Pembrokeshire Coast National Park Authority

Pembrokeshire County Council

Pembrokeshire Coast National Park Local Development Plan 2
Pembrokeshire County Council Local Development Plan 1

BIODIVERSITY:

How biodiversity can be protected and enhanced in the development process

SUPPLEMENTARY PLANNING GUIDANCE

PEMBROKESHIRE COAST NATIONAL PARK AUTHORITY

Consultation: September 2020

Adoption: May 2021

PEMBROKESHIRE COUNTY COUNCIL

Consultation: October 2020

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Contents

Abbreviations

AA	Appropriate Assessment
CROW (Act)	Countryside and Rights of Way (Act) 2000
LBAP	Local Biodiversity Action Plan
LDP	Local Development Plan
LNR	Local Nature Reserve
LANR	Local Area of Nature Conservation
MNR	Marine Nature Reserve
NNR	National Nature Reserve
NRAP	Nature Recovery Action Plan
NRW	Natural Resources Wales
PCC	Pembrokeshire County Council
PCNPA	Pembrokeshire Coast National Park Authority
PNP	Pembrokeshire Nature Partnership
PPW	Planning Policy Wales
SAB	SuDS Approving Body
SAC	Special Area of Conservation
SINC	Sites of Importance for Nature Conservation
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Scheme
TAN	Technical Advice Note
TLSE	Test of Likely Significant Effect
WG	Welsh Government

Introduction

Purpose of the document

1. Biodiversity encompasses all living plants and animals (including human-kind), and the habitats and ecosystems they (and we) depend on and support. Biodiversity is, literally, the breadth of life on earth and it is everywhere: in towns, gardens, fields, hedgerows, mountains, cliffs and in the sea. It is fundamental to the physical, economic and social well-being of all who live and work in Pembrokeshire but it also has a value in its own right.
2. Development can have negative impacts on biodiversity, both direct (for instance through the destruction of habitat) and indirect (such as through severance of wildlife corridors). These impacts can be significant and lead to the loss of biodiversity in the County. Development can also have positive impacts for biodiversity for example by integrating new roosting or nesting opportunities into buildings and enhancing the surrounding environment. This Biodiversity Supplementary Planning Guidance is intended to guide development within the County to ensure sustainable development which serves to protect and enhance biodiversity.
3. Biodiversity is a material consideration in the planning process and must be integrated from an early stage into the timetabling, design and delivery of any development.
4. The purpose of this Biodiversity SPG is to provide guidance to everyone involved with development proposals on legal responsibilities, obligations and the protection, conservation and enhancement of biodiversity during the development process. It supports the policies contained within Pembrokeshire Coast National Park Authority (PCNPA) and Pembrokeshire County Council's (PCC) Local Development Plans and sets out policies on how biodiversity should be protected and enhanced. The guidance within this document will be used alongside these Local Development Plan policies.
5. It provides guidance on:

    - The legislation protecting flora, fauna and habitats
    - The relevant Local Development Plan policies
    - The information required when making a planning application
    - The integration of biodiversity into development proposals in order to enhance existing habitats and create new habitats for flora and fauna

Status of the Document

6. The Pembrokeshire Local Development Plan (LDP) (adopted February 2013) and the Pembrokeshire Coast National Park Local Development Plan (adopted September 2020) are the starting points for determining planning applications for development or the use of land in the respective planning authority areas in Pembrokeshire. This Supplementary Planning Guidance provides further detail and guidance on the implementation of Local Development Plan policy to assist those involved in the development process in meeting statutory and policy requirements.
7. This Supplementary Planning Guidance when adopted will be a material planning consideration in determining applications for planning permission.

Aims of the document

8. This Supplementary Planning Guidance aims to:

- Assist in ensuring that the key principles of national planning policy and guidance on biodiversity and nature conservation are met fully at the local level;
- Adhere and align with the new Welsh environmental legislative framework
- Assist in ensuring that local planning decisions do not result in adverse impacts on species and habitats and protect and enhance biodiversity across Pembrokeshire;
- Ensure compliance with good practice;
- Secure timely consideration of ecological issues from the outset and, in so doing, streamline the application process to minimise cost and delay;
- More closely integrate Pembrokeshire's Nature Recovery Action Plan into the planning process.

Biodiversity and Nature Conservation

Why is Biodiversity important and why we need to consider it?

9. As human beings we are an element of, and reliant on, the biodiversity of the planet. Increasingly, alongside its life-support functions, the economic and social benefits of biodiversity are recognised. Biodiversity is an important contributor to our quality of life, well-being and sense of place but it also has 'intrinsic value' – a value in its own right, and is not something that should simply be viewed for its usefulness to humans.

10. Biodiversity in Pembrokeshire is influenced by both natural and anthropogenic factors. Development can have significant negative impacts on biodiversity that can lead to the destruction of habitats and the loss of biodiversity. However, by considering biodiversity issues at an early stage in the design and development process, development can provide significant positive benefits for biodiversity e.g. through the creation of new and enhancing existing habitats, providing new opportunities for species conservation and enhancing ecological connectivity in the wider countryside.

11. The conservation of biodiversity, which entails both its protection and enhancement, is a principle set out in both law and planning policy. It is not only about protecting specific designated sites; it is also concerned with habitats and species beyond them. The edges or boundaries of sites and green corridors that link sites represent zones of transition from one ecosystem to another and are where two or more different types of habitat meet and integrate. These ecological edges or stepping stones often exhibit high levels of productivity and species richness and provide essential connectivity for wildlife – therefore a break in a narrow 'corridor' can have a disproportionate effect on local and regional biodiversity.

Biodiversity in Pembrokeshire

Pembrokeshire's biodiversity resources

12. Pembrokeshire is internationally important for its marine, coastal, heathland, riverine and ancient semi-natural oak woodland habitats.

13. The number of designated sites[1] in the County demonstrates its importance for biodiversity and its rich diversity of habitats and species, including marine and riverine Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Local Nature Reserves (LNRs), Areas of Importance for Local Nature Conservation, and Wildlife Reserves.

14. These habitats support numerous rare and vulnerable species, such as otters, bats, dormice, farmland birds, Marsh Fritillary and Brown Hairstreak butterflies. The overall area that is formally designated for its biodiversity value, is high and many species exist and migrate across the area as a whole and beyond. The connectivity of habitats within and between designated sites and across the wider landscape is therefore crucial.

Pembrokeshire Nature Partnership

15. Several organisations work together in Pembrokeshire to maintain and improve local natural features and the services that they provide. Together, they form the Pembrokeshire Nature Partnership (PNP). The Partnership, which includes public bodies, private sector companies, charities, community groups and individuals with an interest in the protection and enhancement of our natural resources in Pembrokeshire. Pembrokeshire Nature Partnership will continue to support, coordinate and initiate actions amongst existing and new Partners and will seek to record information on conservation action to feed into the reporting for the Nature Recovery Action Plan for Wales.

Pembrokeshire Nature Recovery Action Plan

16. The Nature Recovery Action Plan for Pembrokeshire [2] has been produced by the Pembrokeshire Nature Partnership. Whilst it can be used to guide the members of the Partnership in setting their priorities for action, it is a guide for everyone to use. This plan follows on from the Local Biodiversity Action Plan for Pembrokeshire, which remains a valuable source of information and advice specific to species and habitats covered in that plan.

17. The Welsh Government has published its Nature Recovery Action Plan for Wales, which sets six key objectives in order to halt the decline in biodiversity. The Pembrokeshire Nature Recovery Action Plan takes these objectives and sets them in the context of local priorities, inviting partners to work together in

[1] Maps, descriptions and management information for each of these sites can be found using the designated sites search at: Natural Resources Wales or on the County Council's website.
[2] See Pembrokeshire County Council's website.

a set of broad action themes to meet the objectives. Specific actions will be recorded as they are identified and delivered. This plan is informed by and contributes towards the goals and duties set out in recent legislation such as the Wellbeing of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016. Within this context, the full range of benefits to the environment, society and the economy from nature conservation and enhancement measures should be taken into account. For example, the conservation of wetlands for the intrinsic value of the habitats and species found there may also improve water quality downstream, reduce the severity of flood events, preserve cultural associations with the local landscape and provide access opportunities to improve the wellbeing of local people and support the visitor economy.

Key principles

18. The key principles to consider are that:

- The Local Planning Authority has a statutory duty to **maintain** and **enhance** biodiversity in the exercise of their functions to demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment (Wales) Act by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions[3] under the Environment (Wales) Act 2016. Welsh Government has advised planning authorities (23rd October 2019) '..where biodiversity enhancement is not proposed as part of an application, significant weight will be given to its absence, and unless other significant material considerations indicate otherwise it will be necessary to refuse planning permission.'
- Local Planning Authorities are expected to promote approaches to development that create new opportunities to enhance biodiversity, prevent losses, reverse declines and compensate for losses that are unavoidable.
- Both Pembrokeshire County Council and the Pembrokeshire Coast National Park Authority are committed to the implementation of the Nature Recovery Action Plan that identifies nature conservation interest and sets aims for future work planning. This work will tie in with the all-Wales NRAP to ensure that planning authorities contribute to their responsibilities and obligations for biodiversity and habitats.
- Certain sites, habitats and species are afforded legal protection. Planning Authorities have an obligation to protect and promote their long-term conservation as part of the planning process. **Tables 1, 2 and 3**, provide a brief overview of these.

International, European and UK legislation

19. The following international and national legislation provides statutory protection to many of the species and habitats in Pembrokeshire:

- **The Conservation of Habitats and Species Regulations 2017 ("The Habitats Regulations")** – transposes the EU directive on the Conservation of Wild Fauna and Flora ("The Habitats Directive") (92/43/EEC) and elements of the EU Wild Birds Directive into UK law. This legislation required the establishment of a network of protected sites including SACs and SPAs and affords a high level of protection to identified individual species (such as otters) and species groups (such as

[3].PPW 11 (2021) Section 6.4.8.

bats). Alongside the Wild Birds Directive (below), these sites form part of a coordinated network of protected areas ensuring the long-term survival of Europe's most valued and threatened species and habitats.

Natural Resources Wales Planning Policy Guidance on Water Quality in Riverine Special Areas of Conservation (SAC)

In January 2021 Natural Resources Wales published an assessment of phosphate levels in Riverine SACs in Wales. The assessment showed a failure to meet targets in the Dee, Cleddau, Wye, Teifi and Usk.

Alongside this data Natural Resources Wales published a Planning position statement and Interim guidance which should both be considered by applicants for proposals within the catchment or which impact on the waterbody of a Riverine SAC. More information is available via the Pembrokeshire County Council website:

https://www.pembrokeshire.gov.uk/planning-and-ecology/phosphates-guidance-from-national-resources-wales

- **The EU Wild Birds Directive (2009)** – Regulation 9A places a statutory duty on public bodies for the provision of sufficient diversity and area of habitats for wild birds. Guidance on the interpretation and implementation of Regulation 9A is currently in preparation.
- **UK Wildlife and Countryside Act 1981 (as amended)** – sets the general framework for habitats and species protection and provides statutory protection for certain species additional to those protected under the Habitats Regulations.
- **Wellbeing of Future Generations (Wales) Act 2015** – concerned with improving the social, economic, environmental and cultural well-being of Wales. The Act places a duty on public bodies listed in the Act to carry out sustainable development. In order to do this, public bodies are required to work towards seven well-being goals. All listed public bodies must develop well-being objectives.
- **The Environment (Wales) Act 2016** – puts in place legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way includes:
    - **Biodiversity and Resilience of Ecosystems Duty**: Section 6 under Part 1 of the Environment (Wales) Act 2016 introduced an enhanced biodiversity and resilience of ecosystems duty (Section 6 Duty) requiring that public bodies must seek to maintain and enhance biodiversity so far as consistent with the proper exercise of their functions and in doing so, promote the resilience of ecosystems
    - **Sustainable Management of Natural Resources**: sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory principles

of SMNR defined within the Act. The three main components include:

- **The State of Natural Resources Report (SoNaRR):** Sets out the state of Wales' natural resources).
- **Natural Resources Policy (NRP):** Produced by Welsh Government, sets out priorities, risks and opportunities for the sustainable management of natural resources taking into account the findings of the SoNaRR report.
- **Area Statements:** Produced by NRW to implement one or more of the priorities and opportunities outlined in the NRP at an appropriate spatial scale. They translate the high level strategic priorities while taking into account local needs, opportunities and pressures.

- **Protection of Badgers Act 1992** – protects badgers and their setts.
- **The Hedgerow Regulations 1997** – classifies and protects certain hedgerows using specified criteria.
- **The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017** - requires that certain types of project are subject to an assessment of their environmental impact before planning permission can be determined.
- **Town and Country Planning Act 1990, Town and Country Planning (Trees) Regulations 1999. Town and Country Planning (Trees) (Amendment) 2012.** An order made by the local planning authority which makes it an offence to cut down, top, lop, uproot, wilfully damage or wilfully destroy a protected tree without the planning authority's permission.
- **The Environmental Impact Assessment (Agriculture) (Wales) Regulations 2017** – Transpose international obligations into national law. They ensure that any projects that may impact on the environment are thoroughly assessed before they commence. The screening process evaluates the impact of the proposed project on the environment and the wider landscape. These regulations seek to protect farmland habitats, including historically important land, from damaging agricultural activities.
- **The Countryside and Rights of Way Act (2000)** - strengthens the protection of Sites of Special Scientific Interest (SSSIs) and amends the Wildlife and Countryside Act with regard to certain protected species.
- **National Parks and Access to the Countryside Act (1949)** – sets out two statutory purposes for National Parks in England and Wales. When the aims and purposes conflict with each other, then the Sandford Principle should be used to give more weight to conservation of the environment.

1. *Conserve and enhance the natural beauty, wildlife and cultural heritage*
2. *Promote opportunities for the understanding and enjoyment of the special qualities of national parks by the public*

- **The Environment Act (1995)** – states that the first Statutory Purpose of National Parks is to conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park. In addition to this, the Environment (Wales) Act 2016 sets out a biodiversity 'duty' for all Local Authorities (including National Park Authorities) in Wales stating that

  "Every Public Authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity"

National planning policy and guidance

20. The planning process operates in parallel with relevant environmental legislation, to deliver government commitments. The significance of the above legislation and commitments is reflected in the importance accorded to biodiversity in national planning policy. Planning Policy Wales (PPW), Edition 11, 2021, emphasises the importance of integrating nature conservation or biodiversity into all planning decisions at an early stage, whilst looking for development to deliver social, environmental and economic objectives together over time. Specific guidance in relation to nature conservation is available in chapter six of PPW 11-and TAN 5 – Nature Conservation and Planning (2009).
21. The British Standards Institute (BSI) has published the British Standards for Biodiversity – Code of practice for planning and development (BS 420202:2013). The document amalgamates best practice and gives recommendations and guidance for those in the planning and development sectors whose work might affect or have implications on biodiversity. PCC and PCNPA will take into account the British Standard for Biodiversity and would encourage those in the planning, development and environmental sector to adopt the processes and recommendations as published.
22. The Nature Recovery Action Plan for Wales is a live document and its ambition is to 'reverse the decline in biodiversity for its intrinsic value, and to ensure lasting benefits to society'. It links to and complements The Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016, and sets out how current and proposed action will contribute to reversing the loss of biodiversity across Wales.

Local Development Plan Policy

24. Pembrokeshire County Council's Local Development Plan (LDP) (excluding the area of the Pembrokeshire Coast National Park) expands upon the principles in Planning Policy Wales 11 and The British Standards for Biodiversity, through policies which seek to ensure that development protects and enhances biodiversity and encourages proposals that achieve this.

Pembrokeshire County Council Local Development Plan - List of most Relevant Policies

SP.1 Sustainable Development – an overarching strategic policy that relates to all proposals. It aims to ensure that all development is sustainable.

GN.1 General Development Policy – provides a framework for the evaluation of potential development impacts. **Criterion 4** ensures that development will respect and protect the natural environment, including protected habitats and species. Any development proposal must demonstrate that it protects the natural environment and, where possible, enhances it.

GN.3 Infrastructure and New Development – makes provision for contributions to be sought, where appropriate and necessary, in conjunction with development proposals including for biodiversity.

GN.37 Protection and Enhancement of Biodiversity – requires all new developments to demonstrate a positive approach to maintaining and, where possible, enhancing biodiversity. It aims to ensure that species and their habitats as well as wildlife and landscape features in both countryside and urban environments are protected from the potentially adverse effects of development and requires that where any such effects are anticipated, appropriate mitigation and/or enhancement should be made.

Pembrokeshire Coast National Park Local Development Plan – List of most Relevant Policies

Policy 1 National Park Purposes and Duty - the overarching policy of the Plan fundamental to conserving and enhancing the wildlife National Park.
Policy 8 Special Qualities - identifies the need for development to positively enhance the National Park's ecosystems and components that underpin them. Links between sites are important
Policy 9 Light Pollution seeks to ensure the minimal impact of lighting on the night sky.
Policy 10 Sites and Species of European Importance
Policy 11 Nationally Protected Sites and Species
Policy 12 Local Sites of Nature Conservation – protection of areas of local importance – including habitats and species of principal importance to Wales, areas providing connectivity.
Policy 30 Sustainable Design
Policy 33 Surface Water Drainage

Table 1. Protection of Sites

Importance	Feature	Legislation & Policy	Implications for Development
International	National Site Network Special Area of Conservation (SAC) Special Protection Area (SPA) Ramsar 'Wetland of International Importance'.	The Conservation of Habitats and Species Regulations 2017 (as amended) – The "Habitats Regulations" Ramsar Convention (1971)	Sites are protected against potentially damaging operations. Strong presumption against damaging development. SPA's and SAC's known collectively as 'the national site network'
National	Sites of Special Scientific Interest (SSSI) National Nature Reserves (NNR)	Wildlife and Countryside Act (1981) (as amended) National Parks and Access to the Countryside Act (1949) or Wildlife and Countryside Act (1981) (as amended)	Sites are protected against potentially damaging operations. Strong presumption against damaging development.
Local	Local Nature Reserves (LNR) Sites of Importance for Nature Conservation (SINC)	National Parks and Access to the Countryside Act (1949) Planning Policy Wales edition 11 (2021)	Sites to be protected and enhanced. Planning Policy Wales 11 (6.4.20)

Table 2. Protection of Habitats			
International Importance	Habitats of European Importance (see Priority Habitats)	The Conservation of Habitats and Species Regulations 2017 (as amended)	Habitat may be a designated feature of a National site network site (see above)
National or Local Importance	Hedgerows	Hedgerow Regulations (1997)	Certain hedgerows are protected from removal Hedgerows to be protected and enhanced
	Species and habitats of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales And/or included in Pembrokeshire NRAP	Environment (Wales) Act 2016, Section 7 Pembrokeshire Nature Recovery Action Plan	Planning consideration
	Trees	Town and Country Planning Act 1990, Town and Country Planning (Trees) Regulations 1999. Town and Country Planning (Trees) (Amendment) 2012. Town and Country Planning (Trees) (Amendment) (Wales) Regulations 2017	An order made by the local planning authority which makes it an offence to cut down, top, lop, uproot, wilfully damage or wilfully destroy a protected tree without the planning authority's permission.

Table 3. Protection of Species			
Importance	**Feature**	**Legislation and Policy**	**Implications for Development**
International Importance	European Protected Species including Bats (all species), Dormouse, Otter	The Conservation of Habitats and Species Regulations 2017 (as amended)	Species are protected from intentional or reckless killing, injury or capture. Areas used for shelter or protection are protected from intentional or reckless destruction and whilst the species is using any such site, it is protected from intentional or reckless disturbance.
	Habitats Directive and Birds Directive Species	The Conservation of Habitats and Species Regulations 2017 (as amended)	Protected through the designation of SAC/SPA
National Importance	Badgers	Protection of Badgers Act 1992	Setts and badgers are protected from intentional or reckless interference.
	Schedule 5 Animals including: Water Voles, Reptiles	Wildlife and Countryside Act (1981) (as amended)	Species have different levels of protection including: protection from intentional killing, injury or taking; uprooting or destruction; protection from harm at all times; or whilst nesting. Species should be protected and their habitats enhanced.
	Schedule 8 plants including: Bluebell		
	Schedule 1 birds including: Barn owl, Cetti's warbler		
	Nesting birds (all species)		
Local Importance	Species of all principal Importance and/or included in the NRAP	Environment (Wales) Act 2016. Section 7	Planning consideration

Protecting and Enhancing Biodiversity in the Development Process

Building Biodiversity into development

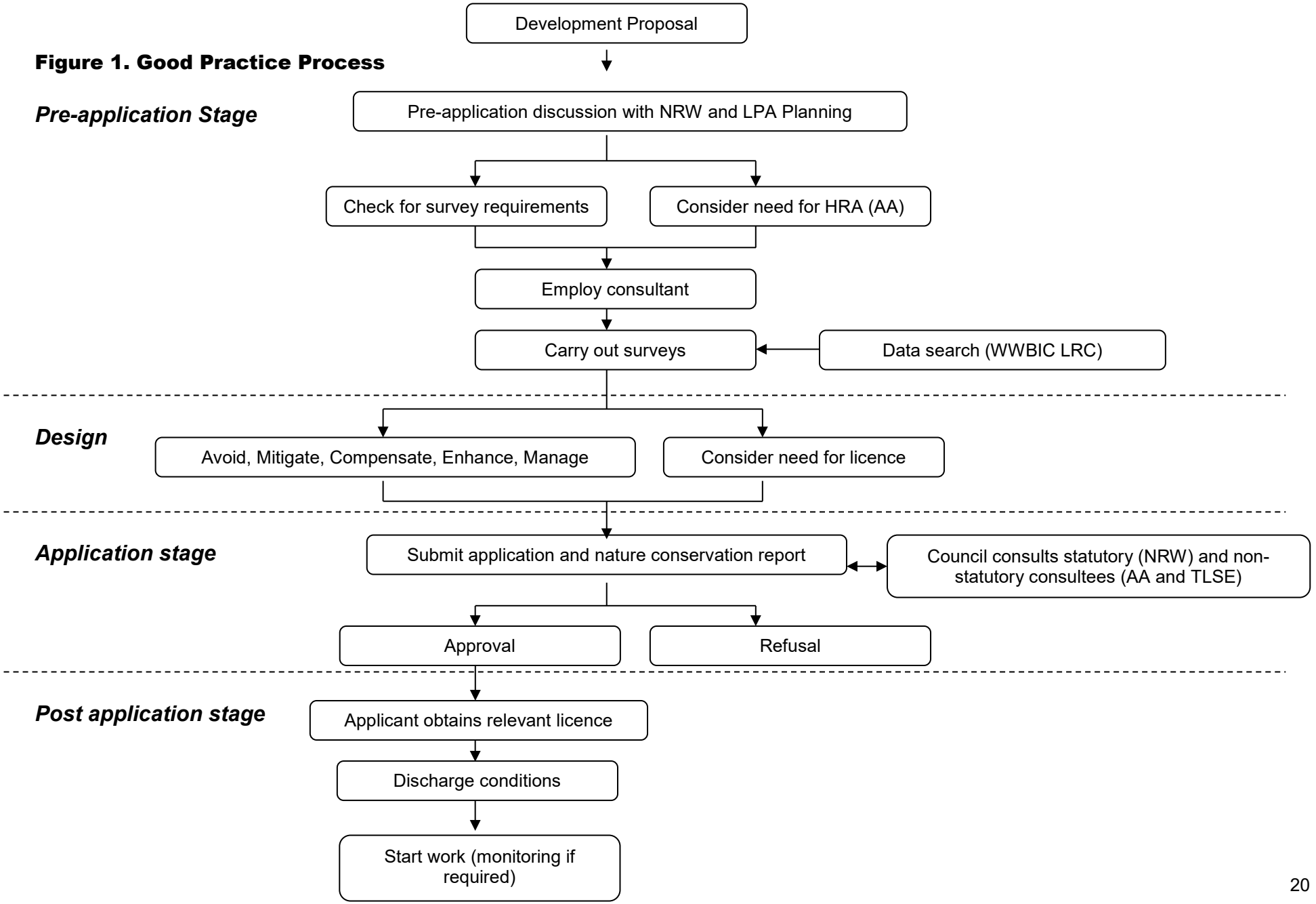
25. This section considers how biodiversity is best protected and enhanced through the development management process. There are three key elements to this:

- Providing accurate information with the planning application on the existing status of habitats or features and the presence of plants, invertebrates, amphibians, reptiles, birds or mammals (including bats) on or adjacent to the proposed development site.
- Where it is known that a protected or priority species or habitat is present, ensuring that assessments are undertaken to identify the potential impact(s) of the proposed development on them, so as to inform the planning process.
- Where such assessments demonstrate that species or habitats would be adversely affected, ensuring the development proposal is modified, to avoid the destruction or damage of sites used by protected species and/or to mitigate/compensate any potential impact.

26. Biodiversity needs to be considered at all stages during the development process. Understanding the habitats and species that are present on a development site (including Invasive Non Native Species, see Appendix 7) will help to comply with legislation protecting wildlife and habitats, meet planning policy requirements and protect and enhance habitats and species.

Figure 1: Guidance to protect and enhance biodiversity through the application process.

Figure 1. Good Practice Process



Protected Species

27. The presence of protected species will not usually prevent development entirely but steps will need to be taken to ensure there is no damage or disturbance to the species and to secure the protection of the species. It is the applicant or developer's responsibility to ensure they comply with relevant legislation and licensing. Failure to do so can be a criminal offence which may result in the person(s) concerned liable to a heavy fine and/or a prison sentence; for example, maximum penalties for destroying a bat roost are six months' imprisonment and/or a £5,000 fine per individual animal harmed. It is the responsibility of the Local Planning Authority to consider species and habitats when determining a planning application and to ensure that there are no unnecessary adverse impacts.

28. Where licences have been obtained (see paragraph 57) in respect of protected species, these will also usually require some level of post-development survey and monitoring.

European Protected Species

29. There are a number of European Protected Species in Pembrokeshire. The Local Planning Authority will consider the potential impact of the proposed development upon these species based on information provided by the applicant to support their application. This may include a Protected Species or Extended Phase 1 Habitat Survey, proposals for compensation, mitigation or enhancement and drawings to support the inclusion of such features. Consultation may also take place with Natural Resources Wales (NRW). If this information is not provided and is considered necessary as a requirement for the purposes of planning, then this may be requested.

Protected Sites

30. European Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), are designated under the EC Habitats Directive as sites that will make a significant contribution to conserving habitats and species identified as most in need of conservation. There are a number of these sites in Pembrokeshire; certain forms of development impact upon habitats and/or species for which these sites are designated.

31. Before approving any plan or project the Local Planning Authority, as the competent authority, must assess whether the proposals are likely to have a significant effect upon the European protected sites (SACs/SPA's). The first stage of the Habitats Regulations Assessment is to screen the proposal through a Test of Likely Significant Effect (TLSE) as required under regulation 63 of the Conservation of Habitats and Species Regulations. If it is considered that the proposal is likely to have a significant effect an Appropriate Assessment will be carried out. If mitigation options cannot avoid an adverse effect, then an assessment of alternative solutions would be

examined. Where no alternative solution exists an assessment will be undertaken to establish if the development is necessary for imperative reasons of over-riding public interest (IROPI).

32. Applicants and developers are advised to seek advice regarding the likely effects of development upon European protected sites. For more information on features of individual protected sites in Pembrokeshire see Natural Resources Wales website.

33. Sites of Special Scientific Interest (SSSIs) are designated by Natural Resources Wales as being the best examples of rare or characteristic habitats, sites for certain species or for their geodiversity interest. Some SSSIs have also been designated as National Nature Reserves (NNRs), where the land is managed as a nature reserve. These sites can be viewed on Lle the Geoportal for Wales.

34. A development site may also be located within an area of local importance for nature conservation. Some may be formally recognised, such as Local Nature Reserves, or may not be formally recognised but provide important nature conservation value. The value may include its role as a wildlife corridor or as habitat such as unimproved grassland, coastal habitats and heath and moorland, as well as features such as road verges. Areas of importance for local nature conservation would be identified as:
    - Supporting habitats of principal importance for Wales.
    - Supporting, or is likely to support, species of principal importance for Wales for all or part of their lifecycle.
    - Providing ecological corridors, stepping stones, or contain features which enhance habitat connectivity and ecological resilience of international, national and locally important sites.
    - Providing supporting services to or buffer sites of importance (e.g. hydrological connectivity.

Pre-application discussions

Consider ecology early on to ensure it does not result in avoidable delays

35. The potential for species and habitat features to be affected by a development must be considered at the first stage of any scheme. Failure to do so may prevent a planning application from being validated or lead to delays in the planning process or to refusal of consent.

36. The planning departments welcome early discussions of ecological issues at the pre-application stage. This will help to identify if ecological surveys are required to support a planning application. Information about the pre-application process can be found on Pembrokeshire Coast National Park Authority and Pembrokeshire County Council's websites. For more details of survey requirements see the following sections on 'Protected Species' and

‘Protected Sites’ as well as at the Local Planning Authority websites (See Appendix 2: Local Planning & Biodiversity Contacts).

37. Pre-application discussions with statutory consultees such as Natural Resources Wales is also recommended, in addition to non-statutory consultees if appropriate.

Information and Surveys

38. The level of information should be necessary, relevant and proportionate to the development and adequate to inform the determination of the application. If an ecological survey is required it will need to be undertaken and incorporated into the early stages of a project. This will enable design work to take full account of constraints and opportunities on site.

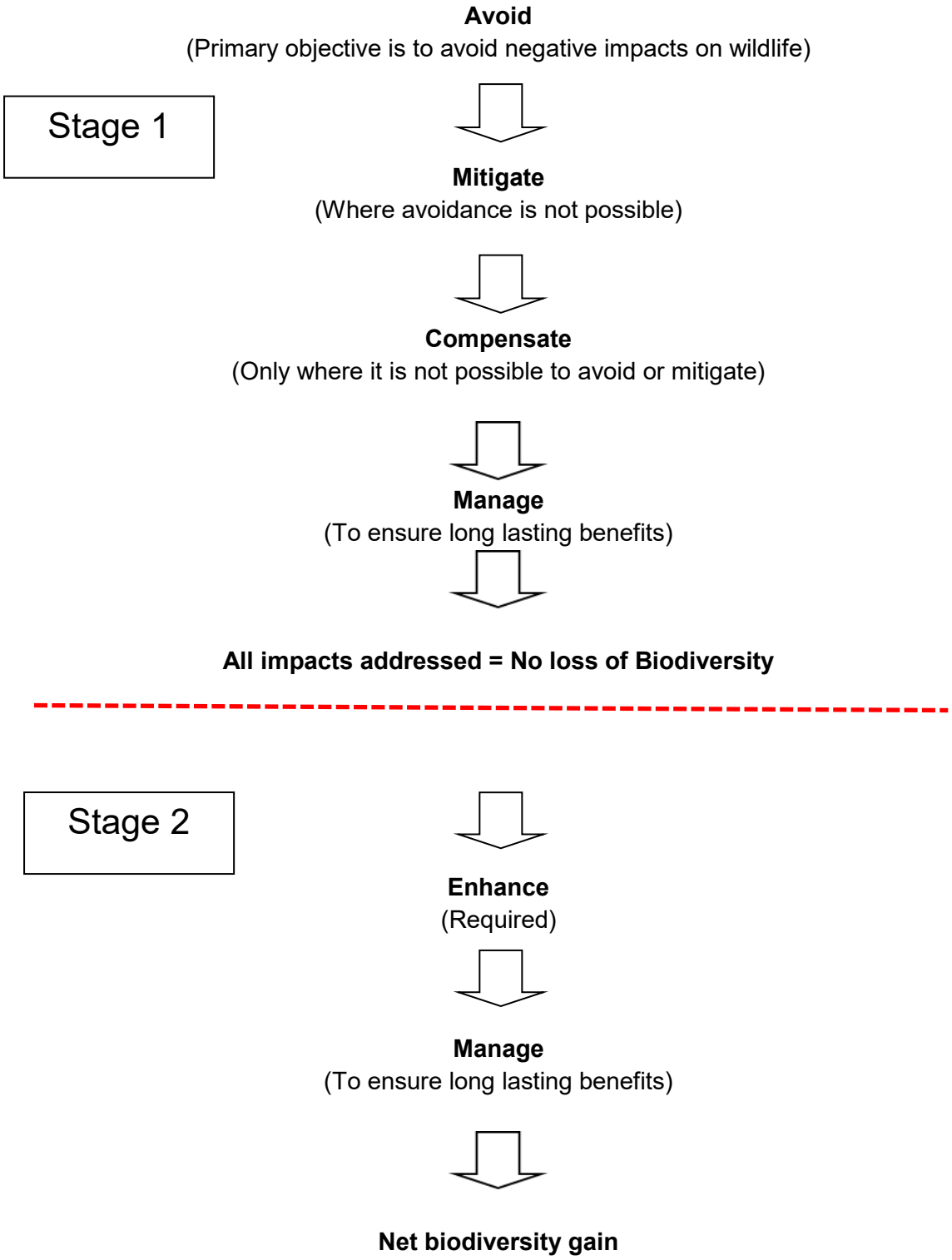
39. Surveyors should use nationally recognised survey guidelines/methods where available. A suitably qualified ecological consultant will need to be employed to carry out any necessary survey(s). There are seasonal and time constraints to ecological surveying, which should be carefully planned into the development process. **Appendix 3** sets out Ecological Survey Seasons. If you are unsure about survey requirements, pre-application advice should be sought.

40. Survey information should include data sourced from the Local Records Centre - West Wales Biodiversity Information Centre.

41. In some cases where there is not a reasonable likelihood for protected habitats or species to be present or affected by development, survey work may not be needed. However, additional information may still be requested by the Local Planning Authority in order to assist with the determination of the planning application.

Design Stages

Figure 2: Five Key Principles for Planning for Biodiversity



42. It is important that the findings of any survey work are taken into careful consideration during the design stage. Good survey work will provide details of both the constraints and opportunities on a site. A proposal must show how it has been designed in such a way so as to avoid or minimise any adverse effects on those habitats or species present. This may involve incorporating appropriate new features or habitats within the development or site.

43. Fig .2 above outlines a two-stage process for design using the five principles of planning for biodiversity. Stage 1 relates specifically to addressing the impacts of the proposed development. Logical progression through the avoid, mitigate, compensate hierarchy is aimed at achieving no loss of biodiversity as a result of development. Proposed enhancements are not considered at this stage. Stage 2 aims to achieve a net biodiversity gain by identifying opportunities for enhancing biodiversity as part of the proposed development.

Avoid

44. Wherever possible, development should avoid impacting on any wildlife feature. The primary objective should be to **avoid** negative impacts by designing the site around the wildlife features. For example, if the development site includes a pond or existing hedgerow try to incorporate it into the layout. Should avoidance not be possible, justification is required as to why adverse impacts cannot be avoided.

Mitigate

45. Where avoidance is not possible then the design should aim to mitigate any negative impacts. You will need to take account of all the potential effects of a development and make sure that mitigation is appropriate to the proposal and species and habitats present. Incorporate all aspects of mitigation onto drawings prior to submission

Compensate

46. In some cases it is not possible to avoid or mitigate adverse impacts on species or habitats. In exceptional circumstances either on- or off-site **compensation** is required. Compensation either restores or recreates the wildlife feature damaged by a development; however, some habitats and features, such as ancient woodland, cannot be compensated for.

Enhance

47. Planning Policy Wales, Local Development Plan policies and the Environment (Wales) Act place a duty on the Local Planning Authority to enhance. Welsh Government has advised planning authorities (23rd October 2019) '..where biodiversity enhancement is not proposed as part of an application, significant weight will be given to its absence, and unless other significant material

considerations indicate otherwise it will be necessary to refuse planning permission.'[5] A planning application should include information on measures that will enhance, restore and/or create new habitats and improve the built environment for wildlife in addition to any measures for protecting existing wildlife and habitats on sites.

Manage

48. On sites where wildlife features are retained or new habitats or features are created, ongoing management is required to ensure long lasting benefits. However, management needs will vary from site to site. For some sites there may be a need for a specific **management plan**. It should identify specific actions, the organisation and personnel responsible for implementing the plan and it may need to identify monitoring required as part of a licence.

Planning Application Stage

49. The applicant should submit the planning application accompanied by the nature conservation report which should detail how the above stages have been incorporated into the development proposal.

50. If at a pre-application stage screening is identified a requirement for **Appropriate Assessment,** screening will be undertaken the by Local Planning Authority (which is the competent Authority) at the Planning Application Stage. This will look at the component parts of the project and it's potential impact on the ecological functioning of the site features and the site's conservation objectives. It is undertaken by the competent authority either before it gives the project permission or before the project is undertaken. It's scope, the information to be contained within it and the timescale required to undertake it, will vary on a case-by-case basis.

Application Determination Stage

51. It is good practice to address biodiversity and conservation as completely as possible within the design of the development approved. However, occasionally it may be necessary to secure further matters through the imposition of conditions and/or a planning obligation.

Planning Conditions

52. Planning conditions mitigate identified harm that would otherwise result in the refusal of an application. Planning conditions can achieve this in several ways on major development sites including:

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- Requiring monitoring of retained features and of new or enhanced habitats to gauge their success;
- Restricting or regulating the development in some way by requiring, for example, certain operations to be carried out at set times of the year;
- Requiring works to be carried out, including for example habitat enhancement;
- Requiring further details such as a comprehensive landscaping scheme to be submitted to the local planning authority for approval;
- Requiring existing ecological features such as trees and hedges to be retained as part of the development and protected during construction;
- Limiting the duration of all or part of the development;
- Requiring appropriate management and maintenance after construction to benefit biodiversity.
- Requiring further details such as measures to protect watercourses from pollution and run-off.

53. Planning conditions will only be used where they are: necessary, relevant to planning, relevant to the development to be permitted, enforceable, precise and reasonable. Surveys for protected species or habitats cannot be conditioned as part of any planning consent.

Planning Obligations

54. Planning obligations are a mechanism that binds the developer and those with a legal interest in the land under section 106 of the Town and Country Planning Act (1990). Section 106 agreements are the usual way of formalising planning obligations. They are usually used where financial payments or on-going management are required to address biodiversity issues. They should only be used where it is necessary to make an otherwise unacceptable development acceptable. They must be reasonable, serve a planning purpose and relate to the proposed development in scale and kind.

55. Examples of the use of planning obligations for major developments may include:
    - Provision of access and interpretation facilities for areas of biodiversity interest / feature;
    - Provision of new habitats;
    - Financial provisions such as a commuted sum for management to cover long-term maintenance costs;
    - Ongoing management of new or improved habitats after the initial after-care or maintenance period, possibly through a 5-year (or longer) management plan with the developer;

- Agreement with a conservation organisation, housing association, the Council or local residents group where they are prepared to take on management responsibility.

Post application stage licencing

56. Where licences have been obtained in respect of protected species, these will also usually require some level of post-development survey and monitoring.

European Protected Species Licencing

57. If development or an activity will affect European Protected Species then it is likely a licence will be required from Natural Resources Wales to allow otherwise illegal activities to go ahead. If the development requires planning permission, this must be granted prior to obtaining a licence. Once approved it is the applicant's responsibility to apply for a licence and further information can be found by searching 'European Protected Species licence' on the Natural Resources Wales website. See Appendix 4: Bats – European Protected Species: Trigger List for details on submitting planning applications where bats may be affected.
58. It is important to note that planning permission (or a permitted development right) does not negate the need for a development licence before work starts on site. Working without a development licence could lead to the disturbance of the species or destruction of their roost or resting place, resulting in a wildlife crime being committed and subsequent prosecution.
59. In some cases appropriate (sympathetic) design and mitigation will avoid the need for a licence – work can be managed so that it does not cause disturbance or harm. In other cases, mitigation will not remove the need for a licence, but will form part of the licence conditions, as well as being covered by planning condition(s).
60. A Trigger list has been produced by the Bat Conservation Trust that lists development situations where bats are likely to be found. This can be found in Appendix 4: Bats – European Protected Species: Trigger List.

UK Protected Species

61. NRW is responsible for issuing licences for works which may interfere with UK protected species, including badgers and/or their setts in the course of development. The consideration and granting of such licences are separate from the process of applying for planning permission, but the Local Planning Authority must take account of the legislation throughout the development process.

Further Guidance for Enhancing Biodiversity in the Development Process

SuDS:

62. Sustainable Drainage Systems store or re-use surface water at source by decreasing flow rates to watercourses, and water bodies and by using natural processes to filtrate and purify water in both urban and rural areas. They aim to manage rainfall by simulating natural processes through the use of natural features in the landscape and vegetation. Surface water run-off and pollution are major causes of flooding and damage to river ecosystems. SuDS have a multitude of benefits including flood risk reduction, improved water quality, opportunities for habitat creation and expansion, and enhanced biodiversity through the creation of freshwater habitats.

63. From 7th January 2019, all new developments of more than 1 house (construction area of 100m^2 or more) require Sustainable Drainage Systems for managing surface water. Local authorities are the SuDS Approving Body (SAB), in this case Pembrokeshire County Council.

64. Types of SUDS include:

- **Swales** Shallow channels, sometimes vegetated which either store runoff water, or move it to the next stage of the water treatment process.
- **Attenuation ponds** Provide stormwater attenuation and treatment. They are designed to support emergent aquatic vegetation which also aids in effective and natural water filtration.
- **Rain gardens** A shallow depression located on a steep slope with absorbent yet free-draining soil planted with vegetation that can withstand occasional inundation. They slow down water flow and filter runoff.
- **Green roofs** can help to slow down the flow of surface water**.** See below for more information.
- **Pembrokeshire hedgebanks (see Appendix 9 Hedgebank):** The hedgebank feature increases the immediate surface area for interception and typically incorporates plants and trees to intercept rainfall and absorb water. The bank can also act as a physical, semi-permeable barrier that can protect adjacent land from flooding.

Peatlands

65. Peatlands hold large stocks carbon. When peat is left undisturbed the carbon is protected. Problems only arise when the peat body is drained, burnt or over-grazed. Appendix 11 provides more advice on peat management procedures with the aim of preventing disturbance in the first instance.

Green Infrastructure

66. Green Infrastructure is a network of natural and semi-natural areas and features that contribute to the high quality of the natural environment. This includes parks, open spaces, playing fields, beaches, coastlands and woodlands, as well as street trees, allotments and private gardens. It also includes streams, rivers, ponds, green roofs and walls. The provision of green infrastructure in and around urban areas and incorporated into new developments is widely recognised as contributing towards creating places where people want to live and work. It can significantly reduce costs for individuals, businesses and public bodies, whilst enhancing the quality of life and health of residents, workers and visitors.

67. Pembrokeshire County Council and Pembrokeshire Coast National Park have produced a joint Green Infrastructure Action Plan[6] and its purpose is to bring site specific projects forward, and improve the green infrastructure network.

Green roofs

68. A green roof is a roof or deck onto which vegetation is intentionally grown or habitats for wildlife are established. The two main types of green roof are intensive, which typically have deeper substrates (>200 mm) capable of supporting shrubs and trees and extensive, which typically have a shallower substrate layer (<150 mm), support low-growing, drought-tolerant plants, require low maintenance and are the most common type of green roof.

69. The use of native species and the mimicking of natural habitats helps to provide the maximum benefits for the wildlife and landscape of Pembrokeshire. Pembrokeshire County Council and Pembrokeshire Coast National Park Authority encourage the establishment of green roofs using native species although if planted in close proximity to important open habitats and those which are vulnerable to invasion (coastal habitats), careful planning and sourcing of native seeds is imperative.

70. Sedum-only roofs should be avoided in the National Park due to the limited number of native sedum species and the use of other sedums (including garden varieties) would not be acceptable as they can become invasive, putting native species at risk. There are only two species of sedum native to Pembrokeshire that are suitable for inclusion in a green roof Sedum acre - Goldmoss stonecrop and Sedum anglicum - English stonecrop.

71. The implementation of a sedum roof with only two species would result in a roof with limited ecological benefit. Therefore to encourage ecological benefits, the following seed mixes are recommended:

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[6] see Pembrokeshire County Council's website.

- UK Native Wildflower Roof
- Pembrokeshire Coastal Roof

72. Both of these species mixes are more tolerant to desiccation and can cope during dry periods and salt incursion. More details can be found in Appendix 5: Advice Note relating to Green Roof Species Selection in Pembrokeshire.

Biodiversity Enhancement Features

73. Welsh Government has advised planning authorities (23rd October 2019) '..where biodiversity enhancement is not proposed as part of an application, significant weight will be given to its absence, and unless other significant material considerations indicate otherwise it will be necessary to refuse planning permission.'[7]

74. Enhancements for wildlife will be sought where appropriate from all scales of development. The level of enhancement required will be proportionate to the type, scale and impact of development. There are many ways of incorporating features into planning schemes to enhance biodiversity and these range from small-scale actions for individual species to larger habitat creation schemes. Examples of how a site and/or development may be enhanced could include:
    - providing bird boxes around the site or for specific species (e.g. swallows, barn owls, house sparrows); For longevity and ease of maintenance we advise the use of boxes which are integrated into buildings rather than wooden boxes which are externally fixed.
    - providing roosting opportunities for bats (bat tiles, access to soffits, bat roosts);
    - planting a native species hedgerow/trees or creating a wildlife pond and scrapes;
    - establishing a wildflower meadow area or planting a native woodland area or copse: See Appendix 8: List of native trees and shrubs
    - creating wildlife corridors/linear features to improve connectivity;
    - creation of hedgebanks
    - creating buffer zones along watercourses.

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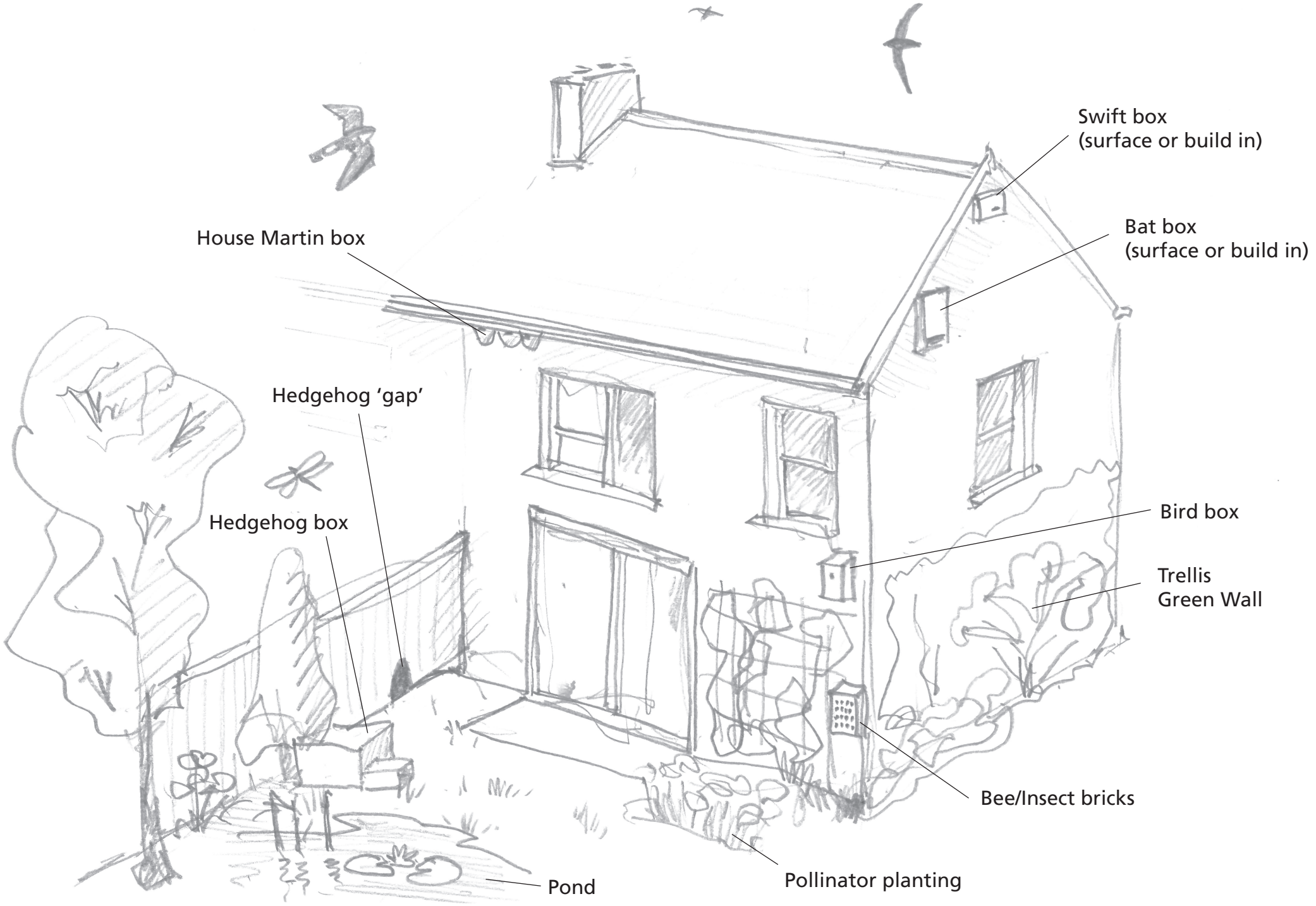
Swift box
(surface or build in)
Bat box
(surface or build in)
House Martin box
Hedgehog 'gap'
Hedgehog box
Bird box
Trellis
Green Wall
Bee/Insect bricks
Pollinator planting
Pond

Table 4: Habitat Biodiversity Enhancements	
Habitat type	**Enhancement suggestions**
Waterways/water bodies	• Create new water bodies (e.g. creation of ponds, scrapes and semi-permanent water bodies). • Creation of suitable otter and amphibian habitat including the installation of otter holts and the retention and buffering of riparian corridor. • Plant native pond plant species (list included in • Appendix 6: List of native plants in Pembrokeshire).
Buildings or other structures	• Install barn owl boxes, erect bird boxes, erect bat boxes, and install bat bricks and bat lofts. • Create green roofs (see guidance in Appendix 5: Advice Note relating to Green Roof Species Selection in Pembrokeshire).
Grassland	• Extend area of wildflower meadow, coastal grassland or wetland scrapes for wading birds and access to mud for nesting swallows and house martins and create green roof.
Hedgerows and hedge banks	• Improve connectivity for wildlife by connecting new to old ones and repair damaged sections of existing features. • Plant native hedgerow species using a minimum of 5 species including berry or seed bearing species. A list of native species can be found in Appendix 8: List of native trees and shrubs.
Woodlands	• Manage existing woodland for biodiversity by reducing the levels of grazing animals and introducing management techniques such as coppicing, where appropriate and create buffers for woodland edges.
Urban	• Plant native trees and hedgerow shrubs to provide food and shelter for birds and small mammals. • Encourage pollinating insects by planting native wildflower seed mixes, install bat and bird boxes (see species enhancements) and maintain and enhance areas of semi-natural habitat (such as grassland, hedgerows, wooded areas, and water bodies).

Table 5: Species Biodiversity Enhancements		
	Species	**Enhancement suggestions**
Birds (Recommended material - woodcrete for longevity)	Blue and great tits	• Installation of bird boxes 2-3 metres above ground level. Can be attached onto small buildings or onto tree trunks. • Blue and Great tits - nest box locations to be free from hanging vegetation to allow for easy access and watch-out for predators. • Robins and wrens - front entrance hidden behind vegetation. • House sparrows - easterly aspect and ideally in

		clusters of 6 or more due to them preferring to nest in loose colonies. It is less likely that individual boxes will attract a breeding pair
	Swallows	• Sites to include houses, barns, stables and car ports, nest cups to be installed inside buildings under eaves with open access for nesting between spring and summer. • Multiple nest sites can be erected although not too close together (>1m) to avoid nest conflicts. • Avoid installation where droppings may be a nuisance or predators (such as cats) may be present.
	House martins	• Host sites for nest cups to include buildings with wide soffits in close proximity to green infrastructure (rivers, ponds, trees, hedgerows) approximately 5 metres above ground away from windows and doors. • Nest sites require shelter from prevailing weather (South-East). • Multiple nest cups can be installed in clusters as they are a colonial species.
	Swifts	• Nest boxes/bricks to be installed with a northerly aspect at external eaves/soffits level above 5 metres in height and with an unobstructed flight path • Can be installed in close proximity to others due to being a colonial bird species
	Barn owl[8]	• Large box to be installed in strong and mature tree or inside open sided barns at a height of above 3 metres. • In trees, where the nest box access hole would be visible to a passing owl. • Boxes in buildings to be placed out of the sight of human activity.
Invertebrates		• Installation of insect boxes (bug hotels) and bee bricks into developments. • Plant tree and hedgerow species that are early blossoming for example hawthorn and blackthorn trees.
Reptiles		• Creation of hibernacula and log piles. • Creation of south facing slopes for basking and creation of wetland area for grass snakes.
Amphibians		• Create accessible ponds with some marginal shading which are positioned to avoid human or animal disturbance.
Mammals	Dormice	• Maintain traditional hedgerow management. • Erect dormouse boxes. • Retain and link habitats, e.g. woodlands and hedgerows. • Create ‘buffers’ to reduce the potential for disturbance.

[8] Advice on Barn Owl Nest Boxes can be found on The Barn Owl Trust website.

	Hedgehogs	• Create holes in garden fences to allow hedgehogs to pass through and evade predators. • Maintain hedgerow corridors and create hibernation habitat - log piles and scrub areas.
	Otters	• Retain undisturbed habitat by rivers by installing wide buffers to developments. • Establishment of wet woodland. • Remove barriers to passages, e.g. culverts. Include ledges on bridge designs. • Creation of otter holts.
	Bats (general)	• Incorporate bat lofts into building conversions. Recommended material – Bituminous roofing felt not containing polypropylene filaments. • Create or retain access points into roof void and cavity walls. • Erect bat boxes (x1 per dwelling) onto buildings – or 25% onto trees. • Retain existing trees, hedgerow corridors and mature trees. • Design dark corridors into site plans and incorporate lighting plans into applications. • Sensitive lighting to use low level LED lights and low visibility splay. Lights to be no a timer switch or motion sensor. • Boxes to be made from woodcrete and positioned on trees at least 5 metres high in groups of three facing in a south-easterly to south-westerly direction to provide a range of suitable temperatures. • Roost material should be rough in texture, non-toxic and non-corrosive.

Approved supplier of bug hotels, mammal, bird and bat boxes can be found on the NHbs website

Supplier of native wildflower seed mix ‘Wyndrush Wild’

Other Considerations

Permitted development

75. Some types of development, such as extensions and alterations, may be permitted development which means there is no need to apply for planning permission. General permission is granted under the Town and Country Planning (General Permitted Development) Order 1995 (as amended) in these cases. Even if a proposal is permitted development, the work may still disturb a protected species or damage an important habitat.

76. If it is uncertain whether or not the proposal is permitted development, please contact Pembrokeshire County Council's or Pembrokeshire Coast National Park Authority's Development Management team for advice. To ascertain the potential impact of a proposal or establish if a licence would be required contact the Planning Ecologist, or Natural Resources Wales. The presence (or potential presence) of protected species will require compliance with all of the relevant statutory obligations and responsibilities, and may involve obtaining a licence from NRW, if criminal offences are to be avoided.

Demolition

77. Approval for the demolition of most buildings is required from the Local Planning Authority and is achieved by either indicating the demolition of a building(s) and gaining approval in conjunction with a planning application or by applying for 'prior notification'. Under the Town and Country Planning (General Permitted Development) Order 1995 (as amended) a prior notification must be submitted to check whether the Council requires prior approval of the method of demolition and site restoration. This is in addition to any other forms of consent required for demolition such as Listed Building Consent, Conservation Area Consent or approval via a Demolition Notice.

78. Checks should be made prior to demolition to identify and define any biodiversity issues, such the presence of protected species that need to be addressed prior to commencing demolition. In advance of any planned demolition of a building or structure, advice may be obtained from the Planning Ecologist on requirements for surveys or precautions to be taken in respect of protected species. All bats are protected by European and UK legislation and it is an offence to disturb or destroy their habitat. Where protected species occur all of the statutory obligations and responsibilities relating to these, potentially including the need to obtain a licence from the NRW, will apply and must be resolved before demolition proceeds, otherwise a criminal offence may be committed.

Renewable Energy Proposals

79. Renewable energy proposals have the potential to impact on wildlife, including birds and bats. The Local Planning Authority recommends a 50m

buffer between wind turbine blades and linear features such as trees and hedgerows on proposals outside of the National Park. Careful consideration will need to be given to the location of access points and connections to grid, so as to reduce the potential impact on habitat features or species.

80. If you are intending to submit a planning application for a renewable energy scheme the Local Planning Authority recommends undertaking an ecological walk-over survey as a minimum. However, additional survey work identified from the preliminary survey may need to be undertaken prior to the submission of a planning application, for example in relation to bats or birds. In the case of renewable energy projects applicants should take early advice from their ecologist and the planning authority on survey requirements.

External lighting

81. Light pollution can have a serious impact on the natural patterns that govern wildlife behaviour such as mating, migration, sleeping and eating. Lighting in itself is not a problem; it only becomes a problem where it is excessive, poorly designed or badly installed. The impact of lighting on wildlife can be reduced by:
    - Using lights only where and when needed
    - Lighting the target area only
    - Shining lights downwards
    - Using sensor lights that come on only when necessary
82. Where light-sensitive protected species such as bats are involved, appropriate design of lighting to avoid or minimise adverse impacts will be a statutory requirement and may be subject to licensing by the NRW. More information on this can be found in the table below and Appendix 4: Bats – European Protected Species: Trigger List**.**
83. In considering schemes which involve the installation of external lighting, their impact on the night sky and biodiversity will be considered. Obtrusive lighting can be defined as *"the unnecessary brightening of the night sky as a result of upwardly directed light. Usually light pollution is caused by poorly designed development schemes and inappropriate or poorly installed lighting equipment"*.
84. There are several forms of light pollution, which may have a detrimental impact on wildlife and the open countryside. Illuminating a bat corridor may cause disruption, alter feeding behaviour and even abandonment of the nearby roosts. Many nocturnal animals may have their sleep patterns disrupted, encouraging them to forage in the artificial light and expose themselves to predators that use light to hunt. Some species are intolerant of increased lighting and may abandon their dependent young resulting in population declines and displacement.

Table 6: Measures which can be taken to reduce light intrusion or pollution	
Lighting considerations	**Measures to avoid or mitigate impacts**
Location of lights	Include a lighting plan. Reduce the number of lights. Carefully consider the location of lights, do not locate near sensitive features such as hedgerows or trees. Avoid light-spill on bat roost access points.
Type of lights	Include pictures of products. Choose downward facing lights, no upward spill. Flood-lights are generally unacceptable.
Height of light installation	Consider use of low-level lighting where possible. State maximum height of light fixtures.
Direction and angle of installation	State beam orientation. No lighting above horizontal.
Lumens	State lumens. Recommended 600 lumens maximum in the National Park. 2,700 Kelvin lights are recommended.
Reduction of light output	Use PIR or timer switches.
Lighting accessories for reducing obtrusive lighting	Cowls. External or internal louvres. Shields or hoods. Reflectors. Application of film to windows to reduce glow.
Implications of lighting on designated sites	If the proposed scheme is on or adjacent to a designed site, lighting only permitted where demonstrated to be essential.
General	Locate away from reflective surfaces, such as windows. Use low energy or LED bulbs where possible.

85. A Supplementary Planning Guidance document for the appropriate use of lights will be prepared by Pembrokeshire County Council and the Pembrokeshire Coast National Park Authority. More information can be found on the Institution of Lighting Professional's website and the Bat Conservation Trust Guidance Note 08/18 Bats and artificial lighting in the UK.

One Planet Development

86. Planning Policy Wales 11 defines One Planet Development (OPD) as "development that through its low impact either enhances or does not significantly diminish environmental quality". (Paragraph 4.2.38)

87. A Biodiversity Survey is required to accompany an OPD application and an audit forms part of the required management plan listing broad habitats, records of important flora and fauna and any statutory designations on the

site and in the immediate vicinity. These are important considerations to take into account prior to land purchase.

88. Considerations for applicants:

- Are you planning to cultivate valuable semi-natural habitats?
- Will your crop/garden species pose a risk of spreading into the natural environment?
- Growing non-native species for production/to sell is not justification for introducing them.
- Proposals for planting and crops should carefully consider site location and proximity to sensitive sites, specifically designated sites.
- Grazing regimes should be appropriate for the habitat type and applicants should discuss this with their ecological consultants
- Applicants are advised to liaise with NRW to establish if their site is designated or likely to be notified as a designated site.
- Those bordering designated sites should positively contribute to the management of the site by carefully considering location/type of planting and grazing and impacts on draining and hydrology.
- Planting an orchard may increase diversity (on paper) but is not enhancement if it means eradicating an area of healthy marshy grassland.

Appendix 1: Glossary

Appropriate Assessment

A statutory assessment which is undertaken by a competent authority in respect of plans or projects which are likely to have a significant effect on a national site network site site (see HRA definition).

Biodiversity

The richness and variety of living things (plants, birds, animals, fish and insects etc.) which exist in a given area, and the habitats which support them.

Biodiversity Action Plan/Local Biodiversity Action Plan (BAP/LBAP)

The UK's Biodiversity Action Plan recognises priority habitats and species and plans and works towards their conservation. Local Biodiversity Action Plans are the mechanism for local delivery.

Development Licence

Term used within this document to refer to a protected species licence (European or UK protected species) obtained by a developer for the purposes of undertaking a development.

Ecosystem

A system that includes all living organisms (biotic factors) in an area as well as its physical environment (abiotic factors) functioning together as a unit.

European Protected Species (EPS)

Species protected by the Conservation (Natural Habitats etc) Regulations 2010.

Habitat

The place in which a particular plant or animal lives. Often used in the wider sense referring to major assemblages of plants and animals together.

Habitat Regulations Assessment (HRA)

HRA is required under the European Directive 92/43/EEC and is an assessment of the impacts of implementing a plan or project on a national site network site. Its purpose is to consider the impacts of a land use plan against conservation objectives of the site and to ascertain whether it would adversely affect the integrity and features of the site.

Invasive Non Native Species (INNS)

Any species which is outside its natural range in Pembrokeshire but which is present and capable of surviving and reproducing in the County and which causes damage to natural ecosystems or human economic, social or health interests by threatening native biodiversity.

Local Development Plan

The Statutory Development Plan for each Local Planning Authority area in Wales, as required under Part 6 of the Planning and Compulsory Purchase Act 2004.

Local Nature Reserve

An area designated for its local importance in terms of nature conservation.

Local Planning Authority

A planning authority responsible for the preparation of the Local Development Plan and for determining planning applications.

Mitigation

The term mitigation in the document refers to action taken which offsets and minimises potential impacts on any wildlife features.

National Nature Reserve (NNR)

An area designated for its national importance in terms of nature conservation, and managed in accordance with a nature reserve agreement with landowners and occupiers.

Natural Resources Wales (NRW)

Is the Statutory Nature Conservation Organisation for the Welsh Government. Its purpose is to ensure that the natural resources of Wales are sustainably maintained, enhanced and used, now and in the future.

Planning obligation

A commitment made by a developer under Section 106 of the Town and Country Planning Act to undertake certain actions (on- or off-site) necessary to make a development acceptable in planning terms.

Planning Policy Wales (PPW)

Current land use planning policy is contained in Planning Policy Wales 11 (2021) which provides the strategic policy framework for the effective preparation of local planning authorities' development.

Pembrokeshire Nature Partnership (PNP)

A collective of organisations which includes public bodies, private sector companies, charities, community groups and individuals with an interest in the protection and enhancement of natural resources in Pembrokeshire. The partnership has agreed to be responsible for the delivery of the Pembrokeshire Nature Recovery Action Plan.

Site of Special Scientific Interest (SSSI)

A site identified under the Wildlife and Countryside Act 1981 as an area of special interest for wildlife or geological features.

Special Area of Conservation (SAC)

A site designated under the European Habitats Directive (enacted in the UK through the Conservation of Habitats and Species Regulations 2017 (as amended), to protect internationally important natural habitats and species.

Special Protection Area (SPA)

Sites classified under the European Community Directive on Wild Birds (enacted in the UK through the Conservation of Habitats and Species Regulations 2017 (as amended), to protect internationally important bird species.

Supplementary Planning Guidance (SPG)

These documents reinforce the policies of the Local Development Plan and provide clear in-depth guidance on planning and development issues.

Technical Advice Note 5 (TAN 5)

Technical Advice Note (TAN) 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation.

Welsh Government (WG)

The elected body in Wales that develops and implement policy via the Civil Service and a range of sponsored bodies.

Appendix 2: Local Planning & Biodiversity Contacts

Pembrokeshire County Council
Planning Department,
Pembrokeshire County Council,
County Hall,
Freemans Way,
Haverfordwest,
SA61 1TP.

Tel: 01437 764551
Fax: 01437 776496
Email:

Conservation Team -	ecology@pembrokeshire.gov.uk
	biodiversity@pembrokeshire.gov.uk
Planning Support Team -	planningenquiries@pembrokeshire.gov.uk
	planning.support.team@pembrokeshire.gov.uk
Development Plans Team -	ldp@Pembrokeshire.gov.uk

Pembrokeshire Coast National Park Authority
Llanion Park
Pembroke Dock
Pembrokeshire
Wales
UK
SA72 6DY

Phone: 01646 624800
Fax: 01646 689076

Email:

Development Management team –DC@pembrokeshirecoast.org.uk

Appendix 3: Ecological Survey Seasons

Key: Optimal Survey Time:  **Extending into:** 

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Badgers												
Bats (Hibernation Roosts)												
Bats (Summer Roosts)												
Bats (Foraging / Commuting)												
Birds (Breeding)												
Birds (Over-wintering)												
Dormice												
Great crested newts (Terrestrial)												
Great crested newts (Aquatic)												
Invertebrates												
Otters												
Reptiles												
Water voles												
White clawed crayfish												
Habitats and Vegetation												

Appendix 4: Bats – European Protected Species: Trigger List

The following trigger list has been produced by the Bat Conservation Trust (BCT) in conjunction with the Association of Local Government Ecologist (ALGE) and lists common development situations where bats are likely to be found.

However, this list is not exhaustive and bats may be found in seemingly unlikely habitats. This list does focus survey efforts at those sites most likely to have bats though and so the decision to then undertake a bat survey can be based on reasonable likelihood.

If your development proposal is listed below it is likely to need a bat survey. Contact a licensed bat surveyor from the list of consultants or speak to the Planning Ecologist for further information.

Trigger list of where bats are *likely* to be present and where developers can be expected to submit a bat survey.
(i) Proposed development which includes the modification, conversion, demolition or removal of buildings and structures (especially roof voids) involving the following: • All agricultural buildings (e.g. farmhouses and barns) particularly of traditional brick or stone construction and/or with exposed beams greater than 20cm thick; • All buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water; • Pre-1960 detached buildings and structures within 200m of woodland and/or water; • Pre-1914 buildings within 400m of woodland and/or water; • Pre-1914 buildings with gable ends or slate roofs, regardless of location; • All tunnels, mines, kilns, ice-houses, adits, military fortifications, air raid shelters, cellars and similar underground ducts and structures; • All bridge structures, aqueducts and viaducts (especially over water and wet ground); and • All developments affecting buildings, structures, trees or other features where bats are known to be present.
(ii) Proposals involving lighting of churches and listed buildings or floodlighting of green spaces within 50m of woodland, water, field hedgerows or lines of trees with obvious connectivity to woodland or water.
(iii) Proposals affecting quarries with cliff faces with crevices, caves or swallets.
(iv) Proposals affecting or within 400m of rivers, streams, canals, lakes, or within 200m of ponds and other aquatic habitats.
(v) Proposals affecting woodland or field hedgerows and/or lines of trees with obvious connectivity to woodland or water bodies.
(vi) Proposed tree work (felling or lopping) and/or development affecting: • Old and veteran trees that are older than 100 years; • Trees with obvious hole, cracks or cavities; and • Trees with a girth greater than 1m at chest height.
(vii) Proposed development affecting any feature or locations where bats are confirmed as being present, revealed by either a data trawl (for instance of the local biological

records centre) or as notified to the developer by any competent authority (e.g. planning authority, Statutory Nature Conservation Organisation or other environmental or conservation organisation).

Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines.*

Appendix 5: Advice Note relating to Green Roof Species Selection in Pembrokeshire

Green roof

A green roof is a roof or deck onto which vegetation is intentionally grown or habitats for wildlife are established.

There are two main types of green roof:

- **Intensive**
  Typically have deeper substrates (>200 mm) capable of supporting shrubs and trees and generally they have the appearance of roof gardens. They will require significant management and maintenance in terms of irrigation.
- **Extensive**
  Green roofs typically have a shallower substrate layer (<150 mm), support low-growing, drought-tolerant plants and require low maintenance. Extensive roofs are the most common type.

Benefits of a green roof

A green roof will provide benefits such as:

- Green stepping stones for wildlife
- Water storage - SuDs*
- Sound dampening
- Production of oxygen
- Absorbing air pollutants, dust and CO2
- Visual aesthetics to sites
- Insulation (increased thermal mass)

*Sustainable Drainage Solution

Sedum roofs in Pembrokeshire

It is advised that sedum-only roofs are avoided in Pembrokeshire, due to the limited number of native sedum species.

There are only two species of sedum native to Pembrokeshire that are suitable for inclusion in a green roof:

- Sedum acre - Goldmoss stonecrop
- Sedum anglicum - English stonecrop

The implementation of a sedum roof with only two species would result in a roof with limited ecological and aesthetic value

The use of other sedums (including garden varieties) for a green roof in Pembrokeshire would not be acceptable as they can become invasive, putting native species at risk.

Protected habitats

Maritime, Cliff and Crevice communities are abundant along our coastline; often listed as features of designated sites such as:

- Special Areas for Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)

Once a plant has escaped into the wild it can be difficult and costly to eradicate.

In many cases eradication is impossible and can have a long term impact on the ecology of protected and special habitats.

Species suitable for a Coastal Green roof

Scientific Name	Common Name
Achillea millefolium	Common yarrow
Aira caryophyllea	Mouse grass
Aira praecox	Early hair grass…
Anthyllis vulneraria	Kidney vetch
Arenaria serpyllifolia	Thyme-leaved sandwort
Armeria maritima	Thrift
Bromus hordeaceus	Soft brome
Centaurium erythraea	Common centaury
Cerastium diffusum	Sea mouse ear
Cochlearia danica	Danish scurvygrass
Cochlearia officinalis	Common scurvygrass
Erodium cicutarium	Common stork's bill…
Euphorbia portlandica	Portland spurge
Festuca ovina	Sheep's fescue…
Festuca rubra agg	Red fescue…
Galium verum	Lady's bedstraw…
Hieracium pilosella	Mouse-ear hawkweed
Jasione montana	Sheep's bit scabious
Koeleria macrantha	Crested hair grass
Leontodon taraxicoides	Lesser hawkbit
Lotus corniculatus	Bird's-foot trefoil
Matricaria maritima	Sea mayweed
Myosotis ramosissima	Early forget-me-not
Plantago coronopus	Buck's horn plantain
Ornithopus perpusillus	Bird's-foot
Plantago lanceolata	Ribwort plantain..
Plantago maritima	Sea plantain
Sagina apetala	Annual pearlwort…
Sagina maritima	Sea pearlwort
Sanguisorba minor	Salad burnet…
Scilla verna	Spring quill
Sedum acre	Biting stonecrop
Sedum anglicum	English stonecrop
Silene maritima	Sea campion
Spergularia rupicola	Rock sea spurrey
Thymus praecox	Wild thyme…
Trifolium arvense	Hare's-foot clover
Veronica arvensis	Wall speedwell…

- '…' Represents species with other common names
- Species listed - National Vegetation Classification Maritime Therophyte* community MC5
- *Therophyte - Any plant which survives unfavourable conditions in the form of seeds only

Pembrokeshire green roof preferences

The use of native species and the mimicking of natural habitats helps to provide the maximum benefits for the wildlife and landscape of Pembrokeshire.
To encourage these benefits the more typical choices for a green roof would be:

Pembrokeshire 'coastal' roof

This type of roof will comprise plants which are highly adapted to coastal conditions and as a result will tolerate drought, high levels of exposure and salt-laden winds, making them ideal for our environment.
Some of these plants also undergo colour changes during times of drought that provides additional visual interest.
A species list of suitable plants is provided in the leaflet.

UK native wildflower roof

These normally comprise a mix of flowers and grasses which are native to the UK and are often available from major suppliers as plugs, seeds or as a 'ready-to-roll'* option.
Ready-to-roll options can sometimes include non-native species which can be unsuitable.
These types of product would only be considered in inland locations following approval of the species included.

- *'Ready to roll' – This is a complete seed stock and substrate layer product sold in the form of a mat / blanket / carpet

Further information

External guidance documents:

- 'The Green Roof Code' by GRO
- 'Guide to DIY Green Roofs' by GRO
- 'Creating Green Roofs for Invertebrates' by Buglife
- www.pembrokeshirecoast.wales

Please note:

This leaflet is intended to be a helpful and simple guide and should not be regarded as a full interpretation of a green roof implementation.

If you have any doubts regarding possible planning requirements or other questions, please contact:

Development Management
Pembrokeshire Coast National Park Authority
Llanion Park, Pembroke Dock, SA72 6DY
Telephone: 01646 624800
Email: dc@pembrokeshirecoast.org.uk

Specialist Advisor, Ecologist
Conservation Team
Pembrokeshire County Council
County Hall, Freeman's Way, Haverfordwest, SA61 1TP
Telephone: 01437 776376
Email: conservationteam@pembrokeshire.gov.uk

LANDSCAPE LEAFLET 1

Pembrokeshire County Council
Pembrokeshire Coast National Park Authority 2020

Green Roof Guidance

in Pembrokeshire

Cyngor Sir Penfro • Pembrokeshire County Council

Parc Cenedlaethol Arfordir Penfro
Pembrokeshire Coast National Park

Appendix 6: List of native plants in Pembrokeshire

(Extract from WTSWW website)

Bog Plants

Scientific Name	**Common Name**	**Information**
Polygonum amphibium	Amphibious Bistort	Good for boggy areas
Geum rivale	Water Avens	A beautiful plant for boggy areas
Caltha palustris	Bog Arum	Grows well in boggy areas and in the margins
Menyanthes trifoliata	Bog Bean/Water Clover	Found in shallow water and boggy areas
Eriophorum angustifolium	Common cottongrass	A wonderful bog plant
Cardamine pratensis	Cuckoo Flower/Lady's Smock	A lovely pink to white flower (good for Orange Tip and Green-veined butterflies, grows well in boggy areas)
Lythrum salicaria	Purple Loosestrife	A dramatic purple/red flower which does well in boggy areas and in the margins
Caltha palustris	Marsh Marigold	Cheerful early flower that grows well in damp places
Filipendula ulmaria	Meadowsweet	Foamy white flowers with a distinctive sweet smell
Lychnis flos-cuculi	Ragged Robin	One of our prettiest bog plants

Pond Plants

Scientific Name	**Common Name**	**Information**
Sagittaria sagittifolia	Arrowhead	Striking marginal
Veronica bettabunga	Brooklime	Found in standing water, lovely blue flowers
Iris pseudacorus	Yellow Flag Iris	A stunning native iris which does well in standing water and boggy areas
Myosotis palustris	Water Forget-me-not	Pretty blue flowers found in slightly deeper water
Hydrocharis morsus-ranae	Frogbit	A floating aquatic plant
Ceratophyllum demersum	Hornwort	Great for pond life and a brilliant oxygenator
Potamageton natans	Broadleaved Pondweed	An important oxygenator, it also provides a superb hiding place for your wildlife
Potammageton crispus	Curly Pondweed	A good oxygenator
Butomus umbellatus	Flowering rush	Found in shallow to relatively deep water
Callitriche stagnalis	Common Water Starwort	A good oxygenator found in still and moving water
Ranunculus aquatalis	Common Water Crowfoot	A good oxygenator found in the margins
Nymphaea alba candida	Dwarf White Water Lily	Found in still water and good for small ponds
Nymphoides peltata	Fringed Water Lily	Pretty yellow flower, roots to the bottom – can be quite vigorous
Nymphaea alba	White Water Lily	A vigorous but attractive pond plant
Stratiotes aloides	Water Soldier	An oxygenator found in still and running water
Hottonia palustris	Water Violet	Found on the edges of lakes and ponds

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Parc Cenedlaethol
Arfordir Penfro
Parc Llanion, Doc Penfro
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•
We welcome correspondence
in English and Welsh

Advice note relating to Grass and Wildflower Seed Mixes

Where circumstances permit and where there are no invasive alien species on site; a preferred and sometimes more cost effective option for establishing grass and wildflowers is to utilise the existing seed bank, such as the use of stripped top soil as the source of seed.
This is likely to be the best way of ensuring that the vegetation that develops on bare/disturbed ground comprises species that are native and therefore most appropriate for the location.
If the utilisation of the existing seed bank is not possible; the following mixes can be considered:

Grass Seed Mix

This following mix is specifically designed to create a fine leaved, open sward.
This will allow other colonising species to become established thereby increasing species diversity of the area in question.

Common Name	*Scientific name*	Percentage ratio
• Red fescue	*Festuca rubra*	40%
• Common bent grass	*Agrostis capillaris*	20%
• Smooth meadow grass	*Poa pratensis*	20%
• Red clover	*Trifolium pratense*	10%
• Sweet Vernal Grass	*Anthoxanthum odoratum*	10%

NOTE:
Fertiliser should not be applied (clover will fix nitrogen in time).
Lime should not be applied.
The soil may look a little 'weedy' at first, but will soon develop good coverage.

Additional Wildflower Mixes

Hedgerows and Hedgebanks

For hedgerows and hedgebanks the following wildflower seed mix can be considered:

Common Name	*Scientific Name*	Common Name	*Scientific Name*
• Cow parsley	*Anthriscus sylvestris*	• Birdsfoot trefoil	*Lotus corniculatus*
• Foxglove	*Digitalis purpurea*	• Primrose	*Primula vulgaris*
• Oxeye daisy	*Leucanthemum vulgare*	• Red campion	*Silene dioica*
• Common toadflax	*Linaria vulgaris*	• Hedge woundwort	*Stachys sylvatica*

Meadows

For meadows the following wildflower seed mix (or plugs) can be considered:

Common Name	*Scientific Name*	Common Name	*Scientific Name*
• Bugle	*Ajuga reptans*	• Self heal	*Prunella vulgaris*
• Cuckoo-flower	*Cardamine pratensis*	• Meadow buttercup	*Ranunculus acris*
• Black Knapweed	*Centaurea nigra*	• Lesser celandine	*Ranunculus ficaria*
• Cat's ear	*Hypochaeris radicata*	• Yellow rattle	*Rhinanthus minor*
• Meadow vetchling	*Lathyrus pratensis*	• Red campion	*Silene dioica*
• Oxeye daisy	*Leucanthemum vulgare*	• Red clover	*Trifolium pratense*
• Birdsfoot trefoil	*Lotus corniculatus*	• Germander speedwell	*Veronica chamaedrys*
• Cowslip	*Primula veris*	• Tufted Vetch	*Vicia cracca*
• Primrose	*Primula vulgaris*	• Common Vetch	*Vicia sativa*

Appendix 7: List of Invasive Non-Native Species in Pembrokeshire

(Reviewed August 2017) *Species Considered High Priority for Action:*

There follows a list of species considered high priority for action, grouped by habitat for ease of reference. Below that, the species are listed alphabetically by taxonomic name with information on threats, distribution and recommendations for action. Alert species are shown in red text.

Terrestrial

Citrus Longhorn Beetle	*Anoplophora chinensis*
Butterfly Bush	*Buddleja davidii*
Hottentot Fig	*Carpobrotus edulis*
New Zealand Pigmyweed	*Crassula helmsii*
Japanese Knotweed	*Fallopia japonica*
Harlequin Ladybird	*Harmonia axyridis*
Sea Buckthorn	*Hippophae rhamnoides*
Himalayan Balsam	*Impatiens glandulifera*
Himalayan Honeysuckle	*Leycesteria formosa*
American Skunk-Cabbage	*Lysichiton americanus*
Winter Heliotrope	*Petasites fragrans*
Evergreen Oak	*Quercus ilex*
Rhododendron	*Rhododendron ponticum*
Common Cord-grass	*Spartina anglica*
Asian Hornet	*Vespa velutina*

Freshwater

Water Fern	*Azolla filiculoides*
Carolina Watershield	*Cabomba caroliniana*
Asian Clam	*Corbicula fluminea*
New Zealand Pigmyweed	*Crassula helmsii*
Killer Shrimp	*Dikerogammarus villosus*
Quagga Mussel	*Dreissena bugensis*
Zebra Mussel	*Dreissena polymorpha*
Chinese Mitten Crab	*Eriocheir sinensis*
Carrion Shrimp	*Hemimysis anomala*
Floating Pennywort	*Hydrocotyle ranunculoides*
Water Primrose	*Ludwigia grandiflora*
Parrot's Feather	*Myriophyllum aquaticum*
Fringed Waterlily	*Nymphoides peltata*
Topmouth Gudgeon	*Pseudorasbora parva*

Marine

Asian Clam	*Corbicula fluminea*
Pacific Oyster	*Crassostrea gigas*
Slipper Limpet	*Crepidula fornicata*
Carpet Sea-Squirt (Colonial Sea-Squirt)	*Didemnum vexillum*
Killer Shrimp	*Dikerogammarus villosus*
Quagga Mussel	*Dreissena bugensis*
Zebra Mussel	*Dreissena polymorpha*
Chinese Mitten Crab	*Eriocheir sinensis*
Asian Shore Crab	*Hemigrapsus sanguineus*
Brush Clawed Crab	*Hemigrapsus takanoi*
American Lobster	*Homarus americanus*
Rapa Whelk	*Rapana venosa*
Wakame / Japanese Kelp	*Undaria pinnatifida*

Appendix 8: List of native trees and shrubs

Guidance on Selection of Trees and Shrubs in Pembrokeshire
Pembrokeshire Nature Partnership 2020

Name		Status			Setting									Comments
Common	**Scientific**	**Native**	**Naturalised**	**Introduced**	**Ancient Woodland**	**Secondary Woodland**	**New Woodland**	**Wood edge**	**Hedge**	**Hedge Trees**	**Coast**	**SUDS***	**Urban**	Consider biodiversity value, landscape value, management requirements etc. Is the species associated with any other in important assemblages? 'Hedge' refers to hedges in the wider landscape. For urban hedges, refer to 'urban' column.
Acer sp.	*Acer sp.*		x	x									x	Wide range of species available. Reliable ornamental features. Ensure species is suitable for the setting. For non-urban settings see field maple and sycamore.
Alder	*Alnus glutinosa*	x			x	x	x	x	x	x		x	x	Does well in poorly drained sites, and on poor soils. Catkins provide an important early nectar source for pollinators. Seeds provide a food source for birds. Can produce excellent specimen tree.
Alder, Italian	*Alnus cordata*			x									x	Versatile tree for formal settings.
Apple, Crab	*Malus sylvestris*	x				x	x	x	x		x			Blossom provides spring nectar source for pollinators. Provides autumn food source for wildlife e.g birds butterflies and small mammals.
Apple, Ornamental	*Malus sp.*		x					x					x	44 known Welsh varieties for fruit production. Able to be grafted on to different root sizes. Blossom provides spring nectar source for pollinators.Provides autumn food source for wildlife. A few in Pembrokeshire have mistletoe.
Ash	*Fraxinus excelsior*	x			x	x	x	x	x		x		x	Likely to suffer from Ash dieback. Currently (2020) no new planting allowed. Caution about where to plant. Important host tree for lichens.
Aspen	*Populus tremula*	x			x		x	x		x				Does well in poorly drained sites. Spreads vigorously by suckers. Becomes brittle with age. Possible substitute for Ash as a Lichen Host tree. Very good for invertebrates.
Beech	*Fagus Sylvatica*		x		x	x	x		x	x			x	Intolerant to climate change. Retains dead leaves through winter. Used as hedge. Has colonised ancient woodland in Pembrokeshire.
Birch, Downy	*Betula pubescens*	x			x	x	x	x					x	Preferable to ornamental (non native) species for supporting biodiversity. Allergy to birch pollen is very common. Can become a management issue on wet heathlands - avoid planting in St David's area where it is currently absent from all the internationally important wet heathlands on the Peninsula.
Birch, Silver	*Betula pendula*	x			x	x	x	x					x	Preferable to ornamental (non native) species for supporting biodiversity.
Birch sp (other)	*Betula sp.*			x									x	Reliable ornamental features.
Blackthorn (shrub)	*Prunus spinosa*	x				x	x	x	x		x			Will sucker in unmanaged settings. On the coast, it should be the dominant hedgerow species. Good early nectar source and late winter bird food supply.
Bog Myrtle (shrub)	*Myrica gale*	x						x						Limited usage. Shrub of marsh/damp grassland. Restrict use near protected sites to preserve genetic integrity.
Box (shrub)	*Buxus sempervirens*			x									x	Slow growing. Good formal hedge.
Broom (shrub)	*Cytisus scoparius*	x							x		x		x	**Caution:** avoid using to replace prostrate broom on protected sites.
Catalpa sp.	*Catalpa sp.*			x									x	Can have invasive roots if planted in small sites.
Cedar Atlantica	*Cedrus atlantica*			x									x	Large evergreen tree suitable for formal planting in large gardens.
Cedar of Lebanon	*Cedrus libani*			x									x	Large evergreen tree suitable for formal planting in large gardens - Slower growing than Atlas Cedar.
Cedar, Himalayan	*Cedrus deodara*			x									x	Large evergreen tree suitable for formal planting in large gardens.
Cherry, Sour	*Prunus cerasus*		x	x					x				x	Cultivated for edible fruits. Also known as Dwarf Cherry.

Guidance on Selection of Trees and Shrubs in Pembrokeshire
Pembrokeshire Nature Partnership 2020

Name		Status			Setting									Comments
Common	**Scientific**	**Native**	**Naturalised**	**Introduced**	**Ancient Woodland**	**Secondary Woodland**	**New Woodland**	**Wood edge**	**Hedge**	**Hedge Trees**	**Coast**	**SUDS***	**Urban**	Consider biodiversity value, landscape value, management requirements etc. Is the species associated with any other in important assemblages? 'Hedge' refers to hedges in the wider landscape. For urban hedges, refer to 'urban' column.
Cherry, Wild	*Prunus avium*	x			x	x	x	x					x	Can be invasive. Spreads by suckering. Good early nectar source and bird food supply.
Chestnut, Horse	*Aesculus hippocastanum*		x										x	Susceptible to pests and diseases. Good nectar source.
Chestnut, Sweet	*Castanea sativa*		x			x	x			x			x	Good for nut production and formal planting.
Dawn Redwood	*Metasequoia glyptostroboides*			x									x	Medium sized fast growing deciduous conifer suitable for formal and ornamental planting.
Dogwood (shrub)	*Cornus sanguinea*	x			x			x	x			x		Shrub of limestone, esp south Pembrokeshire. Only native at one or two south Pembs. Sites but there are scattered stands of the introduced *Cornus sericea* across the County.
Elder (shrub)	*Sambucus nigra*	x						x	x		x			Thrives on fertile areas. Autumn food source for wildlife. Not stock proof.
Elm, American	*Ulmus americana*			x						x			x	Thought to be resilient to Dutch Elm disease. Possible substitute for Ash as a Bryophyte host tree.
Elm, Wych	*Ulmus glabra*	x			x			x	x	x			x	Root suckers not common with Wych Elm - Responds well to coppicing.
Ginkgo	*Ginkgo biloba*			x									x	
Gorse, European (shrub)	*Ulex europaeus*	x							x		x			Will spread in unmanaged settings. Larger than western gorse.
Gorse, Western (shrub)	*Ulex gallii*	x						x	x		x		x	More compact form than *U europeus* . Winter flowering.
Guelder Rose (shrub)	*Viburnum opulus*	x				x	x	x	x					Autumn food source for wildlife.
Hawthorn	*Crataegus monogyna*	x				x	x	x	x		x		x	Autumn food source for wildlife. Possible substitute for Ash as a Bryophyte host tree. Characteristic hedge tree of the ffridd of north Pembrokeshire.
Hazel (shrub)	*Corylus avellana*	x			x	x	x	x	x		x		x	Autumn food source for wildlife. Possible subsitute for Ash as a Lichen host tree.
Holly	*Ilex aquifolium*	x			x	x	x	x	x		x		x	Many varieties available for formal planting schemes. Can be invasive in woodland, spreading by suckering, but mainly spreads by seed. Important nectar and berry source for invertebrates and birds. Classic hedgerow tree.
Hornbeam	*Carpinus betulus*		x			x	x		x				x	Commonly used in mono-species formal hedging and in various forms (espalier/pleach).
Juniper (shrub)	*Juniperus communis*	x									x			The rare sub-species *hemisphaerica* occured in Pembrokeshire but is no longer thought to be present. Care when planting near 'natural' areas.
Katsura	*Katsura sp.*			x									x	Good autumn interest in the form of colour and producing a 'candyfloss' scent.
Laburnum	*Laburnum anagyroides*			x					x				x	Seeds are toxic. **Caution** if planting in gardens and playgrounds. A feature of hedgerows in North Pembrokeshire only. Would not normally be included in a native hedge in non-urban settings outside this area.
Lime, Common	*Tilia x europaeus*		x							x			x	A favourite for aphids which drop honeydew.
Lime, Large Leaved	*Tilia platyphyllos*			x						x			x	Large formal tree suited to urban management such as pollarding
Lime, Small Leaved	*Tilia cordata*		x			x	x			x			x	Good for urban air pollution absorption and more generally in the urban setting.
Liquidambar	*Liquidambar sp.*			x								x	x	Striking autumn colour. Good for ornamental planting.
Magnolia sp.	*Magnolia sp.*			x									x	Species will normally produce visually striking flowers suitable for smaller gardens

Guidance on Selection of Trees and Shrubs in Pembrokeshire
Pembrokeshire Nature Partnership 2020

Name		Status			Setting									Comments
Common	**Scientific**	**Native**	**Naturalised**	**Introduced**	**Ancient Woodland**	**Secondary Woodland**	**New Woodland**	**Wood edge**	**Hedge**	**Hedge Trees**	**Coast**	**SUDS***	**Urban**	Consider biodiversity value, landscape value, management requirements etc. Is the species associated with any other in important assemblages? 'Hedge' refers to hedges in the wider landscape. For urban hedges, refer to 'urban' column.
Maple, Field	*Acer campestre*		x			x	x	x	x	x			x	Possible substitute for Ash as a Bryophyte host tree.
Medlar	*Mespilus germanica*			x									x	Produces edible fruits.
Mulberry	*Morus sp.*			x									x	Produces edible fruits.
Nothofagus sp.	*Nothofagus sp.*			x									x	Also known as Southern Beech.
Oak, English or Pedunculate	*Quercus robur*	x			x	x	x	x	x	x	x		x	Potentially large tree. High biodiversity value. Long lived. Possible substitute for Ash as a Lichen host tree.
Oak, Sessile	*Quercus petraea*	x			x	x	x	x	x	x	x		x	High biodiversity value. Higher tolerance to coastal settings than *Q robur* . Suited to urban planting. Long lived. Possible substitute for Ash as a Lichen host tree.
Pear, Ornamental	*Pyrus sp.*		x										x	Choice in final size through rootstock selection. Harvestable edible fruit. Provides visual interest (fruit and flowers) and can be grown in various forms (espalier/pleach).
Pine, Monterey	*Pinus radiata*			x							x		x	Commonly found in south Pembrokeshire along the coast of Saundersfoot and Tenby. Thought to have been planted historically as a 'Captain's tree' Fast growing.
Pine, Scots	*Pinus sylvestris*		x		x						x		x	One of the few native conifers to the UK. Not native to Pembrokeshire.
Plane, London	*Platanus × acerifolia*			x									x	A number of varieties, all ultimately large. Good urban tree.
Plum, Wild	*Prunus domestica*		x	x						x			x	Greengages, Bullace and Damsons are subspecies of *P Domestica,* also known as European plum. Edible fruits.
Robinia	*Robinia sp.*			x									x	Produces pendulous flowers. Can be invasive through suckering and also spiny (cultivars generally lack spines).
Rowan / Mountain ash	*Sorbus aucuparia*	x			x	x	x	x		x	x		x	Very versatile tree. Nectar source for invertebrates and autumn fruit for birds.
Sorbus sp.	*Sorbus sp.*		x	x							x		x	Many varieties. Some are naturalised, some introduced. Care when selecting variety near areas with rare native species which could hybridise.
Spindle (shrub)	*Euonymus europaeus*	x			x			x	x				x	Not widely recorded in Pembrokeshire. Found on limestone, especially in south Pembrokeshire.
Sycamore	*Acer pseudoplatanus*		x		x			x			x		x	Invasive in woodlands. Tolerant of salt spray. Possible substitute for Ash as a Lichen and Bryophyte host tree. Good nectar source.
Tulip Tree	*Liriodendron tulipifera*			x									x	Potentially a very large tree with large tulip shaped flowers in early summer.
Walnut	*Juglans regia*		x										x	Nut production and formal planting.
Walnut, Black	*Juglans nigra*		x										x	Nut production and formal planting.
Wayfaring Tree	*Viburnum lantana*	x					x	x	x				x	Naturally scarce in Pembrokeshire.
Wild Privet (shrub)	*Ligustrum vulgare*	x							x				x	Preferable to *griselinia* . Easy to maintain in hedge form.
Wild Service Tree	*Sorbus torminalis*	x			x			x			x		x	Much rarer and larger than *Sorbus aucuparia* . Suckers well. No evidence for any recent regeneration from seed in Pembs.
Willow, Bay	*Salix pentandra*		x					x						Not commonly planted.
Willow, Eared (shrub)	*Salix aurita*	x						x	x		x	x		Does well in poorly drained sites. Hybridises with other willow species. Possible substitute for Ash as a Bryophyte host tree.

Name		Status			Setting									Comments
Common	**Scientific**	**Native**	**Naturalised**	**Introduced**	**Ancient Woodland**	**Secondary Woodland**	**New Woodland**	**Wood edge**	**Hedge**	**Hedge Trees**	**Coast**	**SUDS***	**Urban**	Consider biodiversity value, landscape value, management requirements etc. Is the species associated with any other in important assemblages? 'Hedge' refers to hedges in the wider landscape. For urban hedges, refer to 'urban' column.
Willow, Goat / Pussy (shrub)	*Salix caprea*	x						x	x	x	x	x		Does well in poorly drained sites. Possible substitute for Ash as a Bryophyte host tree.
Willow, Grey	*Salix atrocinerea*	x						x	x		x	x		Bushy. Does well in poorly drained sites and poor soils. Possible substitute for Ash as a Bryophyte host tree.
Yew	*Taxus baccata*	x			x								x	One of the few native conifers to the UK. Toxic leaves and seeds.
Yew, Irish	*Taxus baccata*			x									x	Fastigiate / columnar form good for ornamental planting.

Caution: This is a guide only and should be used with expert guidance to ensure appropriate choices for the specific setting.

Caution: Near protected sites, apply a suitable buffer to protect the integrity of protected features.

Caution: Consider the current biodiversity value of the site. Tree planting in the wrong context can reduce the overall biodiversity value of an area and may not be appropriate.

Note: For garden settings refer to the Trees and Design Action Group (TDAG) website: http://www.tdag.org.uk/about-tdag.html

Note: Naturalised / native refers to Pembrokeshire not necessarily to wider UK.

Note: For a list of invasive non-native species which should be avoided, refer to the INNS Species Action Plan for Pembrokeshire, here: https://www.pembrokeshire.gov.uk/biodiversity/pembrokeshire-nature-partnership-plans-and-guidance

*** SUDS:** may be useful in a Sustainable Urban Drainage Scheme, but not necessarily near pipes / tanks etc.

Appendix 9 Hedgebank

Historic significance

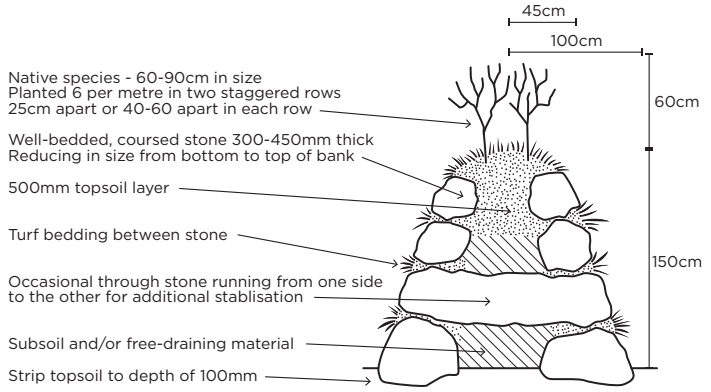
- An important note for Pembrokeshire hedgebanks is that the vast majority of hedgebanks that are present today in Pembrokeshire are historic boundary features.
- These can be identified on Tithe maps – which predate the Inclosure Act of 1845.
- By looking at field sizes in Pembrokeshire it is thought that many are much older than 1845.

Ecological interest and habitat connectivity

- The structural resilience of Pembrokeshire hedgebanks has resulted in their long-term retention to produce a valuable, interconnected ecological habitat.
- The establishment of trees and woody species on the banks are also only a part of the ecological benefit afforded by hedgebanks, as they also support:
  - Flora such as wildflowers, ferns and grasses etc which grow along the sides and the bases of the banks.
  - Fauna – such as dormouse, chough and other birds and animals that use the hedgebanks as corridors and homes.

Boundary features

- Pembrokeshire hedgebanks are an excellent boundary structure as they provide screening, links to adjacent hedges as well as assisting with the interaction with the landscape of Pembrokeshire. They are suitable in nearly all environments from agricultural fields, urban landscapes as well as house and garden boundaries.



Hedgebank construction

- The Pembrokeshire hedgebank varies visually throughout the county; from construction type, size, condition and associated species.
- The most common construction method is to produce a tapered structure that is 'battered' (faced) with stone separated by turf bedding.
- The stone typically gets smaller as you go up the side of the bank.
- The internal construction incorporates free draining material at the base up to about halfway, with the remaining space filled with topsoil to enable planting of native species along the apex of the bank.

SuDS - Sustainable Drainage Schemes

- Pembrokeshire hedgebanks can also be useful in terms of assisting with drainage on development sites as:
  - The hedgebank feature increases the immediate surface area for interception.
  - The hedgebanks typically incorporate plants and trees to intercept rainfall and absorb water.
- The bank can also act as a physical, semi-permeable barrier that can protect from flooding on adjacent land.

'Hedgerow spotting'

Very exposed areas

Where there are very exposed areas such as the St David's Peninsula, the hedgebank feature (Cloddiau) will sometimes only be topped with turf and wild flowers, with small woody specimens scattered along the hedgebank such as:

- Blackthorn
- Gorse
- Hawthorn

Less exposed areas

In areas where there is still some exposure which will restrict larger trees from establishing, the hedgebanks will be more typically supporting structurally continuous hedgerows with increased species diversity such as:

Smaller trees
- Crab apple
- Wayfaring tree
- Holly
- Hazel

Hedge species
- Hawthorn
- Elder
- Blackthorn
- Wild privet

Sheltered Areas

Hedgebanks located in areas with the least exposure to the elements will normally support a variety of woody specimens of various sizes from large trees to established hedgerows and even climbing species may also be present:

Tree / larger species
- Ash
- Elm
- Sycamore
- Oak

'Climber' species
- Honeysuckle
- Dog rose

Smaller species
- Hawthorn
- Elder
- Blackthorn
- Hazel
- Wild privet
- Spindle
- Dogwood

Hedgebanks and associated hedgerows

- The landscape and environment of Pembrokeshire results in some areas of the county being more exposed than others.
- This in turn reduces the ability of some species from establishing.
- This produces a great variety in the shapes and form of hedgerows supported by Pembrokeshire Hedgebanks; from scattered gorse growing along hedgebanks in Porthclais, through to mature linear rows of trees growing on hedgebanks in Newport.
- It is possible to gauge how exposed an area is in Pembrokeshire by spotting a specific species and seeing how big they have grown in a particular area.

Legislation

- Hedges and hedgerows form an important feature in the landscape and provide habitats for many species of wildlife.
- They are often also of archaeological and historical value.
- For this reason, most countryside hedges are protected by law under the Hedgerow Regulations 1997.
- Hedgerows are protected where they are identified as being 'important' within the Regulations; based upon criteria relating to archaeological, historical, wildlife or landscape value.
- Hedgerow Regulations 1997
  www.legislation.gov.uk/uksi/1997/1160/made

Further information

For more information visit:
www.pembrokeshirecoast.wales/default.asp?PID=655

Please note:

This leaflet is intended to be a helpful and simple guide and should not be regarded as a full interpretation of the law. If you have any doubts, please contact us:

Development Management
Pembrokeshire Coast National Park Authority
Llanion Park, Pembroke Dock, SA72 6DY
Telephone: 01646 624800
Email: dc@pembrokeshirecoast.org.uk

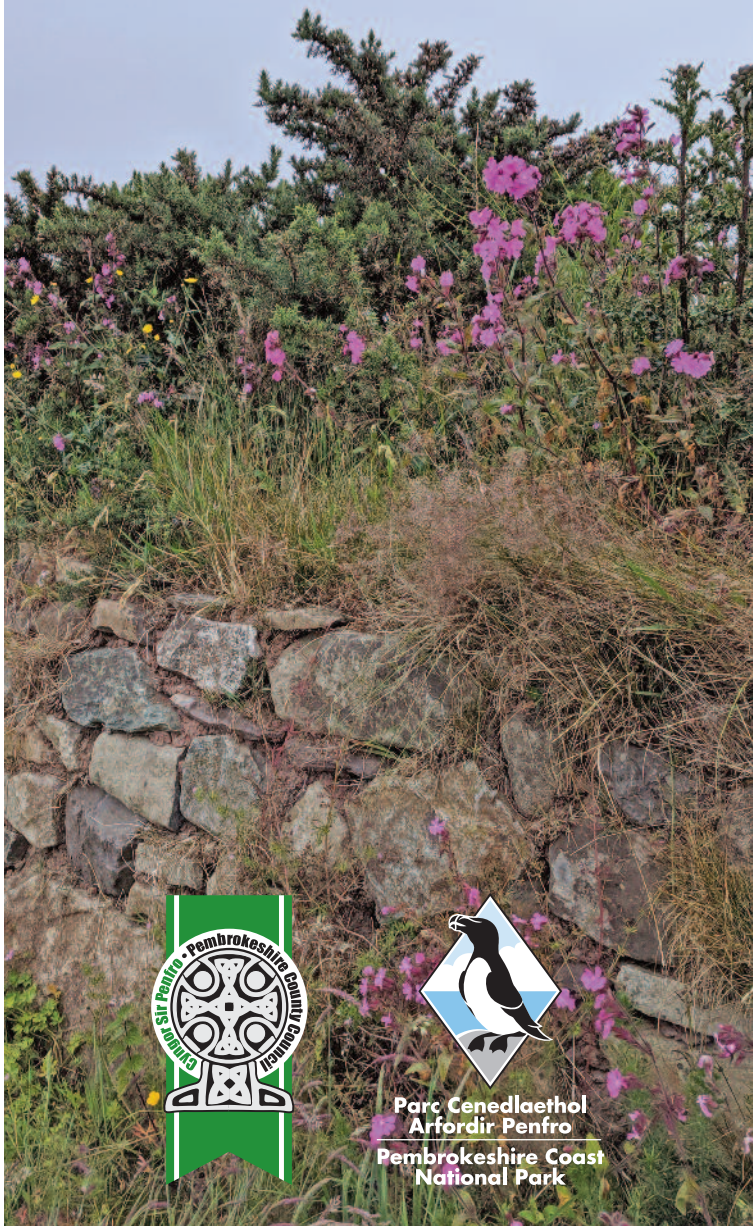
Landscape Planning Officer
Conservation Team
Pembrokeshire County Council
County Hall, Freeman's Way, Haverfordwest, SA61 1TP
Telephone: 01437 775363
Email: conservationteam@pembrokeshire.gov.uk

LANDSCAPE LEAFLET 2

Pembrokeshire County Council
Pembrokeshire Coast National Park Authority 2020

The Pembrokeshire Hedgebank

A brief guide to the iconic landscape feature of Pembrokeshire



Cyngor Sir Penfro • Pembrokeshire County Council

Parc Cenedlaethol Arfordir Penfro
Pembrokeshire Coast National Park

Appendix 10 Useful Websites and Documents

Useful websites:

Amphibian and Reptile Conservation Trust
Association of Local Environmental Records Centre
Bat Conservation Trust
Buglife – The Invertebrate Conservation Trust
https://www.buglife.org.uk/
Bumblebee Conservation Trust
Butterfly Conservation Wales
Carmarthenshire County Council
Ceredigion County Council
Chartered Institute of Ecology and Environment Management
https://cieem.net/about-cieem/
Joint Nature Conservation Committee (JNCC)
Natural Resources Wales:
Pembrokeshire Nature Partnership:
Pembrokeshire Coast National Park Authority
Pembrokeshire Local Biodiversity Action Plan
Plantlife Cymru
Royal Society for the Protection of Birds (RSPB)
The Association of Local Government Ecologists
The Wildlife Trust of South and West Wales
https://www.welshwildlife.org/
Wales Biodiversity Partnership:
West Wales Biodiversity Information Centre
https://www.wwbic.org.uk/

Useful Documents

British Standards for Biodiversity Code of Practice for planning and development (BS 420202:2013), British Standards Institute.
Local Development Plan (2013 2021) Pembrokeshire County Council
Pembrokeshire Coast National Park. Local Development Plan
https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf
Technical Advice Note 5, Nature Conservation and Planning (2009), Welsh Government
https://gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning
Bat Surveys for Professional Ecologists: Good Practice Guidelines, Edition 3 (2016), The Bat Conservation Trust.
The Town and Country (General Permitted Development) Order 1995 (as amended).
Checked May 2020

Other useful information

Ecological Survey Report Guidance and a list identifying local Licensed Bat Surveyors and Ecologists is available from the Pembrokeshire County Council Specialist Planning Ecologist on request. Contact details can be found in Appendix 2: Local Planning & Biodiversity

Contacts. Please note that inclusion on this list does not constitute a recommendation by Pembrokeshire County Council and Pembrokeshire Coast National Park Authority.

An interactive map of wind turbine applications within the County enables the potential cumulative effects of turbines in a given area to be assessed as well as their likely impact on wildlife can be found at www.pembrokeshirecoast.org.uk.

Appendix 11 Developments on Peat[8] and Off-Site Uses of Waste Peat

Legislation & Policy

The **Environment (Wales) Act 2016** introduces the concept of the "sustainable management of natural resources". This means—

(a) using natural resources in a way and at a rate that promotes achievement of the objective of meeting the needs of present generations of people without compromising the ability of future generations to meet their needs, and contributing to the achievement of the well-being goals in section 4 of the Well-being of Future Generations (Wales) Act 2015

(b) taking other action that promotes achievement of that objective, and

(c) not taking action that hinders achievement of that objective.

One of the 5 Key Planning Principles set out in **Planning Policy Wales Edition 11** is making best use of resources. The efficient use of resources, including land, underpins sustainable development.

The planning system has a vital role to play in making development resilient to climate change, decarbonising society and developing a circular economy for the benefit of both the built and natural environments and to contribute to the achievement of the well-being goals. The national sustainable placemaking outcomes which lead from this principle include making the best use of resources and the prevention of waste.

Peat Resource

Peat is a body of sedimentary material, usually dark brown or black in colour, comprising the partially decomposed remains of plants and organic matter that is preserved in anaerobic conditions within an essentially waterlogged environment.

There are two principal types of peat:

1. The upper (acrotelm) layer which is quite fibrous and contains plant roots etc. Acrotelmic peat in good condition, is wet. This is the part of the peat profile that may dry out during the summer or times of drought. Water moves relatively quickly through acrotelmic peat.

2. The lower (catotelm) layers are highly amorphous, with very high water content and tend to have very low tensile strength. Water moves relatively slowly through catotelm layers. The structure of catotelmic peat tends to disrupt completely on excavation and handling.

Peatlands hold large stocks of carbon. When peat is left undisturbed the carbon is protected. Problems only arise when the peat body is drained, burnt or over-grazed. The excavation of peat will result in large carbon losses from the excavated peat and also the areas affected by drainage. Minimising peat excavation will reduce these potential carbon losses and consequently reduce the carbon payback period associated with developments on peat.

8

The layer on the National Park Authority's website can be found here:
Pembrokeshire Coast National Park Authority: (arcgis.com)
This layer should be used with some caution as there still may be areas of deep peat that are not shown and areas that are shown as deep peat that may not be. As a precautionary approach, where deep peat is suspected a peat survey should be undertaken.

Excavated peat will be classified as waste if it is discarded or the holder intends to or is required to discard it. Unless the waste peat is certain to be used for construction purposes in its natural state on the site from where it is excavated, it will be subject to Natural Resources Wales (NRW) regulatory controls.

The recommended management options for developments on peat are based on the the waste hierarchy:

Prevention

The best management option for peat on a development site is to design the development so that it is left in situ wherever possible.

This can be done through the use of forward planning, comprehensive on-site investigations and the use of Peat Management Plans or Natural resource management plans and assessment of alternative construction methods e.g. piling. The early consideration of these techniques will allow developers to prevent/minimise the excavation of peat and the production of waste peat.

On-site use

If the excavation of peat cannot be avoided, developers should prioritise the use of excavated peat on-site in the first instanceby exploring restoration opportunities -catotelmic peat is very good for use in peat dams, contour bunds etc, whereas acrotelmic peat is not. These activities should minimise carbon loss and maximise ecological benefit.

Off-site options: Uses of peat & recycling/recovery/treatment

After on-site uses have been exhausted, excavated waste peat may be suitable for use off-site within the local area. This should be identified in the peat management plan, including estimated volumes for each use, destination, final intended outcome and justification of suitability of the peat material and the need for the specified quantities of peat material.

Storage

Highly organic materials such as peat can have a devastating impact on watercourses if they wash off from storage areas. It is also important to use the peat as soon as possible after excavation (to minimise the exposure of the peat to the air) and to maintain moisture conditions in the peat to keep carbon losses to a minimum.

Disposal

Disposal of peat, particularly catotelmic peat, can lead to a number of issues due to its very low tensile strength and high water content e.g.

- It is likely to have a very low load bearing capacity, making it a hazard to people or animals walking on it if not used correctly. There are examples of peat dams and low contour bunds having been constructed from catotelmic peat. Livestock use these dams and bunds to move around on however, they are no more than 30cm high.
- Slides or movement are highly likely and can be caused by heavy rainfall but only if used incorrectly and not re-profiled to allow vegetation colonisation.
- Potential for contaminated run-off again if used incorrectly.

Peat arising and requiring management as a waste within a development will require characterisation and consideration of its condition upon excavation.

The propensity of the waste peat to flow will be a key characteristic in determining whether it can be landfilled i.e. if it is classified as a liquid it cannot be landfilled without some form of pre-treatment.