



Llandyfaelog Substation Habitats and Designated Sites Report

On behalf of **National Grid**
nationalgrid





Habitats and Designated Sites Report

Llandyfaelog

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Prepared by:
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Habitats and Designated Sites Report

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Prepared by:



Signature

Will Coles

Printed Name

Reviewed by:

Signature

Hayley Scoffham

Printed Name

Approved by:

Signature

Lucy Bankhead

Printed Name



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Executive Summary

Stantec UK Ltd. was commissioned by National Grid Electricity Transmission to assess habitats and designated sites within the Zone of Influence of proposed Llandyfaelog substation site in Carmarthenshire. The purpose of the report is to inform the Ecological Impact Assessment for the development. The assessment aimed to identify designated sites, Habitats of Principal Importance (HPIs), ancient woodland, invasive non-native species (INNS), and notable or protected plant species, as well as to classify and evaluate the condition of habitats within the survey area.

A desk study was undertaken using data from the West Wales Biodiversity Information Centre (WWBIC), Magic Maps, DataMapWales, and other online resources. The search radius varied depending on the ecological feature, ranging from the survey area for Priority Ecological Networks¹ to 10 km for internationally designated sites.

Field surveys were conducted in May and June 2025 using the UK Habitat Classification (UKHab) methodology (version 2.0). Habitats were mapped using GIS and assessed for ecological condition based on Defra's 2024 criteria. The presence of indicator plant species were recorded using the DAFOR scale. Limitations included seasonal visibility of some species and recent cutting of vegetation in certain fields, although these weren't deemed significant limitations to the assessment.

The desk study identified four internationally designated sites and two nationally designated sites within the search area. Of these, Carmarthen Bay and Estuaries SAC, River Tywi SAC, and Afon Tywi SSSI are considered potentially sensitive to indirect impacts from the proposed development due to hydrological connectivity. Ancient semi-natural woodland and purple moor grass and rush pastures were identified within the Site and are at risk of direct impacts. The desk study also identified five INNS, one protected plant species (bluebell, *Hyacinthoides non-scripta*), and one notable plant species (northern yellow-cress, *Rorippa islandica*) within 2 km of the survey area.

Field surveys recorded a diverse range of habitats, including modified grassland, neutral grassland, purple moor grass and rush pastures, lowland mixed deciduous woodland, wet woodland, scrub, hedgerows, and ditches. Of these, purple moor grass and rush pastures, lowland mixed deciduous woodland, and native hedgerows meet the criteria for HPIs. Habitat condition varied from poor to good. Japanese rose *Rosa rugosa*, an INNS, was recorded within the survey area.

The proposed development has the potential to affect designated sites and HPIs through both direct and indirect impacts. Mitigation and precautionary measures should be considered to safeguard these ecological features and ensure compliance with relevant legislation, including the Environment (Wales) Act 2016 and the Conservation of Habitats and Species Regulations 2017 (as amended).

¹ Priority Ecological Networks (PENs) in the terrestrial environment are versions of the all-Wales habitat networks that show areas of connectivity between Protected Sites, and as such provide a framework to inform the location of action to build functional resilient ecological networks based on our most important places for biodiversity.



1 Introduction

1.1 Overview

- 1.1.1 Stantec UK Ltd. was instructed by National Grid Electrical Transmission to undertake a UK Habitat Classification (UKHab) survey of land at Llandyfaelog, Carmarthenshire (Ordnance Survey grid reference SN 419 132) (hereafter referred to as 'the Site').
- 1.1.2 The purpose of this report is to inform an Ecological Impact Assessment of proposals to construct a new substation and associated infrastructure.

1.2 The Site and Survey Area

- 1.2.1 The Site for the proposed Llandyfaelog substation comprises agricultural grassland fields bound by hedgerows with an area of ancient woodland to the south of the Site.
- 1.2.2 The Survey Area for the field surveys encompassed the Site, as well as the wider area assessed to inform the Environmental Impact Assessment Screening (Stantec 2025). In addition to agricultural grassland field the Survey Area comprises marshy ground to the west and an area of immature plantation forestry in the south-west. The Survey Area is bordered to the north by the C2074, to the west by the A484, the Crugan Fawr Road and farm tracks to the south, and by open countryside to the east. A tributary of the Gwendraeth Fach runs through woodland along part of the eastern boundary and the headwaters of a stream (Nant Morlais) run from the centre of the Survey Area in the form of drainage ditches.
- 1.2.3 Appendix A, Figure 1 shows the boundaries of the Site and the Survey Area.

1.3 Proposed Development

- 1.3.1 The proposed development is comprised of the following principal elements:
- Construction of a single level platform (260 metres (m) by 640 m) on which an Air Insulated Substation (AIS) is sited measuring 155 m by 602 m.
 - Bellmouth access to the A484 with an operational access road to connect the platform to the A484.
 - Modification works to the existing 400kV Overhead Line (OHL) to connect the substation to the existing OHL involving the installation of two new towers (pylons) and one replacement tower (pylon) circa 18 m and 62 m.
 - Associated drainage, and hard and soft landscaping.

1.4 Legislation

- 1.4.1 Habitats and plant species receive protection under the following legislation:
- Conservation of Habitats and Species Regulations 2017 (as amended);
 - Wildlife and Countryside Act 1981 (as amended);
 - Environment (Wales) Act 2016; and
 - The Invasive Alien Species (Enforcement and Permitting) Order 2019.
- 1.4.2 Please see Appendix B for a summary of the protection habitats and plant species receives under this legislation.



Habitats and Designated Sites Report

1.5 Aims and Objectives

1.5.1 The aims and objectives of the Habitat and Designated Sites Report are to:

- undertake a desk study to identify sites designated for nature conservation, ancient woodland, Habitats of Principal Importance (HPIs), protected and notable plant species and invasive non-native plant species within the Zone of Influence (Zol);
- classify and map the habitats and indicator plant species within the Survey Area using UKHab; and
- assess the apparent ecological condition of the habitats.



2 Methods

2.1.1 This report has been produced with reference to BS 42020:2013 Biodiversity - Code of Practice for Planning, Guidelines for Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management (CIEEM), 2017a) and with CIEEM Report Writing Guidelines (CIEEM, 2017b).

2.2 Desk Study

- 2.2.1 An ecological desk study was undertaken to obtain information relating to designated sites and habitats or habitat areas of conservation importance.
- 2.2.2 The Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) do not include prescriptions for desk study search areas; however, it is advised that study areas should be based on professional judgement and that 1-2 kilometres (km) from a proposed development site are usually of greatest relevance for most studies. Therefore, considering the extent and nature of the proposals for the Site, the potential value of a feature, and the mobility of species, the desk study search area encompassed the Site and surrounding buffer zones.
- 2.2.3 The desk study involved a search of online resources in July 2025 and West Wales Biodiversity Information Centre (WWBIC) were contacted in May 2025 for biological records within 2 km of the Survey Area. Records of plant species were filtered for records within the past 10 years.
- 2.2.4 A list of those accessed or consulted and search radius are shown in Table 2-1.

Table 2-1: Summary of Desk Study Information and Search Radius

Record Type	Search radius (km)	Source(s)
Internationally designated statutory sites (Special Areas of Conservation (SACs), Special Protection Area (SPAs) and Ramsar sites)	10	Multi-Agency Geographic Information for the Countryside (MAGIC) Citations: Natural Resources Wales Site Designations ² :
Nationally designated statutory sites (Site of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs))	2	
Local wildlife sites (Local Nature Reserves (LNRs) and Sites of Interest for Nature Conservation (SINCs))	2	WWBIC and Natural Resources Wales via DataMapWales (Local Nature Reserves) ³
Habitats of Principal Importance	2	WWBIC and DataMapWales ⁴
Ancient woodland	2	WWBIC and DataMapWales ⁵
Invasive non-native plants	2	WWBIC
Notable/ protected plants	2	WWBIC

² <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en>

³ https://datamap.gov.wales/maps/new?layer=inspire-nrw:NRW_LNR#/

⁴ https://datamap.gov.wales/maps/new?layergroup=geonode:nrw_terrestrial_sections_7_habitats#/

⁵ https://datamap.gov.wales/maps/new?layer=inspire-nrw:NRW_ANCIENT_WOODLAND_INVENTORY_2021#/



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Record Type	Search radius (km)	Source(s)
Priority Ecological Networks ⁶	The Survey Area only	DataMapWales ⁷

2.3 UK Habitat Classification and Condition Survey

2.3.1 A habitat survey was undertaken within the Survey Area on 19-21 May and 2-3 June 2025 by a FISC level 4 Ecologist.

2.3.2 The survey was undertaken in accordance with the UK Habitat Classification methodology version 2.0 (UKHab Ltd, 2023), which is a comprehensive approach to surveying and classifying habitats. The UK Habitat Classifications are recorded with primary codes provided in brackets after the main habitat type (for example, Lowland Mixed Deciduous Woodland [w1f]), followed by any number of secondary codes that provide further detail relating to the habitat composition / mosaic, origins and management (for example, Scattered Trees (32), Tall forbs (16) etc.).

2.3.3 During the survey, each habitat or habitat mosaic (as appropriate) within the survey area was classified in accordance with the UK Habitat Classifications, mapped using a mobile Geographic Information System (GIS) (below), and a description was recorded, including details of component plant species and abundances (assessed using the DAFOR scale⁸).

2.3.4 Geographic data was recorded using Coreo (Natural Apptitude) data collection application on a tablet (Samsung Tab Active Pro 4) with built-in Global Positioning System (GPS). Boundaries were pre-digitised using OS Mastermap and features visible on satellite imagery and edited in the field based on physical points of reference on the ground.

2.3.5 In addition, the ecological condition of each habitat mapped was assessed in accordance with habitat condition assessment criteria provided in Defra 2024, which considers a variety of qualitative and quantitative ecological features, including the extent of a habitat area, species composition and abundance, and signs of physical damage.

2.4 Limitations

2.4.1 A summary of the limitations of the method, and implications of these, are provided below. Where the implications have been assessed elsewhere in this report, reference to the relevant section of the report is provided.

Desk Study

2.4.2 The accuracy of data held by consultees varies due to the quality and scale that they were digitised to, the supporting information used to define locations/boundaries, and the sensitivity of the data itself.

2.4.3 In addition, the data held by consultees may not be exhaustive. The absence of records does not necessarily indicate the absence of a species/habitat from an area but rather that these have not been recorded or are perhaps under-recorded in the area. Therefore, when assessing the potential value of the area for notable species and habitats, the desk study data has been considered as evidence of potential presence only.

⁶ Priority Ecological Networks (PENs) in the terrestrial environment are versions of the all-Wales habitat networks that show areas of connectivity between Protected Sites, and as such provide a framework to inform the location of action to build functional resilient ecological networks based on our most important places for biodiversity.

⁷ https://datamap.gov.wales/maps/new?layergroup=geonode:nrw_priority_ecological_networks#/

⁸ D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare



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UKHab Survey

- 2.4.4 Unless otherwise stated the position of habitat recordings have been determined using the in-built positioning technology (GPS, GLONASS, BDS, GALILEO, QZSS) of the Samsung Tab Active Pro 4 with an accuracy of up to 4 metres when not in tree canopy, steep terrain or other enclosed environments.
- 2.4.5 The results of the field surveys are representative at the time of surveying and this is recognised in conclusions drawn.
- 2.4.6 This document does not contain a comprehensive list of botanical species on site, only evident plant species that are characteristic of each habitat, and incidental observations of notable plant species, were recorded. Many plant species are obviously evident only at certain times of the year.
- 2.4.7 Some fields had been cut recently. Because of this, many of the forb species were present only as rosettes or partial plants, and grasses were vegetative only. However, the margins of the fields were left uncut and there was sufficient regrowth to enable confident identification of all species encountered, and the survey is not considered compromised by this limitation. Additionally, some context could be gained from adjacent fields within the same ownership, which often had similar species assemblages due to being managed in the same way.



3 Results and Evaluation

3.1 Designated Sites Ancient Woodland and Habitats of Principal Importance

- 3.1.1 Designated sites ancient woodland and HPIs identified through the desk study including their distance and connectivity to the Survey Area, description and summary of potential impacts are described in Table 3-1.
- 3.1.2 A summary of the protection afforded to the sites and habitats by legislation and policies is provided at Appendix B.

Table 3-1 Designated Sites and Habitats of Importance

Site name	Distance and Connectivity to the Survey Area	Description	Potential Impacts
Internationally Designated Statutory Sites			
Carmarthen Bay and Estuaries Special Area of Conservation (SAC)	1.4 km west and ecologically connected via ditches and watercourses.	Annex I habitats that are a primary reason for selection of this site are: 1110 Sandbanks which are slightly covered by sea water all the time, 1130 Estuaries, 1140 Mudflats and sandflats not covered by seawater at low tide, 1160 Large shallow inlets and bays, 1310 Salicornia and other annuals colonizing mud and sand and 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>). Annex II species that are a primary reason for selection of this site are: twaite shad <i>Alosa fallax</i>. Annex II species present as a qualifying feature, but not a primary reason for site selection are: sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i> and otter <i>Lutra lutra</i>.	Yes - due to the hydrological connectivity to this SAC there is potential for the proposed development to impact its designating features through indirect pollution via surface run-off from the Site.
River Tywi SAC	4.3 km north, located upstream of hydrological connections to Survey Area	Annex II species that are a primary reason for selection of this site: twaite shad, otter. The Afon Tywi is one of the best rivers in Wales for otters. Annex II species present as a qualifying feature, but not a primary reason for site selection: sea lamprey, brook lamprey <i>Lampetra planeri</i>, river lamprey, allis shad and bullhead <i>Cottus gobio</i>.	Yes - due to the hydrological connectivity to this SAC there is potential for the proposed development to impact its designating features through indirect pollution via surface run-off from the Site.
Carmarthen Bay Dunes SAC	8.6 south-west	Annex I habitats that are a primary reason for selection of this site are: 2110 Embryonic shifting dunes, 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")", 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")", 2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i>	No - given the distance of this SAC from the Site and the lack of impact pathways no impacts are anticipated.



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Site name	Distance and Connectivity to the Survey Area	Description	Potential Impacts
		(Salicion arenariae) and 2190 Humid dune slacks. Annex II species that are a primary reason for selection of this site are: narrow-mouthed whorl snail <i>Vertigo angustior</i> , petalwort <i>Petalophyllum ralfsii</i> and fen orchid <i>Liparis loeselii</i> .	
Carmarthen Bay Special Protection Area (SPA)	9.5 km south-west	Designated for its wintering population of common scoter <i>Melanitta nigra</i> . Classified in June 2003, the SPA was recognised as the UK's first fully marine SPA. Carmarthen Bay regularly supports around 1.1 % of the biogeographic population of common scoter, making it one of the most significant wintering sites for this species in Britain and Ireland.	No - given the distance of this SPA from the Site and the lack of impact pathways no impacts are anticipated.
Nationally Designated Statutory Sites			
Coed Gwempa Site of Special Scientific Interest (SSSI)	0.8 km south-east	A 19-hectare semi-natural woodland, notable for its diverse woodland types and rich ground flora. The site includes oak <i>Quercus robur</i> -bracken <i>Pteridium aquilinum</i> woodland on poorer soils, ash <i>Fraxinus excelsior</i> -rowan <i>Sorbus aucuparia</i> woodland on slightly drier ground, and alder <i>Alnus glutinosa</i> woodland in waterlogged areas. A well-developed shrub layer features hazel coppice <i>Corylus avellana</i> , hawthorn <i>Crataegus monogyna</i> , elder <i>Sambucus nigra</i> , and willows <i>Salix</i> spp.. The ground flora is dominated by common woodland species, with wetter areas supporting plants like opposite-leaved golden saxifrage <i>Chrysosplenium oppositifolium</i> , moschatel <i>Adoxa moschatellina</i> , sanicle <i>Sanicula europaea</i> , and the locally scarce rough horsetail <i>Equisetum hyemale</i> . In more open parts of the site, varied vegetation includes species typical of grassland, marsh, and mire, along with notable fauna such as the red-tipped clearwing moth <i>Synanthedon formicaeformis</i> at its only known Welsh site, and a strong population of dark bush-crickets <i>Pholidoptera griseoaptera</i> .	No - given the distance of this SSSI from the Site and the lack of impact pathways no impacts are anticipated.
Afon Tywi SSSI	1.4 km west and ecologically connected via ditches and watercourses	Designated for its diverse and dynamic riverine habitats. Extending from Llandovery to the Afon Taf confluence, it supports a mosaic of aquatic and marginal flora, saltmarsh communities, and unvegetated shingle banks important for invertebrates and breeding birds. The river is of national significance for otter <i>Lutra lutra</i> , twaite shad <i>Alosa fallax</i> , allis shad <i>Alosa alosa</i> , sea trout <i>Salmo trutta</i> , Atlantic salmon <i>Salmo salar</i> , lampreys, and the freshwater pearl mussel <i>Margaritifera margaritifera</i> . Breeding bird populations include little ringed plover <i>Charadrius dubius</i> , kingfisher <i>Alcedo atthis</i> , sand martin <i>Riparia riparia</i> , and common sandpiper <i>Actitis hypoleucos</i> , with overwintering estuarine birds using the tidal	Yes- due to the hydrological connectivity to this SSSI there is potential for the proposed development to impact its designating features through indirect pollution via surface run-off from the Site.



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Site name	Distance and Connectivity to the Survey Area	Description	Potential Impacts
		reaches. The invertebrate fauna includes nationally scarce species, particularly associated with the extensive shingle banks.	
Locally Designated Sites			
None within search parameters			
Ancient Woodland and Habitats of Principal Importance			
Ancient Semi-Natural Woodland	Located within the Survey Area	32 Ancient Semi-Natural Woodland sites within 2km of the Survey Area, including one within the Survey Area.	Yes – one ancient woodland site is located within the Site.
Restored Ancient Woodland Site	0.1	21 Restored Ancient Woodland Sites within 2km of the Survey Area.	No – located outside the Zol of the proposed development.
Plantation on Ancient Woodland Site	1.5	2 Plantation on Ancient Woodland Sites within 2km of the Survey Area.	No – located outside the Zol of the proposed development.
Purple moor grass and rush pastures	Located within the Survey Area	Twenty areas of purple moor grass and rush pasture with 2 km of the Survey Area, including two within the Survey Area and further parcels immediately adjacent.	Yes – located within the Survey Area.
Coastal Saltmarsh	1.4	River Towy estuary	No – located outside the Zol of the proposed development.

- 3.1.3 Invasive and non-native plant species (INNS) and notable or protected plant species recorded within 2 km of the Survey Area are listed in Table 3-2 below.

Table 3-2 INNS, notable and protected plant species recorded within 2 km of the Survey Area

Species	Location	Conservation Status
Entire-leaved cotoneaster <i>Cotoneaster integrifolius</i>	0.9 km west	INNS - Schedule 9 WCA 1981
Himalayan balsam <i>Impatiens glandulifera</i>	1 km west	INNS - Schedule 9 WCA 1981
Japanese knotweed <i>Fallopia japonica</i>	1.3 km south	INNS - Schedule 9 WCA 1981
Japanese rose <i>Rosa rugosa</i>	0.4 km south	INNS - Schedule 9 WCA 1981
Rhododendron <i>Rhododendron ponticum</i>	1 km west	INNS- Schedule 9 WCA 1981
Bluebell <i>Hyacinthoides non-scripta</i>	1 km west	Protected - Schedule 8 (trade only) WCA 1981
Northern yellow-cress <i>Rorippa islandica</i>	0.9 km west within gardens of Upland Mansion	Notable - Red List least concern



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3.2 UKHab Classification and Condition Survey

- 3.2.1 The habitat types (provided with their primary and secondary UK Habitat Classification codes) outlined in Table 3-3 were recorded during the field survey of the Survey Area. The distribution of these habitats is shown on Figure 2.
- 3.2.2 Of the habitats recorded the following are classified as HPis: purple moor-grass and rush pastures, lowland mixed deciduous woodland and native hedgerows.
- 3.2.3 Descriptions of the habitats, along with the results of the habitat condition assessment, are provided in Table 3-3. The habitat condition assessment criteria and scores are provided at Appendix C. Species lists and DAFOR information is presented in Appendix D. Photographs of the habitats are provided in Appendix E.

Commented [ES1]: Should this focus on the RLB rather than the Survey area? Will there be any negative impacts of reporting the Survey area here?

Commented [ES2R1]: Hannah please can you advise?

Commented [HM3R1]: The EclA outlines that the associated reports often include a wider survey area, although only results for the Site have been included in the EclA.

Table 3-3: Results of the UK Habitat Classification Survey

Habitat	Parcel Reference	Habitat Area/ Length	Habitat Condition	HPI	Description
Other neutral grassland [g3c]	31, 40, 47, 88, 92, 95, 96	9.10 ha	Poor	No	Most of these fields were relatively rich in grass species but lacked forb diversity or coverage. Perennial rye-grass <i>Lolium perenne</i> and white clover <i>Trifolium repens</i> were present in some parcels, but low in abundance. Fields 31 and 40 were grazed by sheep, 47 was a small area of land cut for hay, 88-95 were grazed by horses and it assumed that 96 was either grazed or cut in late summer. All of these fields lacked structural diversity due to relatively intensive management. The main reasons for achieving 'poor' condition were lack of species diversity and a lack of forb coverage, meaning that they could not be described as a 'good representation of the habitat type', which requires either >8 species per square metre or >20% coverage of forbs and sedges to meet definition criteria (Appendix E, Photograph 1).
	80, 81, 83, 87, 91	11.00 ha	Moderate	No	A large area of the Survey Area was hay fields, including fields 80-87 with a semi-natural species assemblage, which was similar across the survey area despite varied ownership/management responsibility. The dominant grass across most of the Survey Area was sweet vernal grass <i>Anthoxanthum odoratum</i> , but grass diversity was relatively high and meant that these fields were able to meet criterion A despite a lack of forb density or diversity. The sward was uniform due to the hay-cut management (Appendix E, Photograph 2). Field 91 was a horse-grazed grassland on a steep slope. Here, forb coverage was higher than most of the grasslands on the Survey Area, but diversity was still below 10 species per square metre. There was a slight tendency towards acid tolerant species, including tormentil <i>Potentilla erecta</i> .
Other neutral grassland with scattered scrub [g3c] (10)	61	0.04 ha	Poor	No	Area 61 was a narrow strip of grassland along the farm track leading to Crugan Fach. It was grass dominated, with few forbs, and around 5-6% coverage of blackthorn <i>Prunus spinosa</i> , which was suckering from the adjacent hedge.



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Habitat	Parcel Reference	Habitat Area/ Length	Habitat Condition	HPI	Description
Other neutral grassland with scattered rushes [g3c] (14)	5, 9, 98	5.94 ha	Poor	No	These were areas of other neutral grassland where there was some influence from a high water table, resulting in the presence of rushes within the sward. However, due to management, these were relatively sparse or in clumps and did not form the majority of the sward as within nearby purple moor-grass and rush pastures. As with other areas of other neutral grassland, these fields were species-poor and particularly poor in forb species.
	66	3.01 ha	Moderate	No	Field 66 was cattle-grazed with scattered soft rush. Lesser spearwort <i>Ranunculus flammula</i> was present, suggesting that this field has at one point been purple moor-grass and rush pasture. Species diversity was around 8 per square meter, but forb coverage was below 10% (Appendix E, Photograph 3).
Modified grassland [g4]	7, 10, 14, 15, 19, 25, 27, 28, 29, 35, 36, 38, 48, 50, 53, 55, 56, 62, 63, 65, 69, 70, 72, 76, 78, 79, 82, 84, 85, 93	45.00 ha	Poor	No	Modified grassland fields formed a large area of the Survey Area. The majority of these were either cut for hay/silage or grazed by cattle. All areas with poor condition failed the species diversity criterion of the condition assessment, despite some passing most other condition criteria. There was no evidence of invasive or non-native species, overgrazing or excessive stocking levels causing poaching. The dominant grasses were perennial rye-grass and rough meadow-grass <i>Poa trivialis</i> . Forb diversity was very low, limited to white clover, dandelion <i>Taraxacum officinale</i> agg., docks <i>Rumex</i> spp., creeping buttercup <i>Ranunculus repens</i> and creeping thistle <i>Cirsium arvense</i> in many fields (Appendix E, Photograph 4). Field 7 was almost exclusively Italian rye <i>Lolium multiflorum</i> , so may be an arable ley.
	68, 94	5.54 ha	Good	No	Areas 68 and 94 both met the description of modified grassland, having a large amount of perennial rye and white clover in their sward. However, species-diversity was significantly higher, particularly grasses. Although forb cover was higher, diversity was limited, and creeping buttercup was prevalent.
Modified grassland with scattered scrub [g4] (10)	64	0.06 ha	Poor	No	Area 64 was a short track, sandwiched between two areas of woodland (potentially cut as a break for the overhead lines). The area was lightly managed and was starting to scrub over from the adjacent woodland (Appendix E, Photograph 5).
Modified grassland with scattered rushes [g4] (14)	20, 43, 44, 46, 54, 58, 89	11.32 ha	Poor	No	Some wetter areas of grassland. These areas were similar to those described above but had scattered soft rush in the sward. The majority had been cut shortly before the survey, but a species-list was compiled from what was visible after the cut and around the margins of the fields.
Purple moor-grass and rush pastures [f2b]	13	1.72 ha	Poor	Yes	This area was situated on a slope, meaning that the water table was close to the surface in the south, but the ground was largely dry in the north. There was some bramble <i>Rubus fruticosus</i> agg. in the sward, but it was not as prevalent as in area 22 (see below). Rushes were dominant, particularly soft rush <i>Juncus effusus</i> . The density of rushes and extensive management has resulted in a build-



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Habitat	Parcel Reference	Habitat Area/Length	Habitat Condition	HPI	Description
					up of thatch that has precluded other species, including other indicators of purple moor-grass and rush pasture, particularly wetland forbs.
	24, 52	3.19 ha	Moderate	Yes	Area 24 was a large area of purple moor-grass and rush pasture that is slightly degraded due to build up of dense rush tussocks and thatch. Although some indicator species were present, including lesser spearwort, yellow iris <i>Iris pseudacorus</i> and marsh bedstraw <i>Galium palustre</i> , forb coverage was low (Appendix E, Photograph 6). Area 52 is an area of purple moor-grass and rush pasture that is degraded to the point that it could be considered 'other neutral grassland'. In many areas of the field, the rushes are sparse, and grasses are dominant. Coverage of species indicative of sub-optimal condition are prevalent, notably creeping buttercup and white clover.
	2, 13, 17, 34, 41, 45, 59, 100	1.64 ha	Good	Yes	These areas of purple moor-grass and rush pasture had regular indicator species in almost all quadrats. Species present indicated a regular, high-water table and rushes were dominant but spread out enough and even, so that other species were able to grow in the sward (Appendix E, Photograph 7). Some areas, particularly areas 45 and 100 were rich in sedges. Common indicators included lesser spearwort, whorled caraway <i>Carum verticillatum</i> and ragged robin <i>Silene flos-cuculi</i> . Area 2 had small numbers of devil's-bit scabious <i>Succisa pratensis</i> , meaning that it is potentially suitable habitat for marsh fritillary butterflies <i>Euphydryas aurinia</i> .
Purple moor-grass and rush pastures with scattered scrub [f2b] (10)	22	1.26 ha	Poor	Yes	This was an area of purple moor-grass and rush pasture on a slope down to the south-east. The northern, drier extent of the field was being colonised by bramble scrub. Areas of rush were dense to the point that other species were crowded from the sward. These tussocks of rush were interspersed with 'clearings' of shorter, rabbit <i>Oryctolagus cuniculus</i> and cattle-grazed grass, where species-diversity was higher. In the wetter south-east, cattle had caused significant poaching in some small areas (Appendix E, Photograph 8).
	33	0.95 ha	Moderate	Yes	This field was lower-lying than the field to the west and therefore had a larger diversity and coverage of indicator species. However, the majority of these were found in the east of the field. Furthermore, bramble was beginning to colonise into the field and covered approximately 15% of the field.
	37	1.69 ha	Good	Yes	This field was more indicative of purple moor-grass and rush pasture than the fields to the north and west, with relatively high forb coverage and plenty of species adapted to a high water table. However, there was significant bramble coverage (around 15%) (Appendix E, Photograph 9).
Wet woodland (plantation) [w1d] (29)	3, 4, 11	2.34 ha	Poor	No	These three areas formed one contiguous area of plantation woodland on wet ground. The dominant species was alder, although other species were present along rides and the fringes of the woodland (Appendix E, Photograph 10). A lack of veteran trees, deadwood, age diversity, structure and recognisable National Vegetation Classification (NVC) community meant that the woodland is considered to be in poor ecological condition.



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Habitat	Parcel Reference	Habitat Area/Length	Habitat Condition	HPI	Description
Lowland mixed deciduous woodland [w1f]	90, 97	1.31 ha	Moderate	Yes	Woodlands forming the eastern boundary of the survey area. These woodlands are mature, with a well-developed scrub layer and ground flora. However, there were no veteran trees, and dieback <i>Hymenoscyphus fraxineus</i> was present in ash trees. There were some gaps in the fencing, allowing sheep to pass into the woodland, but browsing damage was not widespread.
	42, 60, 77	0.39 ha	Good	Yes	Area 42 was a small area of woodland surrounded by willow scrub. It was not possible to access the woodland due to dense vegetation on its edge. Willow was prevalent, although here was mixed with hazel. Areas 60 and 77 were parts of an ancient ash/oak woodland, with a mature canopy, understorey, shrub layer and ground flora. Forbs along the edge of the woodland were indicative of wetter ground. The woodland ground flora contained ancient woodland indicators, including wood anemone <i>Anemone nemorosa</i> , yellow archangel <i>Lamium galeobdolon</i> , and bluebell. Area 77 is listed as an Ancient Woodland Site (Appendix E, Photograph 11).
Mixed scrub [h3h]	99	0.06 ha	Poor	No	A small area of mixed scrub just outside the survey area. The block of scrub was dense and had a single mature ash, which had severe signs of dieback.
	6, 16, 21, 30, 71	0.63 ha	Moderate	No	Areas 6-71 formed the boundary between plantation woodland and purple moor-grass and rush pasture to the north, and grasslands to the south. They follow the route of a watercourse, which held a small amount of water at the time of survey. The scrub may be a historic hedgerow that has been allowed to spread (Appendix E, Photograph 12). Area 71 was a small area of scrub on a steep incline/cliff surrounding a small quarry area, adjacent to a farm access track.
	12, 26, 32	1.91 ha	Good	No	This scrub formed spreading field boundaries between purple moor-grass and rush pasture parcels. In places it formed a dense barrier, in others, glades formed and there was evidence that livestock used the scrub for shelter (Appendix E, Photograph 13).
Willow scrub [h3j]	39	0.70 ha	Poor	No	An area of single-species, mature willow scrub/woodland on the edge of an area of mixed woodland.
Cropland [c]	49, 51	3.49 ha	N/A	No	Areas of arable cultivated ground, growing maize <i>Zea mays</i> in 2025.
Artificial unvegetated - unsealed surface [u1c]	18, 23, 57, 67, 69, 75, 86	0.26 ha	N/A	No	Areas of bare ground, mostly farm tracks.
Line of trees [w] (33)	H37	0.11 km	Moderate	No	Line of mature ash, oak and sycamore forming the boundary of an arable field (Appendix E, Photograph 14).
	H65	0.17 km	Moderate	Yes	Hawthorn hedge along the edge of the farm access track. It was relatively young, not associated with a bank, and had some vertical gaps where sheep had browsed the lower branches.



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Habitat	Parcel Reference	Habitat Area/Length	Habitat Condition	HPI	Description
Other native hedgerow [h2a6]	H4, H6, H15, H18, H19, H33, H35, H42, H47, H49, H56, H59, H64, H66, H67, H68, H71, H73, H74, H80, H82, H83, H85, H86, H88, H90, H92, H93, H95	3.82 km	Good	Yes	Species-poor hedgerows that were dominated by blackthorn and hawthorn. Most hedgerows were well maintained, bushy and wide with few to no gaps. Most hedgerows were around 2m tall. H15 was defunct with a large (>40m) gap in its centre. Almost all hedgerows were planted on or adjacent to a bank (Appendix E, Photograph 15).
Other native hedgerow associated with a ditch [h2a6] (50)	H32, H51	0.15 km	Good	Yes	H32 was a roadside hedgerow with ditch and bank between it and the road. It had some gaps at its base but passed all other condition criteria. To the south of the hedge was a 1m band of grassland and tall forb vegetation that was left uncut. The ditch had been dredged recently and did not have any vegetation (Appendix E, Photograph 16). H51 was not associated with a bank, but the ditch was deep and had a small amount of running water. The ditch was heavily vegetated with a mix of great willowherb <i>Epilobium hirsutum</i> , dock, grasses <i>Poaceae</i> , hogweed <i>Heracleum sphondylium</i> , and ferns <i>Pteridophyta</i> .
Other native hedgerow with trees [h2a6] (11)	H5, H94	0.17 km	Moderate	Yes	H94 was a narrow hedge immediately adjacent to a row of trees on a bank. It is likely that these were part of the same feature, but a gap has formed where livestock have pushed through for shelter. It failed both elements of criterion A of the condition assessment because the hedge was less than 1.5m wide and tall (Appendix E, Photograph 17). H5 failed both elements of criterion B of the condition assessment due to canopy and base gaps. The ground flora was also dominated by nettle.
Species-rich native hedgerow [h2a6]	H16	0.09 km	Moderate	Yes	This hedgerow failed both elements of criterion B due to gaps in the canopy and at the base of the hedge. It ran along the eastern edge of a track leading to fields to the south, forming a green lane.
	H1, H12, H17, H20, H21, H23, H24, H25, H26, H27, H30, H36, H38, H38, H39, H40, H41, H44, H46, H48, H50, H53, H54, H55, H58, H60, H61, H62, H63, H69, H72, H75, H76, H77, H78, H81,	6.44 km	Good	Yes	A large proportion of the hedgerows on the Survey Area were species-rich and in good condition, with few gaps, measuring between 1.5 and 3m in height and width, mostly associated with a bank, and generally free of damage, nutrient enrichment and disturbed ground. No invasive non-native species were recorded (Appendix E, Photograph 18). H39 had a single occurrence of Japanese rose, which is an INNS listed on Schedule 9 of the Wildlife & Countryside Act (1981).



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Habitat	Parcel Reference	Habitat Area/Length	Habitat Condition	HPI	Description
	H91, H96, H98, H99				
Species-rich native hedgerow associated with a ditch [h2a6] (50)	H11, H97	0.26 km	Moderate	Yes	H11 was a roadside ditch similar to H32 but with a higher species-diversity. H97 was a short length of defunct hedgerow sitting above a wet ditch. The ditch was shallow and poached due to livestock, but contained wetland plants, suggesting it is wet at most times.
Species-rich native hedgerow with trees [h2a6] (11)	H2, H3, H13, H14, H31, H43, H89	0.83 km	Moderate	Yes	As hedgerows without trees but with mature or semi-mature standard trees. Where trees were present, in most hedgerows they formed a continuous canopy over the hedgerow. However, some hedgerows had less evenly spaced trees, with some large gaps between clumps of trees (Appendix E, Photograph 19). The presence of ash dieback and the lack of age diversity in standards (criteria E1 and E2) was a common reason for failing to achieve 'good' condition.
	H7, H8, H9, H10, H22, H28, H29, H52, H70, H79, H84	1.1 km	Good	Yes	As above, but many of these hedgerows lacked ash trees, or the ash trees were healthy and therefore did not fail criterion E2 (Appendix E, Photograph 20).
Species-rich native hedgerow with trees associated with a ditch [h2a6] (11, 50)	H45, H57	0.42 km	Moderate	Yes	Both hedgerows were as above but associated with a dry ditch. They both failed to pass either of criterion E of the condition assessment.
	H87	0.18 km	Good	Yes	This hedgerow was a double hedgerow with a ditch in the centre. The ditch was not visible and could not be assessed. The ash trees along this hedgerow were not affected by dieback, and there were semi-mature and mature trees present (Appendix E, Photograph 21).
Ditch [r] (50)	H34	0.09 km	Poor	No	Ditch not associated with any hedgerows for part of its length but forming the boundary between two modified grassland fields (43 and 44). As it flows south-west, it flows along the edge of a band of scrub and under the A484 west of the survey area. The ditch was dominated by a small number of species, although diversity was higher than the adjacent fields. No water was visible during the survey, although the vegetation was dense and there may have been a small amount of water, particularly towards the ditch's western extent (Appendix E, Photograph 22).



4 Summary and Conclusion

- 4.1.1 The desk study identified four internationally designated sites, two nationally designated sites, ancient woodland and the HPIs purple moor grass and rush pasture and coastal saltmarsh within the search area. Of these sites and habitats, the proposed development has the potential to impact the following:
- Carmarthen Bay and Estuaries SAC, River Tywi SAC and Afon Tywi SSSI - due to the hydrological connectivity to this SAC there is potential for the proposed development to impact its designating features through indirect pollution via surface run-off from the Site.
 - Ancient semi-natural woodland and purple moor grass and rush pastures – located within the Site.
- 4.1.2 A range of habitats were recorded within the Survey Area during the field survey, of the habitats recorded the following are classified as HPIs: purple moor-grass and rush pastures, lowland mixed deciduous woodland and native hedgerows.
- 4.1.3 The desk study identified five INNS, one protected plant and one notable plant within the search area. The closest INNS was Japanese rose located 0.4 km south of the Survey Area, this species was also identified within the Survey Area within a hedgerow. Bluebell was identified within the desk study and within the Survey Area, although this species is protected it is only protected from sale. The notable plant species northern yellow-cress was identified 0.9 km west of the Survey Area within gardens, although was not recorded within the Survey Area.



5 References

Botanical Society for the British Isles (2024) BSBI 2024 List. Available at: https://bsbi.org/taxon-lists?_gl=1*88tkc2*_ga*MTI2Njk0NTY4MC4xNzE0NzU1MjU5*_ga_8X6K0G85NT*MTcxNjQ5Njg0My4yLjEuMTcxNjQ5Njg3Ny4yNi4wLjA [accessed on the 03 July 2025].

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UKHab Ltd (2023). UK Habitat Classification Version 2.0. Available at: <https://www.ukhab.org>. [Accessed on: 03 July 2025]

Web addresses for access to full legislation and policy text:

Birds Directive: http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019: <https://www.legislation.gov.uk/uksi/2019/579/contents/made>

Countryside and Rights of Way Act 2000: <http://www.legislation.gov.uk/ukpga/2000/37/contents>

Habitats Directive: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

Hedgerow Regulations 1997: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made>

Planning Policy Wales: <https://www.gov.wales/planning-policy-wales>

Environment (Wales) Act 2016: <https://www.legislation.gov.uk/anaw/2016/3/contents/enacted>

Wildlife and Countryside Act 1981: <http://www.legislation.gov.uk/ukpga/1981/69>



Appendix A Figures

Figure 1: Survey Area Location

Figure 2: UKHab Plan



Appendix B Relevant Legislation

B.1.1 A summary of the legislation relevant to the Site, and designated sites, habitats and species referred to in this report is provided in Table B 1 and Table B 2. Please note that this information is a summary and intended for general guidance only. The original legal documents should be consulted for definitive information. Web addresses providing access to the full text of these documents are given in the References Section.

Table B 1: Relevant Legislation protection afforded to designated sites

Designation	Description
Ramsar Sites	Ramsar Sites are wetlands of international importance designated under The Ramsar Convention. They are afforded the same level of protection as SSSIs under the Wildlife and Countryside Act 1981 (as amended). UK policy, however, affords the same level of protection to Ramsar Sites as SPAs/SACs in terms of the consideration of impacts on their integrity subject to Habitats Regulations Assessment.
Special Protection Areas (SPA)	SPAs are strictly protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), also known as the Birds Directive. They are classified for rare and vulnerable birds, listed in Annex I of the Birds Directive, and for regularly occurring migratory species. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (hereafter referred to as the Habitats Regulations) are the legal instrument for implementing the Birds Directive in the UK.
Special Areas of Conservation (SAC)	SACs are strictly protected areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed in Annexes I and II of the EC Habitats Directive. The Wildlife and Countryside Act 1981 (as amended) and Habitats Regulations are the legal instrument for implementing the Habitats Directive in the UK.
Sites of Special Scientific Interest (SSSI)	SSSIs are the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981 (as amended). Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000.
National Nature Reserves (NNR)	NNRs contain examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). Legal protection of NNRs is provided under The Wildlife and Countryside Act 1981 (as amended).
Local Nature Reserves (LNR)	Under the National Parks and Access to the Countryside Act 1949, LNRs may be declared for nature conservation by local authorities after consultation with the relevant statutory nature conservation agency. Legal protection of LNRs is provided under The Wildlife and Countryside Act 1981 (as amended).



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Table B 2 Relevant Legislation protection afforded to species and habitats

Legislation	Description
Environment (Wales) Act 2016	As part of Welsh Government's commitment to reversing the decline in biodiversity in Wales and increasing the resilience of its ecosystems, the Environment (Wales) Act introduces a new biodiversity duty, which highlights biodiversity as an essential component of ecosystem resilience. Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty. Section 7 replaces the duty in Section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales. In producing the list or taking any measures to improve the listed organisms and habitats, the Welsh Ministers must apply the principles of sustainable management of natural resources. Therefore, they must consider any appropriate evidence, for example as provided in the State of Natural Resources Report, and also engage with any relevant stakeholders, including pertinent public authorities. Certain public authorities will also be required to consider the section 7 list, in complying with the new biodiversity duty under section 6 of the Act. The list is important in assisting public bodies to identify potential issues that they may wish to address in meeting their well-being objectives, in addition to contributing to the well-being goal 'a resilient Wales' (Goal 2).
Habitats Regulations 2017	Under the Habitats Regulations, it is illegal to deliberately pick, collect, uproot or destroy any plants belonging to these species: Creeping marshwort <i>Apium repens</i>, early gentian <i>Gentianella anglica</i>, fen orchid <i>Liparis loeselii</i>, floating-leaved water-plantain <i>Luronium natans</i>, Killarney fern <i>Trichomanes speciosum</i>, lady's slipper <i>Cypripedium calceolus</i>, shore dock <i>Rumex rupestris</i>, slender naiad <i>Najas flexilis</i>, yellow marsh saxifrage <i>Saxifraga hirculus</i>.
The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO)	The IASO transposes the EU Invasive Alien Species (IAS) Regulation (1143/2014) into UK law. The IASO makes it an offence to plant or otherwise cause to grow in the wild any specimen which is of a species of plant which is included in Part 2 of Schedule 2.



Appendix C Habitat Condition Assessment – Results



Appendix D Species Lists



Appendix E Photographs



Photograph 1: Other neutral grassland



Photograph 2: Other neutral grassland



Photograph 3: Other neutral grassland with scattered rushes



Photograph 4: Modified grassland



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Photograph 5: Modified grassland with scattered scrub



Photograph 6: Purple moor-grass and rush pastures



Photograph 7: Purple moor-grass and rush pastures



Photograph 8: Purple moor-grass and rush pastures with scattered scrub, parcel reference 22.



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Photograph 9: Purple moor-grass and rush pastures with scattered scrub, parcel reference 37



Photograph 10: Wet woodland (plantation)



Photograph 11: Lowland mixed deciduous woodland



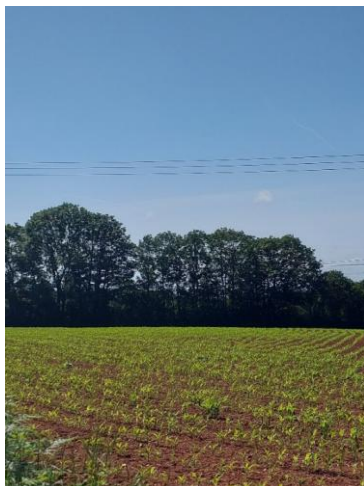
Photograph 12: Mixed scrub



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Photograph 13: Mixed scrub



Photograph 14: Line of trees parcel reference H37



Photograph 15: Other native hedgerow



Photograph 16: Other native hedgerow associated with a ditch parcel reference H32



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Photograph 17: Other native hedgerow with trees parcel reference H94



Photograph 18: Species-rich native hedgerow



Photograph 19: Species-rich native hedgerow with trees



Photograph 20: Species-rich native hedgerow with trees



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Photograph 21: Species-rich native hedgerow with trees associated with a ditch



Photograph 22: Field ditch parcel reference H34

