



Preliminary Environmental Information Report

Chapter 8B: Extended Phase 1 Habitat Survey

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Future Energy Llanwern Limited

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1.0 Extended Phase 1 Habitat Survey

1.1 Introduction

1.1.1 This Appendix presents the results of Extended Phase 1 Habitat Surveys (including hedgerow assessment under the 1997 Regulations) at Future Energy Llanwern in relation to an application for a Development Consent Order (DCO) for the installation of solar photovoltaic panels. The surveys were commissioned by Future Energy Llanwern Ltd.

1.1.2 The area within the PEIR assessment boundary is hereafter referred to as the 'Site'.

Aims

1.1.3 The aims of this report are to:

- Identify, evaluate and map the habitats and ecological features present within the Site
- Assess the potential for protected and notable species.

1.2 Methods

Desk Study

1.2.1 Mapping by Natural Resource Wales¹ of priority habitats (as defined under Section 7 of the Environment (Wales) Act 2016) was used to identify priority habitats that are within or in proximity to the Site.

1.2.2 A data search for existing ecological information from The South East Wales Biodiversity Records Centre (SEWBReC) was undertaken up to 2km from the Site for priority and protected species with a 10km search for bat species

Survey Methods

¹ https://datamap.gov.wales/layergroups/geonode:nrw_terrestrial_sections_7_habitats Accessed: 27.10.25

Extended Phase 1 Habitat Survey

- 1.2.3 A series of Site walkover surveys were undertaken in accordance with the Joint Nature Conservation Committee's Phase 1 Habitat Survey methodology (JNCC 2010) on the following dates:
- 14th, 23rd and 24th July, 14th and 15th August, and 23rd and 25th September 2019 by Louise Woolley MCIEEM and Kerri Watson BSc (Hons) MCIEEM BSBI FISC Level 4 when weather conditions were dry with good visibility.
 - An update walkover was conducted on the 17th, 18th, 25th and 26th July 2023 by Ken Neal BSc PhD and Hannah Spencer MZool FISC Level 3 when conditions were dry with good visibility.
 - A survey was conducted on 25th-26th November 2024 by Hannah Spencer MZool FISC Level 3 and Vicki Baldwin BSc MSc ACIEEM to assess new fields added with the expansion of the Site boundary and potential cable route.
 - Update surveys were undertaken on the 22nd, 23rd and 24th July 2025 by Philip Wilson BSc FISC Level 4, Hannah Spencer MZool FISC Level 3, Lana Schofield BSc (Hons) and Tom Howes BSc (Hons) when conditions were dry with good visibility.
- 1.2.4 All habitats within the Site were identified, described and mapped during the field survey, and a comprehensive (but not exhaustive) botanical species list compiled. Plant names follow Stace (2019). Target Notes (TNs) were used to record any features or habitats of ecological interest.
- 1.2.5 Where access allowed, adjacent habitats were also considered in order to assess possible impacts of the proposal in a wider context.
- 1.2.6 The survey was extended to highlight the potential presence of protected and notable species in accordance with CIEEM's Guidelines for Preliminary Ecological Appraisal (2017). This involved a search to identify the presence or potential presence of protected notable species such as breeding birds, bats, badger, dormouse, reptiles and amphibians. Target Notes (TNs) were used to record any features or habitats of ecological interest. Where access allowed, adjacent habitats

were also considered in order to assess possible impacts of the proposal in a wider context.

1.2.7 Reens/ ditches are a designation for the four SSSIs that the Site lies within. All reens were assessed during the 2023 site walkover surveys; this involved recording adjacent linear features, broad coverage of vegetation and surrounding features such as adjacent single or double hedgerows. An NVC survey of selected reens/ ditches was undertaken following the Extended Phase 1 Habitat survey, details are provided within **Appendix 8C**.

Botanical Survey

1.2.8 Grassland parcels that showed to have higher species diversity during the 2023 walkover surveys or were flagged as potentially important during the invertebrate surveys were chosen for botanical surveys. The botanical surveys comprised detailed sampling using 1m² quadrats, to collect detail on species and sward composition, the number of which was determined by the characteristics of each parcel. Where it became rapidly apparent that grasslands were clearly species poor improved grassland, three quadrats per parcel were sampled to evidence this. In parcels which were more diverse, six quadrats were sampled. Survey was undertaken on the 22nd, 23rd and 24th July 2025 by Philip Wilson BSc FISC Level 4 and Hannah Spencer MZool FISC Level 3 when conditions were dry with good visibility.

1.2.9 Estimated percentage cover of the below features were assessed based on a qualitative overall assessment of each parcel, along with data collected from quadrats:

- Ryegrass and white clover;
- Herbs, sedges and rushes;
- 'Undesirable species' (as defined within Defra, 2024a); and
- Bare ground.

1.2.10 Frequency of species was defined using the DAFOR methodology, adapted from that detailed within the Farm Environment Plan (Natural England, 2010):

- Dominant: Recorded to cover a majority of the ground in all quadrats and qualitatively assessed as dominating the sward;
- Abundant: Recorded in all quadrats, and qualitatively assessed as comprising a significant proportion of the sward;
- Frequent: Recorded in >50% of quadrats;
- Occasional: Recorded in 20-50% of quadrats; and
- Rare: Recorded in <20% of quadrats.

Limitations

- 1.2.11 Care has been taken to ensure that balanced advice is provided on the information available and collected during the study period (s), and within the resources available for the project. However, the possibility of important ecological features being missed due to survey timings, absence during surveys or the year of survey cannot be ruled out. In addition, the lack of evidence or records of notable species on Site does not preclude their presence from Site.
- 1.2.12 During the 2023 surveys, the following fields could not be accessed for assessment: F17 and F120, however these were surveyed during the 2025 update walkover survey.
- 1.2.13 During the PEA undertaken in November 2024, many fields were waterlogged and some roads and tracks were not permissible. Where possible, fields that were not accessible were surveyed using binoculars from the roadside or neighbouring fields however, in some cases this was not possible, leaving four fields unsurveyed, these fields were surveyed during the 2025 update walkover survey.

1.3 Results

Desk Study

- 1.3.1 The Site is mapped as Habitat of Principal Importance (HPI) coastal and floodplain grazing marsh within the Environment (Wales) Act Section 7 Terrestrial Habitats of

Principal Importance by Natural Resources Wales² shown in **Figure 8.2.1**.

- 1.3.2 Full details of records of notable plants and faunal species are provided within **Appendix 8A**.

Site Overview

- 1.3.3 The Site is located approximately 5km east of Newport on agricultural land between the villages of Redwick and Undy. The total area of Site is approximately 548 hectares.
- 1.3.4 The Site comprises a series of crop and pasture fields that are rotationally managed, bound by a network of freshwater reens/ ditches and hedgerows with occasional areas of self-sown woody scrub and reedbed. The grassland is comprised of improved grassland, semi-improved grassland, species poor semi-improved grassland and marshy grassland.

Habitat Descriptions

- 1.3.5 Detailed descriptions and photographs representative of each habitat recorded are provided in **Table 8B-1** below, including hedgerow and reen assessments. As many of the parcels within the Site are rotationally managed between crop, ley grass and pasture, a number of fields changed categorization between the surveys. Furthermore, many of the fields are bound by reens which are only seasonally wet and varies year-on-year on whether they are wet and holding water at the time of survey. The distribution of habitats is illustrated on **Figure 8.2.2**, hedgerow and reen reference numbers are shown in **Figure 8.2.3**. A species list, including botanical names, is included in **Annex 8B at the end of this report**.

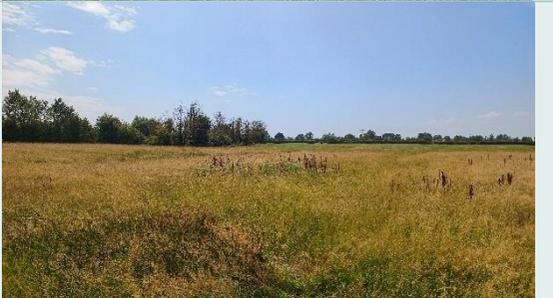
² @ Hawlfraint y Goron a hawliau cronfa ddata 2025 OS AC0000849488, viaEuropa: @ 2025 Europa Technologies Ltd. Cedwir pob hawl. @ Crown copyright and database rights 2025 OS AC0000849488, viaEuropa: @ 2025 Europa Technologies Ltd. All rights reserved. https://datamap.gov.wales/maps/new?layergroup=geonode:nrw_terrestrial_sections_7_habitats#/ accessed 30th October 2025

Table 1B-1 Habitat Descriptions and Photographs

Map Ref.	Phase 1 Habitat	Habitat Description	Photograph
Fields			
F103 F105 F107 F113 F118 F119 F120 F121 F123 F124 F125 F127 F129 F130 F132 F133 F134 F135 F136 F138 F139 F140 F141 F142 F143 F145 F146 F147 F148 F149 F15 F158 F160 F161 F163 F166 F168 F169 F171 F172 F176 F177 F178 F179 F181 F188 F189 F19 F191 F20 F215 F22 F24 F27 F30 F32 F33 F35 F47 F52 F55 F57 F62 F67 F70 F72 F74 F75 F76 F77 F78 F80 F81 F82 F85 F87 F90 F98 F99 V17 V22 V23 V24 V25 V26 V27 V28 V33 V34 V38 V41	Improved Grassland	Perennial rye-grass dominated fields with curled dock, dandelion and white clover. A low occurrence of other species including cock's foot, Yorkshire fog, meadow barley, crested dog's tail, creeping buttercup, redshank and spear thistle were also recorded.	
F509	Improved grassland	Field that has gone from semi-improved to improved grassland	
F185 F211 F245 F25 F40 F41 F503 F504 F507	Improved grassland	Fields that have gone from poor semi-improved to improved grassland	
F13 F17 F173 F182 F183 F210 F365 F366 F367 F53 F58 F66 F69 F71 F79 F88 F93 V15 V19 V20 V21 V29 V36 V37 V42	Poor Semi- Improved Grassland	Dominated by perennial rye grass, with Yorkshire fog, crested dog's tail, meadow barley, wavy hair grass, timothy and sweet vernal grass. Other species notes include creeping buttercup, white clover, spear thistle, creeping thistle, curly dock, scentless mayweed	

F144 F18 F180 F97	Poor semi-improved	Fields that have gone from improved to poor semi-improved
F16 F208 F48	Poor semi-improved	Fields that have gone from semi-improved to poor semi-improved grassland
F137 F184 F186 F187 F192 F380 F381 F384 F388 F448 F92 F96 V12 V45	Arable	Crop Fields



<p>F102 F108 F126 F152 F154 F156 F174 F195 F59 F60 F64 F65 F73 F95</p>	<p>Rotationally managed</p>	<p>Fields that have changed year-on-year between improved or semi-improved grassland and arable</p>	
<p>V13 V14 V3 V32 V5 V6 V7</p>	<p>Marsh/Marshy grassland</p>	<p>Dominated by perennial rye grass, with Yorkshire fog, crested dog's tail, meadow barley, wavy hair grass, timothy and sweet vernal grass. Other species notes include creeping buttercup, white clover, spear thistle, creeping thistle, curly dock, scentless mayweed</p>	
<p>F14 F16 F209</p>	<p>Marsh/Marshy grassland</p>	<p>Fields with a high proportion of rushes and sedges with grasses associated with wetter soils. Low diversity of forbs.</p>	

F249 F378 F42 V16 V18 V2 V30 V35 V39 V40	Semi-improved neutral grassland	Grass abundant, with forbs throughout. Species include: black knapweed, selfheal, red clover and tufted vetch, rushes and sedges	
F151 V4	Scrub	Field comprised of dense scrub bramble, hawthorn and blackthorn.	
F169, V44	Tall ruderal/Tall forbs	Ruderal & waste ground, used as a compost heap and storage of equipment. Species include redshank, nettles, thistles and dock.	
F378	Semi-improved neutral grassland	Horse grazed paddock, species recorded: mugwort, ragwort, broad leaved dock, fat hen, oxeye/mayweed, yarrow, creeping thistle, red clover, black knapweed, selfheal, tufted vetch, agrimony, fleabane and meadowsweet.	
V11 V31	Swamp	Wetland area dominated by reeds with deep water	



Pond 6/TN8	Pond	Densley covered with trees and silted up with leaves and sticks. Evidence of cattle use and historic use for pheasant feeding at the banks. No aquatic vegetation. Depth 10-15cm. Very turbid.
V1 V8 V9 V10	Hardstanding or buildings	Parcels containing buildings, substation, or unvegetated sealed surface such as roads or below pylons. Barns are also present within fields F92 and F133
V29b	Bare earth/unsealed surface	Parcel containing unvegetated unsealed surface with bare earth
2025 Survey		



<p>B193d, B192a, B186, B210</p>	<p>Double hedgerow</p>	<p>Double hedgerows with no gap between. Woody species included hawthorn, hazel, blackthorn, elm, oak, Ground-flora present included ivy, nettles, dock and bramble</p>	
<p>B100, B104, B105a, B105b, B105c, B107, B108a, B108b, B111, B112, B115, B115d, B115e, B118, B119, B122, B124, B130, B132, B140a, B140b, B143, B145b, B148, B150, B155, B162, B166b, B168, B169f, B171a, B171b, B171c, B175, B176, B179a, B179b, B183, B185a, B185b, B185c, B187, B188, B190, B191, B191, B191a, B192, B193, B193, B194a, B194b, B194c, B195, B196, B197a, B197b, B197c, B200, B201, B202, B203, B204, B205, B206, B206b, B207, B208, B209, B212, B213, B214, B216, B216b, B216c, B217, B218a, B218b, B218c, B219, B220, B220a, B221, B221c,</p>	<p>Double hedgerows with a dry ditch</p>	<p>Double hedgerows with a dry cavity or seasonally wet ree between. Woody species included hawthorn, hazel, blackthorn, elm, Ground-flora present included ivy, nettles, dock and bramble Many hedgerows had reed species present growing throughout the woody hedgerow vegetation. Wet tree species willow and alder were present in some hedgerows.</p>	

<p>B222a, B222b, B222c, B222d, B222e, B225, B226, B228, B231, B232, B236, B236c, B236d, B236e, B238, B239, B240, B243, B255, B257a, B258, B259a, B260, B261, B262, B263, B264a, B264b, B264c, B265, B267a, B269, B270a, B271, B272a, B272b, B273, B274, B276, B277, B278 B279, B280, B281, B281b, B282, B283, B284, B285, B286, B289, B297, B298, B334, B344, B347, B349, B350, B351, B355, B357, B358, B360, B44, B56, B60, B68, B80, B85, B91, B96, H65</p>		
<p>B102, B106, B110, B129, B152b, B157, B158, B252b, B256b, B294a, B294b, B336, B337a, B337b, B339, B342, B37a, B42, B75, B76b, B77, B93, H1, H16, H19, H22, H23, H33, H36, H4, H40, H42, H5, H50, H53, H54, H56, H57, H6</p>	<p>Double Hedgerow and Wet Ditch</p>	<p>Double hedgerows with a permanently wet reen between. Woody species included hawthorn, hazel, blackthorn, elm, oak, Ground-flora present included ivy, nettles, dock and bramble</p>

B211, B224, B267, H58	Dry Ditch	<p>Dry ditches featured throughout the Site either as foot drains (grips) within the grassland and alongside fences; or beneath hedgerows. Foot drains were shallow, measuring approximately 40cm deep and 2.5m wide. Species present included white clover, creeping buttercup, carnation sedge, redshank, curled dock and meadow foxtail. Dry ditches beneath hedgerows were generally over-shaded, vegetation was limited, with a number of which were succeeding towards a scrub-like habitat with woody species (bramble, willow) growing between a double hedge.</p> <p>The foot drains within the grassland are a wetland feature and fall within the classification of Coastal and Floodplain Grazing Marsh Habitat HPI and LBAP.</p>	
B259b, B288b, B48, B52, H11, H15, H24, H24, H44, H45, H46, H48, H9	Line of trees with reën	Mature native trees forming a linear boundary with a wet reën on one side. Tree species include alder, willow, oak, blackthorn, hazel, hawthorn.	
H41	Non-native Hedgerow	Hedgerow comprising non-native conifer species	
B138, B307b, B307c, B33, B359, H13, H21, H60, H61, H62, H63, H64, H66, H67, H70	Single Hedgerow	Single hedgerows, comprising woody species hawthorn, hazel, blackthorn, elm, oak, and ground-flora including ivy, nettles, dock and bramble	

B103, B109, B115a, B115c, B116, B123, B145, B146, B166a, B169, B169e, B169g, B178a, B178b, B194d, B198, B221a, B221b, B229, B248, B250, B252a, B266, B270b, B287, B290a, B290b, B302, B305, B307a, B308, B32a, B32b, B352, B47, B54, B58, B67, B89, H22b

Single Hedgerow and Dry Ditch

Single hedgerows with a dry cavity or seasonally wet reen between.



B114, B114a, B114b, B117, B120, B121, B135, B139, B139, B139e, B139f, B139g, B141, B154, B156, B179c, B181a, B181b, B181c, B181d, B199a, B199b, B247, B256, B256c, B256d, B257b, B275, B275b, B288a, B291, B292, B293, B295, B333, B337c, B333, B34, B340, B341, B345, B354, B354b, B356, B35b, B35c, B36, B37b, B38, B39, B40, B41, B43a, B43b, B45, B46, B49a, B49b, B57, B59, B71, B76a, B82, B83, B86, B86a, B86b, B88, B94, B97, B99a, H10, H12, H14, H17, H20, H26, H27, H28, H29, H30, H31, H32, H35, H49, H52, H55, H59, H68

Single Hedgerow and Wet Ditch

Single hedgerows running along wet reen.

Woody species included hawthorn, hazel, blackthorn, elm, oak, Ground-flora present included ivy, nettles, dock and bramble



B101, B113, B125, B126,
B139a, B152a, B159, B182,
B215, B217b, B256a, B291b,
B296, B343a, B343b, B348,
B353, B35a, B51, B78, B95,
B98, B99, H18, H2, H25, H3,
H34, H37, H38, H39, H43,
H43, H47, H69, H7, H8

Reen/wet ditch

The reens on Site are the reason the area has been designated as a Site of Special Scientific Interest (SSSI), in particular the aquatic and open water emergent plants and aquatic invertebrates feature in the SSSI citation.

The reens generally measured between 1.5 and 2.5m wide and between 25cm and 1.3m deep. Aquatic vegetation recorded within the reens included duckweed sp., hairlike pondweed and frogbit. Emergent and marginal plants included amphibious bistort, common reed, common spike rush, flag iris, floating sweet-grass, greater willowherb.

There was also a number of invasive Schedule 9 plant species either within or adjacent to the reens with Azolla sp. Being recorded as well as areas of Japanese knotweed and Himalayan balsam. These are recorded as Target Notes (TN) on the Phase 1 Habitat Map.

The reens are a wetland feature and fall within the classification of Coastal and Floodplain Grazing Marsh Habitat HPI and LBAP. They may also meet the LWS criteria for watercourses.



During the 2023 update survey, many of the reens were in the same condition as the 2019 survey.

It is considered to be of Local value for plant and animal species

B78, B83 and B256 had management present in the form of de-silting at the time of the 2023 surveys.

Botanic Survey Results

1.3.6 Results of botanical surveys undertaken during the July 2025 walkover surveys as detailed in **Table 8B-2** below.

Table 1B-2 Results of the detailed botanical survey

Field number	Surveyor	Phase 1 Habitat type	Species	Notes
F14	PW	Marshy grassland	Grass dominated with occasional clumps of hard rush, compact rush and soft rush	Pasture grazed
F16	PW	Marshy grassland	Grass dominated with occasional clumps of hard rush, compact rush and soft rush	Pasture grazed
F22	PW	Improved grassland	Rye grass dominated	Recently cut at time of survey. Managed for silage
F42	HS	Good semi-improved neutral grassland	Grassland comprising Perennial rye grass, sweet vernal grass, Yorkshire fog, creeping bent and meadow fescue. With forbs including Agrimony, red clover, yarrow, meadow buttercup, common bird'-foot trefoil, tufted vetch, hedge parsley, teasel and bristly oxtongue Rare spots of common sedge and hairy sedge throughout the field.	Unmanaged, or occasionally cattle-grazed with bramble encroaching
F47	TH	Improved grassland	Majority of field was short cut grass-dominated, with creeping thistle, spear thistle and white clover within the field margins.	Short cut grassland with shrill carder bee foodplants present within field margins
F53	PW	Poor semi-improved grassland	C.85% grasses, 15% forbs, comprising perennial rye grass, Timothy grass, crested dog's tail, Yorkshire fog, cock's foot and soft	Shrill carder bee foodplants Clumpy grassland with rushes

			rush. Small patches of creeping thistle, creeping buttercup and common nettle	
F189	HS	Improved grassland	Dominated by perennial rye grass with Yorkshire fog, sweet vernal grass, creeping thistle, white clover and red clover present. Rare patches of goat's beard also present.	Short cut grassland with shrill carder bee foodplants
F191	HS	Improved grassland	Dominated with perennial rye grass with annual meadow grass, Yorkshire fog, white clover and red clover present	Short cut grassland with shrill carder bee foodplants
F208	PW	Poor semi-improved	Grass dominated with occasional clumps of hard rush, compact rush and soft rush	Half of field was cut at time of survey
F215	PW	Improved grassland	Italian rye grass dominated	Recently cut at time of survey. Managed for silage
F249	HS	Semi-improved neutral grassland	Grass species comprising: perennial rye grass , creeping bent, false oat grass, sweet vernal grass, Yorkshire fog, timothy grass, cock's foot and common reed. Forbs comprised: Creeping thistle, bramble, burdock, great willowherb, creeping cinquefoil, meadow vetchling, white clover, sow thistle species, broad leaved dock and common fleabane	Small patch of previously unvegetated land being re-colonised
F378	PW	Semi-improved neutral grassland	60% grasses, 40% forbs comprising: Yorkshire fog, creeping bent and perennial rye grass. Creeping buttercup, white clover, broad leaved plantain, common bird's-foot trefoil and creeping thistle Rare spots of common fleabane, ragwort and red clover.	Horse-grazed, with short cropped plants in areas

F503	HS	Improved grassland	95% grasses, comprising rye grasses, sweet vernal creeping bent and crested dog's tail. Occasional creeping thistle, white clover and spear thistle scattered throughout and within the margins	Sheep-grazed with a short sward, noted for shrill carder bee foodplant creeping thistle
F509	PW	Improved grassland	95% rye grasses with creeping thistles around the margins	Managed for silage, noted for shrill carder bee foodplant creeping thistle
V2	HS	Semi-improved grassland	Grassland comprising meadow fescue, Yorkshire fog, sweet vernal grass, common bent, creeping bent, false oat grass, cock's foot, perennial rye grass and soft rush. Forbs comprised creeping thistle, broad-leaved dock, common nettles and meadow vetchling Rare patches of agrimony	Rank grassland with encroaching scrub
V5, V6, V7	HS	Marshy grassland	Grassland comprising meadow fescue, Yorkshire fog, sweet vernal grass, common bent, creeping bent, false oat grass, cock's foot and perennial rye grass. Soft rush, hard rush, common sedge, water mint, hard rush, creeping thistle, common knapweed, iris species, meadow vetchling, greater bird's-foot trefoil, horsetail species and ragwort.	Wet, cattle-grazed pasture with no dominant grass type The three fields had no barriers and were managed the same
V13	HS	Marshy grassland	Grassland comprising Yorkshire fog, sweet vernal grass, crested dog's tail, false oat grass, cock's foot and perennial rye grass. Patches of creeping thistle and rush species	Rank grassland, dry at time of survey with marshy grassland species present
V14, V16, V18	HS	Good semi-improved	Grassland comprising Yorkshire fog, sweet vernal	Crane and shrill carder bee mitigation land

		neutral grassland	grass, crested dog's tail, and creeping bent. Abundant with common knapweed, red clover, hop trefoil, common bird's-foot trefoil, meadow vetchling and creeping thistle	for Llanwern Solar
V19	HS	Poor semi-improved grassland	Grass dominated with abundant common knapweed, some patches of rushes, red clover and thistle species present	Shrill carder bee mitigation land for Llanwern Solar
V20, V21	HS	Poor semi-improved grassland	Grass dominated, comprising cock's foot, meadow foxtail, Yorkshire fog, timothy and meadow barley with some broad-leaved dock and creeping thistle throughout.	Rank grassland

Protected and Notable Fauna

1.3.7 The Site was assessed as having potential for a range of species and separate technical appendices have been produced detailing the results of specific surveys as follows:

- Appendix 8D: Great Crested Newt Survey Results;
- Appendix 8E: Bat Survey Results;
- Appendix 8F: Dormouse Survey Results;
- Appendix 8G: Invertebrate Survey Results;
- Appendix 8H: Riparian Mammal Survey Results;
- Appendix 9A: Winter Bird Survey Results; and
- Appendix 9B: Breeding Bird Survey Results.

1.3.8 In addition, evidence of the following species were identified during the Phase 1 Habitat Survey, or other surveys at the Site.

Badger

1.3.9 Incidental sightings of badger setts, latrines and field signs were recorded as detailed in **Table 8B-3** below and **Figure 8.2.4**.

Table 1B-3 Badger incidental records

Date	Surveyor	Field Number	Grid Reference		Details
			X	Y	
28/10/2019	SS	F192	344091 185551		TN1 - Badger latrine
21/11/2019	KW	F504	343463 185289		TN2 - Badger Prints
04/03/2021	GV	F197	344069 185299		TN3 - A 4 hole active badger sett – offsite but within 12m of boundary.
05/03/2021	GV	F195	344057 185300		TN1 - Latrines
15/04/2020	HC	F140	341768 183830		TN1 - Latrines
22/07/2025	TH	F141	341771 183563		TN4 - Inactive sett
09/10/2025	GV	V38	338511 183834		TN1 - Latrine

KW = Kerri Watson BSc (Hons) MCIEEM, **HC** = Hazel Cook , **SS** = Steven Shutt BSc (Hons) StMIEnvSc, **GV** = Gavin Vella; **TH** = Tom Howes BSc (Hons);

Reptiles

1.3.10 A maximum count of two incidental records of individual grass snakes was recorded across the Site by ecologists during other surveys. This suggests a small population of grass snake is present on Site; however, given the intensive grazing and lack of fencing to many of the hedgerows, suitable habitat was limited to mature, dense hedgerow bases and ree and ditch margins (see **Figure 8.2.4**).

Table 1B-4 : Grass snake incidental records

Date	Surveyor	Field Number	Grid Reference		Details
			X	Y	
22/05/2019	NS	F378	342721 184943		TN5 - Grass snake sighted
23/07/2025	HS	F24	339002 183203		TN5 - Travelled from field into ree

HS = Hannah Spencer MZool; **NS** = Nick Saunders

Barn Owl

1.3.11 Two buildings and one barn owl box were noted where evidence of barn owl nesting or perching was found during the PEA. For detailed analysis of barn owl use of the Site see **Appendix 9A** and **9B**. The locations of buildings used by barn owl are shown in **Figure 8.2.4** and are detailed in the table below.

Table 1B-5 Barn owl potential nesting locations

Field Number	Grid Reference		Details
	X	Y	
F92	339962	183781	TN6 – Barn with barn owl potential
F133	341172	183341	TN6 – Barn with barn owl potential
F42/F35	339358	182897	TN7 – Barn owl box

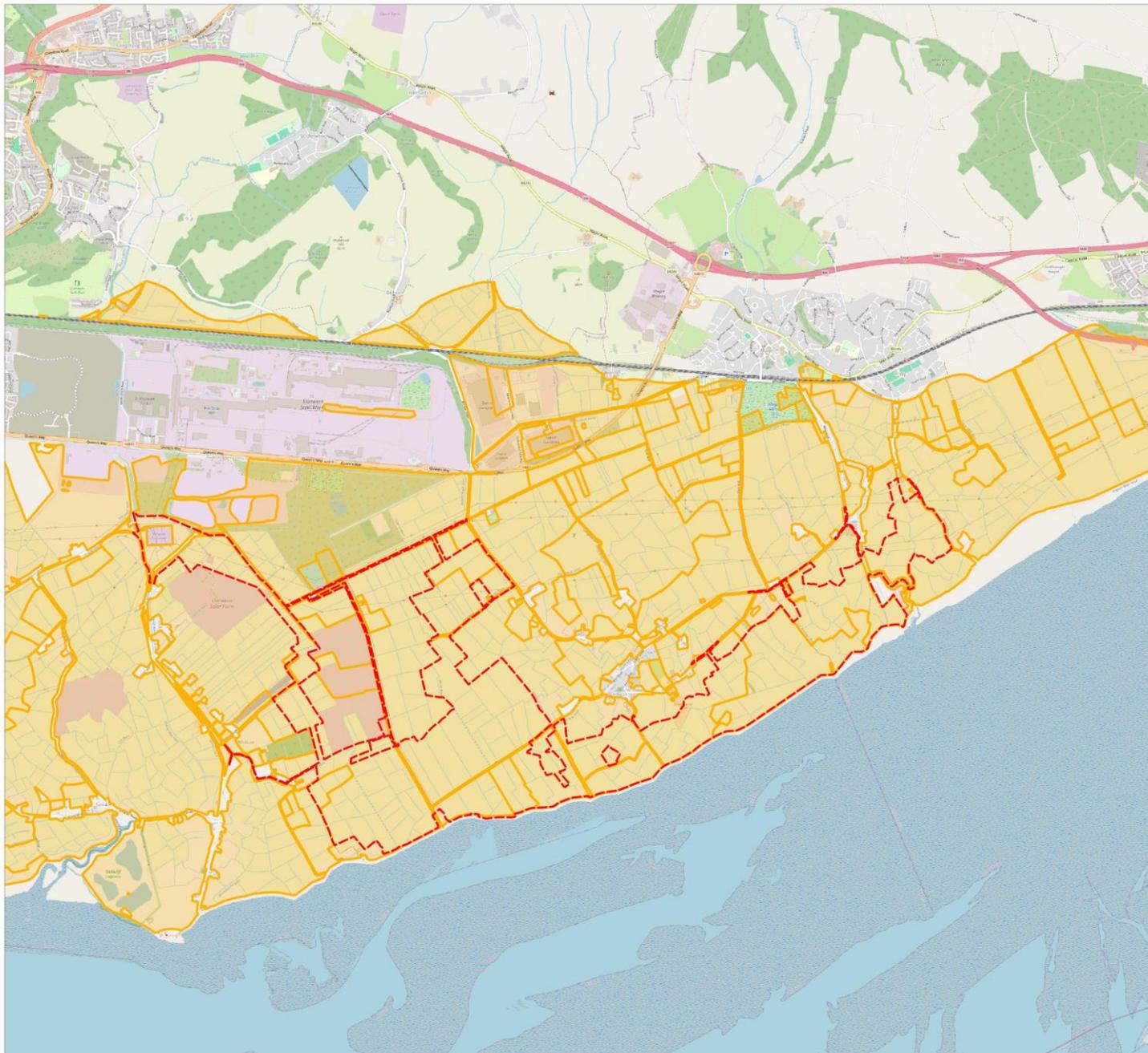
1.4 References

Butcher B., Carey P., Edmonds R., Norton L. and Treweek J (2020) *UK Habitat Classification – Habitat Definitions V1.1*

JNCC (2010) *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit*. JNCC, Peterborough, ISBN 0 86139 636 7.

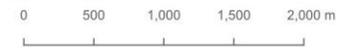
Stace, C. (2019) *New Flora of the British Isles* (4th Edition). C&M Floristics, Middlewood Green.

Annex A: Figures



Key:

- Site Boundary
- Coastal and Floodplain Grazing Marsh



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Figure 8.2.1
Coastal and Floodplain Grazing Marsh in Relation to Site Boundary

Project:
Future Energy Llanwern

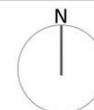
Client:
Future Energy Llanwern Limited

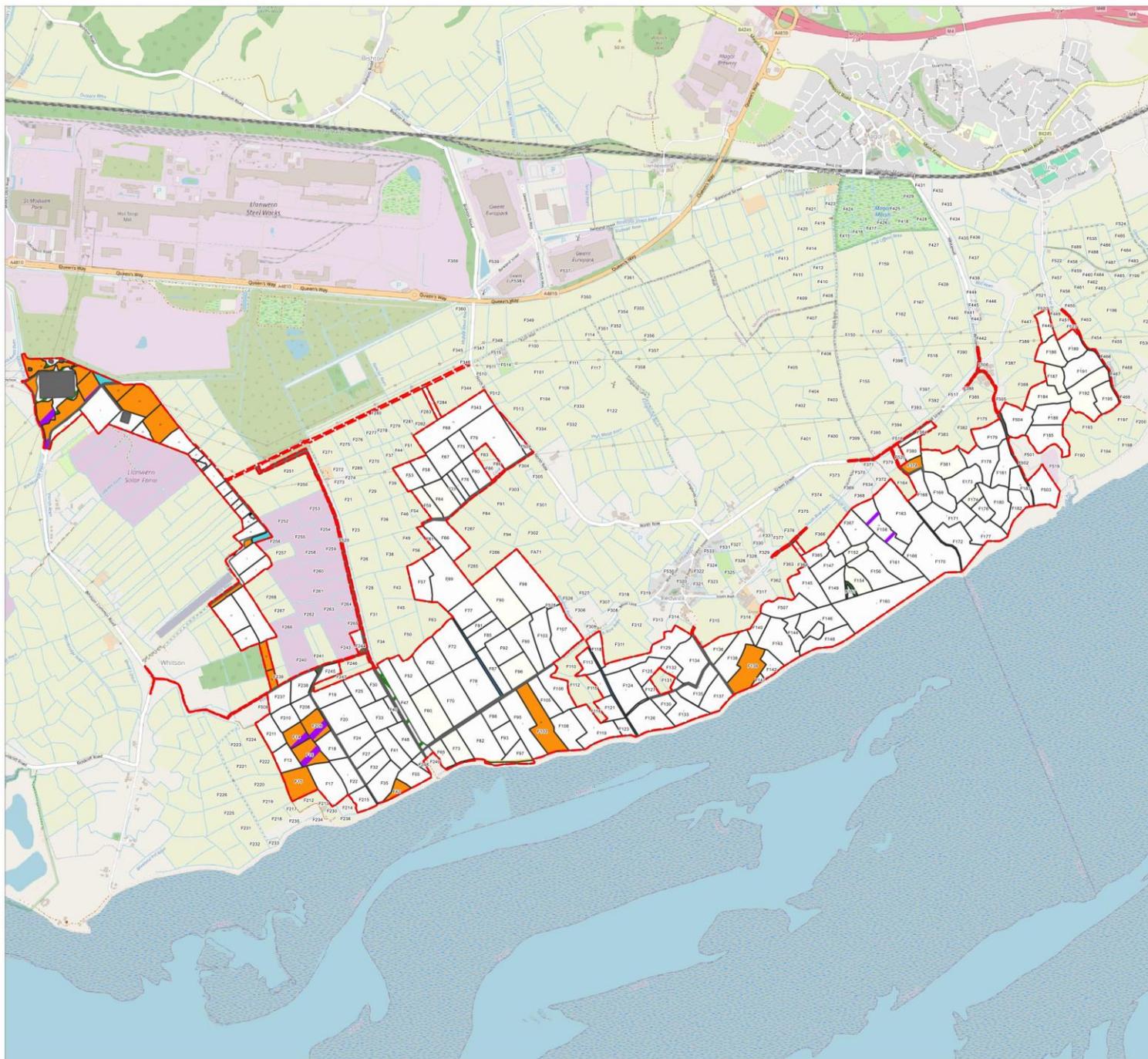
Date:
6/11/2025

Drawn:
HS

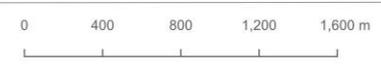
Ref:
0840-ETA-8.2.1

Revision:
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- Key:**
- Site Boundary Oct 2024
 - Arable
 - Broadleaved woodland
 - Buildings/Hardstanding
 - Improved grassland
 - Marsh/Marshy grassland
 - Mixed scrub
 - Poor semi-improved grassland
 - Poor semi-improved grassland/Rush pasture
 - Swamp
 - Rush pasture
 - Semi-improved grassland
 - Semi-improved Grassland
 - Semi-improved neutral grassland
 - Tall forbs
 - Unsealed unvegetated bare earth
 - Reen



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Ordnance Survey 0100031673.

Figure 8.2.2
Phase 1 Habitat Survey Results- Habitats

Project:
Future Energy Llanwrnallt

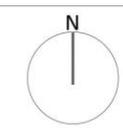
Client:
Future Energy Llanwrnallt Limited

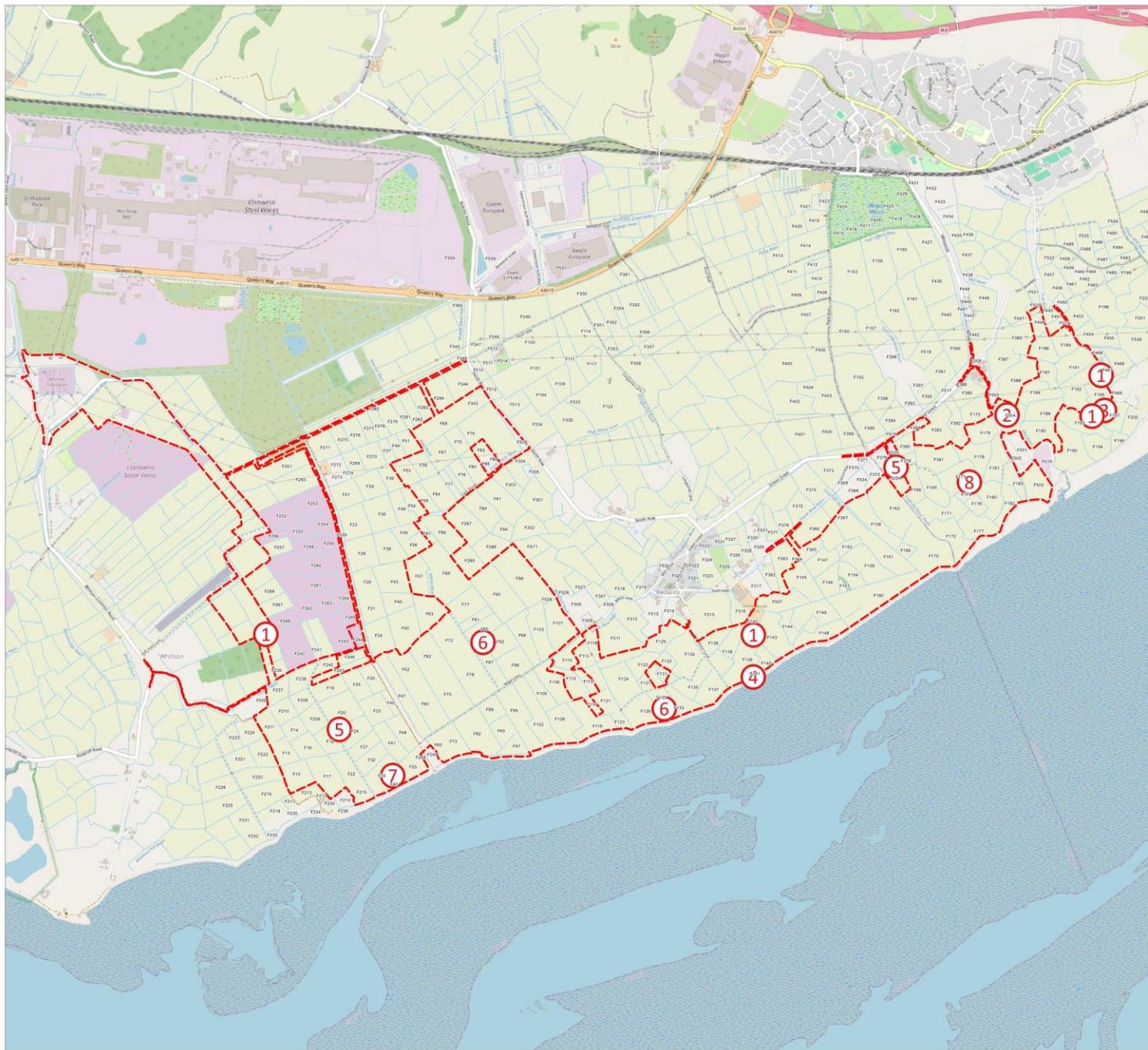
Date:
12/11/2025

Drawn:
HS

Ref:
0840-ETA-8.2.2

Revision:
-





- Key:**
- Site Boundary
 - 1 Badger Latrine
 - 2 Badger Prints
 - 3 Active Badger Sett
 - 4 Inactive Badger Sett
 - 5 Grass Snake Sighting
 - 6 Barn With Nesting Barn Owl Potential
 - 7 Occupied Barn Owl Box
 - 8 Pond 6



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Ordnance Survey 0100031673.

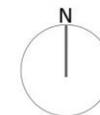
Figure 8.2.4
Extended Phase 1 Habitat Survey Results and Incidental Records

Project:
Future Energy Llanwern

Client:
Future Energy Llanwern Limited

Date:
12/11/2025
Ref:
0840-ETA-8.2.4

Drawn:
HS
Revision:
-



Annex B: Plant Species List

Scientific Name	Common Name
<i>Alnus glutinosa</i>	Alder
<i>Poa annua.</i>	Annual meadow grass
<i>Persicaria amphibia</i>	Amphibious bistort
<i>Sagittaria sagittifolia</i>	Arrowhead
<i>Fraxinus excelsior</i>	Ash
<i>Bromus sterilis</i>	Barren brome
<i>Fagus sylvatica</i>	Beech
<i>Agrostis sp.</i>	Bent grass species
<i>Lotus corniculatus</i>	Bird's-foot trefoil
<i>Centaurea nigra</i>	Black knapweed
<i>Medicago lupulina</i>	Black medic
<i>Prunus spinosa</i>	Blackthorn
<i>Hyacinthoides non-scripta</i>	Bluebell
<i>Potamogeton polygonifolius</i>	Bog pondweed
<i>Ranunculus baudotii</i>	Brackish watercrowfoot
<i>Rubus fruticosus agg.</i>	Bramble
<i>Rumex obtusifolius</i>	Broad-leaved dock
<i>Helminthotheca echioides</i>	Britsly oxtongue
<i>Aponogeton distachyos</i>	Cape pondweed
<i>Carex panicea</i>	Carnation sedge
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Ranunculus sceleratus</i>	Celery-leaved buttercup
<i>Dactylis glomerata</i>	Cock's-foot
<i>Persicaria bistorta</i>	Common bistort
<i>Lemna minor</i>	Common duckweed
<i>Heracleum sphondylium</i>	Common hogweed
<i>Centaurea nigra</i>	Common knapweed
<i>Malva sylvestris</i>	Common mallow
<i>Cerastium fontanum</i>	Common mouse-ear
<i>Urtica dioica</i>	Common nettle
<i>Jacobaea vulgaris</i>	Common ragwort
<i>Senecio jacobaea</i>	Common ragwort
<i>Phragmites australis</i>	Common reed
<i>Carex nigra</i>	Common sedge
<i>Rumex acetosa</i>	Common sorrel

<i>Eleocharis palustris</i>	Common spike rush
<i>Vicia sativa</i>	Common vetch
<i>Ranunculus aquatilis</i>	Common water crowfoot
<i>Juncus conglomeratus</i>	Compact rush
<i>Agrostis stolonifera</i>	Creeping bent
<i>Ranunculus repens</i>	Creeping buttercup
<i>Potentilla reptans</i>	Creeping cinquefoil
<i>Cirsium arvense</i>	Creeping thistle
<i>Cynosurus cristatus</i>	Crested dog's-tail
<i>Cardamine pratensis</i>	Cuckoo-flower
<i>Rumex crispus</i>	Curly dock
<i>Geranium dissectum</i>	Cut-leaved cranesbill
<i>Bellis perennis</i>	Daisy
<i>Taraxacum officinale agg.</i>	Dandelion Agg.
<i>Rosa canina.</i>	Dog rose
<i>Mercurialis perennis</i>	Dog's mercury
<i>Cornus sanguinea</i>	Dogwood
<i>Sambucus nigra</i>	Elder
<i>Ulmus procera</i>	English elm
<i>Taxus baccata</i>	English yew
<i>Arrhenatherum elatius</i>	False oat grass
<i>Chenopodium album</i>	Fat hen
<i>Myosotis arvensis</i>	Field forget-me-not
<i>Lithospermum arvense</i>	Field gromwell
<i>Sherardia arvensis</i>	Field madder
<i>Acer campestre</i>	Field maple
<i>Luzula campestris</i>	Field wood-rush
<i>Pulicaria dysenterica</i>	Fleabane
<i>Glyceria fluitans</i>	Floating sweet-grass
<i>Apium nodiflorum</i>	Fool's watercress
<i>Digitalis purpurea</i>	Foxglove
<i>Hydrocharis morsus-ranae</i>	Frogbit
<i>Lotus pedunculatus</i>	Greater bird's-foot trefoil
<i>Plantago major</i>	Greater plantain
<i>Epilobium hairsutum</i>	Greater willowherb
<i>Glechoma hederacea</i>	Ground-ivy
<i>Potamogeton trichoides</i>	Hairlike pondweed
<i>Juncus inflexus</i>	Hard rush

<i>Asplenium scolopendrium</i>	Hart's-tonge fern
<i>Crataegus monogyna</i>	Hawthorn
<i>Corylus avellana</i>	Hazel
<i>Oenanthe crocata</i>	Hemlock water-dropwort
<i>Calystegia sepium</i>	Hedge bindweed
<i>Torilis arvensis</i>	Hedge parsley
<i>Impatiens glandulifera</i>	Himalayan balsam
<i>Heracleum sphondylium</i>	Hogweed
<i>Ilex aquifolium</i>	Holly
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Trifolium campestre</i>	Hop trefoil
<i>Lolium multiflorum</i>	Italian rye-grass
<i>Hedera helix</i>	Ivy
<i>Fallopia japonica</i>	Japanese knotweed
<i>Polygonum aviculare agg</i>	Knotgrass
<i>Ficaria verna</i>	Lesser celandine
<i>Trifolium dubium</i>	Lesser trefoil
<i>Arum maculatum</i>	Lords-and-Ladies
<i>Dryopteris filix-mas</i>	Male fern
<i>Hippuris vulgaris</i>	Mare's-tail
<i>Caltha palustris</i>	Marsh Marigold
<i>Cirsium palustre</i>	Marsh thistle
<i>Hordeum brachyantherum</i>	Meadow barley
<i>Ranunculus acris</i>	Meadow buttercup
<i>Alopecurus pratensis</i>	Meadow foxtail
<i>Lathyrus pratensis</i>	Meadow vetchling
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Rhamphospermum</i>	Mustard sp.
<i>Quercus robur</i>	Pedunculate oak
<i>Lolium perenne</i>	Perennial rye-grass
<i>Matricaria discoidea</i>	Pineappleweed
<i>Papaver rhoeas</i>	Poppy sp.
<i>Polypodium sp.</i>	
<i>Sonchus asper</i>	Prickly sow-thistle
<i>Primula vulgaris</i>	Primrose
<i>Ligustrum sp.</i>	Privet
<i>Allium ursinum</i>	Ramsons
<i>Silene dioica</i>	Red campion

Trifolium pratense	Red clover
Persicaria maculosa	Redshank
Carex remota	Remote sedge
Plantago lanceolata	Ribwort plantain.
Chamaenerion angustifolium	Rosebay willowherb
Poa trivialis	Rough meadow grass
Lolium sp.	Rye-grass sp.
Carex sp.	Sedge sp.
Prunella vulgaris	Selfheal
Tripleurospermum inodorum	Scentless mayweed.
Matricaria chamomilla	Scented mayweed
Rumex acetosella	Sheep's sorrel
Festuca ovina	Sheep's-fescue
Capsella bursa-pastoris	Shepherd's purse
Lampsilis satura	Slender tare
Vicia parviflora	Slender tare
Trifolium micranthum	Slender trefoil
Ononis spinosa	Spiny restharrow
Poa pratensis sens. lat.	Smooth meadow grass
Vicia tetrasperma	Smooth tare
Cirsium vulgare	Spear thistle
Bromus hordeaceus	Soft brome
Juncus effusus	Soft-rush
Callitriche stagnalis	Starwort
Iris foetidissima	Stinking Iris
Anthoxanthum odoratum	Sweet vernal-grass
Coronopus sp.	Swinecress
Acer pseudoplatanus	Sycamore
Dipsacus fullonum	Teasel
Veronica serpyllifolia	Thyme-leaved speedwell
Phleum pratense	Timothy
Juncus bufonius	Toad rush
Deschampsia cespitosa	Tufted hair-grass
Bromus erectus	Upright brome
Veronica anagallis-aquatica	Water speedwell
Mentha aquatica	Watermint
Cardamine flexuosa	Wavy bittercress
Trifolium repens	White clover

Daucus carota	Wild carrot
Angelica sylvestris	Wild angelica
Epilobium sp.	Willowherb species
Achillea millefolium	Yarrow
Iris pseudacorus	Yellow flag Iris
Holcus lanatus	Yorkshire-fog