Port of Milford Haven

Pembroke Port

Preliminary Ecological Appraisal

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RSK GENERAL NOTES

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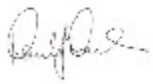
Signature			
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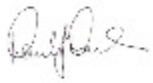
Signature		Signature	
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EXECUTIVE SUMMARY

1. This report presents the findings of a Preliminary Ecological Appraisal undertaken for the redevelopment of Pembroke Port, Pembrokeshire. The proposals (Option 5 Layout) include the demolition and construction of buildings and the creation of transport corridors across the site.

2. Pembroke Port, a working dockyard, is dominated by hard-standing, bare ground and buildings. The principal areas of vegetation are at the southern end of the site while the waters of Milford Haven are north of the site.

3. No designated wildlife conservation the sites are located within the site boundary. The Pembroke Marine Special Area for Conservation and the Milford Haven Waterway Site of Special Scientific Interest abut the extreme south-western site boundary.

4. The background data search contained records of protected mammal, reptile and bird species within 2 km of the site. The site offers potential habitat for roosting, foraging and commuting bats, foraging and nesting birds, reptiles, Otters and Badgers.

5. Unimproved grassland together with areas comprising a mosaic of habitats (Target Note 6 and 37) meet the HoPI descriptions for 'Lowland Meadows' (lowland grassland on neutral soil) and 'Open Mosaic Habitat on Previously Developed Land' respectively, under *Section 7 of The Environment (Wales) Act 2016*. In addition, habitats on the site meet the LBAP habitats criteria for 'Brownfield/urban', 'Grassland' and 'Woodland'.

6. A Phase 2 Botanical Survey is recommended to assess the areas of 'Open Mosaic Habitat on Previously Developed Land'. RSK understands this habitat will be affected by the proposed works and the survey will provide information for appropriate mitigation and compensation measures. If the unimproved grassland is affected by the works then a Phase 2 Botanical Survey is also recommended to assess this habit.

7. The site is categorised as being of 'medium habitat quality' for bats (Collins 2016) and a Greater Horseshoe Bat roost has been reported (Biodiversity Solutions 2014), *ca*. 35 m from the site boundary. Bat activity surveys will provide information on the likely effects of the development on bat populations and assist in the design of mitigation. A preliminary bat roost inspection will target trees and buildings likely to be directly affected by the proposed plans. This will inform the need for further bat surveys.

8. Additional surveys for Otters, reptiles, birds, Badgers, protected plant species and invertebrates are discussed in the report together with precautionary working methods to reduce the potential impacts of the works on birds and Otters.

CONTENTS

EXECUTIVE SUMMARY **0**

1 INTRODUCTION **5**

1.1 Purpose of this Report 5

1.2 Ecological Context 5

1.3 Structure of this Report 6

2 METHODS **7**

2.1 Background Data Search 7

2.2 Phase 1 Habitat Survey 8

2.3 Non-Native Invasion Plant Species 8

2.4 Assessing the Value of Habitats 9

2.5 Habitat Assessment for Protected Species 9

2.5.1 General 9

2.5.2 Bats 9

2.5.3 Great Crested Newts 10

2.5.4 Otters 10

2.5.5 Reptiles 10

2.5.6 Badgers 11

2.5.7 Birds 11

2.5.8 Validity of Data 11

2.5.9 Constraints 11

3 RESULTS **12**

3.1 Background Data Search 12

3.1.1 Biodiversity Action Plans 12

3.1.2 Designated Sites 12

3.1.3 Protected and Noteworthy Species 14

3.2 Habitats 17

3.2.1 General 17

3.2.2 Hard-standing 17

3.2.3 Bare Ground 17

3.2.4 Boundary Wall 18

3.2.5 Ruderal open grassland 18

3.2.6 Ephemeral 18

3.2.7 Tall ruderal....18
3.2.8 Dense and scattered scrub....18
3.2.9 Scattered trees....19
3.2.10 Secondary broad-leaved woodland....19
3.2.11 Unimproved grassland....20
3.2.12 Amenity grassland....20
3.2.13 Introduced shrub....20
3.2.14 Intertidal....20
3.2.15 Spoil....20
3.2.16 Standing water....21
3.2.17 Sea wall....21
3.2.18 Invasive non-native species....21
3.3 Assessment for Protected Species....21
3.3.1 Bats....21
3.3.2 Great Crested Newts....25
3.3.3 Otter....25
3.3.4 Reptiles....26
3.3.5 Birds....26
3.3.6 Badger....27
3.3.7 Fish....28
4 EVALUATION AND CONCLUSIONS....29
4.1 Designated Sites....29
4.2 Habitats....30
4.2.1 Non-native invasive species....30
4.3 Assessment for Protected Species....31
4.3.1 Bats....31
4.3.2 Great Crested Newts....32
4.3.3 Otter....32
4.3.4 Reptiles....33
4.3.5 Birds....33
4.3.6 Badger....34
4.3.7 Fish....34
5 REFERENCES....36
6 FIGURES....38

APPENDIX A – Protected Species Legislation

APPENDIX B – Target Notes

APPENDIX C – Noteworthy Species Records

APPENDIX D – Abbreviations

APPENDIX E – Plant Species List

1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of a preliminary ecological appraisal undertaken in connection with the proposed redevelopment of Pembroke Port, Pembrokeshire (centred at Ordnance Survey Grid Reference SM 959 037). The results of the surveys will be used to determine whether any further ecological surveys are required and to provide information for planning applications or consultations.

The current proposals for the site (Pembroke Port Development Plan; Option 5 Layout and Demolition/Intervention Plan) include the demolition of some of the existing buildings, construction of new buildings and the provision of a designated vessel transition area, a High Bay Ship Repair and Fabrication Facility and a Crushed Rock Export operation. Several transport corridors15 m to 30 m wide and oriented east-west and north-south across the site will be created and the Graving and Dry Dock will be in-filled, Meanwhile, vegetation removal is likely to be required and there may be changes to the way the site is lit.

1.2 Ecological Context

Pembroke Port is an active industrial port and dockyard with frequent movements of machinery, heavy goods vehicles, and ferries. It is dominated by hard-standing, bare ground and industrial, commercial and office buildings associated with the port operations. A sand-storage depot is present in the east of the site. Vegetation principally in the southern part of the site includes a small area of immature secondary broad-leaved woodland, scattered trees, ruderal open grassland, a small area of unimproved grassland and scrub. Elsewhere, vegetation is scattered across the site and includes ephemeral species, amenity grassland and introduced shrubs.

The waters of Milford Haven form the northern site boundary of Pembroke Port and Milford Haven and an industrial area forms the western site boundary. To the south the site is bounded by residential properties, the South Pembrokeshire Hospital, a golf course and farmland. The town of Pembroke east of the site is dominated by residential and commercial buildings and transport infrastructure. The location of the site is illustrated in *Figure 1*.

1.3 Structure of this Report

The remainder of this report is structured as follows:

- *Section 2* describes the survey and assessment methodologies;
- *Section 3* presents the survey results of the Preliminary Ecological Appraisal;
- *Section 4* evaluates the results and presents conclusions;
- *Section 5* lists the references; and
- *Section 6* provides the figures.

Subsequent sections (*Appendix A* to *D*) provide:

- *Appendix A* lists relevant protected species legislation;
- *Appendix B* presents the Target Notes;
- *Appendix C* noteworthy species records; and
- *Appendix D* table of abbreviations.

2 METHODS

2.1 Background Data Search

A search was made in March 2017 for reference materials relating to the ecology of the Pembroke Port site, and a list of sources is given in *Table 1*.

Table 1: Data sources

Information Obtained	Available From
Protected and Noteworthy species-records	West Wales Biodiversity Information Centre
Designated site locations and citations	Natural Resources Wales (NRW)
Designated site locations and citations	West Wales Biodiversity Information Centre
Ancient Woodland Inventory	NRW
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the Pembrokeshire LBAP	Local BAP website http://www.pembrokeshire.gov.uk/content.asp?id=19158&nav=1626,109,135&parent_directory_id=646

A search was made for information on statutory designated sites (often internationally and nationally important sites for ecology) and non-statutory designated sites (often important in a local context) within 2 km of the site boundary. A search was also made for records of noteworthy species within the same 2 km area. Species included in the search parameters are:

- European protected species (listed on *Schedules 2* and *5* of *The Conservation of Habitats and Species* (Amendment) *Regulations 2012*);
- nationally protected species under *Schedules 1, 5* and *8* of *The Wildlife & Countryside Act 1981* and *The Protection of Badgers Act 1992*;
- species listed as Critically Endangered, Endangered or Vulnerable on the *IUCN Red List*
- all species listed on the RSPB *Birds of Conservation Concern 2002-2007* as Red or Amber, as updated in *The Population Status of Birds in Wales 2*;
- Nationally Rare or Nationally Scarce species;
- Notable invertebrates; and
- species of Principal Importance under *The Natural Environment and Rural Communities (NERC) Act (2006)* or are Priority Species under the Local Biodiversity Action Plan.

2.2 Phase 1 Habitat Survey

The habitat survey centred on the Phase 1 Habitat Survey approach (Joint Nature Conservation Committee 2010) as extended for use in Environmental Impact Assessments (Institute of Environmental Assessment 1995). This involves the following elements:

- Habitat mapping using a set of standard colour codes to indicate habitat types on a Phase 1 Habitat Map (*Figure 2*).
- Description of features of possible ecological or nature conservation interest in notes relating to numbered locations on the Phase 1 Habitat Map, called 'Target Notes'. These are provided in *Appendix B*.

The Phase 1 Habitat Survey (including habitat assessment for protected species) was carried out by Paul Parker on the 23 and 24 March 2017. Paul is a Consultant Ecologist at RSK with three years experience as a professional consultant in ecology. Weather conditions during the survey are recorded in *Table 2*.

Table 2: Weather conditions during the field survey

Date	Air Temperature	Cloud Cover	Wind Speed and Direction	Precipitation
23/03/2015	7 ℃	80 %	0	Dry
24/03/2015	4 ℃	10%	15mph, n. east	Dry

Basic Phase 1 Habitat Survey methods are described in Joint Nature Conservation Committee (JNCC 2010). Limits to the achievable reliability of the method are discussed in Cherrill & McClean (1999). There are no firm guidelines to specify what extended Phase 1 Habitat Survey involves, but the Institute of Environmental Assessment (1995) suggests that it simply involves more extensive and detailed target notes.

Plant nomenclature in this report follows Stace (2010) for native and naturalised species of vascular plant. Plant names in the text are given with scientific names first, followed by the English name in brackets.

2.3 Non-Native Invasive Plant Species

Phase 1 Habitat survey does not involve exhaustive surveying for any individual plant species. But if invasive plant species were seen during the normal course of the survey e.g. *Fallopia japonica* (Japanese Knotweed), *Heracleum mantegazzianum* (Giant Hogweed), *Impatiens glandulifera* (Indian Balsam), they were noted and reported here.

2.4 Assessing the Value of Habitats

The scientific value of habitats for nature conservation is assessed according to widely accepted criteria of which the most important are naturalness, extent, rarity, and diversity. These and others are described in an extensive literature (Ratcliffe 1977 and Usher 1986). In addition, the following criteria were used:

- Whether habitats are included on a list of priority habitat types that has been published in connection with UK implementation of the EC 'Habitats Directive'. Other important habitats and species are identified in National Biodiversity Action Plans (UK BAP website: www.ukbap.org.uk).
- Special importance attached to ancient semi-natural habitats that depend for their survival on traditional types of land management, especially where these have suffered large reductions over the last fifty years due to agricultural intensification and extensification. Habitats in these categories are discussed in Rackham (1986).

2.5 Habitat Assessment for Protected Species

2.5.1 General

The suitability of the site for the protected animals that are likely to occur in the area was assessed. Taking into account the location and habitats at the site, assessment was carried out for:

- bat species (foraging, commuting and roosting);
- Great Crested Newts;
- Otters;
- reptiles;
- Badgers; and
- nesting birds.

Further details of the assessment methods are given below.

2.5.2 Bats

Habitats were assessed for their suitability for foraging or commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and habitats with good numbers of insects, such as woodland, scrub, hedges, watercourses, ponds, lakes and species-rich or rough grassland.

Buildings and trees on the site were identified if they obviously had potential to house roosting bats. This involved consideration of the age and condition of the building or

tree, and identifying features that roosting bats may favour (*e.g.* holes, cracks and cavities that might be used as bat-entrance points or roost sites).

If any definite signs of bats or other evidence had been found (such as actual sightings, droppings, urine stains, odour, scratch marks, grease stains and feeding remains), they would have been recorded, though finding such evidence is highly unlikely at this level of survey.

2.5.3 Great Crested Newts

Although standing water is essential for their breeding, Great Crested Newts (*Triturus cristatus*) are terrestrial for most of the year, and have been recorded up to 500 m from their breeding ponds. Therefore, we assessed the suitability of the site both for terrestrial and breeding Great Crested Newts. Suitable breeding ponds are well-vegetated, relatively clean and unpolluted, largely free of fish and wildfowl, and likely to retain water throughout most (but not necessarily all) summers. Highly suitable terrestrial habitats include woodland, scrub and tussocky grassland, though Great Crested Newts can be found in a broad range of sub-optimal habitats as well. Habitat suitability for other amphibians is also assessed.

2.5.4 Otters

An initial assessment of watercourses, areas of wetland, and adjacent habitat was made for their suitability for Otters (*Lutra lutra*). This included an assessment of water depth, water quality, vegetation and cover. The survey comprised a detailed search for signs of Otters including spraint (droppings), footprints, slides, paths, feeding evidence, holts (underground resting places) or couches (temporary resting places).

2.5.5 Reptiles

The site was assessed for reptiles, with particular attention to features that provide suitable basking areas (*e.g.* south-facing slopes), hibernation the sites (*e.g.* banks, walls, piles of rotting vegetation) and opportunities for foraging (*e.g.* rough grassland and scrub).

The site was assessed for its suitability for each of the four common reptile species. Specific habitat requirements differ between species. Common Lizards (*Lacerta vivipara*) use a variety of habitats from woodland glades to walls and pastures, although one of their favoured habitats is rough grassland. Slow-worms (*Anguis fragilis*) use similar habitats to Common Lizards, and are often found in rank grassland, gardens and derelict land. Grass Snakes (*Natrix natrix*) have broadly similar requirements to Common Lizards with a greater reliance on ponds and wetlands, where they prey on Common Frogs (*Rana temporaria*). Adders (*Vipera berus*) use a range of fairly open

habitats with some cover, but are most often found in dry heath (Beebee & Griffiths 2000).

2.5.6 Badgers

An initial assessment was carried out to identify areas that might be used by Badgers *(Meles meles*) for commuting, foraging and sett-building on the site and within 30 m of the site boundary (where access was possible). The site was systematically searched.

2.5.7 Birds

Habitats on the site were assessed for their suitability for foraging and nesting birds. Birds nest in a wide variety of habitats including scrub, woodland, hedges and trees, as well as on buildings or open ground. Should any nests be recorded during the survey then these will be highlighted within the report and denoted by a *Target Note*.

2.5.8 Validity of Data

Data collected for submissions to the Local Planning Authority are usually valid up to two years following the field survey. Should construction works have not commenced within two years then a repeated preliminary ecological appraisal and initial bat inspection will need to be completed.

2.5.9 Constraints

Dense scrub (*Target Note 14*) in the secondary broad-leaved woodland and at *Target Note 1* prevented an exhaustive survey of these areas for field signs of Badgers and there remains the possibility that setts remain undetected.

The survey was undertaken in March and may not have identified plant species which mostly have a later growing season.

An area of port frontage formed from boulders, situated to the south of the ferry terminal building was not surveyed, as it was intertidal and required two ecologists to undertake the survey due to health and safety considerations.

3 RESULTS

3.1 Background Data Search

3.1.1 Biodiversity Action Plans

Under *Section 7 of the Environment (Wales) Act 2016 (*which replaces *Section 42* of *The Natural Environment and Rural Communities (NERC) Act 2006)* habitats on the site have the potential to meet the Habitats of Principal Importance types for Open Mosaics on Previously Developed Land and Lowland Meadows.

The latest Pembrokeshire Local Biodiversity Action Plan (LBAP) lists nine Habitat Action Plans (HAPs), three individual and seven grouped Species Action Plans (SAPs). The local HAPs and SAPs that are relevant to the proposed development are;

Habitats:

- Brown field / Urban;
- Grassland; and
- Woodland.

Species:

- Bats;
- Commercial fish species;
- Otter; and
- Reptiles.

3.1.2 Designated Sites

Statutory Sites

There are two statutory designated sites within 2 km of the site boundary, comprising one Special Area of Conservation (SAC) and one Site of Special Scientific Interest (SSSI). The sites overlap along the estuary and abut the site at the extreme north-western boundary. The sites are listed in *Table 3* in order of proximity to the site; short descriptions are given for the sites.

Table 3: Statutory sites within 2 km of the site boundary

Site Name	Designation	Approximate Distance (m)
Milford Haven Waterway	SSSI	Borders site boundary
Milford Haven Waterway SSSI covers a large area, extending from the mouth of the Haven at Dale Point and Thorn Island to the upper reaches of the Daugleddau at Haverfordwest in the west and Blackpool Mill in the east. The SSSI comprises ancient woodland, cliffs, rocky shores, beeches, mudflats, saltmarsh, swamp and saline lagoons.		

Site Name	Designation	Approximate Distance (m)
The diverse range of habitats supports a rich diversity of flowering plants, mosses, lichen and liverworts including rare and scarce species. Species of note include *Zostera noltei* (Dwarf Eelgrass), *Lathyrus palustris* (Marsh Pea), *Limonium procerum* spp. *Cambrense* (Rock Sea-lavender), *Erodium moschatum* (Musk Stork's-bill), the mosses *Tortula cuneifolia* and *Weissia perssonii* and the liverwort *Cololejeunea minutissima*. The saltmarsh and mudflats within the Haven support significant numbers of over-wintering wildfowl and waders, including Curlew, Dunlin, Little Grebe, Shelduck, Teal and Wigeon. The Haven makes up the lower part of the Cleddau catchment, an area recognised as being one of the most important places in southern Britain for Otter. Within the vicinity of the Haven are important bat breeding sites, supporting internationally important populations of Greater Horseshoe Bat, as well as nationally important numbers of Lesser Horseshoe Bat. The site is also important for invertebrates; species of note include the Brown Hairstreak Butterfly, Comb Footed Spider and Tentacled Lagoon Worm.		
Pembrokeshire Marine/ Sir Benfro Forol	SAC	Borders site boundary
Pembrokeshire Marine / Sir Benfro Forol SAC is designated for the following Annex I Habitats and Annex II species (primary reason for site selection or qualifying feature): - Estuaries (primary) - Large shallow inlets and bays (primary) - Reefs (primary) - Sandbanks which are slightly covered by sea water all the time (qualifying feature) - Mudflats and sandflats not covered by seawater at low tide (qualifying feature) - Coastal lagoons (qualifying feature) - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (qualifying feature) - Submerged or partially submerged sea caves (qualifying feature) - Grey Seal (primary) - Shore Dock (primary) - Sea Lamprey (qualifying feature) - River Lamprey (qualifying feature) - Allis Shad (qualifying feature) - Twaite Shad (qualifying feature) - Otter (qualifying feature)		

Non-statutory Sites

There are no non-statutory designated sites within 2 km of the site boundary.

Other Notable Sites

There are 16 areas of ancient woodland within 2 km of the site boundary, comprising 11 areas of Ancient Semi Natural Woodlands and 5 areas of Restored Ancient Woodlands. The closest area of ancient woodland to the site boundary is 1 km to the north.

3.1.3 Protected and Noteworthy Species

At least 137 noteworthy species are recorded from places within 2 km of the site boundary. Of these, 3 are amphibians, 98 are birds, 1 is a fungi, 15 are invertebrates, 7 are plants, at least 11 are mammals and 2 are reptiles. Species that are protected by law under *Schedules 2 and 5 of The Conservation of Habitats and Species (Amendment) Regulations 2012*, *The Wildlife and Countryside Act 1981* or *The Protection of Badgers Act 1992* and have been recorded in the search area are listed in the *Table 4*; a full species list is given in *Appendix C*.

Table 4: Protected species records within 2 km of the site boundary

Latin Name	Common Name	Designation	Most Recent	No of Records	Within 100m	Within 1km	Within 2km
Amphibians							
Bufo bufo	Common Toad	WCA5	1994	4		☒	
Lissotriton helveticus	Palmate Newt	WCA5	2012	1		**P**	☒
Rana temporaria	Common Frog	WCA5	2013	4		☒	
Birds							
Alcedo atthis	Kingfisher	WCA1.1	2012	25	**P**	**P**	☒
Anas acuta	Pintail	WCA1.2	2012	23			☒
Aythya marila	Scaup	WCA1.1	2011	12	**P**	**P**	☒
Bucephala clangula	Goldeneye	WCA1.2	2011	51	**P**	☒	
Calidris pugnax	Ruff	WCA1.1	2010	4	**P**	**P**	☒
Cettia cetti	Cetti's Warbler	WCA1.1	2011	2			**P**
Charadrius dubius	Little Ringed Plover	WCA1.1	1987	1			☒
Circus cyaneus	Hen Harrier	WCA1.1	2010	1			**P**
Falco peregrinus	Peregrine	WCA1.1	2008	4			**P**
Falco rusticolus	Gyr Falcon	WCA1.1	2009	1	**P**	**P**	**P**
Falco subbuteo	Hobby	WCA1.1	2009	1			**P**
Fringilla montifringilla	Brambling	WCA1.1	2010	5	**P**	**P**	**P**
Gavia arctica	Black-throated Diver	WCA1.1	1997	1			☒
Gavia immer	Great Northern Diver	WCA1.1	2010	19	**P**	☒	
Gavia stellata	Red-throated Diver	WCA1.1	2010	2			**P**
Larus melanocephalus	Mediterranean Gull	WCA1.1	2011	13	**P**	☒	
Limosa limosa	Black-tailed Godwit	WCA1.1	2011	43	**P**	☒	
Milvus milvus	Red Kite	WCA1.1	2008	3			☒

Latin Name	Common Name	Designation	Most Recent	No of Records	Within 100m	Within 1km	Within 2km
Numenius phaeopus	Whimbrel	WCA1.1	2010	25	**P**	☒	
Phoenicurus ochruros	Black Redstart	WCA1.1	2009	2	**P**	**P**	**P**
Platalea leucorodia	Spoonbill	WCA1.1	2010	9	**P**	**P**	☒
Podiceps auritus	Slavonian Grebe	WCA1.1	2011	1			**P**
Podiceps nigricollis	Black-necked Grebe	WCA1.1	2007	3			**P**
Recurvirostra avosetta	Avocet	WCA1.1	2010	3	**P**	**P**	**P**
Regulus ignicapilla	Firecrest	WCA1.1	2010	9			**P**
Tringa nebularia	Greenshank	WCA1.1	2011	130	**P**	☒	
Tringa ochropus	Green Sandpiper	WCA1.1	2011	1			**P**
Turdus iliacus	Redwing	WCA1.1	2012	35	**P**	**P**	**P**
Turdus pilaris	Fieldfare	WCA1.1	2011	8	**P**	**P**	**P**
Tyto alba	Barn Owl	WCA1.1	2009	8	**P**	**P**	**P**
Invertebrates							
Cupido minimus	Small Blue	WCA5	1996	2		**P**	☒
Plants							
Lactuca saligna	Least Lettuce	WCA8	2012	1			☒
Mammals							
Chiroptera	Bats	EPS(Sch2)	2011	3		☒	
Lutra lutra	European Otter	EPS(Sch2), WCA5	2008	8		**P**	☒
Meles meles	Eurasian Badger	BA	2012	10	**P**	☒	
Myotis mystacinus	Whiskered Bat	EPS(Sch2), WCA5	1987	2			☒
Nyctalus noctula	Noctule Bat	EPS(Sch2), WCA5	2014	1	☒		
Pipistrellus sp.	a Pipistrelle bat	EPS(Sch2), WCA5	2016	3			☒
Pipistrellus pipistrellus	Common Pipistrelle	EPS(Sch2), WCA5	2014	6	☒		
Pipistrellus pygmaeus	Soprano Pipistrelle	EPS(Sch2), WCA5	2014	2	☒		
Plecotus auritus	Brown Long-eared Bat	EPS(Sch2), WCA5	2009	7		☒	
Rhinolophus ferrumequinum	Greater Horseshoe Bat	EPS(Sch2), WCA5	2012	4		☒	
Rhinolophus hipposideros	Lesser Horseshoe Bat	EPS(Sch2), WCA5	1994	6		☒	

Latin Name	Common Name	Designation	Most Recent	No of Records	Within 100m	Within 1km	Within 2km
Reptiles							
Anguis fragilis	Slow-worm	WCA5	2011	2		**P**	☒
Natrix natrix	Grass Snake	WCA5	1992	1			☒

Note - **P** relates to records with 4 figure or tetrad grid references that could potentially be anywhere within a 1 km or 2 km square.

3.2 Habitats

3.2.1 General

The following habitats occur within the development site boundaries:

- hard-standing;
- bare ground;
- boundary wall;
- ruderal open grassland;
- ephemeral;
- tall ruderal;
- dense and scattered scrub;
- scattered trees;
- secondary broad-leaved woodland;
- unimproved grassland;
- amenity grassland;
- introduced shrub;
- intertidal;
- spoil;
- standing water; and
- sea wall

A Phase 1 Habitat Survey plan and target note locations are shown in *Figure 2.*

3.2.2 Hard-standing

The majority of the site is hard-standing (*e.g.* concrete, tarmacadam and compacted loose stone). Ephemeral vegetation was noted occasionally in association with this habitat type, in particular in association with areas of compacted loose stone *e.g. Senecio vulgaris* (Groundsel).

3.2.3 Bare Ground

Bare unvegetated ground was scattered across the site, for example on access tracks in the southern part it was associated with areas of ruderal open grassland vegetation at some locations (*Target Note 2*) and frequently supported sparse to dense ephemeral and ruderal vegetation including *Poa annua* (Annual Meadow-grass), *Euphorbia* sp. (a Euphorbia), *Senecio vulgaris* (Groundsel) and *Dipsacus fullonum* (Teasel).

3.2.4 Boundary Wall

An old wall, *c.*4 m in height and constructed of stone and mortar forms the western, eastern and portions of the southern boundary of the site. This is generally in good repair, but small gaps caused by missing mortar were noted at *Target Note 3 and 4.* Vegetation such as *Cymbalaria muralis* (Ivy-leaved Toadflax) was recorded occasionally on the wall.

3.2.5 Ruderal open grassland

Ruderal open grassland, comprising a mosaic of tall ruderal vegetation, unimproved grassland, ephemeral-short perennial vegetation, and scrub, occurred at several locations on the site for example, adjacent to the south-eastern boundary (*Target Note 5*). The species present included grass species such as *Festuca rubra* (Red Fescue) and *Poa annua* (Annual Meadow-grass) together with *Dipsacus fullonum* (Teasel), *Scrophularia* sp. (a Figwort), cf. *Brassica* sp. (a Cabbage) and *Epilobium* sp. (Willowherb), *Senecio vulgaris* (Groundsel), *Euphorbia* sp. (a Euphorbia), *Cerastium fontanum* (Common Mouse-ear) and *Geranium dissectum* (Cut-leaved Crane's-bill). There were additional areas of ruderal open grassland in the south-western portion of the site (*Target Note 6*) and at the northern end of the site, where it bordered hard standing and bare ground adjacent to the port frontage.

3.2.6 Ephemeral

Sparse and dense areas of ephemeral vegetation were recorded across the site and it was associated with bare ground, for example at *Target Note 7* together with areas of hard standing constructed of compacted loose stone such as *Target Note 8*. Species recorded included *Cerastium fontanum* (Common Mouse-ear)*, Senecio vulgaris (Groundsel), Cardamine* sp. (a Bittercress), *Euphorbia* sp. (a Euphorbia), *Taraxacum* sect. *Ruderalia* (Common Dandelion), *Bellis perennis* (Daisy), *Achillea millefolium* (Yarrow), *Petasites fragrans* (Winter Heliotrope) and *Sonchus asper* (Prickly Sow-thistle).

3.2.7 Tall ruderal

Scattered tall ruderal vegetation was recorded on rides within an area of semi-natural secondary broad-leaved woodland (*Target Note 9*) and the species present included *Scrophularia* sp. (a Figwort), *Dipsacus fullonum* (Teasel) and an *Epilobium* sp. (a Willowherb).

3.2.8 Dense and scattered scrub

Dense scrub was recorded at the southern end of the site (*Target Note 1*), where it formed large, impenetrable stands and the species present included *Rubus fruticosus* agg. (Bramble) and *Buddleja davidii* (Butterfly-bush). Additional dense and scattered scrub was present in a stand of semi-natural secondary broad-leaved woodland in the southern portion of the site and comprised *Rubus fruticosus* agg. (Bramble) and

Buddleja davidii (Butterfly-bush) stands. Further smaller stands of scrub were scattered across the site, such as in the northern portion of the site where the species recorded included *Ulex europaeus* (Gorse) and *Rubus fruticosus* agg. (Bramble).

3.2.9 Scattered trees

A line of mature trees stands in amenity grassland at *Target Note 10* in the south-western part of the site. The trees were *c.*25 m in height and the species recorded included *Aesculus hippocastanum* (Horse-chestnut) and *Fagus sylvatica* (Beech). This appeared to be part of a long-established amenity area, associated with nearby buildings, and included a man-made path and a stand of scattered trees or woodland growing in three ornamental beds. The tree species growing there included mature *Tilia* sp. (Lime species), *Acer pseudoplatanus* (Sycamore) and *Aesculus hippocastanum* (Horse-chestnut), up to *c.*25 m in height together with semi-mature *Betula pendula* (Silver Birch), immature *Fraxinus excelsior* (Ash) and *Salix* sp. (Willow species). In places non-native shrub species such as *Prunus lusitanica* (Portugal Laurel) formed a dense understorey together with native species such as *Rubus fruticosus* agg. (Bramble) and *Ilex aquifolium* (Holly). The ground flora in the poorly-managed beds included horticultural species plus *Primula vulgaris* (Primrose), *Taraxacum* sect. *Ruderalia* (Common Dandelion), *Urtica dioica* (Common Nettle), *Ficaria verna* (Lesser Celandine), *Geranium robertianum* (Herb-Robert), *Plantago lanceolata* (Ribwort Plantain), *Ranunculus repens* (Creeping Buttercup), *Arum maculatum* (Lords-and-Ladies) together with grass species such as *Holcus lanatus* (Yorkshire-fog), *Arrhenatherum elatius* (False Oat-grass) and *Agrostis stolonifera* (Creeping Bent).

Additional lines of mature trees, up to *c.* 25 m in height, were recorded in the southern part of the site, for example at *Target Note 11*, and the species recorded included *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash). Some trees had a dense covering of *Hedera helix* (Ivy). In the central area a line of mature *Aesculus hippocastanum* (Horse-chestnut) was recorded at *Target Note 12* and a line of semi-mature, planted *Fagus sylvatica* (Beech) and *Acer pseudoplatanus* (Sycamore) occurred at *Target Note 13*. Meanwhile, further mature and semi-mature scattered trees were recorded in the central area and the species comprised *Aesculus hippocastanum* (Horse-chestnut) and *Acer pseudoplatanus* (Sycamore).

3.2.10 Secondary broad-leaved woodland

An area of semi-natural, secondary broad-leaved woodland was present at the southern end of the site, in what was possibly an old walled garden (*Target Note 14*). This appeared to have developed due to a lack of recent disturbance and comprised densely growing immature *Acer campestre* (Field Maple) and *Fraxinus excelsior* (Ash) up to *c.* 10 m in height. The understorey was dense in places and comprised scrub species including *Rubus fruticosus* agg. (Bramble) and *Buddleja davidii* (Butterfly-bush). The ground flora comprised species such as *Holcus lanatus* (Yorkshire-fog), *Anthriscus sylvestris* (Cow Parsley), *Arum maculatum* (Lords-and-Ladies) and *Hedera helix* (Ivy). Rides had been created through the centre and around the periphery of the woodland.

3.2.11 Unimproved grassland

An area of tussocky, unimproved grassland is located in the south-western part of the site (*Target Note 15*). The species recorded included *Festuca rubra* (Red Fescue), *Agrostis stolonifera* (Creeping Bent), *Arrhenatherum elatius* (False Oat-grass), *Dactylis glomerata* (Cock's-foot), *Ficaria verna* (Lesser Celandine), *Urtica dioica* (Common Nettle), *Plantago lanceolata* (Ribwort Plantain) and *Potentilla reptans* (Creeping Cinquefoil).

3.2.12 Amenity grassland

Amenity grassland was present at the northern boundary of the site, adjacent to the passenger ferry terminal. Species recorded included *Holcus lanatus* (Yorkshire-fog), *Lolium perenne* (Perennial Rye-grass), *Festuca rubra* (Red Fescue) and *Taraxacum* sect. *Ruderalia* (Common Dandelion), *Plantago lanceolata* (Ribwort Plantain), *Primula vulgaris* (Primrose), *Urtica dioica* (Common Nettle), *Senecio jacobaea* (Common Ragwort), *Trifolium repens* (White Clover), a *Rumex* sp. (Dock species), *Ficaria verna* (Lesser Celandine) and *Geranium dissectum* (Cut-leaved Crane's-bill).

An additional area of amenity grassland occurred in the south-eastern portion of the site and the species recorded included *Holcus lanatus* (Yorkshire-fog), *Festuca rubra* (Red Fescue), a *Poa* sp. (Meadow Grass), *Ranunculus repens* (Creeping Buttercup), *Bellis perennis* (Daisy), *Primula vulgaris* (Primrose), *Taraxacum* sect. *Ruderalia* (Common Dandelion) and *Ficaria verna* (Lesser Celandine). These areas had a short sward and appeared to be subject to regular mowing. Further, small areas of amenity grassland were recorded across the site.

3.2.13 Introduced shrub

A small bed of introduced shrubs was recorded adjacent to the passenger ferry terminal and the species recorded included *Lonicera nitida* (Wilson's Honeysuckle) together with *Rubus fruticosus* agg. (Bramble). Additional areas of introduced shrub were located in the south-eastern portion of the site, where they formed part of the understorey beneath scattered trees within an amenity area (*Target Note 10*) and the species present included a dense stand of *Prunus lusitanicus* (Portugal Laurel).

3.2.14 Intertidal

Intertidal habitat was located on the north and north-eastern part of the site and comprised natural areas of sand, mud, pebbles and rock together with man-made structures such as port frontage, slipways and jetties comprising stone, concrete, boulders and timber.

3.2.15 Spoil

Banks of spoil *c.1* m in height, comprising rubble and other material, were located in the southern part of the site, where they formed the boundary of a parking area (*Target Note 16*). These banks supported ephemeral and tall ruderal vegetation. Additional large piles of spoil, which appeared to comprise masonry, up to 4 m in height and

vegetated primarily with dense scrub together with tall ruderal and ephemeral vegetation, were located at *Target Note 1.* A further small bank of spoil at *Target Note 17* was vegetated with species such as *Petasites fragrans* (Winter Heliotrope).

An operational sand storage depot, bounded by concrete walls, was situated at the east of the site and contained several large spoil heaps of sand. No vegetation was present in this area.

3.2.16 Standing water

A tidal timber pickling pond containing saline water and connected to the waters of Milford Haven was located on the western side of the site. There appeared to be no vegetation growing in the water. The pond was contained within vertical stone and mortar walls on the northern, southern and western sides and by a sloping bank of stone and mortar on the eastern side. The vertical walls supported a very sparse amount of vegetation, including ferns, tall ruderal and ephemeral species and the species recorded included *Asplenium scolopendium* (Hart's-tongue Fern), *Cymbalaria muralis* (Ivy-leaved Toadflax), *Senecio vulgaris* (Groundsel) and *Scrophularia* sp. (a Figwort). The sloping bank supported a denser cover of similar vegetation.

3.2.17 Sea wall

The port frontage comprises vertical stone and mortar walls with a sloped area of boulders to the south of the ferry terminal building. The frontage is interrupted by several slipways, constructed of stone and concrete which extend inland in a southerly direction.

3.2.18 Invasive non-native species

A small stand of *Fallopia japonica* (Japanese Knotweed) *ca*. 2 m long and 1 m wide was recorded growing within scrub at the northern end of the site (*Target Note 18*). An additional area of *Fallopia japonica* (Japanese Knotweed), *ca*. 6 m long and 3 m wide was recorded in the southern part of the site (*Target Note 19*).

3.3 Assessment for Protected Species

3.3.1 Bats

The background data search contained records of at least seven different bat species within 2 km of the site, including records of Greater Horseshoe Bat and Lesser Horseshoe Bat (*Annex 2* listed species under the *Conservation of Habitats and Species Regulation 2010*). Additionally, a Greater Horseshoe Bat roost has previously been reported to be present in the Old Commodore Hotel building (Ecology Solutions 2014). This building is outside, though in close proximity, to the survey site, being *c.*20 m from the southern site boundary.

Vegetated areas such as the secondary woodland, scattered trees, scrub, ruderal open grassland and unimproved grassland habitats offer suitable foraging and commuting habitat for a variety of species of bats. Meanwhile less vegetated areas may be used by more common species such as Pipistrelles. The water front of the dock may offer potential commuting habitat across the site.

Potential roosting habitat is provided by numerous buildings on the site. They range in age from modern, very large industrial structures constructed from corrugated metal to older buildings of various sizes and constructed from stone, brick and slate. Potential roosting features (PRFs) recorded included gaps under lead flashing, missing bricks, cracks formed by missing mortar and gaps between wooden fascias and walls. Additional potential roosting habitat is provided by scattered trees and PRFs included rot holes, raised bark and dense *Hedera helix* (Ivy) cover. Meanwhile, holes in the boundary wall, caused by missing mortar, provided further PRFs. Examples of PRFs noted during the survey are provided, for reference, in *Table 5.*

Table 5: Examples of PRFs Noted in Trees, Boundary Wall and Buildings

Target Note	Description	Photograph
Target Note 20	A building located centrally within the western part of the site. Constructed from stone with a pitched roof of slate and lead flashing on the roof ridges together with wooden sash windows. Gaps in the lead flashing were noted on either side of the chimney and these offered a potential roosting place for bats on the building's exterior.	
Target Note 21	A building located centrally in the western part of the site and built from stone and brick with a two-pitched roof of corrugated metal. Several potential features were noted where bats could gain entry to the building to roost such as missing bricks, gaps between the roof and the wall and a gap over the door illustrated in the attached photograph.	

Target Note 22	A brick building located in the south-eastern part of the site, with a pitched corrugated metal roof Several features provide suitable access points for bats such as missing mortar and open windows.	
Target Note 23	A building in the central part of the site with rendered walls and a flat roof. Several potential features were present via which bats could gain access to the inside of the building to roost including open windows, an opening over a fan and a gap over a door.	
Target Note 24	Stone one-storey building with pitched tiled roof located in the north-western area of the site. A large hole in the gable end below the roof ridge offers a potential access point to roosting bats.	

Target Note 25	Mature *Quercus ilex* (Evergreen Oak) with features such as dead limbs, rot holes and loose bark that offers potential roosting opportunities to bats.	
Target Note 11	A line of mature trees near the southern boundary of the site, some with a thick covering of *Hedera helix* (Ivy), offering potential habitat for roosting bats. Species include *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash).	

3.3.2 Great Crested Newts

No records of Great Crested Newts (GCN) were cited in the 2 km BDS. A single water body, a former wood pickling pond, was located on the site and an analysis of OS maps and aerial photographs show that there are no further ponds within 500 m of the site. The pickling pond was found to be unsuitable as it was tidal and contained saline water.

3.3.3 Otter

The BDS contained records of Otter potentially within 1 km of the site. The intertidal habitat provided by the waters of Milford Haven, located at the northern part of the site, provides potential foraging and commuting habitat for Otter and includes several docks and slipways.

The frontage of the dockyard comprises vertical walls constructed of concrete and stone together with a sloping wall of boulders. The boulders are adjacent to an area of amenity grassland, used by the general public while awaiting ferries. In places, wooden and metal docking areas are immediately adjacent to the frontage, and wooden and metal jetties extend into the waters of Milford Haven. Several docks and slipways, extending in land from the port frontage, and an area of boulders have the potential to be used by Otters as temporary resting places and Otter footprints were recorded in mud in a dock (*Target Note 26*) during a survey undertaken by RSK in 2015. No signs of Otter activity were recorded during this survey, although it was not possible to undertake a survey of a portion of the port frontage consisting of boulders (*Target Note 27*).

3.3.4 Reptiles

Historical records of Grass Snake (*Natrix natrix*) were found in the 2 km BDS while records of Slow Worm (*Anguis fragilis*) were found within the 1 km background data search.

Ruderal open grassland, trees, scrub and spoil at the southern end of the site (*Target Notes 6* and *28*) and an area of unimproved grassland (*Target Note 15*) together with the rides in the woodland provide suitable basking and foraging habitat for commonly occurring reptiles. Fly-tipped material together with large spoil heaps (*Target Note 1*) offer potential refuges for reptiles. Additionally, a small, isolated area of bare ground and ruderal open grassland used for the storage of steel, skips and other material at *Target Note 29* has a low potential for reptiles.

3.3.5 Birds

Records of several *Schedule 1* protected species of bird were cited in the BDS, mainly associated with the Milford Haven and associated tributaries. The site is unsuitable as breeding habitat for all of these *Schedule 1* species.

Inter-tidal habitats, woodland, scattered trees, scrub, ruderal open grassland, ephemeral, tall ruderal and unimproved grassland on the site provide foraging potential for more widely distributed species. Trees, scrub, the site boundary wall and buildings on the site offer potential nesting habitat for a variety of bird species, including gulls. The site of a previous swallows nest was recorded on the inside of a commercial building within a scrap yard (*Target Note 30*) and an old nest of an unidentified Hirundine species was recorded on the gable end of a building at *Target Note 31*. Meanwhile, Jackdaws and Feral Pigeons were recorded roosting (or nesting) within a building at *Target Note 32*. Furthermore, a local landowner reported that Swallows nest in a structure formerly used as a floating dock gate located at *Target Note 33* and a site worker reported that House Sparrows roost or nest in two holes in the site boundary wall at *Target Note 3*.

Black Redstart, a Schedule 1 species, was recorded in the south-eastern area of the site during the survey (*Target Note 34*).

Owing to the coastal location adjacent to the Milford Haven, a large expanse of mudflats, *c.*6 ha lies immediately to the east. They are outside the Pembrokeshire Marine SAC and Milford Haven Waterway SSSI designations but offer suitable habitat for a wide variety of wintering waders. The area of mudflats is partly screened from the proposed development by a fortified tower and walkway.

Seventeen species of bird were identified on the site during the field survey. *Table 6* provides details of these species and their conservation status according to The Population Status of Birds in Wales 2 (RSPB).

Table 6: Bird Species Recorded during the Field Survey

Latin Name	English/Common Name	The State of Birds in Wales*
Aegithalus caudatus	Long-tailed Tit	Amber
Carduelis canabina	Linnet	Red
Carduelis carduelis	Goldfinch	Green
Corvus corone	Crow	Green
Corvus monedula	Jackdaw	Green
Erithacus rubecula	Robin	Green
Fringilla coelebs	Chaffinch	Green
Larus argenteus	Herring Gull	Red
Larus fuscus	Lesser Black-backed Gull	Amber
Motacilla alba	Pied Wagtail	Green
Parus major	Great Tit	Green
Passer domesticus	House Sparrow	Amber
Phalacrocorax carbo	Cormorant	Amber
Phoenicurus ochrurus	Black Redstart	Amber
Tringa totanus	Redshank	Amber
Trogladytes trogladytes	Wren	Green
Turdus merula	Blackbird	Green

3.3.6 Badger

The BDS contained records of Badgers within 100m of the site. The ruderal open grassland, secondary broad-leaved woodland and scrub at the southern end offer suitable foraging habitat for Badgers. These habitats, particularly the woodland and stands of dense scrub offer suitable habitat for the establishment of a sett.

A potential, single-hole, partially-used outlier Badger sett was recorded towards the southern end of the site in the secondary broad-leaved woodland (*Target Note 35*). The tunnel entrance contained leaf debris, and a small spoil-heap was adjacent to the entrance. Another almost entirely collapsed tunnel entrance was noted *c.*8 m to the north. No Badger hair or other field sign was noted on the site. Unidentified mammal tracks were recorded in the southern area of the site (*Target Note 36*).

3.3.7 Fish

Allis Shad, Twaite Shad and Sea Lamprey are listed as qualifying features for Pembroke Marine Special Area of Conservation (SAC) in the background data search. However, no records for these species were contained in the BDS. There is the potential that these species may migrate to their spawning grounds via the waters of Milford Haven adjacent to the terrestrial area of the site.

3.3.8 Plants

The BDS contained a record of *Lactuca saligna* (Least Lettuce) a plant protected under *Schedule 8* of *The Wildlife and Countryside Act 1981 (as amended) c.*1.3km from the site boundary.

4 EVALUATION AND CONCLUSIONS

4.1 Designated Sites

The background data search highlighted that the Pembroke Marine Special Area of Conservation (SAC) and Milford Haven Waterway Site of Special Scientific Interest (SSSI) abut the extreme north-western site boundary. However, from this point the northern site boundary diverges from those of the designated sites. The distance between the north-eastern site boundary and the boundary of Pembrokeshire Marine SAC reaches a maximum of *c.* 230 m (www.magic.defra.gov.uk accessed 05.05.2017). Meanwhile, the distance between the north-eastern site boundary and that of the Milford Haven Waterway SSSI reaches *c.*400 m. Under the current Pembroke Port Development Plan (Option 5 Layout) the proposed works in the north-western area of the site (nearest to the Pembroke Marine SAC) include the creation of a designated transition area, *c.*110 m from the boundary of the Pembroke Marine SAC and *c.*200 m from the boundary of Milford Haven Waterway SSSI. This will be dedicated to receiving and deploying vessels, and will require the infilling of the adjacent Graving Dock and Dry Dock. In addition, a High Bay Ship Repair and Fabrication Facility is planned *c.* 270 m from the boundary of the Pembroke Marine SAC and *c.*400 m from the boundary of the Milford Haven Waterway SSSI.

Pembroke Marine has been designated as a SAC due to the presence of estuarine and marine habitats of high conservation importance and for several protected and/or notable species including Grey Seal, Shore Dock, Sea Lamprey, Allis Shad, Twaite Shad and Otter.

Appropriate pollution prevention control measures should be implemented during the construction phase of the development in line with PPG5 (2012) and PPG6 (2012) to prevent impacts to estuarine and marine habitats in the Pembroke Marine SAC (*e.g.* from spilt chemicals, run-off or sediment). It may be necessary to consider the timing and approach to certain works, such as piling, which can cause disturbance to fish species via effects such as vibration. Timing works to avoid the period when fish are likely to be migrating to upstream spawning grounds may mitigate these impacts. The potential for direct and indirect impacts to Pembroke Marine SAC and the designated Primary and Qualifying Features should be assessed when more comprehensive information regarding the nature and scope of the proposed works becomes available.

The proposed development must follow appropriate pollution prevention control measures (PPG5 2012 and PPG6 2012) to avoid any potential impacts to the Milford

Haven Waterway SSSI. The potential for direct and indirect impacts to Milford Haven Waterway SSSI should be assessed when more comprehensive information regarding the nature and scope of the proposed works becomes available.

4.2 Habitats

The ruderal open grassland habitat at the southern end of the site (*Target Note 6)* comprising tall ruderal and ephemeral vegetation, grassland and scrub together with trees, bare ground, shallow pools of water and spoil meets the criteria for 'Open Mosaic Habitat on Previously Developed Land', which is a HoPI under *Section 7 of The Environment (Wales) Act 2016*. It is RSK's understanding that this habitat will be directly affected by the extension of the Pembroke Dock Ferry Terminal and the construction of an office and laboratory complex, under the proposed plans (Option 5 Layout). Additionally, an area of ruderal open grassland on the western side of a slipway at the north of the site (*Target Note 37*) meets the criteria for 'Open Mosaic Habitat on Previously Developed Land'. A detailed botanical survey of these habitats - which would include an NVC survey - to establish their importance under *The Environment (Wales) Act 2016*, is therefore recommended. It should be undertaken in June or July. Additional areas of ruderal open grassland and bare ground in the south-eastern part of the site (*Target Notes 2 and 5*) are less than 0.25 ha in area and therefore, do not meet the criteria for 'Open Mosaics on Previously Developed Land.

An area of unimproved grassland in the south-western part of the site (*Target Note 15*) appears to meet the HoPI description for *'Lowland Meadows'* (lowland grassland on neutral soils) under *Section 7 of The Environment (Wales) Act 2016*. However, the survey was undertaken in March which is too early to assess the floristic composition of this habitat as many plants are yet to appear. This habitat may be affected by the construction of an office and laboratory complex under the proposed plans (Option 5 Layout). If it is affected by the proposed works then a detailed botanical survey of this habitat (to include an NVC survey), to establish its importance under *The Environment (Wales) Act 2016*, is recommended. It should be undertaken in June or July.

In addition, habitats on the site meet the LBAP habitats for *'Brown field / Urban'*, '*Coastal', 'Grassland' and 'Woodland'.*

Where possible, the proposed development should look to incorporate these habitats into the proposed layout of the development. This can be achieved firstly through avoidance of anticipated impacts. If this is not possible then mitigation and compensation measures will be required. In addition, where possible scattered trees should be retained.

4.2.1 Non-native invasive species

Stands of *Fallopia japonica* (Japanese Knotweed) were recorded in the southern (*Target Note 18*) and northern (*Target Note 19)* part of the site during the field survey. The proposed development has the potential to directly impact these areas of *Fallopia*

japonica (Japanese Knotweed) for example, during works associated with the Pembroke Dock Ferry Terminal extension (*Target Note 19*). If impact to these stands cannot be avoided then a Japanese Knotweed Method Statement should be drafted detailing how works will proceed within 7 m of the stands and for the safe removal and disposal of plant matter.

4.3 Assessment for Protected Species

4.3.1 Bats

Buildings, the boundary wall and trees on the site have potential for roosting bats and a Greater Horseshoe Bat roost has been reported in The Commodore Hotel adjacent to the site. Works associated with the proposed development, including building demolition, vegetation clearance, dust, noise and changes to the way the site is lit have the potential to directly and indirectly affect roosting, commuting and foraging bats, should they be proven to be using the site.

Secondary woodland, scattered trees, grassland and vegetated open space providing commuting habitat for bats could be disrupted or lost as a result of the proposed development. Owing to these habitats, the site falls under the category of 'medium habitat quality' for bats (Collins 2016) and to determine its use by commuting and foraging bats, bat activity surveys are required. This will help with the assessment of the likely effects of the development on bat populations and with the design of mitigation. For moderate suitability habitat seven bat activity transects and static bat detector surveys are required between April and October to determine the species present and the patterns of use. It is suggested that one transect survey per month should be carried out in combination with static bat detector surveys (two detectors to be placed at two separate locations per transect, and data collected over five consecutive nights per month). The surveys will help in identifying the assemblage of bat species using the site, the relative frequency of activity, its spatial and temporal distribution, and the nature of activity for different bat species. Other incidental information may be obtained; for example the emergence of bats from trees on the site.

In addition to the bat activity surveys, a targeted preliminary roost inspection should be undertaken and it is should include a ground-level tree assessment together with a detailed building survey. These surveys should include all trees and buildings that could be directly affected by the proposed plans together with The Commodore Hotel. Trees will be assessed from ground level to look for features that bats could use for roosting. This will involve inspecting the trees using binoculars and a torch to view potential roosting features. Any features that might be used by roosting bats will be noted (e.g. woodpecker holes, rot cavities, splits, cracks, flaking bark and thick stemmed or matted climbing plants). Each tree will be assessed as having high, moderate or low suitability for roosting bats as set out in guidelines (Collins 2016). Any tree assessed as being of high or moderate potential which requires felling, or

significant pruning, would require further emergence or re-entry surveys or aerial (climbing) surveys to inspect the feature(s).

The building survey will assess each buildings' potential for roosting bats through careful inspection of the buildings to search for features or structures that roosting bats may favour (e.g. potential entrance points and roosting crevices) and to gather any incidental evidence of bats (e.g. droppings). The buildings will be categorised for their potential for roosting bats, e.g. negligible, low, moderate, high suitability. Where bat droppings are collected we may send the samples for DNA species identification. This type of survey can only give an indication of species and approximate numbers of bats. If any of the buildings are deemed to be suitable for roosting bats, or if evidence of roosting bats is found (e.g. droppings), further emergence / re-entry surveys will be required before the buildings can be demolished. These surveys are undertaken in the bat active season (May to September inclusive) and involve surveyors visiting the site at dusk and / or dawn to watch and listen for bats.

The external survey of The Commodore Hotel will look to identify the type of Greater Horseshoe Bat roost and the number of bats that are present. Greater Horseshoe Bats are very susceptible to disturbance and the information gained will contribute to an assessment of the potential impacts of the proposed works on the species and may inform the approach to mitigation, should it be required.

4.3.2 Great Crested Newts

The development has negligible potential for affecting Great Crested Newts and no further surveys are considered necessary in respect of this species.

4.3.3 Otter

The port frontage comprises vertical walls and a sloped wall of boulders together with man-made docking areas and jetties. There is no suitable vegetation to act as couches, holts or hovers in which Otters could rest and conceal themselves. The frontage is exposed to the continuous activities of the working port, including the general public awaiting ferries. Docks and slipways do provide suitable habitat for Otters as evidenced by an Otter footprint found in a dock during a 2015 survey, although no sign of Otters was recorded during this survey. Given that Otters that use the port area will have become accustomed to high levels of disturbance, both on land and in the water and during the day and night, it is likely that the proposed works will have a negligible impact on Otters.

A portion of port frontage constructed of boulders, and located to the north of the ferry terminal building, was not surveyed during the PEA. This habitat appears suitable for use by Otters as a resting place, albeit subject to disturbance from the general port operations and periodic disturbance during the docking and departure of the twice daily ferries. RSK understands from the Demolition/Intervention Plan that no works are

planned to occur in this area of the port and therefore no further surveys are necessary. However, should the Pembroke Port Development Plan change then it may become necessary to survey this area for Otter.

It is an offence to disturb, injure or kill Otters or to damage, destroy or obstruct their breeding or resting places. The proposed development works should take precautionary measures to ensure that impacts on Otters are avoided. This could be achieved by establishing a suitable buffer distance from the frontage. The buffer distance should consider the timing and nature of the proposed works. Restricting works to daylight hours would further reduce the risk of disturbing Otters.

4.3.4 Reptiles

Ruderal open grassland, unimproved grassland, woodland rides and scrub in the southern part of the site provide suitable basking and foraging habitat for commonly occurring reptiles. Meanwhile, fly-tipped material and large spoil heaps in the same area of the site offer potential refuges and hibernacula for reptiles. Additionally, a small, isolated area of bare ground and ruderal open grassland used for the storage of steel, skips and other material has a low potential for reptiles. Due to the suitability of these habitats a reptile survey of these areas of the site should be undertaken to determine presence or likely-absence.

Reptile surveys consist of placing artificial survey tiles comprising roofing felt and corrugated tin across suitable habitat for reptiles. Reptiles are attracted to these survey tiles due to their thermal properties and as such are checked to determine if reptiles are present. Survey tiles must be checked up to seven times during suitable weather conditions (*i.e.* sunny, with scattered or no cloud and no precipitation) between April and October, but excluding July and August.

4.3.5 Birds

Black Redstart, a Schedule 1 species, was recorded on the site and RSK contacted National Resources Wales (NRW) regarding the requirement for further surveys for the species. NRW confirmed that Black Redstart is considered a ‘scarce passage migrant and winter visitor’ and advised that given this status no further surveys would be required.

Impacts on wintering waders in the adjacent mudflats are avoidable. No long-term impacts are anticipated following the completion of the development due to the high levels of activity resulting from the industrialised nature of the site and surrounding area. Possible short-term impacts as a result of construction activities (*e.g.* noise and vibration impacts from heavy piling works) are expected to be minor due to the current level of disturbance within Pembroke Docks, to which birds would have become

accustomed, and the partial screening of the mudflats by a tower and walkway. A precautionary approach during the construction phase to reduce potential impacts to wintering waders should be employed, such as the use of screw or vibration piling techniques or undertaking works outside of winter (December to February). Consultation with the Local Authority and Natural Resources Wales may be necessary regarding the requirement for further survey work in respect to wintering waders.

Suitable habitat for a range of nesting birds occurs on the site in the form of buildings, a floating dock gate, scattered trees and scrub. If possible, any demolition works or vegetation clearance should take place outside the breeding season which is generally accepted to occur between March and August, inclusive. If demolition or vegetation clearance works need to be carried out during the nesting bird season, then the buildings should be checked by an ecologist 24 hours prior to works commencing. Should any active nests be identified then works on that building must temporarily cease and an appropriate exclusion zone established. The nest is then to be left undisturbed until the young have naturally fledged.

It is recommended that artificial nests or nest boxes, including Barn Swallow, are installed to replace known and potential nest sites, such as the old Barn Swallow nest recorded in a modern commercial building (Target Note 30) and nests reported to be present in an old floating dock gate (Target Note 34).

4.3.6 Badger

The potential single-hole Badger sett will be affected by the proposed works associated with the Pembroke Dock Ferry Extension and it is recommended therefore, that the hole is monitored with a camera trap, or other type of trap such as a sand trap, to confirm which, if any, species is using the hole.

If Badgers are found to be using the hole and the proposed works cannot avoid affecting the sett, then a licence from NRW is likely to be required for closure of the sett following a minimum exclusion period of 21 days. Exclusion and subsequent sett closure can only be undertaken between July and November, inclusive.

4.3.7 Fish

Allis Shad, Twaite Shad and Sea Lamprey are known to occur in the waters of Milford Haven and are a qualifying feature for the Milford Haven Waterway SAC, although there are no records of the species presence on the site. Allis Shad and Twaite Shad are protected under *Schedule 5 of the Wildlife and Countryside Act 1981* (as amended) while Sea Lamprey is included as a Species of Principal Importance under *Section 42 of the Natural Environment and Communities Act 2006*. There is the possibility that these species may be affected by the proposed development (*e.g.* piling works) as they

move through Milford Haven to their spawning grounds and it would be an offence to disturb or harm these species. Therefore, they may need further consideration with regard to mitigation measures to prevent disturbance when more information regarding the nature, timing and location of the proposed works is known.

4.3.8 Plants

Lactuca saligna (Least Lettuce), protected under *Schedule 8 of the Wildlife and Countryside Act 1981* (as amended), has been recorded *c.*1.3km from the site. The record appears geographically unlikely however, the habitat is suitable and the potential for the species to be present on site cannot be dismissed. Therefore, it is recommended that suitable habitats on site are be surveyed for the species.

4.3.9 Invertebrates

The habitats which meet the criteria for 'Open Mosaic Habitats on Previously Developed Land' may support an important assemblage of invertebrates. Depending on the outcome of the proposed botanical survey, consultation with the Local Authority and Natural Resources Wales may be necessary regarding the requirement for further survey work in respect to invertebrates.

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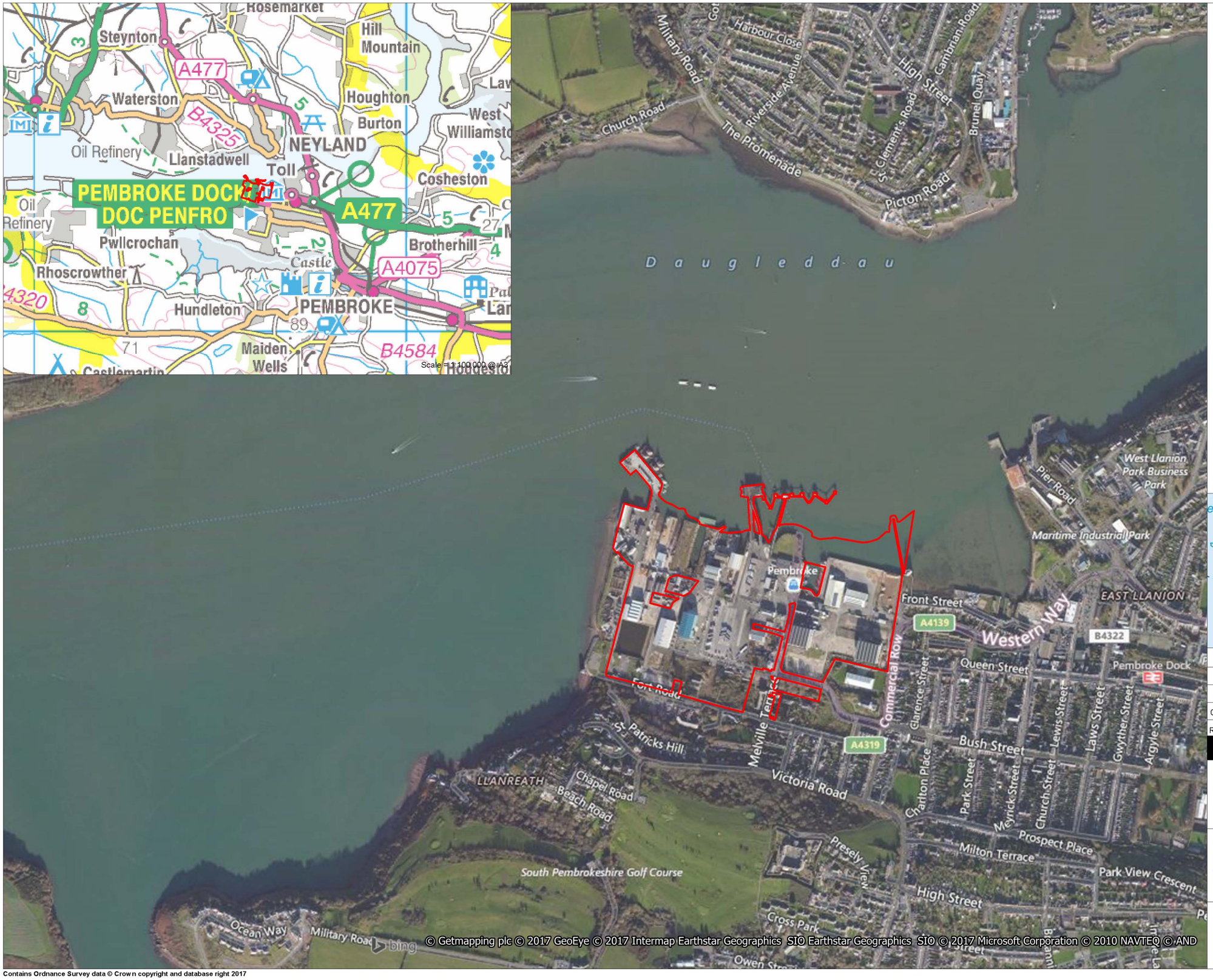
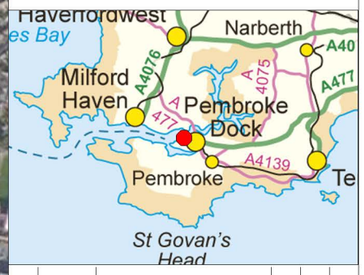
6 FIGURES

Figure 1 Site Location Plan

Figure 2 Phase 1 Habitat Survey and Target Notes



Site boundary



Rev	Date	Description	Drn	Chk	App
00	18.04.17	856531	RG	SP	PP

Pembroke Docks

RSK

Figure 1

Site Location Plan

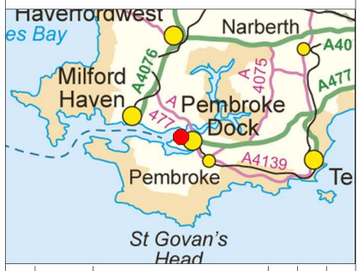
0 300
metres
Scale = 1:10,000 @ A3

N W E S

REV 00

File Name : Z:\Projects\856531 Pembroke Docks 2017\07 - GIS

Site boundary
Broad-leaved semi-natural woodland
Scatered broad-leaved tree
Dense scrub
Scaterred scrub
Unimproved neutral grassland
Ruderal open grassland
Standing water
Intertidal area / sea
Sea wall
Sand pit
Introduced shrub
Amenity grassland
Ephemeral vegetation
Bare ground
Building
Hard standing
Target note



Rev	Date	Description	Drn	Chk	App
00	15.05.17	856531	RG	SP	PP

Pembroke Docks

RSK

Figure 2

Phase 1 Map

0 90
metres
Scale = 1:3,000 @ A3

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File Name : Z:\Projects\856531 Pembroke Docks 2017\07 - GIS

APPENDIX A – PROTECTED SPECIES LEGISLATION

General

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

Bats

All species of British bat are protected by *The Wildlife and Countryside Act 1981 (as amended),* extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take;
- possess or control;
- intentionally or recklessly damage, destroy or obstruct access to a breeding site or resting place; and
- intentionally or recklessly disturb while the animal occupies a breeding site or resting place.

Bats are also European Protected Species listed on *The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended).* This legislation makes it an offence to:

- deliberately capture, injure or kill;
- deliberately disturb, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destroy a breeding site or resting place; and
- possess, control, transport, sell, exchange, or offer for sale or exchange.

Otter

Otter is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receives full protection under *Section 9*. This species is also listed as a European Protected Species on *Schedule 2* of the *Conservation (Natural Habitats, etc.) Regulations 1994* which gives it full protection under *Regulation 39*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species while using any place of shelter or protection; or
- sell or attempt to sell any such species.

The Otter is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRoW Act.

The Otter is also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

The European sub-species is also listed as globally threatened on the IUCN/WCMC RDL.

Reptiles (Common Species)

Lacerta vivipara (Common Lizard), *Natrix natrix* (Grass Snake), *Anguis fragilis* (Slow-worm), and *Vipera berus* (Adder) are listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1).* This protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act).

Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

Birds

Birds general protection

All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the CRoW Act.

- The legislation makes it an offence to intentionally:
- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Birds (specially protected species)

Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The protection was extended by the CRoW Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, while building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

Badger

Badger is protected in Britain under the *Protection of Badgers Act 1992* and *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended).

The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

APPENDIX B – TARGET NOTES

Target Note 1.	Dense impenetrable stands of scrub and the species recorded included *Buddleja davidii* (Butterfly-bush) and *Rubus fruticosus* agg. (Bramble) together with tall ruderal and ephemeral vegetation. The vegetation was growing on heaps of spoil, which appeared to comprise masonry, and were up to 4 m in height. Due to the dense vegetation the area could not be fully checked for Badger setts.
Target Note 2.	An access track comprising bare ground associated with ruderal open grassland on either side of the track.
Target Note 3.	Boundary wall constructed from stone and mortar. Generally in a good condition however, two holes noted where mortar is missing. Anecdotal information from site workman suggests that House Sparrows nest or roost in the holes. Possible bat roost potential.
Target Note 4.	Hole in the boundary wall where mortar has been lost. Has the potential for roosting bats and nesting birds.
Target Notes 5	Ruderal open grassland comprising grass species, ruderal and ephemeral vegetation. The species present included grasses such as *Festuca rubra* (Red Fescue) and *Poa annua* (Annual Meadow-grass) together with *Dipsacus fullonum* (Teasel), *Scrophularia* sp. (a Figwort), Brassicaceae sp. (a Cabbage) and *Epilobium* sp. (Willowherb), *Senecio vulgaris* (Groundsel), *Euphorbia* sp. (a Euphorbia), *Cerastium fontanum* (Common Mouse-ear) and *Geranium dissectum* (Cut-leaved Crane's-bill).
Target Note 6.	Ruderal open grassland together with bare ground, scrub, pools and heaps and banks of spoil.
Target Note 7.	A narrow, linear area of bare ground colonised by a dense growth of ephemeral vegetation. The principal species recorded was *Senecio vulgaris* (Groundsel).

Target Note 8.	Sparse ephemeral vegetation growing on an area of hardstanding comprised of compacted loose stone.
Target Note 9.	Scattered tall ruderal vegetation together with ephemeral vegetation and scrub, growing on rides that have been created within an area of semi-natural, immature broad-leaved woodland. The species present included *Scrophularia* sp. (a Figwort), *Dipsacus fullonum* (Teasel) and an *Epilobium* sp. (a Willowherb).
Target Note 10.	An amenity area associated with nearby residential properties. The habitats present included amenity grassland, a line of mature trees together with mature scattered trees growing in three man-made beds. The trees were up to *ca*. 25 m in height and the species present included *Aesculus hippocastanum* (Horse-chestnut), *Fagus sylvatica* (Beech), a *Tilia* sp. (Lime species) and *Acer pseudoplatanus* (Sycamore). The scattered trees had a poorly-managed understorey of native and non-native species including *Rubus fruticosus* agg. (Bramble) and *Prunus lusitanica* (Portugal Laurel) and the ground flora included horticultural and native species. Potential roosting features (PRFs) for bats were noted on some of the trees and there was potential for nesting birds within the understorey and in the trees.
Target Note 11.	Line of mature trees, up to *c*. 5 m in height, and the species recorded included *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash). Some trees had a dense covering of *Hedera helix* (Ivy). These trees have the potential for for roosting bats and nesting birds.
Target Note 12.	Line of mature *Aesculus hippocastanum* (Horse-chestnut), up to *c.* 5 m in height, with PRFs for bats such as rot holes and peeling bark.
Target Note 13.	A line of immature trees which appear to have been planted. Species present included *Acer pseudoplatanus* (Sycamore), and *Fagus sylvatica* (Beech). No PRFs were noted during the survey.
Target Note 14.	An area of semi-natural, secondary broad-leaved woodland within what was possibly an old walled garden. It appeared to have developed due to a lack of recent disturbance and comprised

primarily densely growing immature *Acer campestre* (Field Maple) and *Fraxinus excelsior* (Ash) up to *ca*. 10 m in height. The understorey was dense in places and comprised scrub species including *Rubus fruticosus* agg. (Bramble) and *Buddleja davidii* (Butterfly-bush). The ground flora comprised species such as *Holcus lanatus* (Yorkshire-fog), *Anthriscus sylvestris* (Cow Parsley), *Arum maculatum* (Lords-and-Ladies) and *Hedera helix* (Ivy). Rides had been created through the centre and around the periphery of the woodland and were vegetated with ephemeral and tall ruderal vegetation together with scrub.

Target Note 15. An area of tussocky, unimproved grassland in the south-western part of the site included *Festuca rubra* (Red Fescue), *Agrostis stolonifera* (Creeping Bent), *Arrhenatherum elatius* (False Oat-grass), *Dactylis glomerata* (Cock's-foot), *Ficaria verna* (Lesser Celandine), *Urtica dioica* (Common Nettle), *Plantago lanceolata* (Ribwort Plantain) and *Potentilla reptans* (Creeping Cinquefoil).

Target Note 16. A bank of spoil *c.*1 m in height, comprising rubble and other material which forms the boundary of a parking area. The banks supported ephemeral and tall ruderal vegetation.

Target Note 17. A bank of spoil *c.*3 m in height and vegetated with ephemeral species such as *Petasites fragrans* (Winter Heliotrope).

Target Note 18. A stand of *Fallopia japonica* (Japanese Knotweed) *ca*. 2 m long and 1 m wide of spoil, growing within scrub.

Target Note 19. A stand of *Fallopia japonica* (Japanese Knotweed), *c.*6 m long and 3 m wide growing within an area of woodland.

Target Note 20. A building constructed from stone and mortar, with a pitched roof of slate and lead flashing on the roof ridges together with wooden sash windows. Gaps in the lead flashing were noted on either side of the chimney and these offered a potential roosting place for bats on the building's exterior.

Target Notes 21. A building built from stone and brick with a roof of two pitches covered with corrugated metal. Several potential features were noted where bats could gain entry to the building to roost such as,

missing bricks, gaps between the roof and the wall and a gap over the door.

Target Note 22. A brick built building with a pitched corrugated metal roof. Several features provide suitable access points for bats such as gaps in the masonry caused by missing mortar and open windows.

Target Note 23. A building with rendered walls and a flat roof. Several potential features were noted via which bats could gain access to the inside of the building to roost. These included open windows, an opening over a fan and a gap over a door.

Target Note 24. A stone built, one-storey building with pitched, tiled roof. A large hole in the gable end below the roof ridge offers a potential access point to roosting bats.

Target Note 25. A very large, mature *Quercus ilex* (Evergreen Oak), *c.*20 m in height with features such as dead limbs, rot holes and loose bark that offer potential roosting opportunities to bats.

Target Notes 26. Slipway where Otter print was recorded during previous survey.

Target Note 27. An area of boulders forming a sea wall. This was not surveyed during the PEA as being intertidal, two surveyors were required for Health and Safety purposes. This habitat has the potential for Otter resting places.

Target Note 28. Area of ruderal open grassland with potential for common reptiles.

Target Note 29. A small area of ruderal open grassland used for storage of skips, steel and other materials. It is isolated and has a low potential for common reptiles.

Target Note 30. Old swallows nest from last year within a commercial building within a scrap yard. Building is modern and constructed from metal cladding. Owner stated that Swallows nest each year.

Target Note 31. Hirundine nest site on the gable end of an older building.

Target Note 32.	Feral pigeons and Jackdaws were noted roosting or nesting within a very large industrial building at the southern, landward end of an operational slipway.
Target Note 33.	A floating, disused dock gate structure located at the landward end of a slipway. The structure was constructed from wood and metal and had a number of port holes in the upper part of the structure. The port holes allowed access into the structure. A local landowner reported that Swallows nest within the structure each year.
Target Note 34.	Male Black Redstart recorded on a very large industrial building.
Target Note 35.	A large potential single-hole, partially-active, outlier Badger sett was recorded in secondary broad-leaved woodland. There was a little debris in the tunnel entrance and a small spoil heap in front of the hole. No Badger hairs were found, no bedding was present and no latrines were recorded in the vicinity. Several Rabbit holes were located *c.*4 m to the south.
Target Note 36.	Tracks of an unidentified mammal, oriented approximately east-west, recorded within ruderal open grassland.
Target Note 37.	An area of ruderal open grassland comprising ephemeral and tall ruderal vegetation, grasses and scrub together with pools, bare ground and hardstanding is located on the western and eastern side of a slipway. The western portion had developed on an area that appeared to no longer be used for port related activities.

APPENDIX C – NOTEWORTHY SPECIES RECORDS

Table 7 displays noteworthy species records that are located within 2 km of the site boundary. These species records were obtained from West Wales Biodiversity Information Centre. The Latin and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in *Table 7, Appendix D*. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but rather that data-holding organizations do not have records of it in these locations.

Table 7: Noteworthy Species Records within 2 km of the Site Boundary

Latin Name	Common Name	Designation
Amphibians		
Bufo bufo	Common Toad	WCA5, S42, LBAP
Lissotriton helveticus	Palmate Newt	WCA5, LBAP
Rana temporaria	Common Frog	WCA5, LBAP
Birds		
Acanthis cabaret	Lesser Redpoll	S42, Red
Actitis hypoleucos	Common Sandpiper	Amber
Aegithalos caudatus	Long-tailed Tit	Amber
Alauda arvensis	Skylark	Amber, LBAP
Alcedo atthis	Kingfisher	WCA1.1, Amber
Anas acuta	Pintail	WCA1.2, Amber
Anas clypeata	Shoveler	Amber
Anas crecca	Teal	Amber
Anas penelope	Wigeon	Amber
Anas platyrhynchos	Mallard	Amber
Anas strepera	Gadwall	Amber
Anthus pratensis	Meadow Pipit	Amber
Apus apus	Swift	Amber
Arenaria interpres	Turnstone	Amber
Aythya ferina	Pochard	Red
Aythya fuligula	Tufted Duck	Amber
Aythya marila	Scaup	WCA1.1, Amber
Branta bernicla	Brent Goose	Amber
Bucephala clangula	Goldeneye	WCA1.2
Calidris alba	Sanderling	Amber

Latin Name	Common Name	Designation
Calidris alpina	Dunlin	Red
Calidris canutus	Knot	Amber
Calidris pugnax	Ruff	WCA1.1, Amber
Cettia cetti	Cetti's Warbler	WCA1.1, LBAP
Charadrius dubius	Little Ringed Plover	WCA1.1
Charadrius hiaticula	Ringed Plover	S42, Amber
Chroicocephalus ridibundus	Black-headed Gull	S42, Red
Circus cyaneus	Hen Harrier	WCA1.1, S42, Red
Cuculus canorus	Cuckoo	S42, Red
Cygnus columbianus subsp. bewickii	Bewick's Swan	S42
Cygnus olor	Mute Swan	Amber
Delichon urbicum	House Martin	Amber
Emberiza citrinella	Yellowhammer	S42, Red, LBAP
Emberiza schoeniclus	Reed Bunting	S42, Amber, LBAP
Falco peregrinus	Peregrine	WCA1.1, LBAP
Falco rusticolus	Gyr Falcon	WCA1.1, LBAP
Falco subbuteo	Hobby	WCA1.1, Amber
Falco tinnunculus	Kestrel	S42, Red, LBAP
Fringilla montifringilla	Brambling	WCA1.1
Gallinago gallinago	Snipe	Amber
Gavia arctica	Black-throated Diver	WCA1.1, Amber
Gavia immer	Great Northern Diver	WCA1.1, Amber
Gavia stellata	Red-throated Diver	WCA1.1, Amber
Haematopus ostralegus	Oystercatcher	Amber
Hirundo rustica	Swallow	Amber
Larus argentatus	Herring Gull	Red
Larus canus	Common Gull	Red
Larus fuscus	Lesser Black-backed Gull	Amber, LBAP
Larus marinus	Great Black-backed Gull	Red
Larus melanocephalus	Mediterranean Gull	WCA1.1, Amber
Limosa lapponica	Bar-tailed Godwit	S42, Red
Limosa limosa	Black-tailed Godwit	WCA1.1, Amber
Linaria cannabina	Linnet	S42, Red, LBAP
Locustella naevia	Grasshopper Warbler	S42, Red
Lymnocryptes minimus	Jack Snipe	Amber
Mergus serrator	Red-breasted Merganser	Amber
Milvus milvus	Red Kite	WCA1.1, Amber
Muscicapa striata	Spotted Flycatcher	S42, Red, LBAP
Numenius arquata	Curlew	S42, Red, LBAP
Numenius phaeopus	Whimbrel	WCA1.1, Amber
Oenanthe oenanthe	Wheatear	Amber
Passer domesticus	House Sparrow	S42, Amber
Perdix perdix	Grey Partridge	S42, Red

Latin Name	Common Name	Designation
Periparus ater	Coal Tit	Amber
Phalacrocorax carbo	Cormorant	Amber
Phoenicurus ochruros	Black Redstart	WCA1.1, Amber
Phylloscopus trochilus	Willow Warbler	Red
Picus viridis	Green Woodpecker	Amber, LBAP
Platalea leucorodia	Spoonbill	WCA1.1, Amber
Pluvialis apricaria	Golden Plover	S42, Red
Pluvialis squatarola	Grey Plover	Red
Podiceps auritus	Slavonian Grebe	WCA1.1, Amber
Podiceps nigricollis	Black-necked Grebe	WCA1.1, Amber
Poecile montana	Willow Tit	S42, Red
Poecile palustris	Marsh Tit	S42, Red
Prunella modularis	Dunnock	S42
Pyrrhula pyrrhula	Bullfinch	S42, Red, LBAP
Rallus aquaticus	Water Rail	LBAP
Recurvirostra avosetta	Avocet	WCA1.1, Amber
Regulus ignicapilla	Firecrest	WCA1.1, Amber
Regulus regulus	Goldcrest	Amber
Rissa tridactyla	Kittiwake	LBAP
Saxicola rubicola	Stonechat	LBAP
Scolopax rusticola	Woodcock	Amber
Somateria mollissima	Eider	Amber
Sturnus vulgaris	Starling	S42, Red
Sylvia borin	Garden Warbler	Amber
Sylvia communis	Whitethroat	Amber
Tadorna tadorna	Shelduck	Amber
Tringa erythropus	Spotted Redshank	Amber
Tringa nebularia	Greenshank	WCA1.1
Tringa ochropus	Green Sandpiper	WCA1.1
Tringa totanus	Redshank	Amber
Turdus iliacus	Redwing	WCA1.1, Amber
Turdus philomelos	Song Thrush	S42, Amber, LBAP
Turdus pilaris	Fieldfare	WCA1.1, Amber
Tyto alba	Barn Owl	WCA1.1, Amber, LBAP
Vanellus vanellus	Lapwing	S42, Red, LBAP
Fungi		
Microglossum olivaceum	Earth Tongue	S42
Invertebrates		
Arctia caja	Garden Tiger	S42
Boloria selene	Small Pearl-bordered Fritillary	S42
Coenonympha pamphilus	Small Heath	S42

Latin Name	Common Name	Designation
Cupido minimus	Small Blue	WCA5, S42
Diarsia rubi	Small Square-spot	S42
Ennomos fuscantaria	Dusky Thorn	S42
Erynnis tages	Dingy Skipper	S42, GB RDB(VU)
Hipparchia semele	Grayling	S42, GB RDB(VU)
Hoplodrina blanda	Rustic	S42
Lasiommata megera	Wall	S42
Orthosia gracilis	Powdered Quaker	S42
Pselactus spadix	Pselactus spadix	Notable:B
Spilosoma lutea	Buff Ermine	S42
Tyria jacobaeae	Cinnabar	S42
Watsonalla binaria	Oak Hook-tip	S42
Plants		
Cephaloziella turneri	Turner's Threadwort	NS
Ditrichum subulatum	Awl-leaved Ditrichum	S42, GB RDB(VU), NR
Gymnostomum viridulum	Luisier's Tufa-moss	NS
Philonotis caespitosa	Tufted Apple-moss	NS
Tortula wilsonii	Wilson's Pottia	S42, GB RDB(EN), NS
Lactuca saligna	Least Lettuce	WCA8, GB RDB(EN), NR
Melittis melissophyllum	Bastard Balm	S42, GB RDB(VU), NS
Mammals		
Chiroptera	Bats	EPS(Sch2), LBAP
Erinaceus europaeus	West European Hedgehog	S42
Lutra lutra	European Otter	EPS(Sch2), WCA5, S42, LBAP
Meles meles	Eurasian Badger	BA
Mustela putorius	Polecat	S42
Myotis mystacinus	Whiskered Bat	EPS(Sch2), WCA5, LBAP
Nyctalus noctula	Noctule Bat	EPS(Sch2), WCA5, S42, LBAP
Pipistrellus sp.	a Pipistrelle bat	EPS(Sch2), WCA5, S42, LBAP
Pipistrellus pipistrellus	Common Pipistrelle	EPS(Sch2), WCA5, S42, LBAP
Pipistrellus pygmaeus	Soprano Pipistrelle	EPS(Sch2), WCA5, S42, LBAP
Plecotus auritus	Brown Long-eared Bat	EPS(Sch2), WCA5, S42, LBAP
Rhinolophus ferrumequinum	Greater Horseshoe Bat	EPS(Sch2), WCA5, S42, LBAP
Rhinolophus hipposideros	Lesser Horseshoe Bat	EPS(Sch2), WCA5, S42,

Latin Name	Common Name	Designation
		LBAP
Reptiles		
Anguis fragilis	Slow-worm	WCA5, S42, LBAP
Natrix natrix	Grass Snake	WCA5, S42, LBAP

APPENDIX D – ABBREVIATIONS

Table 8 displays abbreviations of protected species legislation.

Table 8: Glossary of Abbreviations Used in this Report:

Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in Wales of medium conservation concern.
BA	The Protection of Badgers Act 1992	Legislation making it an offence to kill, injure or take a Badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority.
BAP	Biodiversity Action Plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
DA	The Deer Act 1991	All wild deer with the exception of Muntjac (*Muntiacus reevesi*) and Chinese Water deer (*Hydropotes inermis*) are protected by a closed season.
EPS (Sch 2)	European Protected Species (Schedule 2)	Animals protected on *Schedule 2* of the *Conservation (Natural Habitats &c.) Regulations 1994*
EPS (Sch 5)	European Protected Species (Schedule 5)	European protected plant species (listed on *Schedules 5* of *The Conservation of Habitats and Species* (Amendment) *Regulations 2012*)
GB RDB	Red Data Book Species	Species identified in one of the UK Red Data 2001.
GB RDB(CR)	Critically Endangered	An IUCN Red List designation for species at an extremely high risk of extinction.
GB RDB(EN)	Endangered	An IUCN Red List designation for species at a very high risk of extinction.
GB RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
HAP	Habitat Action Plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the

Code	Full Title	Explanation
	Resources (also known as The World Conservation Union)	integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
LBAP	Local Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
LHAP	Local Habitat Action Plan	A plan that identifies threats to a locally important priority habitat and sets out targets and actions to enhance or maintain that habitat.
LSAP	Local Species Action Plan	A plan that identifies threats to locally important species, and sets out targets and actions to prevent losing that species from the local area.
Notable	Scarce and threatened invertebrates	Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable:A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
NN	Nationally Notable	Designation for invertebrate taxa that are thought to be notably important in the UK.
NR	Nationally Rare	Species in 15 or fewer hectads in Great Britain.
NS	National Scarce	Species in 16-100 hectads in Great Britain.
Red	Red List	Red listed species have a population status in Wales with high conservation concern.
SAP	Species Action Plan	A plan that identifies threats to significantly important species, and sets out targets and actions to prevent losing that species to extinction.
S42	Species of Principal Importance	Species of Principal Importance in Wales under *The Natural Environment and Rural Communities (NERC) Act (2006)*
UKBAP	UK Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity

Code	Full Title	Explanation
		in the UK.
WCA	*The Wildlife and Countryside Act 1981* (as amended)	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way. All wild plants in Britain are protected from intentional uprooting by an unauthorized person, but land owners, land occupiers, persons authorized by either of these or persons authorized in writing by the Local Authority for the area are exempt. Protection for some species may be limited to certain Sections of the Act (*e.g.* S13(2).
WCA1	Schedule 1 of *The Wildlife and Countryside Act 1981* (as amended)	This Schedule lists birds protected by special penalties at all times, but virtually all wild birds have some protection in law. Acts which are prohibited for all wild birds (except derogated 'pest' species) include intentional killing, injuring or taking; taking, damaging or destroying nests in use or being built; taking or destroying eggs; possessing or having control of (with certain exceptions but including live for dead birds, parts or derivative); setting or permitting certain traps, weapons, decoys or poisons. Selling, offering or exposing for sale, possessing or transporting for sale any live wild bird, egg or part of an egg or advertising any of these for sale, or dead wild bird including parts or derivatives are also prohibited. Many birds must be formally registered and ringed if kept in captivity. Schedule I WCA birds are additionally protected from intentional or reckless disturbance while building a nest, or when such a bird is in, on or near a nest containing eggs or young, or intentional or reckless disturbance of dependent young.
WCA5	Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended)	Schedule 5 animals are protected from intentional killing, injuring or taking; possessing (including parts or derivatives); intentional or reckless damage, destruction or obstruction of any structure or place used for shelter or protection; selling, offering or exposing for sale, possessing or transporting for the purpose of sale (alive or dead, including parts or derivatives). Protection of some species is limited to certain Sections of the Act (*e.g.* S9(1), S9(4a), S9(4b), S9(5)).
WCA8	Schedule 8 of *The Wildlife and Countryside Act 1981* (as amended)	Plants and fungi protected from intentional picking, uprooting, destroying, trading (including parts or derivatives), *etc.*

Code	Full Title	Explanation

APPENDIX E – PLANT SPECIES LIST

Table 9: Plant Species Recorded on the Site (table continues)

Scientific Name	English Name
Acer pseudoplatanus	Sycamore
Achillea millefolium	Yarrow
Aesculus hippocastanum	Horse-chestnut
Agrostis capillaris	Common Bent
Agrostis sp.	A Bent
Agrostis stolonifera	Creeping Bent
Anthriscus sylvestris	Cow Parsley
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-ladies
Bellis perennis	Daisy
Betula pendula	Silver Birch
Brachypodium sylvaticum	False-brome
Brassica oleracea var. *oleracea*	Wild Cabbage
Buddleja davidii	Butterfly-bush
Cardamine flexuosa	Wavy Bitter-cress
Cerastium fontanum	Common Mouse-ear
Epilobium sp.	A Willowherb
Cirsium vulgare	Spear Thistle
Crataegus douglasii	Black Hawthorn
Cymbalaria muralis	Ivy-leaved Toadflax
Dactylis glomerata	Cock's-foot
Dipsacus fullonum	Wild Teasel
Euphorbia sp.	A Spurge
Fagus sylvatica	Beech
Fallopia japonica	Japanese Knotweed
Festuca rubra agg.	Red Fescue
Fraxinus excelsior	Ash
Galium aparine	*Cleavers*
Geranium dissectum	Cut-leaved Crane's-bill
Geranium robertianum	Herb-robert
Hedera helix	Ivy
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire Fog
Hyacinthoides non-scripta	Bluebell
Ilex aquifolium	Holly

Lonicera nitida	Wilson's Honeysuckle
Petasites fragrans	Winter Heliotrope
Phygelius capensis	Cape figwort
Plantago lanceolata	Ribwort Plantain
Poa annua	Annual Meadow-grass
Poa sp.	A meadow-grass
Potentilla reptans	Creeping Cinquefoil
Primula sp.	A Primrose
Prunus lusitanica	Portugal Laurel
Prunus spinosa	Blackthorn
Quercus ilex	Evergreen Oak
Ranunculus ficaria	Lesser Celandine
Ranunculus repens	Creeping Buttercup
Rubus fruticosus agg.	Bramble
Rumex obtusifolius	Broad-leaved Dock
Rumex sp.	A Dock
Salix sp.	A Willow
Sambucus nigra	Elder
Scrophularia nodosa	Common Figwort
Senecio jacobaea	Common Ragwort
Senecio vulgaris	Groundsel
Taraxacum sect. *Ruderalia*	Dandelion
Tilia cordata x platyphyllos (T. x vulgaris)	Lime
Trifolium repens	White Clover
Ulex europaeus	Gorse
Urtica dioica	Common Nettle