AtkinsRéalis

Preliminary Ecological Appraisal Report

Pembrokeshire County Council

09/05/2024

PEA_Report_WestfieldPill_ForIssue

WESTFIELD PILL BRIDGE

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INTRODUCTION

Executive Summary

Report purpose	The aims of this report are to: ▪ Identify key ecological constraints to the development; ▪ Identify if additional ecological surveys are required to inform an ecological impact assessment; and ▪ Identify avoidance, mitigation, compensation and enhancement measures.
Proposed Scheme	The Proposed Scheme involves repairs to the Westfield Pill bridge near Neyland, Pembrokeshire, and include repairs to the expansion joints, parapet and general concrete repairs. No vegetation clearance is anticipated, and all works will be undertaken from the bridge deck. However, an underbridge unit will be required to complete repairs beneath the bridge. **Recommendations of this report have been made on the assumption that the works will be carried out via an underbridge unit (likely MOOG 150) and therefore vegetation is not required to facilitate the Proposed Scheme. Should the works deviate from this method, and vegetation clearance be required to facilitate the Proposed Scheme, a suitably experienced ecologist must be contacted for further advice.**
Desk studies and field surveys	A desk-study was undertaken on 02/04/2024 and a walkover survey of accessible land within and adjacent to the Site was undertaken on 08/04/2024.
Ecological features	The desk study identified three statutory designated sites; Pembrokeshire Marine Special Area of Conservation (SAC), Pembrokeshire Bat Sites and Bosherton Lakes SAC, Limestone Coast of South West Wales SAC and Milford Haven Waterway Sites of Special Scientific Interest. One non-statutory designated site, Westfield Pill Nature Reserve, which is a Wildlife Trust Reserve, was identified. Ancient woodland, an irreplaceable habitat, was identified adjacent to the Proposed Scheme boundary, immediately below the bridge. Coastal Saltmarsh Priority Habitat was also identified 15 m upstream of the Site. Westfield Pill inlet flows directly underneath the bridge as is classified as a Priority Habitat under Rivers and Streams. The walkover survey identified suitable habitat for the following species: badgers, roosting foraging and commuting bats, otters, nesting birds, reptiles, amphibians, priority invertebrates and protected fish. No invasive non-native plant species were identified within the Survey Area.
Avoidance, mitigation and compensation measures	General and specific recommendations are provided regarding impacts on habitats and species within and adjacent to the Site. This includes for ancient woodland, badgers, bats, otters, and nesting birds. To determine Likely Significant Effects, a Habitats Regulations Assessment will be required to determine potential impacts on Pembrokeshire Marine SAC,

	Pembrokeshire Bat Sites and Bosherton Lakes SAC and Limestone Coast of South West Wales SAC. **Recommendations of this report have been made on the assumption that the works will be carried out via an underbridge unit (likely MOOG 150) and therefore vegetation is not required to facilitate the Proposed Scheme. Should the works deviate from this method, and vegetation clearance be required to facilitate the Proposed Scheme, a suitably experienced ecologist must be contacted for further advice.**
Recommendations for further survey	Surveyors determined the bridge to be of moderate suitability for roosting bats. At least two presence/likely absence surveys for bats must be carried out on the western and eastern abutments (between May and August inclusive)alongside an endoscope inspection of the features. A nesting bird check prior to the works commencing if the works cannot avoid the core nesting bird season (March and August inclusive).
Opportunities for biodiversity enhancements and net benefits for biodiversity	It is recommended that an ecologist is consulted to determine opportunities for ecological enhancements.

Report Validity

In the event of scope or programme changes or if works do not commence within 12 months of the date of this report, then updates to the surveys may be required to ensure the validity of the data, as per Chartered Institute of Ecology and Environmental Management guidance[1].

[1] CIEEM (2019) *Advice Note on the Lifespan of Ecological Reports and Surveys*.

1. Introduction

1.1 Terms of Reference

AtkinsRéalis UK Limited was commissioned by Pembrokeshire County Council (PCC) to undertake a preliminary ecological appraisal (PEA) in connection with the proposed repair works to Westfield Pill bridge (hereafter referred to as the Proposed Scheme). The Proposed Scheme is located to the northeast of Neyland, in Pembrokeshire, as shown in 5.1Appendix A (hereafter referred to as the Site).

This report has been undertaken with reference to current good practice[2] and provides an initial appraisal of any likely ecological constraints upon designated site, protected species and other features of ecological interest.

Following the principles of the mitigation hierarchy and British Standard (BS) 42020:2013[3], this report also identifies the need for measures to avoid, mitigate or compensate for damage and disturbance to habitats and species. Opportunities to provide biodiversity enhancements in accordance with local, regional and national biodiversity planning strategies are also identified where relevant. Furthermore, it identifies recommendations for further ecological surveys that may be required to establish the presence or likely absence of ecological features within and adjoining the Proposed Scheme.

This report is intended to inform design development, site layout and/or site investigations. In addition, it provides the indicative scope for further ecological surveys and an ecological impact assessment required in connection with a planning application or to contribute to an Environmental Impact Assessment.

1.2 The Site

The Site is centred at Ordnance Survey national grid reference (OSNGR) SM 96764 06047. The Site comprises of a road bridge which carries the A477 over Westfield Pill inlet. Westfield Pill inlet is bordered by woodland along its banks and flows in a southerly direction into Daugleddau estuary. In the wider surrounding area, the Site is surrounded by residential properties to the west, agricultural land to the north and east and Daugleddau estuary to the south. The Site is shown in 5.1Appendix A.

1.3 The Proposed Scheme

The Proposed Scheme involves repairs to the Westfield Pill bridge, including repairs to the expansion joints, parapet and general concrete repairs. No vegetation clearance is anticipated, and all works will be undertaken from the bridge deck. However, an underbridge unit will be required to complete repairs beneath the bridge and no vegetation clearance is required for this.

At the time of writing this report, the works schedule and timings are currently unknown.

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[2] CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

[3] British Standards Institution (2013) *BSI Standards Publication BS 42020:2013 Biodiversity - code of practice for planning and development*. BSI Standards Limited.

1.4 Scope of the Assessment

This report presents ecological information obtained during the following:

- A desk-study undertaken on 02/04/2024; and
- A walkover survey of accessible land within and adjacent to the Site on 08/04/2024.

The walkover survey and identification of potential ecological constraints was based on the condition of the Site and its immediate surrounds encountered at the time of the walkover survey, and the information about the Proposed Scheme available at the time of producing this report. If information on the Proposed Scheme should change, the Site may need to be re-visited to establish if there are any further ecological constraints arising from changes to the proposal.

METHODS

2. Methods

2.1 Desk Study

The geographical area for obtaining ecological data through desk studies has been determined using best practice guidance and professional judgement. Baseline data has been gathered from a range of sources through data requests and using online resources as outlined below. This included data gathering in relation to statutory and non-statutory designated sites for nature conservation and protected and priority habitats and species (as defined by Chartered Institute of Ecology and Environmental Management (CIEEM) PEA guidance[4]), and an assessment of the likely importance of habitat features present for such species was also undertaken during the walkover survey.

The study areas used for the data gathering are detailed in Table 2-1. The desk study was undertaken on 02/04/2024. For species records collected, only those within 10 years of the data collection date have been considered within the assessment. All bat records returned during the desk study were considered, regardless of date.

The following online resources were accessed:

- Multi-Agency Geographic Information for the Countryside (MAGIC) website[5]; and
- Woodland Trust Ancient Tree Inventory[6].

Ordnance Survey maps and Grid Reference Finder[7] were used to identify the presence of waterbodies within 500 m of the Site boundary, in order to establish if the land within and immediately surrounding the Site could be used as terrestrial habitat for great crested newts. This species typically uses suitable terrestrial habitat up to 500 m from a breeding pond[8]. However, there is a notable decrease in great crested newt abundance beyond a distance of 250 m from a breeding pond[9].

The following organisations were contacted to request records of protected and priority species and habitats and details of non-statutory designated sites for nature conservation:

- West Wales Biodiversity Information Centre (WWBIC).

Table 2-1 - Data search areas

Data type	Search area – distance from Proposed Scheme boundary
Statutory designated sites for nature conservation	2 km (extended to 30 km for bat sites)

[4] As set out in Box 1 on page 4 of the CIEEM (2019) Guidelines for Preliminary Ecological Appraisal, priority species include those listed as a national and/or local priority for conservation (i.e. a Habitat of Principle Importance or Species of Principle Importance in Wales under Section 7 of the Environment (Wales) Act 2016; International Union for the Conservation of Nature (IUCN) Red List or Amber List, Nationally Rare or Nationally Scarce, or endemic to a country or geographic location.

[5] Multi-Agency Geographic Information for the Countryside (MAGIC) [Online]. Available at: https://magic.defra.gov.uk/ [Accessed 10/04/2024].

[6] Woodland Trust *Ancient Tree Inventory* [Online]. Available at: https://ati.woodlandtrust.org.uk/ [Accessed: 10/04/2024].

[7] UK Grid Reference Finder (2011) [Online]. Available at: https://gridreferencefinder.com/ [Accessed: 10/04/2024].

[8] English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

[9] English Nature (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt (ENRR576)* [Online]. Available at: http://publications.naturalengland.org.uk/publication/134002 [Accessed: 10/04/2024].

Non-statutory designated sites for nature conservation	1 km
Irreplaceable habitats	1 km
Veteran trees	1 km
Priority habitats	500 m
Protected and priority species	2 km
Invasive non-native species	1 km
Waterbodies	500 m

2.2 Field Survey

The geographical area for undertaking ecological field surveys has been determined using the current survey guidance (as detailed in Section 2.2.2), professional judgement and the zones of influence, which have been determined based on likely effects arising from the Proposed Scheme.

Following CIEEM's Guidelines for Preliminary Ecological Appraisal a walkover survey was undertaken, focusing on protected and priority habitats and/or species.

The walkover survey was undertaken on 08/04/2024. This included all land within the Site plus a buffer of up to 50 m from the east and west abutments of the bridge where access was allowed (the Survey Area). Surveyors also surveyed 250 m upstream and downstream of the Site to search for evidence of otter.

2.2.1 Habitats

Habitats were surveyed using the UK Habitat Classification (UKHab) system. UKHab is a comprehensive and hierarchical habitat classification system for the UK that is suitable for digitally recording in the field using GIS. It is fully compatible with other major existing classifications, including Priority Habitat types (UKHab Level 4) and Habitats Directive Annex I habitat types[10] (UKHab Level 5)[11].

All habitats were recorded to at least Level 3 of the UKHab hierarchy, i.e. broad habitats such as neutral grassland or dense scrub. Any Level 4 habitats and Level 5 habitats have also been recorded. In addition, secondary codes have been recorded where relevant. Habitat features have been digitally mapped, using QGIS, as either polygons, lines or points and assigned to a UKHab Primary Habitat Code.

An assessment of the possible presence of priority habitats (as defined by CIEEM PEA guidance)[2] was also undertaken during the walkover survey.

Vascular plant names recorded during this survey follow Stace[12].

[10] Council Directive 92/43/EEC (1992) on the conservation of natural habitats and of wild fauna and flora (known as the 'Habitats Directive').

[11] UKHab has been chosen as the classification system for the majority of terrestrial area habitat types used in Defra's Statutory Biodiversity Metric.

[12] Stace (2019) *New Flora of the British Isles* 4th edition.

2.2.2 Protected and Priority Species

An assessment of the possible presence of protected or priority species (as defined by CIEEM PEA guidance), and an assessment of the likely importance of habitat features present that could support such species was also undertaken during the walkover survey.

Surveyors used current guidance and methodologies, as referenced by CIEEM, for preliminary assessment of species.

The survey comprised assessing the suitability of the habitats present for, and recording any activity of the following species (in line with current guidance):

- Badgers[13];
- Bats[14];
- Hazel dormice[15];
- Otters[16,17];
- Water voles[18];
- Red squirrels[19,20];
- Pine martens[21];
- Beavers[22];
- Breeding birds[23];
- Reptiles[24].
- Amphibians (terrestrial and aquatic habitats), including an assessment of aquatic habitat for its suitability to support great crested newts;
- White-clawed crayfish[25];
- Freshwater pearl mussel[26].

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[13] Harris S., Cresswell P. and Jefferies D. (1989) *Surveying badgers*. Mammal Society – No9.

[14] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.

[15] English Nature (2006). *The Dormouse Conservation Handbook (2nd edition)*.

[16] Chanin and Smith (2003). *Monitoring the otter Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. Peterborough, English Nature.

[17] Liles G. (2003). *Otter Breeding Sites. Conservation and Management*. Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough.

[18] Dean, M. et al (2016) *The Water Vole Mitigation Handbook*. Mammal Society.

[19] Birks J.D.S, Bullion S., Cresswell W.J. and Dean M., eds. (2012) *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*. Mammal Society, Southampton.

[20] Gurnell J., Lurz P., McDonald R. and Pepper H.W. (2009) *Practical techniques for surveying and monitoring squirrels*.

[21] Cresswell, W.J., Birks, J., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012) UKBAP *Mammals: Interim Guidelines for Survey Methodologies, Impact Assessment and Mitigation*. The Mammal Society, Southampton.

[22] Campbell Palmer et al. (2016) *The Eurasian Beaver Handbook: Ecology and Management of Castor fiber*. Pelagic Publishing.

[23] Bird Survey & Assessment Steering Group. (2022). *Bird Survey Guidelines for assessing ecological impacts, v.0.1.7*. Available at: https://birdsurveyguidelines.org [Accessed: 10/04/2024].

[24]Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife advice sheet 10.

[25] Peay S. (2003) *Monitoring the White-clawed Crayfish Austropotamobius pallipes.* Conserving Nature 2000 Rivers Monitoring Series No. 1. English Nature, Peterborough.

[26] NatureScot (2018) *Freshwater pearl mussel survey protocol - for use in site-specific projects*. Available at: Microsoft Word - B398246.doc (nature.scot) [Accessed 24/04/2024].

While carrying out the UKHab survey, surveyors also assessed the suitability of the Survey Area to support priority invertebrates and identified the presence of any priority plans.

Evidence of the presence of the following invasive species was recorded where seen:

- Evidence of the presence of the following invasive plant species: Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron[27], New Zealand pigmy weed, Virginia creeper, variegated yellow archangel, cotoneaster [28], yellow azalea, few-flowered leek, montbretia, giant rhubarb, Japanese rose, three-cornered garlic, fanwort, floating pennywort, curly waterweed, water hyacinth, floating water primrose, parrot's feather and waterweeds (all species of the genus *Elodea*). These are listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and subject to strict legal control.

2.2.3 Surveyor Competencies

The survey was led by a surveyor who has been assessed to be at least of capable experience following the CIEEM competency framework[29] and holds Field Identification Skills Certificate (FISC) level 4.

Limitations

This section identifies any limitations to the surveys or assessment and provides an explanation as to the effect of these on the appraisal.

Accessibility of the eastern banks of the inlet was not possible beyond a vantage point at approximately OSNGR SM 96849 06034. Surveyors could only view a stretch of the eastern banks from this point, and also walked along the shared user path (SUP) along the western banks and viewed the eastern banks using binoculars. It is possible that potential species evidence was missed in these areas. This is not a significant limitation to the report as surveyors were able to make an adequate assessment of suitability of the Site to support protected species, which was the purpose of the survey. Furthermore, vegetation clearance is not required for the works and therefore if protected species were present within the areas that could not be accessed, they are unlikely to be disturbed beyond additional temporary noise and potential lighting pollution.

Several mature trees were present within the Survey Area. Due to limited access as mentioned above, surveyors could not thoroughly assess trees for the presence of potential roost features for bats. As the works do not require vegetation clearance roosting bats are unlikely to be impacted and therefore this is not a significant limitation to this report.

The search for waterbodies within 500 m of the Site was undertaken by using Ordnance Survey plans and aerial photographs only. These sources may not show all waterbodies within 500 m of the Site, and therefore, some waterbodies may not have been identified.

The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The field survey checked for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron, New Zealand pigmy weed, Virginia creeper, variegated yellow archangel, cotoneaster,

[27] Although there are approximately 1200 species of rhododendron, just one species and one of its hybrids are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended): *Rhododendron ponticum* and *Rhododendron ponticum x Rhododendron maximum*.

[28] There are approximately 100 species of cotoneaster found in the UK, but only five are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended): *Cotoneaster horizontalis*, *Cotoneaster integrifolius*, *Cotoneaster simonsii*, *Cotoneaster bullatus* and *Cotoneaster microphyllus*.

[29] CIEEM's Competency Framework. Available at: https://www.cieem.net/competency-framework [Accessed 02/04/2024].

yellow azalea, few-flowered leek, montbretia, giant rhubarb, Japanese rose, three-cornered garlic, fanwort, floating pennywort, curly waterweed, water hyacinth, floating water primrose, parrot's feather and waterweeds (all species of the genus Elodea). Other invasive species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) may not have been recorded.

Cryptic taxa such as some species of plant, invertebrates and fungi, could not be adequately surveyed at the time of the survey. These groups require specialist survey, and survey windows are generally highly restrictive. However, when taking into account the desk study results, and that the works do not require vegetation clearance, this is not considered to be a significant limitation.

The desk study reviewed the Woodland Trust Trusts Veteran Trees inventory. This provides records of veteran trees, but is not an exhaustive list, and other veteran trees may be present in the area. As the works do not require the removal of any trees, this is not a significant limitation.

The desk study records obtained by WWBIC are not exhaustive, and the absence of records does not necessarily demonstrate the absence of a species.

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological surveys undertaken to support this PEA have not therefore produced a complete list of plants and animals, and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.

RESULTS

3. Results

3.1 Statutory and Non-statutory Designated Sites

Table 3-1 details the statutory and non-statutory designated sites for nature conservation identified though the desk study.

Table 3-1 - Statutory and non-statutory designated sites for nature conservation within 2 km[30] of the Site

Site name	Designation	Location of designated site[31]	Features of interest[32]
Pembrokeshire Marine / Sir Benfro Forol	Special Area of Conservation (SAC)	120 m to the north and 850 m to the south	Designated for Annex I habitats Estuaries, Large shallow inlets and bays and Reefs and Annex II species grey seal and shore dock.
Milford Haven Waterway	Site of Special Scientific Interest (SSSI)	120 m to the north and 850 m to the south	Designated for its geology, ancient woodland, saltmarsh, swamp, saline lagoons, rare and scarce plants, invertebrates, important numbers of migratory waterfowl such as little grebe, shelduck, wigeon, teal dunlin and curlew, greater horseshoe bat, lesser horseshoe bat and otter.
Westfield Pill Nature Reserve	Wildlife Trust Reserve (WTR)	100 m to the north	Consists of an open old railway line, woodland edge, scrubby meadow, reedbeds and a lagoon. An important site of wintering and wading birds, supporting over half of the Pembrokeshire population of little grebe and goldeneye. Common reptiles, common amphibians, brown trout, European eel, otter and Daubenton's bat have been recorded on the reserve.

[30] This is the zone of influence for designated sites.

[31] Where designated sites are situated outside of the Site boundary, the distance and direction is given to the closest point that the designated site is from the Site.

[32] Including qualifying features of internationally designated sites and reasons for designation for SSSIs.

Pembrokeshire Marine SAC is located both upstream and downstream of the Site and is therefore hydrologically connected to the Site. The repair works are limited to the bridge; however, an underbridge unit will be required to complete repairs beneath the bridge. It is possible that Pembrokeshire Marine SAC and its designating features could be impacted by a potential pollution event. Pembrokeshire Marine SAC is therefore a potential constraint to the Proposed Scheme and relevant recommendations have been made in Section 4.

Milford Haven Waterway SSSI is located both upstream and downstream of the Site and is therefore hydrologically connected to the Site. As the SSSI is not adjacent to the Site, an SSSI Assent will not be required. As such, Milford Haven Waterway SSSI is not a constraint to the Proposed Scheme, however, appropriate pollution prevention measures will be required as listed in Section 4.

Westfield Pill WTR is located 100 m north of the Site; however, aquatic species such as European eel and otter are highly mobile species and could be impacted by a potential pollution event. As such, Westfield Pill WTR is not a constraint to the Proposed Scheme; however, appropriate pollution prevention measures will be required.

Table 3-2 details the statutory sites designated for bats identified though the desk study.

Table 3-2 - Statutory designated sites for bats within 30 km of the Site

Site name	Designation	Location of designated site[33]	Features of interest[34]
Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston	SAC	8 km to the east, 9.5 km to the south and 10 km to the northeast	Supports approximately 9.5% of the UK greater horseshoe bat population. The site contains a mixture of maternity, transitory and hibernation sites.
Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru	SAC	8.5 km to the southwest	Contains the main hibernation site for the population associated with Pembrokeshire Bat Sites SAC. It may thus be used by up to 5.5% of the UK population of greater horseshoe bat.

It is understood that if horseshoe bats are present within the Site, Pembrokeshire Bat Sites and Bosherton Lakes SAC and Limestone Coast of South West Wales SAC sit outside of the Core Sustenance Zone for greater horseshoe bats as outlined in BCT guidance[35]. As the Site sits between both SACs, it is possible that populations could move between the SAC's, and roost within the bridge on Site. As the bridge has been identified as potential roosting habitat and considering the availability of suitable commuting and foraging habitat around the bridge, on a precautionary basis the above SACs have been ruled as potential constraints. Relevant recommendations are stated in Section 4.

[33] Where designated sites are situated outside of the Site boundary, the distance and direction is given to the closest point that the designated site is from the Site.

[34] Including qualifying features of internationally designated sites and reasons for designation for SSSIs.

[35] Collins J (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

3.1.1 Irreplaceable Habitats

Table 3-3 details the locations of irreplaceable habitats[36] identified through the desk study and the findings from the field surveys.

Table 3-3 – Section 7 habitats, ancient woodland and veteran trees within 1 km[37] of the Site and priority habitats within 500 m

Irreplaceable habitat type	Irreplaceable habitat area (ha)	Location of irreplaceable habitat[38]
Rivers and Streams Priority Habitat	Flows underneath Westfield Pill inlet	Within the Site, immediately below the bridge
Ancient Semi Natural Woodland	0.20 acres	Adjacent to the north of the Proposed Scheme boundary, immediately below the bridge on the western banks
Ancient Semi Natural Woodland	3.4	Adjacent to the south of the Proposed Scheme boundary, immediately below the bridge on the western banks
Ancient Semi Natural Woodland	0.52	Adjacent to the south of the Proposed Scheme boundary, immediately below the bridge on the western banks
Ancient Semi Natural Woodland	0.68	15 m north
Ancient Semi Natural Woodland	1.57	840 m north
Coastal Saltmarsh Priority Habitat	0.04	15 m north

No records of veteran trees were located within 1 km of the Proposed Scheme boundary therefore they are not a constraint to the Proposed Scheme.

As the Coastal Saltmarsh identified is located upstream and no vegetation clearance or ground works adjacent to the inelt are planned, it is not a potential constraint to the Proposed Scheme and is not discussed further in this report.

Westfield Pill inlet qualifies as a priority habitat under rivers and streams. The inlet flows directly underneath the bridge and therefore could be impacted by a potential pollution event. Rivers and Streams Priority Habitat is not a potential constraint to the Proposed Scheme; however, precautionary methods such as appropriate pollution prevention measures will be required.

The parcels of ancient woodland identified adjacent to the Proposed Scheme boundary sit underneath Westfield Pill bridge. As the works are limited to the bridge and the underbridge unit and vegetation clearance is not required, it is unlikely these parcels will be directly impacted. As two parcels on the western banks extend downstream of the Site, these could be impacted by a potential pollution event. Ancient woodland is not a potential constraint to the

[36] As defined in Section 7 of the Environment Wales Act 2018.

[37] This is the zone of influence for ancient woodland.

[38] Where irreplaceable habitats are situated outside of the Site boundary, the distance and direction is given to the closest point that the irreplaceable habitat is from the Site.

Proposed Scheme; however, precautionary measures such as appropriate pollution prevention measures will be required.

3.1.2 Habitats and Priority Plants

The Site comprised of Westfield Pill bridge which carries the A477 over Westfield Pill inlet. The majority of the Site comprised of the inlet, which was bordered by lowland mixed deciduous woodland and ancient woodland, with patches of mixed scrub present to the north and south of the bridge. The wider landscape comprised of residential properties and agricultural land.

A wet ditch containing stagnant water was identified to the south of the western end of the bridge, at approximately OSNGR SM 96694 06037. The ditch ran parallel to the SUP and was bordered by bulrush and pendulous sedge and likely floods during extreme high tide.

Table 3-4 lists all of the UKHab Level 3 habitats present within the Survey Area. The table also provides details of the location of each habitat and any relevant secondary codes.

A full list of plant species recorded is provided in 5.1Appendix B.

Table 3-4 - Habitat types within the Survey Area

UKHab level 3 habitat type	Location of habitat	Secondary codes[39]
Mixed scrub (h3h)	North of the western end of bridge North and south of the eastern end of bridge	N/A
Lowland mixed deciduous woodland (w1f)	Along eastern and western banks of inlet	28 – ancient woodland
Developed land – sealed surface (u1b)	Where the abutments join land and shared user path running parallel to the western banks	N/A
Built linear feature (u1e)	A477 bridge	N/A
Rivers - priority habitat (r1e)	Westbury Pill	N/A
Cereal crops (c1c)	Agricultural field north of the eastern end of bridge beyond the mixed scrub	N/A
Reedbeds (f2e)	South of the western end of the bridge in association with the stagnant ditch	50 - ditch
Modified grassland (g4)	Adjacent to the SUP on western banks of inlet	N/A

[39] Secondary codes allow the recording of additional information, linked to the Primary Habitats (for example, scattered scrub can be linked with primary habitats such as grassland and heathland).

Priority Plants

WWBIC provided 15 priority plant records within 1 km of the Site. These all related to records of English bluebell, the closest record was located 140 m to the east.

The field survey on the 08/04/2024 identified English bluebells within the Survey Area.

The habitat to support potential priority plants sits underneath and adjacent to Westfield Pill bridge, such as woodland and ancient woodland. As the works are limited to the bridge and the underbridge unit and vegetation clearance is not required, priority plants such as English bluebells, are unlikely to be impacted by the Proposed Scheme. As such priority plants are not a potential constraint to the Proposed Scheme and are not discussed further in this report.

3.2 Protected and Priority Animal Species

Details of legislation relating to protected species is provided in 5.1Appendix C.

Protected and priority species are not discussed further within this report where the following applies:

- A species distribution range does not cover the Site location; and
- No evidence of the species was recorded within the survey area and/or no potentially suitable habitat for the species has been recorded within the zone of influence of the species.

3.2.1 Badgers

WWBIC provided one record of badger within 1 km of the Site. The record related to a road-killed badger, the grid reference provided was 4 figures, therefore the record was located approximately 700 m to the west.

The field survey on the 08/04/2024 assessed the Survey Area for evidence of badgers (setts, latrines, feeding signs and mammal track) and potential habitats to support badgers. The field survey identified three dung pits forming a latrine under the east abutment of the bridge at approximately OSNGR SM 96902 06012. Mammal pathways were also identified under the east abutment to north and south at approximately OSNGR SM 96905 06013 and SM 96901 05998. It could not be confirmed whether these pathways had been created by badger due to the lack of conclusive evidence such as footprints or hairs, but it is assumed to be badger due to the presence of dung pits between the mammal pathways.

The Survey Area provided suitable habitat for sett digging, foraging and commuting badger such as the woodland adjacent to the Site, located underneath the bridge. The works are limited to the bridge and the underbridge unit and vegetation clearance is not required. As such, it is unlikely badgers will be impacted. Badger are not a potential constraint to the Proposed Scheme; however, precautionary measures are stated in Section 4.

3.2.2 Bats

WWBIC provided eight records of bats within 2 km of the Site, which related to common pipistrelle, soprano pipistrelle, lesser horseshoe bat and noctule bat. The closest record related to a field record of an unidentified bat species located 410 m to the west. The closest roost record related to common pipistrelle located 700 m to the northeast.

The field survey on the 08/04/2024 identified potentially suitable habitat on Site for roosting bats. Both the east and west abutments of the bridge at approximately OSNGR SM 96906 06004 and SM 96653 06071 had potential roost features. If these features lead to a void within the bridge, they will likely be suitable to support species such as greater horseshoe and lesser horseshoe bats. Surveyors determined the bridge to be of moderate suitability for roosting bats.

Suitable habitat for foraging and commuting bats was also identified during the survey, including woodland and scrub bordering Westfield Pill inlet and the inlet itself.

As potentially suitable roosting, foraging and commuting habitat for bats has been recorded within the Site and Survey Area, this species may pose a constraint to the Proposed Scheme and recommendations are provided in Section 4.

3.2.3 Hazel Dormice

WWBIC provided no records of hazel dormouse records within 1 km of the Site.

The field survey on the 08/04/2024 identified no evidence of hazel dormouse.

The woodland and mixed scrub underneath the east and west abutments provided optimal habitat for this species due to the variation of food sources, structured variability and diversity of trees.

Although vegetation located underneath the bridge within the Survey Area provided suitable habitat for hazel dormouse, the works are limited to the bridge and the underbridge unit and vegetation clearance is not required. As such, it is unlikely hazel dormouse will be impacted. Hazel dormice are not a potential constraint to the Proposed Scheme; however, sensitive lighting measures for temporary lighting will be required, if works are to be undertaken at night, as stated in Section 4.

3.2.4 Otters

WWBIC provided one record of otter within 2 km of the Site. The record related to a sighting of otter located 1.3 km to the southwest.

The field survey on the 08/04/2024 did not identify any evidence of otter within the Survey Area or 250 m upstream and downstream of the Site. Suitable habitat for commuting, foraging and resting otter was identified underneath the bridge including the inlet, it's banks and adjacent woodland. During the field survey, a mature oak tree with an archway-shaped opening was identified at approximately OSNGR SM 96661 06092 which could provide a suitable resting spot for otter. Mammal pathways were also identified under the east abutment to north and south at approximately OSNGR SM 96837 06041 and SM 96852 06011. Due to the lack of conclusive otter evidence, it could not be determined whether these pathways had been created by otter.

Full accessibility of the eastern banks of the inlet was not possible beyond a vantage point at approximately OSNGR SM 96849 06034. Surveyors could only view a stretch of the eastern banks from this point, and also walked along the SUP along the western banks and viewed the eastern banks using binoculars.

As the works are limited to the bridge and the underbridge unit and vegetation clearance is not required, it is unlikely otter will be impacted. Otter are not a potential constraint to the Proposed Scheme; however, precautionary measures such as appropriate pollution prevention and sensitive light measures for temporary lighting will be required as stated in section 4.

3.2.5 Water Voles

WWBIC provided no water vole records within 1 km of the Site.

The field survey on the 08/04/2024 identified no evidence of water vole.

A soft bank substrate was present on the eastern and western banks of the inlet which could support burrowing water vole; however, this is considered unlikely due to the variation in water levels as an inlet and the lack of riparian vegetation and therefore available food sources for this species.

As it is considered unlikely that water vole would be present within the Survey Area, and the works will not directly disturb the banks of the inlet, water vole are not discussed further within this report and are not considered to be a potential constraint to the Proposed Scheme.

3.2.6 Breeding and Non-Breeding Birds

WWBIC provided 118 records of birds within 1 km of the Site, including 15 species listed under Schedule 1 of the Wildlife and Countryside Act 1981 14 birds listed under Section 7 of the Environment Wales Act 2016 (see Table 3-5). The closest record related to a field record of bullfinch located 65 m to the north.

Table 3-5 - Records of protected bird species returned within 2 km

Species	Protection
Kingfisher	Schedule 1 WCA 1981
Redkite	Schedule 1 WCA 1981
Cetti's warbler	Schedule 1 WCA 1981
Redwing	Schedule 1 WCA 1981
Black-tailed godwit	Schedule 1 WCA 1981
Fieldfare	Schedule 1 WCA 1981
Mediterranean gull	Schedule 1 WCA 1981
Peregrine falcon	Schedule 1 WCA 1981
Great northern diver	Schedule 1 WCA 1981
Greenshank	Schedule 1 WCA 1981
Black tern	Schedule 1 WCA 1981
Merlin	Schedule 1 WCA 1981
Osprey	Schedule 1 WCA 1981
Goshawk	Schedule 1 WCA 1981
Black redstart	Schedule 1 WCA 1981
Bullfinch	Section 7 EWA 2016
Black-headed gull	Section 7 EWA 2016
House sparrow	Section 7 EWA 2016
Starling	Section 7 EWA 2016
Song thrush	Section 7 EWA 2016
Dunnock	Section 7 EWA 2016
Marsh tit	Section 7 EWA 2016

Linnet	Section 7 EWA 2016
Reed bunting	Section 7 EWA 2016
Spotted flycatcher	Section 7 EWA 2016
Curlew	Section 7 EWA 2016
Yellowhammer	Section 7 EWA 2016
Ringed plover	Section 7 EWA 2016
Bar-tailed godwit	Section 7 EWA 2016

The field survey on the 08/04/2024 identified suitable wintering habitat for birds within the Survey Area including scrub, woodland and the banks of the inlet which could support Schedule 1 species such as kingfisher, Cetti's warbler, firecrest and black-tailed godwit. During the survey, an active crow's nest was identified on the ledge of a bridge pier, approximately 70 m to the west of the eastern abutment at approximately OSNGR SM 96837 06024. Westfield Pill Nature Reserve, an important site of wintering and wading birds, supporting over half of the Pembrokeshire population of little grebe and goldeneye, is located 100 m to the north.

As the bridge is currently supporting a nesting bird which could be impacted depending on the timings of the works, breeding birds are a potential constraint to the Proposed Scheme. Recommendations are provided in Section 4.

3.2.7 Reptiles

WWBIC provided eight records of reptiles within 1 km of the Site. The records related to slow worm. The closest record related to a field record of slow worm located 150 m to the north.

The field survey on the 08/04/2024 identified suitable habitat for commuting and foraging reptiles underneath the bridge, including scrub, grassland and woodland. Hibernating and sheltering opportunities were limited within the Survey Area as surveyors did not identify any potential refugia such as long piles, brash piles or gaps within base of the bridge itself.

As the works are limited to the bridge and the underbridge unit and vegetation clearance is not required, it is unlikely reptiles will be impacted. Reptiles are not a potential constraint to the Proposed Scheme and are not discussed further in this report.

3.2.8 Amphibians

WWBIC provided no records of amphibians within 1 km of the Site.

The field survey on the 08/04/2024 identified suitable habitat for commuting and resting amphibians underneath the bridge, including scrub, grassland and woodland. The search for waterbodies within 500 m of the Site identified two waterbodies located 330 m and 390 m to the southeast. Woodland and scrub habitat provides terrestrial connectivity between the waterbodies and the Site; however, hydrological connectivity was not identified.

As the works are limited to the bridge and the underbridge unit and vegetation clearance is not required, it is unlikely amphibians will be impacted. Amphibians are not a potential constraint to the Proposed Scheme and are not discussed further in this report.

3.2.9 White-clawed Crayfish

WWBIC provided no records of white-clawed crayfish records within 1 km of the Site.

As a freshwater species, the Survey Area did not provide any suitable habitat for this species.

As no suitable habitat for crayfish has been recorded within the Survey Area, this species is not a potential constraint to the Proposed Scheme and is not discussed further within this report.

3.2.10 Fresh Water Pearl Mussel

WWBIC provided no records of white-clawed crayfish records within 1 km of the Site.

As a freshwater species, the Survey Area did not provide any suitable habitat for this species.

As no suitable habitat for freshwater pearl mussel has been recorded within the Survey Area, this species is not a potential constraint to the Proposed Scheme and is not discussed further within this report.

3.2.11 Priority Invertebrates

WWBIC provided 13 records of priority invertebrates within 1 km of the Site. The species recorded were cinnabar, garden tiger, small pearl-bordered fritillary, small heath, lackey and white ermine. The closest record was a sighting of garden tiger, located 20 m to the north.

The woodland adjacent to the bridge likely supports protected invertebrate species such as garden tiger, small heath and lackey which often inhabit woodland and/or riverbanks and feed on species present within the Survey Area such as common nettle, annual meadow grass, hawthorn and blackthorn.

As the works are limited to the bridge and the underbridge unit and vegetation clearance is not required, it is unlikely priority invertebrates, if present, will be impacted. As such, priority invertebrates are not a potential constraint to the Proposed Scheme and are not discussed further in this report.

3.3 Aquatics

3.3.1 Aquatic habitats

Two watercourses were identified within the Survey Area as presented in Table 3-6.

Table 3-6 Watercourses within the Survey Area

Watercourse name	Location relative to Site boundary	Main River[40]/ ordinary watercourse[41]

[40] A watercourse designated by NRW. NRW has permissive powers to carry out flood defence works, maintenance and operational activities on main rivers. Responsibility for maintenance rests on the riparian owner. The locations for main rivers in Wales are presented on the NRW Flood Risk Assessment Wales map, available here: https://maps.cyfoethnaturiolcymru.gov.uk/Html5Viewer/Index.html?configBase=https://maps.cyfoethnaturiolcymru.gov.uk/Geocortex/Essentials/REST/sites/Flood_Risk/viewers/Flood_Risk/virtualdirectory/Resources/Config/Default&layerTheme=0 [Accessed: 10/04/2024]

[41] All other watercourses that are not designated as Main River are Ordinary Watercourses, for which the lead local flood authority has responsibility.

Westfield Pill inlet	Within Site boundary	Main River
Wet ditch	Downstream of the Site boundary	Ordinary watercourse containing stagnant water

Westfield Pill inlet is located within the Site and flowed in a southerly direction. A wet ditch containing stagnant water was identified to the south of the western end of the bridge, at approximately OSNGR SM 96694 06037. The ditch ran parallel to a SUP and was partially covered by bulrush and pendulous sedge and likely floods during extreme high tides. These watercourses are not potential constraints to the Proposed Scheme as the works are limited to the bridge and bridge deck; however, precautionary measures such as appropriate pollution prevention measures will be required.

The search for waterbodies within 500 m of the Site identified two waterbodies located 330 m and 390 m to the southeast. Scrub and woodland habitats provide terrestrial connectivity between the Site and the waterbodies; however, no hydrological connectivity was identified. As the works are limited to the bridge and the underbridge unit, it is these waterbodies will be impacted. The waterbodies are not potential constraints to the Proposed Scheme and are not discussed further in this report.

3.3.2 Aquatic Species

3.3.2.1 Fish

WWBIC returned no records of fish within 1 km of the Site.

Brown trout and European eel have been recorded at Westfield Pill Nature Reserve which is located 100 m to the north. As such, the inlet supports protected fish species.

During the field survey on the 13/03/2024, the substrate of the inlet could not be viewed from the banks and therefore the suitability of the inlet to support spawning brown trout could not be determined. It is likely that the inlet provides suitable habitat to support commuting fish.

As the works are limited to the bridge and the underbridge unit, it is unlikely fish will be impacted. Fish are not a potential constraint to the Proposed Scheme; however, precautionary measures such as appropriate pollution prevention measures will be required.

3.4 Invasive Non-native Species

WWBIC provided 33 records of invasive non-native plant species (INNPS) within 1 km of the Site. No records of invasive non-native animal species were returned within 1 km. The species recorded were Japanese knotweed, Montbretia spp. and three-cornered garlic. The closest record was of Japanese knotweed located 50 m to the south.

The field survey on the 08/04/2024 did not identify any evidence of INNPS within the Survey Area. Surveyors did identify Japanese knotweed; however, this was located 60 m to the south of the Survey Area. It is understood works will be carried out by an underbridge deck, which will not require contractors to access the underneath of the bridge by foot. Therefore the works are unlikely to facilitate the spread of Japanese knotweed.

As invasive non-native species were not recorded within the Survey Area, they are not a potential constraint to the Proposed Scheme and are not discussed further in this report.

CONSTRAINTS AND RECOMMENDATIONS

4. Constraints and Recommendations

4.1 Key Constraints

The identification of potential ecological constraints has been based on the condition of the Site and its immediate surrounds at the time of the walkover survey, and the information about the Proposed Scheme available at the time.

At the time of writing, the preliminary construction design, construction timetable and construction working methods are not available. Therefore, once exact details regarding the Proposed Scheme are known, the recommendations made below should be reviewed by an Ecologist to ensure they are appropriate.

Pembrokeshire Marine SAC was identified as a potential constraint to the Proposed Scheme in the desk study due to Westfield Pill inlet providing hydrological connectivity to the Site. Pembrokeshire Bat Sites and Bosherton Lakes SAC and Limestone Coast of South West Wales SAC are designated for greater horseshoe bats, which could be present on Site.

As a result, a Habitats Regulations Assessment (HRA) Screening will be required.

The following protected and priority habitats and species may also pose a constraint to the Proposed Scheme:

- Roosting bats; and
- Nesting birds.

4.1.1 Statutory Designated Sites for Nature Conservation

SACs are protected areas in the UK designated under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 in the UK offshore area.

Hydrological connectivity has been identified between the Site and Pembrokeshire Marine SAC. The Site also sits between Pembrokeshire Bat Sites and Bosherton Lakes SAC and Limestone Coast of South West Wales SAC designated for greater horseshoe bats, therefore it is possible that populations could move between the SAC's, and roost within the bridge on Site. It is therefore recommended that a HRA Stage 1 Screening Assessment is undertaken to ascertain the impact of the Proposed Scheme on Pembrokeshire Marine SAC, Pembrokeshire Bat Sites and Bosherton Lakes SAC and Limestone Coast of South West Wales SAC.

4.1.2 Roosting bats

All UK bat species are European Protected Species (EPS), and bats and their roosts have full legal protection.

Potential roost features have been identified at the eastern and western abutments of the bridge. It is recommended that a minimum of two emergence surveys are completed within the bat active season (May to August, inclusive) in line with BCT guidance to determine the suitability to support bat roost features and the presence/ likely absence of bat roosts as appropriate. It is recommended that an endoscope inspection of both features is undertaken during the same visit as the first emergence survey.

Depending on the construction method, there is potential for the Proposed Scheme to result in disturbance, damage or destruction of bat roost(s) potentially within the bridge.

Dependant on the findings of bat surveys and endoscope inspection, works may be conducted under a PMW detailing how the works may proceed in a lawful manner to avoid harm to bats. This should be followed prior to and during the works.

Should any roosts be identified during the further surveys, where impacts cannot be avoided, an EPS mitigation licence and/or Proposed Scheme design modifications may be required to enable the Proposed Scheme to proceed.

4.1.3 Nesting birds

All wild bird species, their eggs and nests have full legal protection.

Suitable habitat for nesting birds has been identified within the Survey Area. During the survey, an active crow's nest was identified on the ledge of a bridge pier, approximately 70 m to the west of the eastern abutment at approximately OSNGR SM 96837 06024.

There is potential for the Proposed Scheme to cause harm and disturbance to birds and to any nests potentially present within suitable habitats.

It is recommended that the works are undertaken outside of the core bird nesting season (the core bird nesting season is taken to be between March and August inclusive) to avoid damage or destruction of occupied nests or harm to breeding birds.

If works cannot avoid the core nesting season, a nesting bird check should be carried out prior to the works and should be overseen by a suitably experienced ecologist. If an active nest is identified, an appropriate buffer zone should be established around the nest and activities delayed within that zone until the nesting attempt has reached its natural conclusion.

4.1.4 General Measures

The following general mitigation measures have been identified to avoid and reduce potential negative impacts on important ecological features that present a constraint to the Proposed Scheme:

- It is recommended that construction works are designed and undertaken in line with the Construction Industry Research and Information Association (CIRIA) C811 'Environmental good practice on site handbook'[42] and also Guidelines for Pollution Prevention (GPPs)[43]. These detail good practice advice for undertaking works which may have the potential to cause pollution of ancient woodland sites, Pembrokeshire Marine SAC, Westfield Pill WTR or to aquatic species such as otter.
- Compounds and other storage locations required during the works should be located on existing hardstanding where possible and should be located away from sensitive ecological features such as the the inlet or areas of woodland habitat.
- If temporary lighting is required, this should be kept to a minimum and directed away from known or potential roost features and habitats such as woodland that may be in use by resting diurnal species or active

[42] CIRIA (2023) Environmental good practice on site handbook. https://www.ciria.org/ci/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=C811&Category=BOOK

[43] Pollution Prevention Guidelines (PPGs) are out of date and a review process is currently underway to replace them with Guidance for Pollution Prevention (GPPs). These documents are available at http://www.netregs.org.uk/environmentaltopics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/. GPPs provide environmental good practice guidance for the whole UK, and environmental regulatory guidance directly to Northern Ireland, Scotland and Wales only. For businesses in England, regulatory guidance is available from GOV.UK instead.

crepuscular and nocturnal species such as badger and otter. In accordance with guidance provided by the Bat Conservation Trust (BCT) and Institution of Lighting Professionals Guidance Note[44], lighting associated with the works should be the minimum required for the task.

- Where possible, machinery movement and stored equipment should be limited to roads or existing areas of hardstanding or within pre-determined access routes within the red line boundary.
- Consultation with the Lead Local Flood Authority (LLFA) should be undertaken regarding aquatic habitats to confirm the level of environmental permitting for the works and proposed permanent Scheme design. There should be adequate provisions on Site in the form of spill kits and wash down area in order to manage risks associated with accidental pollution. There should be a development of an emergency response procedure to be implemented should an accidental pollution event occur.

4.2 Further Survey Requirements

The following surveys are required:

- At least two bat presence/likely absence surveys on the eastern and western abutments identified as having moderate suitability for roosting bats (between May and August inclusive)[45].
- An endoscope inspection of the western and eastern abutments identified as having moderate suitability for roosting bats.

4.3 Mitigation

This report is based on a preliminary assessment, and further details on the impacts of the Proposed Scheme on ecological features may be gathered at a later stage (for example, after further surveys have been carried out).

Therefore, mitigation cannot be proposed at this time as they cannot yet be informed by a detailed assessment, and additional mitigation measures may be identified at a later stage.

5. Conclusion

Ecological baseline data associated with the Proposed Scheme has been gathered. Available information from desk study and field surveys has been used to identify and evaluate ecological features to undertake an assessment of potential impacts for the Proposed Scheme.

At the time of writing, the construction timetable for the Proposed Scheme is not known. As such, the recommendations made in this report should be reviewed by an Ecologist once exact details of the Proposed Scheme are known.

Recommendations of this report have been made on the assumption that the works will be carried out via an underbridge unit (likely MOOG 150) and therefore vegetation is not required to facilitate the Proposed Scheme. Should the works deviate from this method, and vegetation clearance be required to facilitate the Proposed Scheme, a suitably experienced ecologist must be contacted for further advice.

[44] Institution of Lighting Professionals. (2023). Guidance Note Archives. [online] Available at: https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ [Accessed 16/04/2024].

[45] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

Potential significant impacts have been identified in the absence of mitigation in relation to statutory designated sites and priority species, namely Pembrokeshire Marine SAC, Pembrokeshire Bat Sites and Bosherton Lakes SAC. Limestone Coast of South West Wales SAC, nesting birds and bats.

Habitats present within the Site and wider Survey Area are considered to be suitable to support badgers, amphibians, widespread reptile species, otter and protected fish. As the works are limited to bridge and vegetation clearance is not required, so long as appropriate measures such as pollution prevention and lighting measures are implemented during the works, the aforementioned species are unlikely to pose a constraint to the Proposed Scheme. INNPS have not been identified within the Survey Area.

Recommendations have been provided in line with the current understanding of the Proposed Scheme, including further surveys. In addition, general measures to be implemented during the construction phase of the Proposed Scheme have been provided.

However detailed mitigation cannot be proposed at this time as they cannot yet be informed by a detailed assessment, additional mitigation measures will be identified after the completion of further surveys.

Opportunities for net benefits for biodiversity/enhancement should be reviewed once the details of the works are known.

5.1 Report Validity

In the event of scope or programme changes or if works do not commence within 12 months of the date of this report then updates to the surveys may be required to ensure the validity of the data, as per CIEEM guidance[46].

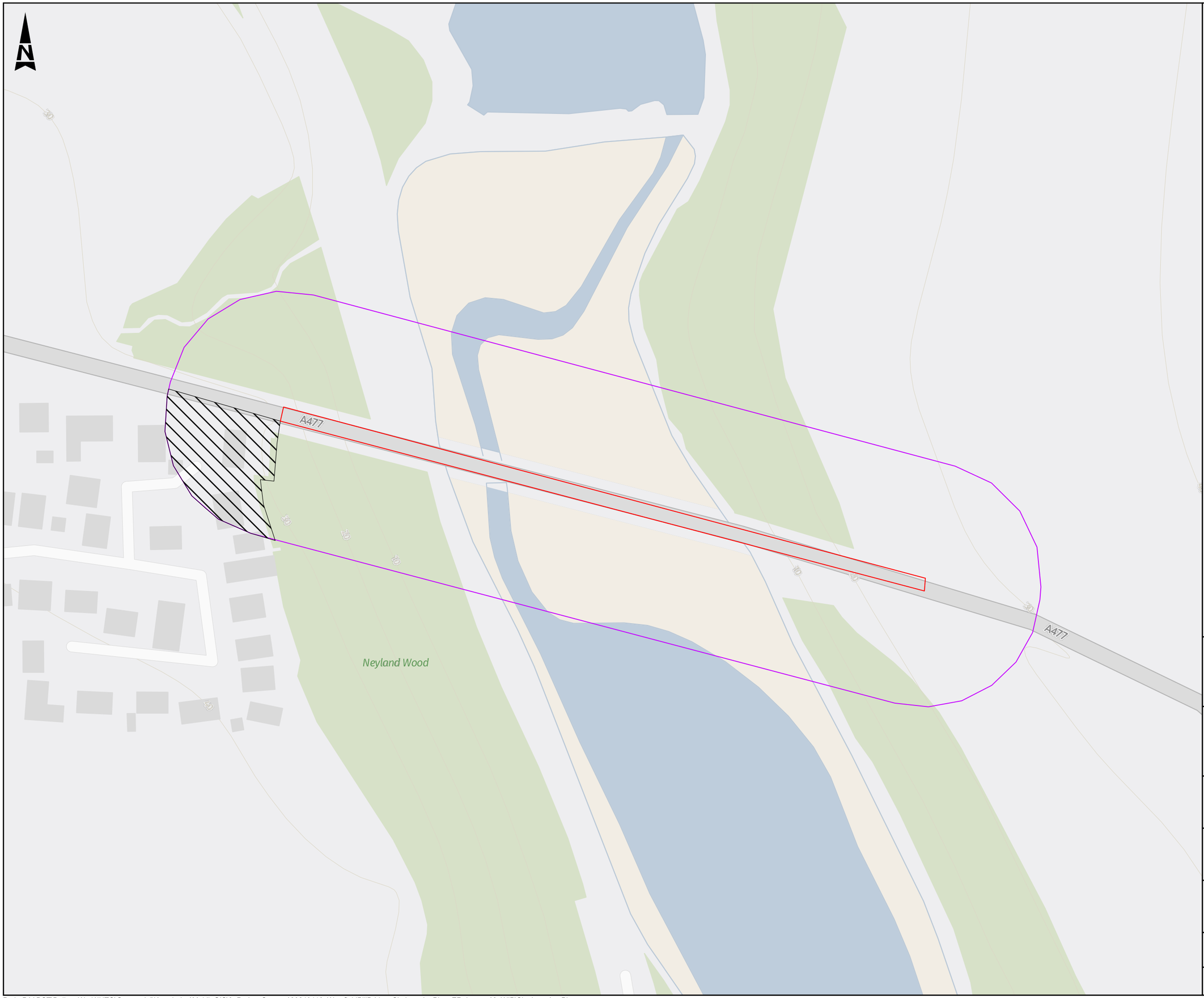
[46] CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys.

APPENDICES

Appendix A. Site Location

A.1 Site Location

Figure A -1 - Site Location Plan



AtkinsRéalis

LEGEND

- SITE BOUNDARY
- SURVEY AREA
- NOT SURVEYED

Metres

0 20 40 60 80

Atkins, Member of the SNC-Lavalin Group
Nova North
11 Bressenden Place
London
SW1E 5BY

AtkinsRéalis

Client

PEMBROKESHIRE COUNTY COUNCIL

Project

WESTFIELD PILL BRIDGE

Title

SITE LOCATION PLAN

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
A3	1:1,500	JAM	ER	RM
		Date 16/04/24	Date 16/04/24	Date 16/04/24

Drawing Number	Rev
N/A	00

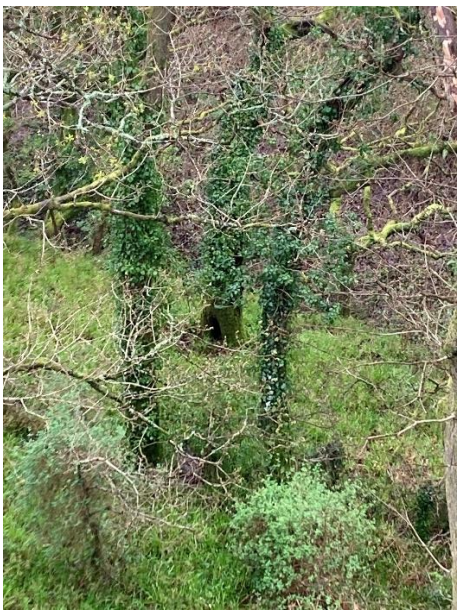
Path: P:\ADST\Deliver Work\IUTO\Geospatial\Knowledge\MobileGIS\3. Project Surveys\20240416_WestfieldPillBridge_SiteLocationPlan_ERobertson\2. WIP\Site Location Plan.aprx

Appendix B. Site Photographs and Habitat Descriptions

B.1 Site Photographs

Table B-1 – Site photographs

Photograph	Description
	Potential bat roost feature on western abutment at OSNGR SM 96653 06071
	Potential bat roost feature on eastern abutment at OSNGR SM 96906 06004

	Archway opening at base of oak tree forming potential resting place for otter at OSNGR SM 96661 06092
	Active crow’s nest identified on the ledge of a bridge pier, approximately 70 m to the west of the eastern abutment at approximately OSNGR SM 96837 06024
	Wet ditch containing stagnant water located to south of the western abutment at approximately OSNGR SM 96694 06037

	Lowland mixed deciduous woodland (w1f) running parallel to the western banks of the inlet
	Developed land; sealed surface (u1b) - shared user path running parallel to the western banks

Dung pits created by badger, located within lowland mixed deciduous woodland at approximately OSNGR SM 96902 06012

Mammal pathways were also identified under the east abutment to north and south at approximately OSNGR SM 96905 06013 and SM 96901 05998

B.2 Site plant species list

Table C-1 – Plant species list for the Site

Species name (Stace[47])	Scientific name (Stace[48])	
Mixed scrub (h3h)	Bramble	*Rubus fruticosus*
	Butterfly bush	*Buddleja davidii*
	Gorse	*Ulex europaeus*
	False oat grass	*Arrhenatherum elatius*
	Bracken	*Pteridium aquilinum*
	Blackthorn	*Prunus spinosa*
	Lesser celandine	*Ficaria verna*
	Ivy	*Hedera helix*
	Common nettle	*Urtica dioica*
	Willow sp.	*Salix sp.*
	Hazel	*Corylus avellana*
	Willowherb sp.	*Epilobium sp.*
	Hairy woodrush	*Luzula acuminata*
	Remote sedge	*Luzula pilosa*
	Pendulous sedge	*Carex pendula*
Lowland mixed deciduous woodland (w1f)	Oak spp.	*Quercus spp.*
	Hazel	*Corylus avellana*
	Dogwood	*Cornus sanguinea*
	Hawthorn	*Crataegus monogyna*
	Honeysuckle	*Lonicera periclymenum*
	Elder	*Sambucus nigra*
	Holly	*Ilex aquifolium*
	Bluebell	*Hyacinthoides non-scripta*
	Hart's tongue	*Asplenium scolopendrium*
	Fern spp.	*Aspidiaceae sp.*
	Dog's mercury	*Mercurialis perennis*
	Lords and ladies	*Arum maculatum*
Reedbeds (r2e)	Bulrush	*Typha latifolia*
	Pendulous sedge	*Carex pendula*
	Water parsnip	*Sium sp.*

[47] Stace (2019) New Flora of the British Isles 4th edition.

[48] Stace (2019) New Flora of the British Isles 4th edition.

Modified grassland (g4)	Yorkshire fog	*Holcus lanatus*
	Perennial rye grass	*Lolium perenne*
	Annual meadow grass	*Poa annua*
	Cocksfoot	*Dactylis glomerata*

Appendix C. Legislation Table

Species	Legislation	Offences	Licensing procedures and guidance
Bats *European protected species*	Conservation of Habitats and Species Regulations 2017 (as amended) Reg 43	Deliberately[49] capture, injure or kill a bat; deliberate disturbance[50] of bats; or damage or destroy a breeding site or resting place used by a bat. [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A licence in respect of development is required from Natural Resources Wales (NRW). https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/bat-licensing/?lang=en Guidance documents: *Bat Mitigation Guidelines* (Reason, P.F and Wray, S 2023) *Bat Workers Manual* (JNCC 2004) *Good Practice Guide: Approach to Bats and Planning (*NRW 2015*)* *Bat Surveys: Good Practice Guidelines (*BCT 2023*)*
	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill, injure or take a bat; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection or disturb[51] a bat in such a place.	A licence from NRW is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Badgers	Protection of Badgers Act 1992	Wilfully kill, injure or take a badger; or intentionally or recklessly damage, destroy or obstruct access to a badger sett or disturb a badger in its sett.	Where required, licences for development activities involving disturbance or sett interference or closure are issued by the NRW. Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process. https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/badger-licensing/?lang=en

[49] Deliberate capture or killing is taken to include “accepting the possibility” of such capture or killing

[50] Deliberate disturbance of animals includes 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) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

[51] Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2017 (as amended) remain an offence under the Wildlife and Countryside Act 1981 (as amended) although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided.

Species	Legislation	Offences	Licensing procedures and guidance
		[It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.]	Licences are normally not granted from December to June inclusive because cubs may be present within setts. Guidance documents: *Badgers- A Guide for Developers* (NRW 2018) *Guidance on undertaking work close to badger setts that cannot be licensed under the Protection of Badgers Act 1992 (*NRW, Date Unknown*)*
Otters *European protected species*	Conservation of Habitats and Species Regulations 2017 (as amended) Reg 43	Deliberately[49] capture, injure or kill an otter; deliberate disturbance[50] of otters; or damage or destroy a breeding site or resting place used by an otter.	Licences issued for development by NRW. https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/otter-licensing/?lang=en
	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill, injure or take an otter; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection or disturb[51] an otter in such a place.	No licence is required for survey in Wales. However, a licence would be required if the survey methodology involved disturbance.
Hazel dormice *European protected species*	Conservation of Habitats and Species Regulations 2017 (as amended) Reg 43	Deliberately[49] capture, injure or kill a hazel dormouse; deliberate disturbance[50] of a hazel dormouse; or damage or destroy a breeding site or resting place used by a hazel dormouse.	A licence in respect of development is required from NRW. https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/dormouse-licensing/?lang=en Guidance documents: *Dormouse Conservation Handbook* (English Nature 2006)
	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill, injure or take a hazel dormouse; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or	Licence issued for survey and conservation by NRW.

Species	Legislation	Offences	Licensing procedures and guidance
		protection or disturb[51] a hazel dormouse in such a place.	
Water voles	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill, injure or take water voles; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection or disturb a water vole in such a place.	Conservation licences issued for trapping and translocation operations by NRW. Certain displacement operations can be carried out under a class licence. Guidance documents: The Water Vole Conservation Handbook (R. Strachan & T. Moorhouse, Wildlife Conservation Research Unit, 3rd Edition 2011) https://naturalresources.wales/conservation-biodiversity-and-wildlife/uk-protected-species/water-voles/?lang=en The Water Vole Mitigation Handbook (M. Dean, R. Strachan, D. Gow & R. Andrews 2016)

Species	Legislation	Offences	Licensing procedures and guidance
Birds	Wildlife and Countryside Act 1981 (as amended) Schedule 1 (some species only).	Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird or intentionally obstructs or prevents any wild bird from using its nest. Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species [e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover].	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. https://naturalresources.wales/permits-and-permissions/species-licensing/bird-licensing/bird-specific-licences/?lang=en
Great crested newts *European protected species*	Conservation of Habitats and Species Regulations 2017 (as amended) Reg 43	Deliberately[49] capture, injure or kill a great crested newt; deliberate disturbance[50] of a great crested newt; deliberately take or destroy its eggs; or damage or destroy a breeding site or resting place used by a great crested newt.	Licences issued for development by NRW. https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/great-crested-newt-licensing/?lang=en https://cyfoethnaturiolcymru.gov.uk/permits-and-permissions/species-licensing/list-of-protected-species/great-crested-newt-licences-for-development-infrastructure-or-maintenance-work/?lang=en Guidance documents: *Great Crested Newt Mitigation Guidelines (English Nature 2001)* *The use of environmental DNA test for Great crested newt licensing purposes (*NRW, 2014*)*
	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill, injure or take a great crested newt; intentionally or recklessly damage, destroy or	Licences issued for science (survey), education and conservation by NRW.

Species	Legislation	Offences	Licensing procedures and guidance
		obstruct access to any structure or place used for shelter or protection or disturb[51] a great crested newt in such a place.	
Adders **Common lizards** **Grass snakes** **Slow worms**	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill or injure any common reptile species.	No licence is required in Wales. However, an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals.
White-clawed crayfish	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally take from the wild.	Licences issued for survey by NRW for survey (to take crayfish by hand, by hand net or by crayfish trap). Use of crayfish traps for survey requires NRW consent. Using crayfish traps to remove crayfish for maintenance or development activities in a watercourse requires a conservation licence from NRW. No licences in respect of development are available.
Invertebrates[52] **Butterflies[53]** **Moths[54]** **Beetles[55]** **Bugs[56]** **Crickets[57]**	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9.	Intentionally kill, injure or take; intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb[51] it in such a place.	NRW issues licences under the Wildlife and Countryside Act 1981 (as amended) for specific purposes. The requirement for a licence is dependant on the species of invertebrate and the protection that is provided. https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/invertebrate-licensing/?lang=en

[53] High brown fritillary, Large blue, Heath fritillary, Swallowtail.

[54] Reddish buff, Fiery clearwing, Fisher's estuarine moth, Barberry carpet, Black-veined, Sussex emerald, Essex emerald, New Forest burnet.

[55] Rainbow leaf beetle, Water beetle *Graphoderus zonatus,* Water beetle *Paracymus aeneus,* Lesser silver water beetle *Hypebaeus flavipes,* Violet click beetle.

[56] New Forest cicada.

[57] Wart biter, Mole cricket *Gryllotalpa Gryllotalpa,* Field cricket *Gryllus campestris.*

Species	Legislation	Offences	Licensing procedures and guidance
Dragonflies[58] **Spiders**[59]			
Plants *European protected species*	Conservation of Habitats and Species Regulations 2017 (as amended) Reg 47	Deliberately pick, collect, cut, uproot or destroy a wild plant of a European protected species (Schedule 5). Those applicable to Wales are: Fen Orchid Floating Water-plantain Killarney Fern Shore Dock	NRW issues licences under Regulation 55 of the Habitats Regulations to allow activities involving EPS to proceed, which would otherwise be offences. https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/european-protected-species-of-plant-licensing/?lang=en
Plants *Nationally protected species*	Wildlife and Countryside Act 1981 (as amended) Schedule 8, Section 13.	Intentionally pick, uproot or destroy any wild plant on Schedule 8	No licence is required for survey. Licences can be issued by NRW for specific purposes only, such as science and education or conservation purposes. There is no provision for licensing the above actions for development operations under the Wildlife & Countryside Act 1981 (as amended). https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/uk-protected-plant-licensing/?lang=en
Plants *Invasive species, e.g.*	Wildlife and Countryside Act 1981 (as amended) Schedule 9, Section 14.	It is illegal to plant or otherwise cause these species to grow in the wild.	Any contaminated soil or plant material is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with section 34 of the Environmental Protection Act 1990.

[58] Norfolk aeshna, Southern damselfly.

[59] Fern raft spider, Ladybird spider.

Species	Legislation	Offences	Licensing procedures and guidance
Japanese knotweed, giant hogweed, rhododendron, Himalayan balsam, montbretia,			https://naturalresources.wales/permits-and-permissions/species-licensing/invasive-alien-species/invasive-alien-species-regulations/?lang=en Guidance documents: *Public information on invasive species in Wales: Japanese knotweed* (Welsh Government 2022) *How to stop invasive non-native plants from spreading* (Defra and Environment Agency 2022) *Guidance on Section 14 of the Wildlife and Countryside Act* (Defra 2011)

Site Designation	Legislation	Protection	Guidance
Special Area of Conservation (SAC) **Special Protection Area (SPA)** **Wetland of International Importance (Ramsar site)**	Conservation of Habitats and Species Regulations 2017 (as amended) Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (the Ramsar Convention).	Assessment of the implications of plans and projects is effected through Part 6 of the Conservation of Habitats and Species Regulations 2017 (in particular Regs 61 – 69). The legislation for the Site of Special Scientific Interest which will underpin each designation also applies. These sites are given protection through policies in the Local Development Plan.	Formal Appropriate Assessment is required to be undertaken by the competent authority before undertaking, or giving consent, permission or other authorisation for a plan or project which is likely to have a significant effect on such a site. Guidance documents: Technical Advice Note 5, Nature Conservation and Planning (WAG 2009). NRW provides advice in relation to the requirements for Habitats Regulations Assessment: https://naturalresources.wales/permits-and-permissions/marine-licensing/marine-licence-habitats-regulations-assessment/?lang=en
Site of Special Scientific Interest (SSSI)	Wildlife and Countryside Act 1981 (as amended)	It is an offence to carry out or permit to be carried out any potentially damaging operation. SSSIs are given protection through policies in the Local Development Plan.	Owners, occupiers, public bodies and statutory undertakers must give notice and obtain the appropriate consent under S.28 before undertaking operations likely to damage a SSSI. S.28G places a duty on all public bodies to further the conservation and enhancement of SSSIs. Guidance documents: Technical Advice Note 5, Nature Conservation and Planning (WAG 2009).
Local Sites (e.g., County Wildlife Sites, Sites of Importance for Nature Conservation)	There is no statutory designation for local sites.	Local sites are given protection through policies in the Local Development Plan.	Development proposals that would potentially affect a local site would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged. Guidance documents: The National Planning Policy Framework (Department for Communities and Local Government, July 2021), with particular reference to Policy 15, and the joint Circular.

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