefore priority species in Wales. Management of the site, including vegetation clearance, has the potential to injure or kill these species therefore recommendations are given in Section 7 to ensure legal compliance.

Bats

6.2.5 Several parcels contain mature trees, which may have potential to contain roost features suitable for bats including areas of plantation and scattered woodland mosaics (PCW1, SBW/IS1 and SMW/DS1). The site also contains a number of small to medium sized brick buildings (B14 to B16), which may contain features suitable for roosting bats. The remaining structures comprising B1 to B13 and B17 include metal containers, tents and a static caravan which have no ecological value for bats. Furthermore, additional habitats suitable for foraging and commuting bats include areas of scrub and shrub mosaics (PCW1, DS1 to DS3, SS/ESP1, SBW/IS1, SMW/DS1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, IS1, IS/SBW1 and IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1 and HS/IS/SBW1).

6.2.6 All bats and their habitats are fully protected under The Conservation of Habitats and Species Regulations 2017 (as amended) with further protection given under The Wildlife and Countryside Act 1981 (as amended). In addition, several bat species which may use the site, including soprano pipistrelle (*Pipistrellus pipistrellus*), are species of principal importance for the conservation of biodiversity as taken into consideration under the Environment (Wales) Act 2016 and therefore priority species in Wales. Management, including the felling of trees, has the potential to injure or kill bats and damage or destroy their roosts therefore recommendations are provided in Section 7 to ensure legal compliance.

European Hedgehog

6.2.7 The site contains suitable foraging and hibernating habitat for European hedgehog (*Erinaceus europaeus*) consisting of scrub (PCW1, DS1 to DS3, SS/ESP1, SBW/IS1, SMW/DS1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, IS1, IS/SBW1 and IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1 and HS/IS/SBW1) in addition to grassland and ephemeral mosaics (SNG1, SI1, ESP/SNG/BG1 and ESP/SNG/BG2).

6.2.8 European hedgehog is partially protected under the Wild Mammals (Protection) Act 1996 from certain types of deliberate harm including drowning, crushing and asphyxiation. European hedgehog is also a species of principal importance for the conservation of biodiversity under Section 7 of the Environment (Wales) Act 2016 and therefore a priority species in Wales. Management has the potential to injure or kill the species therefore recommendations are given in Section 7.

6.3 Potential Further Ecological Consideration and Constraints to Future Development

6.3.1 If the site is proposed for future development, in addition to the legal protection discussed in Section 6.2, the following statement also applies to invertebrates, reptiles, bats and European hedgehog. The local authority has a material consideration regarding the wider protection and enhancement of biodiversity through PPW (2021) and Policies EN6 and EN7 of the Cardiff Local Development Plan 2006-2026 therefore recommendations are provided in Section 7 to protect these species during development.

6.4 Potential Further Ecological Opportunities Regarding Enhancement

6.4.1 Ecological enhancement of the site can address the minimal presence of fruiting trees and shrubs.

7. Recommendations

7.1 Background

7.1.1 The recommendations for mitigation (including avoidance, mitigation and compensation) measures given in this section are based on the findings of the desk study and extended Phase 1 habitat survey. It may include precautionary mitigation measures for some species which could occur on site but excludes discussion of the mitigation measures that may be required following the results of the further surveys recommended below.

7.1.2 This section is broken down into four subsections covering management, future development, enhancement and the ecological risk rating.

7.2 Recommendations for Management

Priority Habitats

7.2.1 The site contains one habitat of principle importance comprising parcels of open mosaic habitats on previously developed land (ESP/DS/BG1, ESP/DS/BG2 and ESP/SNG/BG1 and ESP/SNG/BG2). It is therefore recommended that these habitats are maintained and left *in situ*. Should management be required the following is recommended:

- The management should take place on a two-year rotational basis whereby only 50% of the vegetation is cut each year;
- Rather than a complete clearance it is advised that swards are cut to various heights although no cutting should occur below 150mm;
- Management of scrub is recommended to prevent it from developing greater than 10% of the total area; and
- If removal of ephemeral mosaics is required these habitats should be replaced on a like-for-like basis within the site (or elsewhere if this cannot be achieved) with the same or increased species diversity.

Protected and Priority Species

Invertebrates

7.2.2 Where the management of suitable habitats of ephemeral mosaics (ESP/DS/BG1. ESP/DS/BG2, ESP/SNG/BG1 and ESP/SNG/BG2), grassland and grassland and tall ruderal mosaics (SNG1, SI1 and TR/SS1) is required these areas should be cut on a two-year rotation whereby one half of the vegetation in any given area should be cut each year between September and February. This will enable the regeneration of vegetation including the fruiting and flowering of plants and give invertebrates time to recolonise. It may also be beneficial to prevent scrub taking over by removing species of butterfly-bush and white poplar (*Populus alba*) within the areas of dense scrub.

Reptiles

7.2.3 If management is required within habitats suitable for reptiles (PCW1, DS1 to DS3, SS/ESP1, SMW/DS1, SNG1, SI1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, ESP/SNG/BG1 and ESP/SNG/BG2) it is recommended that vegetation is cut no lower than 150mm to avoid killing and injuring the reptiles between November and February inclusive. Potential features that could be used as refugia for reptiles (i.e. rubble piles at target notes TN1 and TN2) should be left *in situ* and buffered by 2m within which no works takes place.

7.2.4 If management of vegetation below 150mm, between March and October include and/or within hibernation or refugia areas (i.e. rubble pile at target notes TN1 and TN2) is required further surveys may be necessary which are discussed below in Section 7.3.

Birds

7.2.5 All management operations within areas with trees (PCW1, SBW/IS1, SMW/DS1, IS/SBW1, IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1 and AM/SBW1), scrub (DS1 to DS3, SS/ESP1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, and HS/IS/SBW1) and grassland (SNG1, SI1, ESP/SNG/BG1 and ESP/SNG/BG2) should be completed outside the bird breeding season (September to February inclusive). If works are required between March to August inclusive, an ecologist should be present to check for nests. Where nests are identified these should be protected by a suitable buffer zone (species dependent) until the young have fledged or the nest is no longer active.

Bats

7.2.6 If management is required to trees, scrub and shrub mosaics (PCW1, DS1 to DS3, SS/ESP1, SBW/IS1, SMW/DS1, TR/SS1, ESP/DS/BG1, ESP/DS/BG2, IS1, IS/SBW1, IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22, IS/HS/SCW1 and HS/IS/SBW1), the connectivity of these habitats should be maintained to the wider landscape to keep existing foraging and commuting flight lines intact by leaving strips of vegetation in place that connect habitats across the site and to the wider countryside. Furthermore, should works be required at buildings B14 to B16 or to any mature trees within habitats of PCW1, SBW/IS1 and SMW/DS1, further surveys should be completed prior to works.

European Hedgehog

7.2.7 It is advised that precautions are taken for the welfare of the European hedgehog during all management operations and if works are required during the hibernation season (October to March inclusive), a 2m exclusion zone within which no work takes place should be implemented around potential hibernation features (i.e. the piles of rubble at target notes TN1 and TN2).

Other Mammals

7.2.8 If any mammal burrows are encountered within the site which require excavating, they should first be assessed by soft stopping the holes with grass to see if the entrances are in use. If it is possible to demonstrate that the burrow is not in use, then the burrow can be destroyed without

any risk of causing harm to mammals. If a burrow is active, it may be necessary to destroy the burrow by hand or using a mini-digger under an ecological watching brief.

7.3 Further Survey for Management

Reptiles

7.3.1 The site contains suitable habitat to support common reptile species therefore, if vegetation clearance is required below 150mm or between March and October inclusive, a reptile presence or likely absence survey should be conducted. The survey will require a minimum of seven site visits during suitable weather conditions which should be conducted between April to September inclusive. Refugia surveys involve the deployment of 0.5m x 0.5m squares of roofing felt at a density of 50/ha to assist in the identification of the species on site.

Bats

7.3.2 Should any tree within the PCW1, SBW/IS1 and SMW/DS1 parcels require felling or management, a Preliminary Ground Level Roost Assessment (PGLRA) should be undertaken following best practice guidelines to determine the potential of each tree to support roosting bats and to inform the need, or otherwise, for further surveys. Similarly, if any works are required at buildings B14 to B16, a Preliminary Roost Assessment (PRA) should be undertaken to determine their potential to support roosting bats, and to inform the need, or otherwise, for further surveys. Should roosting bats be recorded within the buildings or trees, further surveys and/or mitigation may be necessary which could include the requirement to apply to Natural Resources Wales for a European Protected Species licence (EPSL).

7.4 Recommendations for Future Development

Priority Habitats

7.4.1 The recommendations provided in Section 7.2.1 should be followed to ensure that priority habitats are protected during development.

Invertebrates

7.4.2 Development proposals of the site are unknown therefore specific recommendations for invertebrates cannot be given. Further surveys for invertebrates, however, may be required which are discussed below in Section 7.5.

Reptiles

7.4.3 The development proposals for the site are presently unknown therefore specific recommendations for reptiles cannot be given although further surveys may be required, which are discussed in Section 7.5 below.

Birds

7.4.4 The recommendations given in Section 7.5 should be followed to ensure birds, their eggs and nests are protected during development. Further surveys may also be required which are discussed below.

Bats

7.4.5 The development proposals for the site are presently unknown, therefore specific recommendations for bats cannot be given. Further surveys, however, may be required which are discussed in Section 7.5 below.

European Hedgehog

7.4.6 The recommendations provided in Section 7.2.7 should be followed to ensure that European hedgehog is protected during development.

Other Mammals

7.4.7 The recommendations provided in Section 7.2.8 should be followed to ensure that additional mammals such as red fox and rabbit are protected during development.

7.5 Further Survey for Future Development

7.5.1 Plans for the future development of the site are presently unknown, therefore the following list of surveys are preliminary and subject to amendment:

- A full desk study should be undertaken for statutory and non-statutory designated sites and biological records for protected and priority species within a specified radius of the proposed development;
- If works are required 24 months after the issue of this report or site conditions change an updated extended Phase 1 habitat survey should be carried out;
- A terrestrial invertebrate survey should be conducted on the site;
- A reptile presence or likely absence survey of the site or areas affected by development should be conducted;
- A breeding and wintering bird survey should be conducted depending on the extent of the development;
- A PGLRA of all trees within the site boundary will likely be required. Further surveys to determine the use of the site by bats may also be required;
- A PRA of buildings B14 to B16 should be conducted to assess the potential of the structures to support roosting bats; and
- The development layout should be designed to avoid impacts on the higher value habitats present within the site. Moreover, mitigation and/or compensation for habitat loss may also be required.

7.6 Ecological Enhancement

7.6.1 For the Welsh Government to fulfil its biodiversity duties (see Section 5) the following ecological enhancements for the site are recommended:

- The creation of south facing log piles on the edge of the mosaic habitats which can be suitable for a range of species including amphibians, reptiles, small mammals and invertebrates. Log piles can be created from a mixture and sizes of logs and ideally constructed in the winter months when wildlife is less active. The refugia can be created by digging a hole approximately 50cm deep and 1.5m wide which should be filled with logs, branches, bricks and rocks;
- Berry-producing trees and shrubs should be planted within the site including hawthorn (*Crataegus monogyna*), guelder rose (*Vibernum opulus*), blackthorn (*Prunus spinosa*), dogwood (*Cornus* sp), buckthorn (*Rhamnus* sp.), elder (*Sambucus* nigra), yew (*Taxus baccata*), holly (*Ilex aquifolium*), bird cherry (*Prunus padus*) and wild cherry (*Prunus avium*). These can replace current areas of introduced shrub which provide limited value to native biodiversity; and
- The provision of bird and bat boxes on suitable buildings and fence posts within the site.

7.7 Ecological Risk Rating

7.7.1 The site has been given an overall ecological risk rating of Medium (amber) due to the presence of a priority habitat (open mosaic habitats on previously developed land) and the potential of the site to support protected and priority species comprising invertebrates, reptiles, birds, European hedgehog, red fox and rabbit. This risk rating, however, may change depending on future management and the outcome of any further surveys that are undertaken.

7.7.2 An explanation of this risk rating is given in Appendix 4 and Figure 4 gives a further breakdown and justification for this rating.

8. Conclusion

8.1.1 Following the extended Phase 1 habitat survey and partial desk study the site has been given an overall ecological risk rating of Medium (amber). This is due to the presence of a priority habitat and the potential of the site to support several protected and priority species. Recommendations have therefore been provided for both ongoing site management and future development to ensure compliance with relevant legislation. Suggestions for the enhancement of the site have also been made.

9. References

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9.1.5 Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment. E & FN Spon, London, England.

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9.1.8 Stace, C. (2019) New Flora of the British Isles (fourth edition). C&M Floristics, England.

9.1.9 Thomson Environmental Consultants (2020) Extended Phase 1 Habitat Survey: Roath Basin for VINCI Facilities. Report reference: NVNF103/002/133/001.

9.1.10 Welsh Government (2021) Planning Policy Wales [online]. Available at: https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf

9.1.11 Welsh Government and Natural Resources Wales (2023) DataMapWales - Data and maps from the Welsh public sector [online]. Available at: https://datamap.gov.wales/

10. Appendix 1 – Habitat Management Plan

10.1 Introduction

10.1.1 Roath Basin covers 12.61ha of land along Caspian Way, Tyneside Road and either side of Porth Teigr Way adjacent to Roath Basin in Cardiff Bay, Wales. The site contains 28 Phase 1 habitat types with hard standing, standing water and ephemeral mosaics being the most dominant. The extended Phase 1 habitat survey results and associated target notes can be found on Figure 2 and the Ecological Risk Rating for the site is given on Figure 4.

10.1.2 As a publicly owned site, the 'biodiversity and resilience of ecosystems duty' set out in Section 6 of the Environment (Wales) Act 2016 applies which states that '*A public authority must seek to maintain and enhance biodiversity in the exercise of its functions in relation to Wales*'. Therefore, this appendix provides details on how the habitats (which includes vegetation and infrastructure) can be managed within the site whilst adhering to legislation, maintaining and enhancing the area in relation to its biodiversity whilst allowing for the day-to-day management of the site to maintain vegetation coverage (although the distribution may change) and infrastructure condition. These management actions will seek to ensure that the site remains presentable for sale by the Welsh Government if required but without damaging the important habitats or species that are or could be present. Future development plans for the site are presently unknown.

10.1.3 A full desk study was not undertaken for the site (beyond the scope of this report as described in Section 2.4.1), therefore other ecological and environmental constraints could also be encountered that were not initially considered and may need incorporation in the future. Moreover, it should be noted that actions listed below are for the general management of the site only. If development of the site is required, Section 7 of this report should first be consulted for more information on how to proceed. Future development plans or proposals are not covered by this Habitat Management Plan.

10.1.4 The following management plan is based on the site boundary shown on the file '6123 Roath Basin, Cardiff. pdf' as provided on 7th of January 2020. Subsequent changes to the site boundary may result in a requirement to reassess this Habitat Management Plan.

10.2 Management Objectives

10.2.1 Based on the findings of the extended Phase 1 habitat survey, the following key management objectives have been determined for the site:

1. To maintain the coverage of habitats present within the site boundary (although the distribution can change) so that they can still be used by the species (i.e. birds, red fox and rabbits) known to occur on site or those that could be present;
2. To ensure that protected and/or priority species (i.e. invertebrates, reptiles, wintering birds, and European hedgehog) that have the potential to occur on site (as listed under Section 6 of the report) are protected during all management operations based on compliance with legislation;
3. The management of ecological constraints associated with boundary demarcation within the site;

4. To ensure the site is ecologically enhanced where appropriate.

10.3 Management Actions

10.3.1 Table 1 below outlines the habitat types present within the site (identified during the extended Phase 1 habitat survey) and other aspects of interest to the management of the site. Each row of the table provides the habitat type or aspect of interest for the site, the management target for each habitat, recommended timing of works and the management actions for the habitat or aspect of interest. It should be noted, however, that in some cases the management of specific habitats should not take place until further surveys for protected species have been completed and/or management has been agreed with the relevant statutory authority. **In addition, if the management actions in Table 1 cannot be followed, further surveys and/or ecological watching briefs are likely to be required in order to facilitate the works**. If management actions cannot be followed this should be discussed with an ecologist prior to works and they can advise on whether further surveys and/or precautions will be necessary.

10.3.2 Table 1 below should be used in conjunction with Figure 2 which highlights the habitats on the site to ensure that the correct areas are identified. Where management of the site cannot be followed in-line with actions detailed below, an ecologist should be consulted to advise VINCI Facilities on how to undertake the specific works in question in-line with relevant legislation and best practice.

Table 1 Management Actions

Habitat type	Phase 1 Habitat Codes	Target for Management	Timing of Works	Management Actions
General Precautions	Ensure that machines are properly serviced and maintained to minimise and prevent on site pollution and ensure that spill kits are available during management operations. Ensure that refuelling is completed using drip trays and/or plant nappies. Any log, brash or rubble pile (see target notes TN1 and TN2) found within the site, which could act as a hibernaculum or refugia, should be left *in situ* and buffered by a 2m exclusion zone within which no works takes place.			
Site Boundaries	N/A	To manage boundary vegetation so that boundaries can be maintained. appropriately.	November and February.	The management of site boundaries comprising of woodland and scrub must be conducted between November and February inclusive and vegetation must not be cut below 150mm in height. Grassland boundaries, however, can be cut any time of year if these areas have been managed on a regular basis. Should any tree require felling or management a Preliminary Ground Level Roost Assessment should be carried out to identify trees with features suitable for roosting bats.
Dangerous Trees	N/A	The removal of dangerous trees from the site ensuring ecological constraints are considered and mitigated where appropriate.	N/A	If any tree poses a serious risk to health and safety (i.e. is at imminent risk of collapsing onto a road or building) an ecologist should be contacted for advice on whether there is the potential for bats to occur.

Habitat type	Phase 1 Habitat Codes	Target for Management	Timing of Works	Management Actions
Self-seeding Trees	N/A	Management of self-seeding trees within the site boundary.	September to March.	Self-seeding trees below 4m in height and 50mm in diameter such as ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), white poplar and willow (*Salix* sp.) which are not within defined areas of scrub and woodlands as shown on Figure 2, can be removed from the site where the areas have been previously cleared for development plot purposes and where the trees are beginning to establish in areas of grassland and non-woody vegetation. These trees can be cut down, pulled up or spot sprayed.
Priority Habitats - Open Mosaic Habitats on Previously Developed Land	ESP/DS/BG, ESP/DS/BG2, ESP/SNG/ BG1 and ESP/SNG/ BG2	To maintain the coverage of these habitats within the site.	N/A (see management actions).	Removal of ESP/DS/BG-ESP/DS/BG2; ESP/SNG/BG1-ESP/SNG/BG2 should not be carried out during management and these habitats should be left *in situ*. Rather than a complete clearance it is advised that swards are cut to various heights and not below 150mm. If works are required below 150mm, a reptile survey should be undertaken. Management must take place on a two-year rotational cycle whereby 50% of these areas are cut each year. Management of scrub is recommended so that it does not develop greater than 10% of the total cover which will help to increase floral diversity. If the removal of ephemeral mosaics is required, these habitats should be replaced on a like-for-like basis within the site (or elsewhere if this cannot be achieved) with the same or increased species diversity.

Habitat type	Phase 1 Habitat Codes	Target for Management	Timing of Works	Management Actions
Plantation Coniferous woodland; Scattered Mixed Woodland and Dense Scrub Mosaic; Scattered Broadleaved Woodland and Introduced Shrub Mosaic	PCW1; SMW/DS1 and SBW/IS1	Maintain the coverage of those habitats within the site.	N/A (see management actions)	Prior to the felling or management of any tree, a Preliminary Ground Level Roost Assessment should be completed to determine the potential of each tree to support roosting bats and the need for further presence or likely absence surveys. The outcome of the survey may restrict the timings of the works in the future. Felling of trees should only take place outside the bird breeding season (September to February inclusive). To benefit invertebrate communities dead wood should be left *in situ* and management should aim to maintain the persistence of old or mature trees. Where more than five cubic metres of timber is to be cleared per quarter, permission must first be sought from Natural Resources Wales.
Dense Scrub and Tall Ruderal and Scattered Scrub Mosaic	DS1 to DS3, TR/SS1	Maintain the coverage of those habitats within the site.	September to February.	It is advised that areas of scrub are cut back on a rotational cycle of 3 to 5 years whereby a fifth to a third is cut each year which will create a mosaic of scrub at different stages (successional communities) from entirely cut, to a closed canopy. Vegetation management should be undertaken outside of the bird breeding season (September to February inclusive) and cutting must no occur below 150mm.
Scattered Scrub and Ephemeral/ Short Perennial Mosaic; Semi-improved Neutral	SS/ESP1; SNG; SNG1 and SI1	To maintain the coverage of grassland and grassland	November to February.	Sward diversity can be increased by cutting areas of sward at different frequencies, times of the year and at different heights (150mm to 300mm recommended). To manage grassland for invertebrates, however, it is

Habitat type	Phase 1 Habitat Codes	Target for Management	Timing of Works	Management Actions
Grassland and Poor Semi-improved Grassland		mosaics within the site.		advised that the grassland is managed on a two-year rotation, cutting one half of the site every year from 150mm to 300mm. To prevent scattered scrub from spreading it can be controlled through the removal of species such as butterfly bush and willows.
Introduced Shrub; Introduced Shrub and Scattered Broadleaved Woodland; Introduced Shrub, Bare Ground and Scattered Broadleaved Woodland Mosaic; Introduced Shrub and Hard Standing and Scattered Coniferous Mosaic.	IS1; IS/SBW1, IS/SBW2, IS/BG/SBW1 to IS/BG/SBW22; IS/HS/SCW1 and HS/IS/SBW1	Maintain the coverage of introduced shrub and introduced shrub mosaics within the site.	November to February.	It is advised that areas of shrub area are maintained on site to benefit birds, and these can be cut yearly. Additionally, areas should be cut no lower than 150mm between November to February inclusive. Felling of trees within introduced shrub should only take place outside the bird breeding season (September to February inclusive).
Standing and Running Water	SW1, SW2 and RW1	To prevent pollution and arisings from vegetation clearance entering the waterbodies.	N/A	Pollution and/or runoff should be controlled in line with national guidelines and prevented from entering these waterbodies. Any arisings from the clearance of vegetation from adjacent parcels should also be prevented from entering the waterbodies.
Amenity Grassland and Amenity Grassland and	AM1 to AM3 and AM/SBW1	To maintain the amenity grassland	N/A	The amenity grassland components can be managed any time of year if they have been regularly managed. The felling or management of trees,

Habitat type	Phase 1 Habitat Codes	Target for Management	Timing of Works	Management Actions
Scattered Broadleaved Woodland Mosaic		in its current state of management.		however, should be undertaken outside of the bird breeding season (September to February inclusive). A relaxed cutting regime could also be introduced whereby a single cut is undertaken to the grassland in late summer or early autumn. This will give plants the chance to set seed before the cut. Arisings should be left on site for a week to dry and release their seeds before the arisings are removed from the site in order to keep the parcels nutrient poor.
Hard standing and Bare Ground	HS1 to HS5; BG1 to BG5.	To prevent the spread of vegetation within areas of hardstanding.	N/A	It is recommended that areas of hard standing and bare ground are kept free from vegetation using sweepers to brush away built up mud. Vegetation can be removed by pulling the plants out (weeding).
Buildings	B1 to B17	To ensure that buildings are maintained in their current state.	N/A (see management actions).	Should works be required at buildings B14 to B16 a Preliminary Roost Assessment should be carried out to determine the potential of each building to support roosting bats. The outcome of this survey may restrict the timing of works in the future. However, works at buildings B1 to B13 and B17 can be carried out without any ecological constraints.
Fences and Wall	W1	To maintain fences and the wall in their current state.	N/A	No precautions are necessary whilst maintaining fences and the wall. However, if vegetation removal adjacent to these features is required this must be completed outside the bird breeding season (September to February inclusive) and vegetation cut no lower than 150mm.
Ecological Enhancements	To ecologically enhance the site it is recommendation that berry-producing trees and shrubs such as hawthorn, guelder rose, blackthorn, dogwood, buckthorn, elder, yew, holly, bird cherry and wild cherry are planted.			

11. Appendix 2 Plant Species and Abundance

Plantation Coniferous Woodland (PCW1)

Common Name	Scientific Name	Abundance
Scots pine	*Pinus sylvestris*	D
Bramble	*Rubus fruticosus* agg.	O
New Zealand broadleaf	*Griselinia littoralis*	O
Franchet cotoneaster	*Cotoneaster franchetii*	O

Dense Scrub (DS1)

Common Name	Scientific Name	Abundance
Bramble	*Rubus fruticosus* agg.	D
Butterfly-bush	*Buddleja davidii*	F
Italian alder	*Alnus cordata*	O

Dense Scrub (DS2)

Common Name	Scientific Name	Abundance
Butterfly-bush	*Buddleja davidii*	A
Cow parsley	*Anthriscus sylvestris*	O
Wild carrot	*Daucus carota* subsp. *carota*	O
Annual meadow-grass	*Poa annua*	O
St John wart	*Hypericum* sp.	O
Cock's-foot	*Dactylis glomerata*	O
Bramble	*Rubus fruticosus* agg.	O
Dock sp.	*Rumex* sp.	F

Dense Scrub (DS3)

Common Name	Scientific Name	Abundance
Bramble	*Rubus fruticosus agg.*	F
Butterfly-bush	*Buddleja davidii*	F
Cock's-foot	*Dactylis glomerata*	O
Dock sp.	*Rumex* sp.	O
Red fescue	*Festuca rubra*	O
Yorkshire-fog	*Holcus lanatus*	O

Scattered Scrub and Ephemeral/Short Perennial Mosaic (SS/ESP1)

Common Name	Scientific Name	Abundance
Bristly oxtongue	*Helminthotheca echioides*	F
Butterfly-bush	*Buddleja davidii*	F
Red fescue	*Festuca rubra*	F
Bramble	*Rubus fruticosus* agg.	O
Cock's-foot	*Dactylis glomerata*	O
Mugwort	*Artemisia vulgaris*	O
Wild carrot	*Daucus carota* subsp. *carota*	O
Yorkshire-fog	*Holcus lanatus*	O

Scattered Broadleaved Woodland and Introduced Shrub Mosaic (SBW/IS1)

Common Name	Scientific Name	Abundance
Sycamore	*Acer pseudoplatanus*	A
Common ivy	*Hedera helix*	F
Bramble	*Rubus fruticosus* agg.	O
Butterfly-bush	*Buddleja davidii*	O
Firethorn	*Pyracantha coccinea*	O
Hemp-agrimony	*Eupatorium cannabinum*	O
Herb-Robert	*Geranium robertianum*	O
Italian alder	*Alnus cordata*	O
New Zealand broadleaf	*Griselinia littoralis*	O
Vibernum sp.	*Vibernum* sp.	O
Wall cotoneaster	*Cotoneaster horizontalis*	O
Austrian pine	*Pinus nigra* subsp. *nigra*	R
Yorkshire-fog	*Holcus lanatus*	R

Scattered Mixed Woodland and Dense Scrub Mosaic (SMW/DS1)

Common Name	Scientific Name	Abundance
Butterfly-bush	*Buddleja davidii*	A
Silver birch	*Betula pendula*	F
Austrian pine	*Pinus nigra* subsp. *nigra*	O
Bracken	*Pteridium aquilinum*	O
Bramble	*Rubus fruticosus* agg.	O
Gorse	*Ulex europaeus*	O
Timothy	*Phleum pratense*	O
Crack-willow	*Salix fragilis*	R

Tall Ruderal and Scattered Scrub Mosaic (TR/SS1)

Common Name	Scientific Name	Abundance
Butterfly-bush	*Buddleja davidii*	A

Common nettle	*Urtica dioica*	F
Bramble	*Rubus fruticosus agg.*	O
Bristly oxtongue	*Helminthotheca echioides*	O
Gorse	*Ulex europaeus*	O
Red fescue	*Festuca rubra*	O

Semi-improved-Neutral Grassland (SNG1)

Common Name	Scientific Name	Abundance
Wild carrot	*Daucus carota* subsp. *carota*	A
Common couch	*Elytrigia repens*	F
Creeping bent	*Agrostis stolonifera*	F
Field madder	*Sherardia arvensis*	F
Red clover	*Trifolium pratense*	F
Red fescue	*Festuca rubra*	F
Yorkshire-fog	*Holcus lanatus*	F
Bird's eye speedwell	*Veronica persica*	O
Biting stonecrop	*Sedum acre*	O
Black medick	*Medicago lupulina*	O
Black mustard	*Brassica nigra*	O
Broadleaf plantain	*Plantago major*	O
Brome sp.	*Bromus* sp.	O
Cat's-ear	*Hypochaeris radicata*	O
Cock's-foot	*Dactylis glomerata*	O
Common vetch	*Vicia sativa* subsp. *segetalis*	O
Perforate St John's-wort	*Hypericum perforatum*	O
Yarrow	*Achillea millefolium*	O
Chicory	*Cichorium intybus*	R
Timothy	*Phleum pratense*	R

Amenity Grassland (AM1 to AM3)

Common Name	Scientific Name	Abundance
Red clover	*Trifolium pratense*	A
Dandelion	*Taraxacum officinale* agg.	F
Red fescue	*Festuca rubra*	F
Yarrow	*Achillea millefolium*	F
Bird's eye speedwell	*Veronica persica*	O
Daisy	*Bellis perennis*	O
Meadow thistle	*Cirsium dissectum*	O
Perennial rye-grass	*Lolium perenne*	O
Yorkshire-fog	*Holcus lanatus*	O
Common bent	*Agrostis capillaris*	R

Amenity Grassland and Scattered Broadleaved Woodland (AM/SBW1)

Common Name	Scientific Name	Abundance
Red fescue	*Festuca rubra*	D
Red clover	*Trifolium pratense*	F
Small-leaved lime	*Tilia cordata*	F
Perennial rye-grass	*Lolium perenne*	O

Ephemeral/Short perennial, Dense Scrub and Bare Ground Mosaic (ESP/DS/BG1)

Common Name	Scientific Name	Abundance
Common vetch	*Vicia sativa* subsp. *segetalis*	F
Black medick	*Medicago lupulina*	O
Black mustard	*Brassica nigra*	O
Bramble	*Rubus fruticosus* agg.	O
Butterfly-bush	*Buddleja davidii*	O
Common amaranth	*Amaranthus retroflexus*	O
Creeping bent	*Agrostis stolonifera*	O
Dogwood	*Cornus sanguinea*	O
Goat willow	*Salix caprea*	O
Hedge bindweed	*Calystegia sepium*	O
Common toadflax	*Linaria vulgaris*	O
Mat-grass	*Nardus stricta*	O
Red fescue	*Festuca rubra*	O
Rosebay willowherb	*Chamerion angustifolium*	O
Silver birch	*Betula pendula*	O
Yorkshire-fog	*Holcus lanatus*	O
Pampas grass	*Cortaderia selloana*	R

Ephemeral/Short Perennial, Dense Scrub and Bare Ground Mosaic (ESP/DS/BG2)

Common Name	Scientific Name	Abundance
Bramble	*Rubus fruticosus* agg.	F
Bristly oxtongue	*Helminthotheca echioides*	F
Creeping bent	*Agrostis stolonifera*	F
White poplar	*Populus alba*	F
Self-heal	*Prunella vulgaris*	O
Bird's-foot trefoil	*Lotus corniculatus*	O
Blue mallow	*Malva sylvestris*	O
Butterfly-bush	*Buddleja davidii*	O
Cock's-foot	*Dactylis glomerata*	O
Yellow melilot	*Melilotus officinalis*	O
Hedge bindweed	*Calystegia sepium*	O

Hedge bindweed	*Calystegia sepium*	O
Herb-robert	*Geranium robertianum*	O
Yellow toadflax	*Linaria vulgaris*	O
Red fescue	*Festuca rubra*	O
Bird's eye speedwell	*Veronica persica*	O
Wild carrot	*Daucus carota* subsp. *carota*	O
Wild parsnip	*Pastinaca sativa*	O
Yellow-wort	*Blackstonia perfoliata*	O
Yorkshire-fog	*Holcus lanatus*	O
Sunflower	*Helianthus annuus*	R

Ephemeral/Short Perennial, Semi-improved Neutral Grassland and Bare Ground Mosaic (ESP/SNG/BG1)

Common Name	Scientific Name	Abundance
Annual meadow-grass	*Poa annua*	F
Cock's-foot	*Dactylis glomerata*	F
Dock sp.	*Rumex* sp.	F
Wild carrot	*Daucus carota* subsp. *carota*	F
Bird's-foot trefoil	*Lotus corniculatus*	O
Black medick	*Medicago lupulina*	O
Black Mustard	*Brassica nigra*	O
Chamomile	*Chamaemelum nobile*	O
Common Vetch	*Vicia sativa* subsp. *segetalis*	O
Creeping Bent	*Agrostis stolonifera*	O
Dandelion	*Taraxacum officinale agg.*	O
False Oat-grass	*Arrhenatherum elatius*	O
Red Clover	*Trifolium pratense*	O
Red Fescue	*Festuca rubra*	O
Rosebay willowherb	*Chamerion angustifolium*	O
Perforate St John's-wort	*Hypericum perforatum*	O
Yellow melilot	*Melilotus officinalis*	O
Yorkshire-fog	*Holcus lanatus*	O
Butterfly-bush	*Buddleja davidii*	R

Ephemeral/Short/ perennial, Semi-improved Neutral Grassland and Bare Ground Mosaic (ESP/SNG/BG2)

Common Name	Scientific Name	Abundance
Dandelion	*Taraxacum officinale* agg.	F
Wild carrot	*Daucus carota* subsp. *carota*	F
Bird's eye speedwell	*Veronica persica*	O
Bird's-foot trefoil	*Lotus corniculatus*	O
Common vetch	*Vicia sativa* subsp. *segetalis*	O
Creeping cinquefoil	*Potentilla reptans*	O

Creeping bent	*Agrostis stolonifera*	O
Dock sp.	*Rumex* sp.	O
False oat-grass	*Arrhenatherum elatius*	O
Geranium sp.	*Geranium* sp.	O
Herb-Robert	*Geranium robertianum*	O
Scarlet pimpernel	*Lysimachia arvensis*	O
Red fescue	*Festuca rubra*	O
Sheep's fescue	*Festuca ovina*	O
Spear thistle	*Cirsium vulgare*	O
Yorkshire-fog	*Holcus lanatus*	O

Introduced Shrub (IS1)

Common Name	Scientific Name	Abundance
Argentine needle-grass	*Nassella tenuissima*	F
Shrubby veronica	*Hebe rakaiensis*	F
Common fleabane	*Pulicaria dysenterica*	O
Dandelion	*Taraxacum officinale* agg.	O
Perforate St John's-wort	*Hypericum perforatum*	O
Wild parsnip	*Pastinaca sativa*	O

Introduced Shrub and Scattered Broadleaved Woodland Mosaic (IS/SBW1 and IS/SBW2)

Common Name	Scientific Name	Abundance
Elm sp.	*Ulnus* sp.	O
Garden thyme	*Thymus vulgaris*	O
Rock rose sp.	*Cistus* sp.	O
Silver birch	*Betula pendula*	O

Introduced Shrub, Bare Ground and Scattered Broadleaved Woodland Mosaic (IS/BG/SBW1 to IS/BG/SBW22)

Common Name	Scientific Name	Abundance
Mat-grass	*Nardus stricta*	F
Lavender-cotton	*Santolina chamaecyparissus*	F
Elm sp.	*Ulnus* sp.	F

Introduced Shrub, Hard Standing and Scattered Coniferous Woodland Mosaic (IS/HS/SCW1)

Common Name	Scientific Name	Abundance
Austrian pine	*Pinus nigra* subsp. *nigra*	F
Lavender-cotton	*Santolina chamaecyparissus*	F
Mat-grass	*Nardus stricta*	F

Hard Standing, Introduced Shrub and Scattered Broadleaved Woodland Mosaic (HS/IS/SBW1)

Common Name	Scientific Name	Abundance
Himalayan birch	*Betula utilis*	D
Daisy bush	*Brachyglottis greyi*	A
Burnet rose	*Rosa spinosissima*	F
Dog-rose	*Rosa canina*	O
Giant sedge	*Carex pendula*	O
Shrubby cinquefoil	*Potentilla fruticosa*	O
Dogwood	*Cornus sanguinea*	R

12. Appendix 3 Assessment Methodology

12.1 Identification of Legal and Planning Policy Issues

Scope of Assessment

12.1.1 The first step is to identify any biodiversity features found on the site that are subject to legal or policy controls, as follows:

Designated Sites

12.1.2 The location of the site is compared to the distribution of sites with a statutory or non-statutory nature conservation designation using information derived from the desk study. Consideration is given to designated sites that could be affected directly or indirectly by the proposed development.

Habitats outside Designated Sites

12.1.3 The habitats known to occur on the site are compared to those which receive some protection, in law or policy, outside of designated sites i.e. hedgerows, uncultivated land and semi-natural areas, habitats listed as priorities in the home nation biodiversity strategies, habitats listed as Habitats of Principal Importance for the Conservation of Biodiversity by the Secretary of State and local priority habitats listed as requiring action (formerly under the Local Biodiversity Action Plans).

Ancient Woodland

12.1.4 The ancient woodland inventory is checked to determine whether any known ancient woodland occurs either on the site or nearby.

Protected Species

12.1.5 The species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in nature conservation legislation i.e. the Wildlife and Countryside Act 1981 (as amended), the Conservation (Habitats &c) Regulations 2017 (as amended).

12.1.6 In addition, the species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in animal welfare legislation, i.e. the Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.

Priority Species

12.1.7 The species known to occur on the site are compared with those listed as priority species (i.e. Species of Principal Importance for the Conservation of Biodiversity in the country concerned) or those requiring action on the local priority species lists (Local Biodiversity Action Plans).

Other Species of Conservation Concern

12.1.8 The species known to occur on the site are compared with other nature conservation listings, such as red data books.

Invasive Plant Species

12.1.9 The species of plant present on the site are compared with those listed by government agencies as invasive non-natives, with particular attention given to those listed in the Wildlife and Countryside Act 1981 (as amended).

Review of Legislation and Policy

12.1.10 If any of the above are found to occur on or near the site and are likely to be affected by the development, the relevant legislation and planning policy (including national, regional, local policies) are examined to determine whether the proposed development is compliant.

Ecological Enhancement

12.1.11 Planning policy generally requires new developments to be enhanced for biodiversity. The existing proposals are considered to determine whether biodiversity enhancements are offered and whether they are adequate to meet the policy requirements. Again, national, regional and local policies are considered.

12.2 Identification of Potential Further Ecological Issues

12.2.1 Further ecological issues are those which cannot be resolved during the preliminary ecological appraisal for any reason, including the following:

- The development is near a designated site and consultation with the relevant regulator is required in order to determine whether further assessment is required;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and specialist survey techniques are required for their detection;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and the extended Phase 1 habitat survey was not undertaken at a suitable time of year for their detection; and
- A protected species/species of conservation concern was found on or near the site but further information on population size or distribution is required in order to resolve any legal and planning policy issues (such as obtaining licences).

12.2.2 Discussion of issues raised by 3rd parties, e.g. reports of protected species from the site by local people, may also be discussed under this heading.

12.2.3 The desk study is used as a guide to the protected species/species of conservation in the local area, however, the list is not taken to be exhaustive and it is borne in mind that some species may no longer occur in the locality.

12.2.4 No attempt is made to evaluate the importance of the site for species not yet confirmed to be on or near the site, nor to discuss the implications for the development if the species were to be found on the site.

13. Appendix 4 - Ecological Risk Rating

Low (Green)

13.1.1 No statutory or non-statutory designated sites within the site boundary or directly adjacent within 50m. No protected species within the site boundary. No priority habitats or priority species within the site boundary. No invasive species within the site boundary.

13.1.2 The ecological risk rating will be green where ecological constraints are related to priority species where mitigation is simple with minimal cost and/or there is the potential for breeding birds at the site which are not listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Medium (Amber)

13.1.3 Statutory designated sites within the site boundary but these will not be impacted by the management/development. Non-statutory designated sites within the site boundary that may or may not be impacted by the management/development, but where like-for-like compensation is possible at minimal cost. There are priority habitats that will be impacted by the management/development, but compensation is straightforward and has minimal cost such as like-for-like replacement. Potential for, or confirmed presence of, protected species within the site boundary that require further survey and where mitigation can be completed at minimal cost and mitigation can be incorporated within the site boundary, for example habitat enhancement for reptiles. Potential for or confirmed presence of priority species within the site boundary but where mitigation may be more complex. Invasive species are present within the site boundary, but don't require significant invasive management/removal.

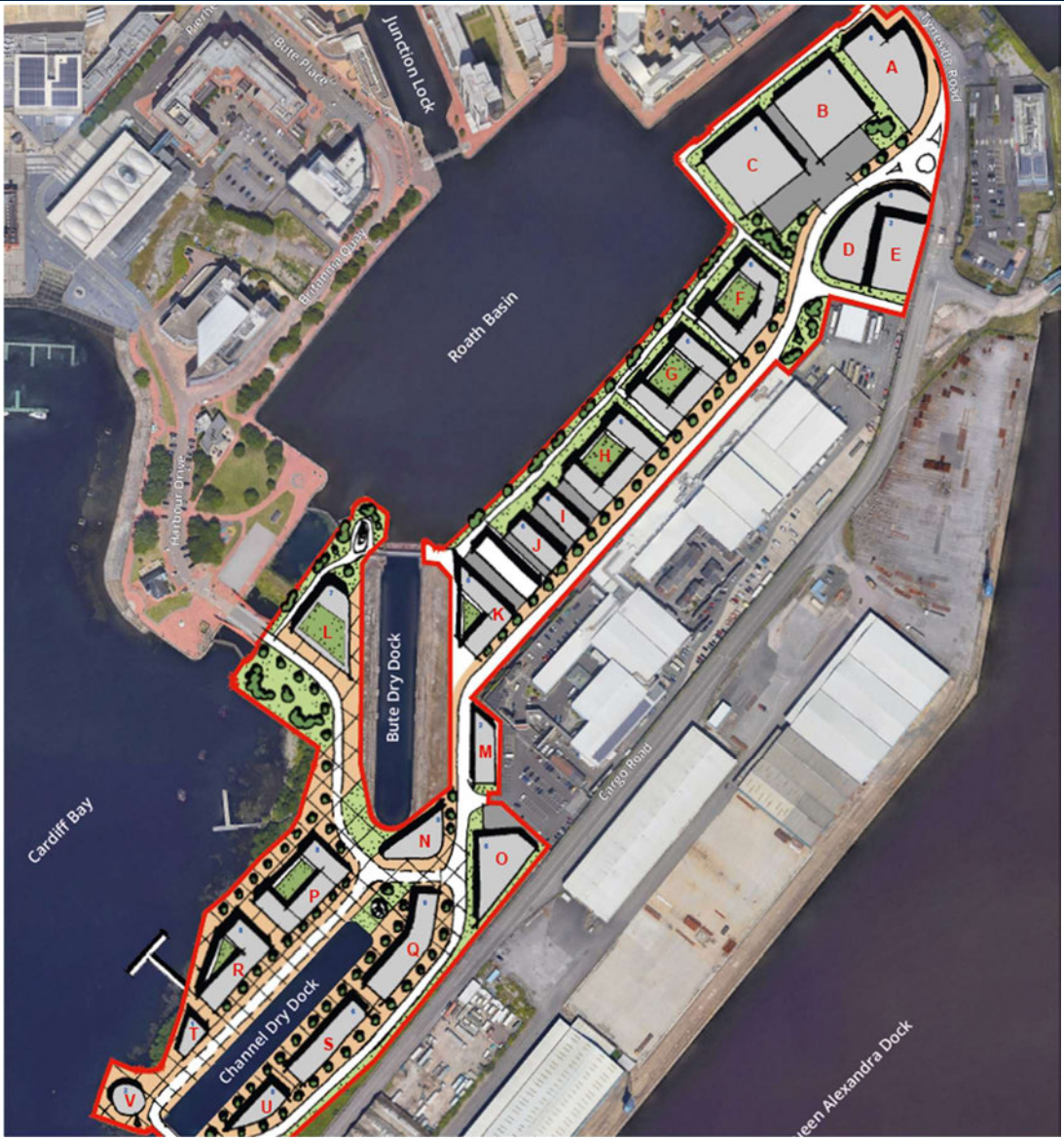
High (Red)

13.1.4 Statutory designated sites within the site boundary that will be impacted by the management/development. Non-statutory designated sites within the site boundary that will be impacted by the management/development and where their compensation would be complex. Priority habitats will be lost that require more complex compensation due to the complexity/rarity of the habitat involved. Potential for, or confirmed presence of, protected species within the site boundary that require significant mitigation to complete the management/development such as offsite mitigation. Potential for or confirmed presence of priority species within the site boundary where mitigation is more complex. Invasive species are present within the site boundary that require significant remediation to complete the works.

13.1.5 Due to multiple factors involved, the suitably qualified ecologist will provide the final judgement on the ecological risk rating categorisation, as guided by the above.

Note on viability

Porth Teigr



savills

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Appendices

Appendix 1 – Viability Appraisal (CONFIDENTIAL)

Non-Technical Executive Summary

A high-level assessment of the site's viability is required to support the site's re-allocation as a mixed use development site in Cardiff Council Replacement Local Development Plan (RLDP).

A residual appraisal has been prepared to assess the viability of the development proposals.

Based on the high-level information provided, we estimate scheme revenue is approximately **£304M**.

Total development costs (before finance) are **£282.4M (£245 psf)**.

The appraisal therefore produces a modest residual figure of around **£11.8M (4% of costs)**.

1. RICS Compliance

RICS Professional Statement

This report has been prepared in accordance with the Royal Institution of Chartered Surveyors (RICS) professional statement entitled *Financial viability in planning: conduct and reporting* effective 1st September 2019.

The professional statement is mandatory in England only and whilst the subject of this viability assessment is located in Wales, as an RICS regulated firm we have complied with the guidance insofar as it is possible to do so in the context of the Welsh planning system.

Objectivity, Impartiality and Reasonableness

We confirm that this report has been prepared by a suitably qualified surveyor acting with objectivity, impartially, without interference and with reference to all appropriate available sources of information.

Confirmation of Instructions and Fees

We have been instructed to under this viability assessment by Welsh Government. No performance-related or contingent fees have been agreed.

Conflicts of Interest

We confirm we do not have any ongoing involvement with the property. We also are not advising the local planning authority in respect of any area-wide viability assessments. Accordingly, we are reporting on an objective and unbiased basis.

In accordance with the RICS professional statement Conflicts of Interest (1st edition, 2017) we therefore confirm that we do not face a conflict of interest in preparing this report and are acting as objective and impartial advisers.

Information Sources

The extent of the due diligence enquiries we have undertaken and the sources of the information we have relied upon for the purpose of our viability assessment are stated in the relevant sections of our report below.

Publication and Responsibility

In accordance with the RICS professional statement this report has been prepared on the basis that it may be made publicly available. The contents of a confidential appendix supplementing this report are excepted and must not be made publicly available, as agreed with the local planning authority.

Finally we would state that this report is provided solely for the purpose stated above. It is for the use only of the party to whom it is addressed, and no responsibility is accepted to any third party for the whole or any part of its contents. Any such parties rely upon this report at their own risk.

2. Savills

Savills is a highly respected property consultancy and agency business with over 700 offices worldwide and 40,000 staff. In the UK Savills have 140 offices with a London base and representation in all the major regional centres.

Savills' Cardiff office is the largest firm of chartered surveyors in Wales with a staff complement of over 100 providing a range of property related services including development agency and consultancy, residential, investment and commercial agency, property management, planning consultancy and energy brokerage.

In recent years, Savills have been involved in a number of significant development projects across Wales, providing viability assessments to support planning applications and local plan making as well as Section 106 negotiations.

3. Viability Assessment

A copy of our viability appraisal is attached in **Appendix 1**. We set out below an explanation of the appraisal inputs.

3.1 Floor Areas

We have adopted the gross floor areas provided to us.

We have applied a gross-to-net ratio of 80% for residential elements and 100% for retail/leisure elements, based on the low/medium rise forms of development.

Use	Gross Floor Area (sq ft)	Net Floor Area (sq ft)
Residential	1,072,267	857,813
Retail/Leisure	81,936	81,936
Total	**1,154,203**	**939,749**

3.2 Commercial-only Parcels

Parcels which are proposed for solely commercial uses (E, M, O, Q, S, T, U, and V) have been excluded from the residual appraisal. Current market conditions make delivery of these uses highly challenging; including them in the appraisal would artificially impact the viability of other parcels, which could otherwise come forward for development.

We would expect these commercial parcels to be delivered as and when market conditions become more favourable, or where significant anchor tenants can be procured and/or grant support deployed.

3.3 Scheme Revenue

3.3.1 Residential (open market rent)

Based on recent delivery in Cardiff we consider the majority of residential would be delivered as a rental product.

Based on the schedules of accommodation provided to use, we have applied an open market rental value to each unit type, which we summarise in the table below:

Unit Type	Rent pcm
1 beds	£1,100
2 beds	£1,600
3 beds	£1,800

We have undertaken analysis of the unit mix of three parcels (A, B, and C) to test the £psf rate produced by the rental values above. Our analysis indicates a rental value of approximately £26 psf of net floor area.

We have applied an enhanced rate of £28 psf on the basis that the current mix does not include any studios, which in the current market are popular and would likely form part of any scheme. Studios would drive a higher £psf rate based on their smaller unit floor areas. There may also be further optimisation of unit mix and floor areas to drive greater scheme value as the scheme is refined.

We have deducted operating expenditure (opex) of 25% from the gross rent, and capitalised the remaining net operating income at a yield of 5.50%.

We have then deducted purchaser's costs of 4.80%, including Land Transaction Tax assuming multiple dwellings relief is available.

3.3.2 Residential (open market sale)

We consider flats for open market sale may come forward once the scheme becomes established.

We have applied a higher rate of £395 psf for two waterfront open market sales schemes on Plot L and Plot R.

3.3.3 Residential (affordable housing)

We have assumed a policy-compliant level of affordable housing on the site, to be transferred at Cardiff Council's transfer values (2026). Housing mix will be needs-based and in accordance with WDQR standards.

We have applied growth to the affordable housing revenues @ 3.5% pa based on these revenues being tied to CPI. All other costs and revenues within the appraisal are as at current-day.

3.3.4 Ground Floor Retail / Leisure Uses (mixed use parcels)

We have applied a rental value of £30 per sq ft NIA and allowed a 6-month rent-free period to allow for tenant fit-out.

We believe as the scheme matures and becomes established, the retail and leisure units would attract regional operators, with short lease terms of up to 5 years term certain; accordingly we have adopted a yield of 8.00% before deducting standard purchaser's costs.

Based on the above, our total Net Development Value (NDV) for the scheme is approximately **£304,000,000**.

3.4 Development Costs

3.4.1 Construction Costs

We have applied construction costs in line with the BCIS median rates, regionally adjusted to Cardiff.

3.4.2 Fees and Contingency

Fees	Rate	
Contingency	4.00%	Of construction cost
Professional fees (resi)	7.00%	Of construction cost
Professional fees (commercial)	10.00%	Of construction cost
Letting & legal	15.00%	Of commercial rent
Marketing	0.75%	Of GDV
Sales agency	1.00%	Of GDV
Sales legal	£800/unit	Open market resi units
Affordable transfer fees	£400/unit	Affordable resi units

3.4.3 Site-wide Infrastructure Costs

We have adopted the site-wide infrastructure and landscaping costs provided to us by Lee Wakemens Ltd totalling £12.1M.

Total development costs (before finance) are **£282.4M (£245 psf).**

3.4.4 Finance Costs and Timescales

We have assumed finance based on debt funding of 80% of development costs, capped at 65% of GDV. We have assumed finance available at 7% pa.

We have assumed orderly delivery of the scheme across a 10-year period, working through the site roughly north to south. We have assumed construction periods of 24 months for each parcel.

We note the potential for accelerated delivery of parcels for affordable housing via the deployment of social housing grant.

3.5 Benchmark Land Value / Developer's Profit

Viability guidance states that, after deducting the costs of obtaining planning permission, a premium over and above the site's existing value is required to incentivise landowners to release sites for development. This is called the Benchmark Land Value (BLV).

In this instance, given the site is owned by Welsh Government it is more likely that it would be delivered through a partnership via a formal procurement process, potentially with the aim of ultimately delivering additional affordable housing or meeting other policy objectives, rather than a strictly commercial basis to achieve highest land value or achieve a target profit margin.

As such, within our appraisal we have not made any specific allowance for current land value, but reflecting this is essentially to be captured within the overall residual profit produced by the appraisal.

3.6 Residual Result

£11,880,000

Performance Measures	
Profit on Cost%	4.07%
Profit on GDV%	3.76%
Profit on NDV%	3.91%
Development Yield% (on Rent)	4.79%
Equivalent Yield% (Nominal)	5.82%
Equivalent Yield% (True)	6.04%
Ungeared IRR%	6.70%
Project Geared IRR% (without Interest)	6.70%
Equity IRR% (without Interest)	0.00%
Return on Equity%	N/A

4. Sensitivity Analysis

The purpose of a sensitivity analysis is not to make predictions but to test the robustness of the residual appraisal which can be sensitive to changes in inputs.

We have run a sensitivity analysis of rental value and construction costs by increments of 2.5% and 5%.

We summarise the results as follows:

Construction: Rate /ft² \ Rent: Rate /ft²	-5.000% 26.60 /ft²	-2.500% 27.30 /ft²	0.000% 28.00 /ft²	+2.500% 28.70 /ft²	+5.000% 29.40 /ft²
-5.000% 199.50 /ft²	£14,680,910 5.280%	£20,637,540 7.430%	£26,578,739 9.578%	£32,505,347 11.724%	£38,417,192 13.868%
-2.500% 204.75 /ft²	£7,299,734 2.557%	£13,285,985 4.660%	£19,256,604 6.761%	£25,211,980 8.860%	£31,151,125 10.958%
0.000% 210.00 /ft²	(£138,784) -0.047%	£5,878,682 2.010%	£11,879,835 4.066%	£17,863,917 6.120%	£23,832,298 8.173%
+2.500% 215.25 /ft²	(£7,645,625) -2.545%	(£1,586,998) -0.529%	£4,444,858 1.483%	£10,460,019 3.495%	£16,458,896 5.505%
+5.000% 220.50 /ft²	(£16,409,327) -5.308%	(£9,122,652) -2.966%	(£3,048,960) -0.993%	£2,998,542 0.977%	£9,028,499 2.947%

In the ‘best case’ scenario, the scheme produces a profit of £38.4M (13.8% on cost).

In the ‘worst case’ scenario, the scheme produces a loss of £16.4M (-5.3% on cost).

5. Conclusion

In conclusion, we consider that the site demonstrates sufficient viability for re-allocation in the RLDP, notwithstanding profit margins are below standard commercial levels, noting its potential for enhanced contributions to affordable housing, employment and public realm improvement.

Andrew Weeks MRICS
Director

Date: 18/09/26

Scott Caldwell MRICS
Director

Date: 18/09/26

Andrew Weeks MRICS
Director

Scott Caldwell MRICS
Director