

Canals and Rivers Trust

Montgomery Canals – Reserves

Preliminary Ecological Appraisal

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COMMERCIAL IN CONFIDENCE



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Non-Technical Summary	
Site Name	Wern, Powys, Wales, (nearest postcode: SY21 9JX, National Grid Reference SJ 25880 13101) Carreghofa, Powys, Wales (nearest postcode: SY22 2PE, National Grid Reference SJ 25489 20374) Red Lane, Welshpool, Powys, Wales (Nearest postcode: SY21 8RJ, National Grid Reference SJ 21892 05685)
Proposed Works	The proposed plan is to create compensatory wetland habitat at each site that connects to the Montgomery canal.
Methods	Desk study, Extended Phase 1 habitat survey, Preliminary Roost Assessment, Otter, Badger, Water vole, Reptile and Non-native invasive species surveys
Ecological Receptor	Recommendations
Statutory Sites	A Habitats Regulations Assessment should be undertaken in advance of the works. The need for SSSI assent should also be considered during the HRA process. Best practice pollution prevention (including the use of spill kits and drip trays) measures should be adhered to at all times.
Survey Results and Conclusion	In the absence of mitigation, the scheme has the potential to adversely affect the following ecological receptors: <ul style="list-style-type: none"> The presence of the Montgomery canal SAC / SSSI located on Site. Due to the close proximity of the SAC/SSSI to the Site and direct hydrological connection, there is the potential for direct adverse effects associated with pollution. Priority habitat (hedgerows, marshy grassland) through habitat removal, root damage. Priority habitat (standing water, swamp) through pollution. Bats through potential roost loss and habitat loss through construction. Great crested newt through terrestrial habitat destruction during construction. Hazel dormouse through injury and habitat destruction and fragmentation during construction and vegetation removal. Badger through sett destruction and injury during construction. Reptile through injury during construction and vegetation removal. Nesting birds through destruction of nests and eggs during vegetation removal.
Habitats	<p>Priority Habitats: All hedgerows and trees within the Site are to be given a buffer zone. The buffer zone should be at least as wide as the hedge is tall to ensure the majority of roots remain unaffected.</p> <p>Materials and machinery should not be stored along hedgerows or next to scattered trees, or on marshy grassland.</p> <p>If the scope of works includes the removal of hedgerows further survey efforts to include a hedgerow assessment survey and may require a hedgerow removal licence from the Local Planning Authority.</p> <p>Any removal or degradation of hedgerows should be replanted. We recommend that 1-1.2m high whips are planted (3 whips per metre) in a double row and included stock proof fencing to ensure adequate protection from browsing livestock. Hedgerow species should consist of an equal mix of:</p> <ul style="list-style-type: none"> 20% hazel (<i>Corylus avellana</i>);

- 20% holly (*Ilex aquifolium*);
- 20% hawthorn (*Crataegus monogyna*);
- 20% blackthorn (*Prunus spinosa*);
- 10% elder (*Sambucus nigra*); and,
- 10% Dog rose (*Rosa canina*)

Roosting Bats: Trees that have been assessed as having high (Wern – T4, T5, T6, & T7) or moderate (Carreghofa – T1, T2 & T3, Wern – T6, Red Lane – T1, T2, T5 and T6.)

potential to support roosting bats because of the presence of cavities, crevices or cracks will require further survey:

If works (felling/pruning) are required to these trees; prior to felling an endoscope inspection should be undertaken to determine the presence or likely absence of bats in PRFs. If it is not possible to downgrade the potential of the trees to low or negligible following the endoscope inspection, then further emergence/re-entry surveys are likely to be required.

Trees identified as having moderate potential to support roosting bats because of the presence of thick ivy or are considered unsuitable for an endoscope inspection (1861, 1862, 1864, and 1888) will require further survey: If works (felling/pruning) are required to these trees; prior to felling two emergence/re-entry surveys will be required to determine the presence or likely absence of bats in PRFs. At least one of these surveys should be a dawn re-entry survey.

Endoscope inspections can be undertaken at any time of year; however, surveys undertaken between May and August are often most informative. Emergence/re-entry surveys must be undertaken between May and August (weather dependant).

Emergence/re-entry surveys must be undertaken a minimum of 2 weeks apart.

If a bat roost is identified during the surveys, a European Protected Species licence from NRW will be required before any works can commence. Where trees have been assessed as having negligible or low potential to support roosting bats no further survey effort is required (Collins, 2016).

Badger: Further badger surveys will be required at Carreghofa to check the activity of the two outlier setts prior to works commence. A prework check by an ecologist at Wern nature reserve should be complete a few weeks prior to works beginning to ensure no new activity at the Site.

Dormice: Should small areas of vegetation require removal (less than 2m²) it may be possible to complete this under the supervision of a licensed ecologist. If larger areas of vegetation require removal, dormouse surveys of the hedgerow, scrub and woodland edge habitat may be required between March and November 2023 and a European Protected Species Licence acquired from Natural Resources Wales in advance of any works.

Reptiles & Common Amphibians: If removal of highlighted reptile features or vegetation (marshy grassland, scrub and hedgerow margins) is required, an Ecological Clerk of Works should be present prior to and during the works, to conduct checks for reptiles and common amphibians.

Terrestrial Mammals (Badger, Otter & Hedgehog): Best practice measures such as placing mammal ramps in excavations should be adhered to, to avoid any mammals (and other wildlife) becoming trapped.

If vegetation removal (scrub and hedgerow margins) is required, an ECoW should be present prior to and during the works, to conduct checks for hedgehog.

Wild Birds: Any vegetation removal should be undertaken outside of the nesting bird season (March to August inclusive) where possible.

Where works within this season are unavoidable, the vegetation should be checked by an ecologist prior to clearance. The pre-works check should be undertaken as close to and no longer than 48 hours prior to the vegetation removal taking place.

If nesting birds are present, a buffer will be implemented around the nest, and works cannot proceed in this area until the chicks have fledged.

Nocturnal Wildlife/Lighting: Additional lighting should be avoided. If additional lighting is a requirement (permanent and temporary) it should be reviewed by an ecologist prior to installation to assess the impacts to nocturnal wildlife.

1. Introduction

1.1 Purpose and Brief

As part of the Rivers and Canals Trust Montgomery Canal Nature reserves scheme, APEM Ltd (APEM) were commissioned by Arcadis Consulting (UK) Ltd to undertake a Preliminary Ecological Appraisal (PEA), Preliminary Roost Assessment (PRA), badger (*Meles meles*), otter (*Lutra lutra*), water vole (*Arvicola amphibius*), reptile and invasive non-native species (INNS) surveys at three potential reserve Sites located adjacent to the Montgomery canal in Mid-Wales, hereafter referred to as the 'Site'.

This report provides the survey methodology and results of the PEA, PRA, badger, otter, water vole, reptile and INNS surveys carried out at Wern and Carreghofa between August and September 2022 and Red Lane in February 2023. Following interpretation of the results, the report provides an assessment of the potential effects of the proposals on habitats and protected species. It also provides recommendations for further surveys that are required in advance of any works being undertaken at the Site and any necessary mitigation measures.

1.2 Site Description

The Site consists of three areas located adjacent the Montgomery Canal which have been identified as potential compensatory wetland habitat sites.

Wern

The Wern Site is located in Wern, Powys, Wales, (nearest postcode: SY21 9JX, National Grid Reference (NGR) SJ 25880 13101 (see Appendix 1, Figure 1)).

The Site comprised of semi-improved grassland, tall ruderal, standing water, hedgerows, swamp and quarry with the wider landscape being dominated by agricultural land, with a residential property to the west and some agricultural building structures located to the east.

Carreghofa

The Carreghofa Site is located in Carreghofa, Powys, Wales (nearest postcode: SY22 2PE, NGR SJ 25489 20374 (see Appendix 1, Figure 2)).

The Site is consisted of arable, marshy grassland, tall ruderal, standing water, and hedgerows. The wider landscape was dominated by agricultural land, with residential properties to the east of the Site.

Red Lane

The Red Lane Site is located in Red Lane, Welshpool, Powys, Wales (Nearest postcode: SY21 8RJ, NGR SJ 21892 05685 (see Appendix 1, Figure3)).

The Site consisted of improved grassland, scattered trees, hedgerows, running water, marshy grassland, broadleaved woodland with the Montgomery Canal forming the eastern boundary of the Site. The wider landscape is dominated by agricultural land and infrastructure.

1.3 The Proposed Works

The proposed works plan to create three nature reserves along the Montgomery Canal.

Carreghofa

The Carreghofa Site is to be the largest of the three with approx. 3 hectares available to convert to wetland habitat.

Wern

The proposed works for the Wern Site is to create 1.8 hectares of wetland habitat. The Site is a former quarry so groundworks will be required to check feasibility and infill.

Red Lane

The proposed works for the Red Lane Site is to create approx. 2 hectares of wetland habitat, the area available may increase if there are any shortfalls at the Wern Site.

1.4 The Survey Area

The survey areas include:

- Areas directly within the land take for the proposed works, including access;
- Areas which will be temporarily affected during the proposed works; and,
- Areas where there is a risk of disturbance during the proposed works and/ or operation.

The survey areas can be found in Figures 1-3, Appendix 1.

2. Methodology

2.1 Desk Study

Data was requested from Aderyn (the local environmental records centre for Wales) and included information on statutory designated sites within 5 km of the Site and non-statutory designated sites and records of protected, invasive or otherwise notable species within 2 km of the Sites. Records were obtained on 6th September 2022 (Aderyn, 2022). Species records from the last 20 years were considered relevant to the scheme as older records are unlikely to be representative of current local species populations.

The desk study also involved a review of publicly available information including:

- The Multi-Agency Geographic Information for the Countryside (MAGIC) website (DEFRA, 2022) for information relating European Statutory sites within 5 km of the Site.
- Google Earth aerial imagery (Google Earth, 2022) to contextualise the Site within the landscape and identify waterbodies within 0.5 km of the Site.

2.2 Field Surveys

Field surveys were carried out between the 31st August 2022 and 7th February 2023 by Senior Ecologist Alex Bingle, Michael Underwood ACIEEM and Consultant Ecologist Blair McNicol. The weather conditions at the time of the survey are detailed in Table 1 below.

Table 1 - Weather conditions at time of survey

Date	Weather
30/08/22	16°C, dry, wind speed 5mph, 60% cloud cover
31/08/22	17°C, dry, wind speed 8mph, 20% cloud cover
01/09/22	17°C, dry, wind speed 8mph, 80% cloud cover
02/09/22	18°C, dry, wind speed 5mph, 20% cloud cover
07/02/2023	6°C, dry, wind speed 5mph, 0% cloud cover

2.2.1 Extended Phase 1 Habitat Survey

During the Phase 1 habitat survey, all habitats were identified and mapped according to industry standard guidance for Phase 1 habitat survey (JNCC, 2010).

The survey area was inspected for field evidence and suitability to support the following protected species:

- Badger;
- Bats (*Chiroptera* spp.);
- Great crested newt (*Triturus cristatus*) and other amphibians;
- Hedgehog (*Erinaceus europaeus*);
- Hazel dormouse (*Muscardinus avellanarius*);
- Reptiles;
- Otter;
- Water vole;
- White-clawed crayfish (*Austropotamobius pallipes*);
- Wild birds;
- Protected plants; and
- Protected Invertebrates

The presence of any invasive non-native species (INNS) was also noted.

2.2.2 Ground Level Tree Assessment (GLTA) - Bats

All trees within the Site Boundaries were inspected from ground level, to determine their potential to support roosting bats and followed best practice guidance (Collins, 2016). Trees were surveyed from the ground, with the use of close-focussing binoculars to assist in the observation and assessment of potential roost features (PRFs). Information was collected on PRFs observed during the ground-level survey and included: height of feature; orientation of the feature within the tree; orientation of bat access to the feature; description of the feature; and whether the tree can safely be climbed during a follow-up PRF Inspection Survey (if required).

Each tree was assessed as having 'High', 'Moderate', 'Low', or 'Negligible' potential for roosting bats according to industry standard guidance (Collins, 2016).

2.2.3 Badger Survey

The survey consisted of a daytime walkover with the primary aim of establishing whether badgers were present within the Site and (per the findings of the survey) assess whether further work is required.

The area immediately adjacent to and up to a 30m from the Site boundary was surveyed for evidence of badger activity including;

- sett entrances,
- large spoil heaps outside sett entrances,
- bedding outside sett entrances,
- badger footprints,
- badger paths,
- latrines,
- badger hairs on fences or bushes,
- scratching posts,
- signs of digging for food.

2.2.4 Otter and Water Vole survey

All suitable habitat within and adjacent to the Site was surveyed for signs of otter and water vole. This included 300m along the canal from each side of the Sites.

During the survey, surveyors walked along the toe of the banks and conducted continuous searches for otter and water vole presence. Otter and water vole field signs, if found, were recorded in the field by taking a NGR point at each interval where field signs were observed.

Otter Survey

The otter survey was undertaken following best practice guidelines (Chanin, 2003). The survey involved searching for field signs of otter which included

- Spraints;
- Tracks;
- Feeding remains;
- Slides;
- Holts (underground dens and breeding sites); and,
- Couches (above ground sites where otters rest during the day).

Water Vole Survey

The water vole survey was undertaken and followed standard surveying methodology of the Water Vole Conservation Handbook (Strachan, Moorhouse, & Gelling, 2011). The survey involved searching for signs of water vole which included:

- Presence of water vole droppings;
- Evidence of water vole resting and breeding sites;

- Presence of water vole access points (runs and burrows);
- Evidence of feeding remains;
- Water vole feeding stations;
- Habitat information including bordering land use, vegetation type, bank profiles, stream depth, width and current; and Suitable habitat for water vole.

2.3 Limitations

The results presented in this report represent those at the time of survey and reporting, and data collected from available sources.

3. Results and Discussion

3.1 Statutory and Non-statutory Sites – Wern

Table 2 details the statutory and non-statutory designated Sites located within 2 km of the Wern Site which have been provided by LERC Wales' Biodiversity Information & Reporting Database (Aderyn, 2022) and obtained from Magic Maps (DEFRA, 2022).

There are five ancient woodland sites, one restored ancient woodland site, one plantation on ancient woodland site (PAWS) and one PAWS NRW priority area within 2km of the site. Due to the localised nature of the proposed works, the zone of influence (Zol) for non-statutory sites is likely to be restricted to those located adjacent to or within 200 m of the Site, or those which have hydrological connectivity to the Site.

Table 2: Statutory & non-statutory sites – Wern

Site Name	Designation Type	Reason for Designation	Distance and Direction from Site (km)
Statutory			
Montgomery Canal	Special Area of Conservation (SAC) / Site of Special Scientific Interest (SSSI)	Designated for its unique aquatic plant life.	On Site

3.1.1 Potential Adverse Effects

The Montgomery canal SAC / SSSI is located on the site boundary. Due to the close proximity of the SAC/SSSI to the Site and direct hydrological connection, there is the potential for direct adverse effects associated with pollution during the construction phase. A Habitats Regulations Assessment is likely to be required in advance of the works. The need for a SSSI assent from Natural Resources Wales should also be considered.

All non-statutory sites are located outside of the Zol (the closest non-statutory site is NRW Priority Areas - PAWS which is located 1.9 m south of the Site) from the proposed works, and so adverse effects are not anticipated.

3.2 Statutory and Non-statutory Sites – Carreghofa

Table 3 details the statutory and non-statutory designated sites located within 2 km of the Carreghofa Site which have been provided by LERC Wales' Biodiversity Information & Reporting Database (Aderyn, 2022) and obtained from Magic Maps (DEFRA, 2022).

There is one wildlife trust reserve, one road verge nature reserve, eight ancient semi natural woodland sites, nine restored ancient semi natural woodland sites, six plantation on ancient woodland site (PAWS), six NRW (PAWS) priority areas and one NRW heathland and grassland priority area. Due to the localised nature of the proposed works, the zone of influence (Zol) for non-statutory sites is likely to be restricted to those located adjacent to or within 200 m of the Site, or those which have hydrological connectivity to the Site.

Table 3: Statutory & non-statutory sites – Carreghofa

Site Name	Designation Type	Reason for Designation	Distance and Direction from Site (km)
Statutory			
Montgomery Canal	SAC/SSSI	Designated for its unique aquatic plant life.	On site
Llanymynech and Llyncllys Hills	SSSI	Designated for it's suitability to support a number of rare invertebrates such as Grizzled Skipper (<i>Pygrus malvae</i>).	1.1 km North

3.2.1 Potential Adverse Effects

The Montgomery canal SAC / SSSI is located on the site boundary. Due to the close proximity of the SAC/SSSI to the Site and direct hydrological connection, there is the potential for direct adverse effects associated with pollution during the construction phase. A Habitats Regulations Assessment is likely to be required in advance of the works. The need for a SSSI assent from Natural Resources Wales should also be considered.

The Llanymynech and Llyncllys Hills SSSI is located 1.1 km north-west of the Site. There is no hydrological connectivity and has a large intervening distance from the Site activities. Therefore, potential adverse effects are unlikely to occur.

All non-statutory sites are located outside of the Zol (the closest non-statutory site is Llanymynech Rock which is located 1.2 km north of the Site) from the proposed works, and so adverse effects are not anticipated.

3.3 Statutory and Non-statutory Sites – Red Lane

Table 4 details the statutory and non-statutory designated sites located within 2 km of the Red Lane Site which have been provided by LERC Wales' Biodiversity Information & Reporting Database (Aderyn, 2022) and obtained from Magic Maps (DEFRA, 2022).

There are thirty-seven ancient woodland sites, twenty-two restored ancient woodland sites, fifteen plantations on ancient woodland site (PAWS), fifteen PAWS NRW priority areas and two Wildlife trust reserves within 2km of the Site. Due to the localised nature of the proposed works, the zone of influence (Zol) for non-statutory sites is likely to be restricted to those located adjacent to or within 200 m of the Site, or those which have hydrological connectivity to the Site.

Table 4: Statutory & non-statutory sites – Red Lane

Site Name	Designation Type	Reason for Designation	Distance and Direction from Site (km)
Statutory			
Montgomery Canal	SAC / SSSI	Designated for its unique aquatic plant life.	On Site
Bron-y-buckley wood	SSSI	Designated for its ancient woodland habitat and geological features	1.8 km North-West

3.3.1 Potential Adverse Effects

The Montgomery canal SAC / SSSI is located on the Site boundary. Due to the close proximity of the SAC/SSSI to the Site and direct hydrological connection, there is the potential for direct adverse effects associated with pollution during the construction phase. A Habitats Regulations Assessment is likely to be required in advance of the works. The need for a SSSI assent from Natural Resources Wales should also be considered.

The Bron-y-buckley wood SSSI is located 1.8 km north-west of the Site. There is no hydrological connectivity and has a large intervening distance from the site. Therefore, potential adverse effects are unlikely to occur.

All non-statutory sites are located outside of the Zol (the closest non-statutory site is Severn Farm Pond which is located 1 km south of the Site) from the proposed works, and so adverse effects are not anticipated.

3.4 Habitats

A Phase 1 Habitat map for the Sites can be found in Appendix 1, Figures 4,5 and 6.

3.4.1 Habitat Descriptions

The habitats identified within the survey areas during the Phase 1 Habitat survey are described in Table 5, 6 and 7 below.

Table 5 – Wern Habitats and Descriptions

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
Dense Scrub: A2.1	<p>Areas of dense scrub was located to the northeast and northwest of the Site. (Photograph 1).</p> <p>This area was dominated by goat willow (<i>Salix caprea</i>) and blackthorn (<i>Prunus spinosa</i>)</p>	<p>The scrub is important up to a Site level and is of low ecological value due to its common nature and small size.</p> <p>It is not anticipated that this habitat will be removed to facilitate the works.</p> <p>If works require the removal of this habitat no adverse effects are anticipated.</p>
Scattered trees: A3.1	<p>Scattered trees were located along the boundaries of the Site. (Photograph 2).</p> <p>Species consisted of sessile oak (<i>Quercus robur</i>), hazel (<i>Corylus avellana</i>) and ash (<i>Fraxinus excelsior</i>).</p>	<p>The scattered trees are important up to a Site level and are of low ecological importance due to its common nature and abundance of similar habitat nearby.</p> <p>There is potential for adverse effects from the removal of scattered tres</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
Semi-improved neutral grassland: B2.2	<p>The semi-improved grassland formed the dominating habitat at the Site, located throughout each of the 3 fields. The grasslands were utilised as grazing fields. (Photograph 3)</p> <p>Species present included spear thistle (<i>Cirsium vulgare</i>), creeping thistle (<i>Cirsium arvense</i>), red clover (<i>Trifolium pratense</i>), white clover (<i>Trifolium repens</i>), common mouse ear (<i>Cerastium fontanum</i>), meadow butter cup (<i>Ranunculus acris</i>), dandelion (<i>Taraxacum officinale</i>), broadleaved dock (<i>Rumex obtusifolius</i>), creeping buttercup (<i>Ranunculus repens</i>), common nettle (<i>Urtica dioica</i>), perennial rye grass (<i>Lolium perenne</i>), hedge bindweed (<i>Calystegia sepium</i>), meadow foxtail (<i>Alopecurus pratensis</i>), cocks foot (<i>Dactylis glomerata</i>), common hogweed (<i>Heracleum sphondylium</i>) and cow parsley (<i>Anthriscus sylvestris</i>).</p>	<p>The semi-improved grassland has low ecological value due to low species diversity and well managed condition. It is considered important at Site level only.</p> <p>The proposed works has the potential to directly impact these habitats through habitat removal and degradation.</p>
Swamp: F1	<p>There was a small area of swamp located within the north-west aspect of the Site (Photograph 4).</p> <p>Species present; Cow vetch (<i>Vicia cracca</i>), common reed grass (<i>Phragmites australis</i>), Timothy grass (<i>Phleum pratense</i>), reed mace (<i>Typha latifolia</i>), and soft rush (<i>Juncus effusus</i>).</p>	<p>The swamp is a Habitat of Principal Importance (Welsh Government, 2016) and important up to a Site level.</p> <p>It is not anticipated that this habitat will be removed as part of the works. The works proposed should enhance this habitat.</p>
Tall ruderal: C3.1	<p>There was a small area of tall ruderal located in north-west corner located adjacent to the swap habitat (Photograph 5).</p> <p>This area was dominated by great willowherb (<i>Epilobium hirsutum</i>).</p>	<p>The tall ruderal habitat is of moderate ecological value and is only important at Site level.</p> <p>It is not anticipated that this habitat will be removed as part of the works.</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
<p>Species-rich intact hedgerow: J2.1.1</p>	<p>The south, south-west and north-west boundaries are formed with native species rich hedgerows. (Photograph 6)</p> <p>Woody species consisted of bramble (<i>Rubus fruticosus</i>), elder (<i>Sambucus nigra</i>), holly (<i>Ilex aquifolium</i>), dog rose (<i>Rosa canina</i>), goat willow (<i>Salix caprea</i>), silver birch (<i>Betula pendula</i>) Ash, hazel, sessile oak, hawthorn and blackthorn.</p> <p>Ground flora consisted of bittersweet nightshade (<i>Solanum dulcamara</i>), angelica (<i>Angelica sylvestris</i>), common hogweed (<i>Heracleum sphondylium</i>), ribwort plantain (<i>Plantago lanceolata</i>), shepherd's purse (<i>Capsella bursa-pastoris</i>), red campion (<i>Silene dioica</i>), bramble, perennial rye grass, cow parsley, great willowherb, hedge bindweed, cow vetch, creeping thistle.</p>	<p>The hedgerows on Site are Priority Habitats (Welsh Government, 2016) and are important up the Site level.</p> <p>The works may involve the removal or degradation of this habitats.</p> <p>If hedgerows are to be removed this could cause a significant reduction in the ecological value of the hedgerow network, through habitat fragmentation.</p>
<p>Species-poor intact hedgerow: J2.1.2</p>	<p>The eastern and south-eastern boundary of Site were formed by a species poor native hedgerow (Photograph 7).</p> <p>This area was dominated by a bramble and hawthorn hedgerow.</p>	<p>Furthermore, the works could indirectly affect the hedgerows through root damage/compaction during construction.</p>
<p>Species-rich Defunct hedgerow: J2.2.1</p>	<p>The central aspect of Site was made up of a species rich defunct hedgerow. (Photograph 8)</p> <p>Woody species consisted of Sessile oak, hazel, hawthorn, bramble & sycamore.</p>	
<p>Standing water: G1</p>	<p>The canal forms the northern boundary of the Site. (Photograph 9)</p> <p>The canal banks and water channel vegetation consisted of water mint (<i>Mentha aquatica</i>), bird-foot trefoil (<i>Lotus corniculatus</i>), marsh woundwort (<i>Stachys palustris</i>), grey willow (<i>Salix cinerea</i>), cocksfoot, reedmace, common hogweed, meadow foxtail, common nettle, great</p>	<p>The canal on Site is a Priority Habitat (Welsh Government, 2016), SAC and SSSI. It is important at an international level.</p> <p>Due to the direct hydrological connection with the Site and the canal, there is the potential for</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
	willow herb, broadleaf dock, and goat willow,	<p>adverse effects via pollution during the construction phase.</p> <p>A Habitats Regulations Assessment is likely to be required in advance of the works. The need for a SSSI assent from Natural Resources Wales should also be considered. This will include an approved method statement that includes a suitable pollution prevention plan.</p>

Table 6 –Habitats and Descriptions - Carreghofa

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
Scattered trees: A3	<p>Scattered trees were located across the Site (Photograph 10)</p> <p>Species consisted of Sessile oak and sycamore (<i>Acer pseudoplatanus</i>)</p>	<p>The scattered trees are important up to a Site level and are of low ecological importance due to its common nature and abundance of similar habitat nearby.</p> <p>There is potential for adverse effects from the removal of scattered trees.</p>
Marshy grassland: B5	<p>There was a small area of marshy grassland located in the north-east corner of the Site. (Photograph 11)</p> <p>Species consisted of soft rush and reedmace.</p>	<p>The marshy grassland is a Habitat of Principal Importance (Welsh Government, 2016). It is important at Site level.</p> <p>There is potential for adverse effects from the removal of marshy grassland.</p>
Tal ruderal: C3.1	<p>There was a strip of tall ruderal located to the north-east of the Site (Photograph 12).</p> <p>Species consisted of creeping thistle, spear thistle, broadleaved dock, common hogweed, dandelion and great willow herb.</p>	<p>The tall ruderal habitat is of moderate ecological value and is only important at Site level.</p> <p>It is not anticipated that this habitat will be removed as part of the works.</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
<p>Standing water: G1</p>	<p>The canal formed the eastern and south-east boundary of the Site (Photograph 13).</p> <p>Canal bank and channel vegetation consisted of alder (<i>Alnus glutinosa</i>), bittersweet nightshade, meadowsweet, grey willow and reedmace.</p>	<p>The canal is a Habitat of Principal Importance (Welsh Government, 2016), SAC and SSSI. It is important at an international level.</p> <p>Due to the direct hydrological connection with the Site and the canal, there is the potential for adverse effects via pollution during the construction phase.</p> <p>A Habitats Regulations Assessment is likely to be required in advance of the works. The need for a SSSI assent from Natural Resources Wales should also be considered. This will include an approved method statement that includes a suitable pollution prevention plan.</p>
<p>Species-rich intact hedgerow: J2.1.1</p>	<p>In the north-east and south boundary of Site there was areas of species-rich native hedgerows located along the length of the canal (Photograph 14).</p> <p>Woody species consisted of hawthorn, dog rose, elder, holly, ivy, ash, sessile oak.</p> <p>Understory species consisted of broad buckler fern (<i>Dryopteris dilatata</i>), curly dock (<i>Rumex crispus</i>), grey willow, common hogweed, bramble, bittersweet nightshade.</p>	<p>The hedgerows on Site are Priority Habitats (Welsh Government, 2016) and are important up the Site level.</p> <p>The works may involve the removal or degradation of this habitats.</p> <p>If hedgerows are to be removed this could cause a significant reduction in the ecological value of the hedgerow network,</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
Species-poor intact hedgerow: J2.1.2	<p>The northern boundary is a species poor native hedgerow. (Photograph 15)</p> <p>This area was dominated by a bramble hedge. The ground flora consisted of; common nettle, spear thistle, bramble, broadleaf dock, cow parsley, cocksfoot, dandelion and blackthorn saplings.</p>	<p>through habitat fragmentation. Furthermore, the works could indirectly affect the hedgerows through root damage/compaction during construction.</p>
Arable field: J1.1	<p>Arable field with unknown crop. (Photograph 16)</p>	<p>This habitat is of negligible ecological importance.</p> <p>Works will involve complete removal of this habitat. No adverse effects on this habitat are anticipated.</p>

Table 7 –Habitats and Descriptions – Red Lane

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
Broad-leaved woodland: A1.1	<p>Two areas of broad-leaved woodland were recorded within the Site and formed the boundary habitats along the western aspect of the Site (Photograph 17).</p>	<p>The broad-leaved woodlands located on Site are Priority Habitats (Welsh Government, 2016)and are of moderate ecological value and is considered important up to Local level.</p> <p>The proposed works have the potential to directly impact these habitats through habitat removal and degradation. There is the potential for the works to cause indirect adverse effects (root damage, dust pollution) during the construction phase</p>
Scattered trees: A3	<p>Scattered trees were located across the Site (Photograph 18).</p>	<p>The scattered trees are important up to a Site level and are of low</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
	<p>Species consisted of sessile oak, sycamore, and ash.</p>	<p>ecological importance due to its common nature and abundance of similar habitat nearby.</p> <p>There is potential for adverse effects from the removal of scattered trees.</p>
<p>Improved grassland: B4</p>	<p>Improved grassland formed the dominant habitat at the Site, located throughout each of the 2 fields. The grasslands were utilised as grazing fields (Photograph 19).</p> <p>The sward height of the grassland was 1-5cm.</p> <p>Species present included perennial ryegrass, dandelion, creeping buttercup, common nettle, cocksfoot and cow parsley.</p>	<p>The improved grassland has low ecological value due to low species diversity and well managed condition. It is considered important at Site level only.</p> <p>The proposed works have the potential to directly impact these habitats through habitat removal and degradation.</p>
<p>Marginal and inundation: F2.2</p>	<p>A strip of marginal vegetation was located between the Montgomery Canal and improved grassland within the south-western aspect of the Site (Photograph 20).</p> <p>Species consisted of soft rush, reed mace and common reed (<i>Phragmites australis</i>)</p>	<p>The marginal vegetation is of moderate ecological value and important up to Site level.</p> <p>The proposed works have the potential to directly impact this habitat through habitat removal and degradation.</p>
<p>Standing water: G1</p>	<p>The canal formed the eastern boundary of the Site (Photograph 21).</p>	<p>The canal is a Habitat of Principal Importance (Welsh Government, 2016) SAC and SSSI. It is important at an international level.</p> <p>Due to the direct hydrological connection between the Site and the canal, there is the potential for adverse effects via pollution during the construction phase.</p> <p>A Habitats Regulations Assessment is likely to be required in advance of the works.</p>

Habitat	Description and Species Present	Ecological Importance and Assessment of Likely Effects
		The need for a SSSI assent from Natural Resources Wales should also be considered. This will include an approved method statement that includes a suitable pollution prevention plan.
Running water: G4	<p>A small running water ditch was located within the centre of the Site flowing from the west to the east (Photograph 22).</p> <p>The ditch is 1 m wide with grass verges and bare ground banks.</p> <p>The water was clear with gravel/silt substrate.</p> <p>Bankside vegetation consisted of soft rush, perennial ryegrass, dandelion, creeping buttercup, common nettle, cocks foot and cow parsley.</p>	<p>The running water located on Site is a Priority Habitat (Welsh Government, 2016) and is of moderate ecological value and considered to be important up to the local level.</p> <p>The proposed works have the potential to directly impact this habitat through habitat removal and degradation. Indirect adverse effects such as pollution / surface runoff could also occur during the construction works.</p>
Species-rich hedgerow: J2.1.1	<p>Two species rich hedgerows were recorded within the site located along the northern and eastern boundaries.</p> <p>Woody species consisted of hawthorn, blackthorn, holly, sessile oak, elder, beech and hazel (Photograph 23).</p> <p>Ground flora species consisted of perennial ryegrass, dandelion, creeping buttercup, cocksfoot, cow parsley, bramble.</p>	<p>The hedgerows on Site are Priority Habitats (Welsh Government, 2016) and are important up the Local level.</p> <p>The works may involve the removal or degradation of these habitats.</p> <p>If hedgerows are to be removed this could cause a significant reduction in the ecological value of the hedgerow network and habitat connectivity, through habitat fragmentation.</p>
Species-poor hedgerow: J2.2.2	<p>Two species-poor hedgerows were recorded within the site located along the southern and western boundary of the Site (Photograph 24).</p> <p>Woody species consisted of hawthorn, blackthorn, elder and holly.</p>	<p>Furthermore, the works could indirectly affect the hedgerows through root damage/ compaction during construction.</p>

3.5 Species

Below is a summary of the likely status of relevant protected and notable species within 2 km of the Site.

3.5.1 Badger

Wern

Nine records of badger were provided by the records centre (Aderyn, 2022), from within 2km off the Site. The closest was a sighting of a badger 455m north-west of the Site recorded in 2019. No badger sett records were returned within 30m of the Site.

No conclusive evidence was identified during the survey (such as setts, latrines or footprints). Numerous mammal paths were located along the southern boundary of the Site.

The Site provides suitable foraging habitat with suitable sett building habitat in the wider landscape. Due to the potential to support badgers and the biological records showing activity in the local area. Removal of these habitats could potentially cause adverse effects through sett destruction or degradation of suitable habitat.

If the proposals include excavation or the use of large machinery indirect effects such as injury during the construction phase could occur. If additional lighting is required (temporary or permanent), this could also indirectly affect badgers through disturbance.

Carreghofa

Seven records of badger were provided by the records centre (Aderyn, 2022), from within 2km of the Site. The closest record was a badger sighting 1.2 km north of the Site in 2018.

Two setts were located in the hedgerow understorey forming the north-east boundary of the site. Snuffle holes and an old latrine were noted near the setts.

The hedgerow margins on Site and grassland in the wider landscape provide suitable sett building and foraging habitat for badgers. Removal of these habitats could cause direct adverse effects.

If the proposals include excavation or the use of large machinery indirect effects such as injury during the construction phase could occur. If additional lighting is required (temporary or permanent), this could also indirectly affect badgers through disturbance.

Red Lane

Eleven records of badger were provided by the records centre (Aderyn, 2022), from within 2km off the Site. The closest was a sighting of a badger 690 m south-west of the Site recorded in 2015.

The broadleaved wood, hedgerows and improved grassland on Site provide suitable sett building and foraging habitat for badgers. Badgers may also pass through the Site for foraging and commuting purposes. Removal of these habitats could cause direct adverse effects.

If the proposals include excavation or the use of large machinery indirect effects such as injury during the construction phase could occur. If additional lighting is required (temporary or permanent), this could also indirectly affect badgers through disturbance.

3.5.2 Bats

Wern

Ten records of bat species were returned by the biological records centre (Aderyn, 2022) including records of the following species:

- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Brandt's bat (*Myotis brandtii*);
- Lesser horseshoe bat (*Rhinolophus hipposideros*)
- Brown long eared bat (*Plecotus auritus*); and
- Noctule (*Nyctalus noctula*).

The closest record to the Wern Site was a sighting of a Soprano pipistrelle roost in the gable end of a private residential building 255 m east of the Site in 2015.

Carreghofa

Fifteen records of bat species were returned by the biological records centre (Aderyn, 2022) including records of the following species:

- Soprano pipistrelle;
- Daubenton's bat (*Myotis daubentonii*);
- Whiskered bat (*Myotis mystacinus*);
- Lesser horseshoe bat;
- Brown long eared bat; and
- Noctule.

The closest record to the Carreghofa Site was a sighting and bat recording of a Daubenton's bat foraging 915m east of the Site in 2014.

Red Lane



Thirty-eight records of bat species were returned by the biological records centre (Aderyn, 2022) including records of the following species:



- Soprano pipistrelle;
- Brandt's bat;
- Whiskered bat
- Lesser horseshoe bat :
- Brown long eared bat ; and
- Noctule.



The closest record to the Red lane Site was a sighting and acoustic recording of a Soprano pipistrelle foraging 179 m east of the Site in 2013.



A GLTA survey was undertaken at the Wern, Carreghofa and Red Lane Sites. All high, moderate and low potential trees have been recorded in Table 7, 8 and 9 below.

Table 7 - Preliminary Bat Roost Assessment – Wern

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T1	<p>Hawthorn located in the small copse to the south of Site.</p> <p>NGR: SJ 25715 12968</p>	<p>The trunk cavity has the suitability to support crevice-dwelling bats.</p> <p>Moderate potential to support roosting bats.</p>	<p>The trunk cavity that may lead to larger cavities it is considered likely that hibernating bats may utilise this tree.</p> <p>Moderate potential to support hibernating bats.</p>	
T2	<p>Mature sessile oak located in the small copse to the south of Site. There was a dead branch with various cracks noted at 10m on the eastern side of the tree.</p> <p>NGR: SJ 25716 12975</p>	<p>The dead branch and extending cracks provide suitable habitat to support a small number of crevice-dwelling bats</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T3	<p>A mature ash located small copse to the south of the Site. There was a cavity noted on a branch at 6m on the south-western aspect of the tree. There was also a cavity noted on the trunk at 4m on the north-eastern aspect of the tree.</p> <p>MGR: SJ 25711 12977</p>	<p>The branch cavity has the suitability to support a small number of crevice-dwelling bats.</p> <p>Moderate potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	
T4	<p>A veteran oak in the centre of Site. This have</p> <p>NGR: SJ 25717 13007</p>	<p>Multiple features on all aspects of the tree. Due to the high number of PRF's on the tree, this has the potential to support high number of crevice or cavity dwelling bats.</p> <p>High potential to support roosting bats.</p>	<p>Due to the high number of PRF's on the tree, that may lead to larger cavities it is considered likely that hibernating bats may utilise this tree.</p> <p>Moderate potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T5	<p>Mature oak located in the north of Site.</p> <p>NGR: SJ 25685 13054</p>	<p>Multiple features located throughout the tree. Due to the high number of PRF's on the tree, this has the potential to support high number of crevice and cavity dwelling bats.</p> <p>High potential to support roosting bats.</p>	<p>Due to the high number of PRF's on the tree, that may lead to larger cavities it is considered likely that hibernating bats may utilise this tree.</p> <p>Moderate potential to support hibernating bats.</p>	
T6	<p>Mature oak on the south-eastern aspect of Site.</p> <p>NGR: SJ 25758 12996</p>	<p>Multiple features located throughout the tree. Due to the high number of PRF's on the tree, this has the potential to support high number of crevice and cavity dwelling bats.</p> <p>High potential to support roosting bats.</p>	<p>Due to the high number of PRF's on the tree, that may lead to larger cavities it is considered likely that hibernating bats may utilise this tree.</p> <p>Moderate potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T6	<p>Mature oak on the south-eastern aspect of Site.</p> <p>NGR: SJ 25758 12996</p>	<p>Multiple features noted on all sides of the tree. Due to the high number of PRF's on the tree, this has the potential to support high number of crevice or cavity dwelling bats.</p> <p>High potential to support roosting bats.</p>		
T7	<p>Mature oak on the south-eastern aspect of Site. There were multiple features noted on all sides of the tree.</p> <p>NGR: SJ 25768 12973</p>	<p>Multiple features noted on all sides of the tree. Due to the high number of PRF's on the tree, this has the potential to support high number of crevice-dwelling bats.</p> <p>High potential to support roosting bats.</p>	<p>Due to the high number of PRF's on the tree, that may lead to larger cavities it is considered likely that hibernating bats may utilise this tree.</p> <p>Moderate potential to support hibernating bats.</p>	





Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T8	<p>Mature oak located just outside the Site boundary. There were multiple trunk cavities noted at various heights on the western aspect, facing the Site.</p> <p>NGR: SJ 25835 12950</p>	<p>The cavities in the tree have the potential to support a moderate number of crevice or cavity dwelling bats.</p> <p>Moderate to high potential.</p>	<p>Due to the high number of PRF's on the tree, that may lead to larger cavities it is considered likely that hibernating bats may utilise this tree.</p> <p>Moderate potential to support hibernating bats.</p>	

Table 8 - Preliminary Bat Roost Assessment – Carreghofa

Reference	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T1	<p>Mature oak located in the north central aspect of the Site. There were multiple PRF's noted around all aspects of the tree.</p> <p>NGR: SJ 25485 20454</p>	<p>There is a rot hole located on the trunk at 6m on the south side of the tree. A broken branch with cracks was located at 3 m on the south western side of the tree. A branch cavity was noted at 6m on the north-western side of the tree and a split branch was located 4m on the northern aspect of the tree.</p> <p>Due to the moderate number of PRFs that are suitable to support a number of crevice-dwelling bats this has moderate to high bat roost potential.</p> <p>Moderate to High potential to support roosting bats</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Reference	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T2	<p>Mature oak located in the north central aspect of the Site. There were two dead branches one located at 4m on the south-eastern aspect of the tree and the other at 6m on the south-western side of the tree.</p> <p>NGR: SJ 25239 20462</p>	<p>The dead branches are suitable to support a small number of crevice-dwelling bats.</p> <p>Moderate potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	
T3	<p>A mature oak located with the Site boundary. The whole trunk was covered in thick ivy.</p> <p>NGR: SJ 25183 20446</p>	<p>The ivy on the tree is suitable to support a small number of crevice-dwelling bats. The thick ivy coverage on the trees could be covering potential PRFS such as other holes and crevices on the trunk.</p> <p>Moderate potential to support roosting bats</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Reference	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T4	<p>Dead willow located north-west of the site. The trunk was covered in ivy.</p> <p>NGR: SJ 25108 20395</p>	<p>The ivy on the tree is suitable to support a small number of crevice-dwelling bats. The thick ivy coverage on the trees could be covering potential PRFS such as other holes and crevices on the trunk.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	N/A
T5	<p>Mature sycamore tree located outside the site boundary to the South-West. The tree was covered in ivy.</p> <p>NGR: SJ 25165 20364</p>	<p>The ivy on the tree is suitable to support a small number of crevice-dwelling bats.</p> <p>Low potential to support roosting bats</p>	<p>Low potential to support hibernating bats.</p>	N/A










Reference	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T6	<p>Mature oak located outside the site boundary to the South-West. The tree was covered in ivy and a dead branch was located at 4m on the southwest side of the tree.</p> <p>NGR: SJ 25178 20364</p>	<p>The ivy and dead branch is suitable to support a small number of crevice-dwelling bats. The thick ivy coverage on the trees could be covering potential PRFS such as other holes and crevices on the trunk.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	


Table 9 - Preliminary Bat Roost Assessment –Red Lane

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T1	<p>Mature oak located within the southern aspect of the Site. The tree had a number of split branches and peeling bark.</p> <p>NGR SJ 2173405529</p>	<p>The split branches and peeling bark is suitable to support a small number of crevice-dwelling bats</p> <p>Moderate potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	
T2	<p>Mature oak located within the southern aspect of the Site. the tree had a snapped main stem, callus rolls and split branches.</p> <p>NGR SJ2173405533</p>	<p>The snapped main stem, callus roll and split branches could provide suitability to support crevice-dwelling bat.</p> <p>Moderate potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T3	<p>Mature oak located within the southern aspect of the Site. The tree had a split branch</p> <p>NGR: SJ2172805475</p>	<p>The split branch could provide suitability to support crevice-dwelling bats.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	
T4	<p>Mature oak located within the southern aspect of the Site. The tree had numerous split branches.</p> <p>NGR: SJ 21769 05450</p>	<p>The split branch could provide suitability to support crevice-dwelling bats.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T5	<p>Mature oak located within the southern aspect of the Site. The tree had a torn limb and number of split branches.</p> <p>NGR: SJ 2189505767</p>	<p>The torn limb and split branches could provide suitability to support crevice-dwelling bats.</p> <p>Moderate potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	
T6	<p>Mature oak located within the central aspect of the Site. The tree had split branches and lifted bark.</p> <p>NGR: SJ 22059059913</p>	<p>The lifted bark and split branches could provide suitability to small numbers of crevice-dwelling bats.</p> <p>Moderate potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T7	<p>Mature oak located within the central aspect of the Site. The tree had lifted bark and split branches.</p> <p>NGR: SJ2207205931</p>	<p>The lifted bark and split branches could provide support to crevice-dwelling bats.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	
T8	<p>Mature oak located within the northern aspect of the Site. the tree had a number of split branches and torn main stem.</p>	<p>The split branches and torn stem could provide suitability in supporting crevice-dwelling bats.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

Tree	Description	Suitability for Roosting Bats	Suitability for Hibernating Bats	Photographs
T9	Two ash trees located within the northern aspect of the Site. The trees were covered in ivy cover.	<p>The thick ivy coverage on the trees could be covering potential PRFS such as other holes and crevices on the trunk.</p> <p>Low potential to support roosting bats.</p>	<p>The PRFs on the tree would not typically be regarded as providing the protection from weather or provide the favourable temperature and humidity conditions required during the winter period. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus unexpected incidents of hibernation could occur (Middleton, 2019).</p> <p>Low potential to support hibernating bats.</p>	

3.5.3 Great Crested Newt and Common Amphibians

Wern

No records of great crested newt (GCN) were returned by the biological record centre (Aderyn, 2022) from within 2 km of the Site. One record of common amphibian was returned by the biological records centre (Aderyn, 2022).

The closest record to the Wern site was of a common frog which was 1.1 km south-east of the Site in 2019.

A reed bed was present at Site which has the potential to provide suitable breeding habitat for GCN.

The canal provides suitable habitat breeding and foraging habitat for amphibians. The terrestrial habitat located within the Site is sub-optimal for GCN as it is grassland managed by livestock. There was a significant amount of runoff into the canal from the agricultural field next to site at (TN1 – Figure 3), resulting in poor water quality and biodiversity at this section of the canal.

Due to the lack of records and the suboptimal nature of both the reedbed and terrestrial habitat on Site, adverse effects are considered unlikely for GCN and other amphibians. However due to the direct link to the Site to the canal there is the potential to have adverse effects to GCN and other amphibians via direct pollution from Site.

Carreghofa

Two records of great crested newt (GCN) were returned by the biological record centre (Aderyn, 2022) from within 2 km of the Site. There were eleven records of common amphibians returned by the biological record centre (Aderyn, 2022) including smooth newt (*Lissotriton vulgaris*), common toad (*Buffo buffo*) and common frog (*Rana temporaria*). The closest being a record of a records of a common frog 1.1 km north- east of the Site in 2018.

The closest record of a GCN to the Site was of a sighting 1.3 km north of the Site in 2019.

The canal, hedgerow margins and marshy grassland at the Site could provide suitable foraging habitat for GCN and suitable breeding and foraging habitat for other amphibians.

The terrestrial habitat was dominated by an arable field. This habitat would provide poor foraging habitat due to high agricultural activity at Site.

Due to the suboptimal nature of terrestrial habitat on Site, adverse effects are considered unlikely for GCN and other amphibians. However due to the direct link to the Site to the canal

there is the potential to have adverse effects to GCN and other amphibians via direct pollution from Site. Adverse effects (injury) to common amphibians is possible during the construction phase.

Red Lane

Three records of great crested newt (GCN) were returned by the biological record centre (Aderyn, 2022) from within 2 km of the Site. There were five records of common amphibians returned by the biological record centre (Aderyn, 2022) including palmate newt (*Lissotriton helveticus*) and common toad (*Buffo buffo*). The closest being a record of a sighting of a common toad 790 m south-west of the Site in 2012. The closest record of GCN was 1.1 km east of the Site recorded in 2019.

The canal, broadleaved woodland, hedgerows, and marginal habitat could provide suitable breeding and foraging habitat for GCN and other amphibians. The terrestrial habitat located within the Site is sub-optimal for GCN as it is improved grassland managed by livestock.

Due to the suboptimal nature of terrestrial habitat on Site, adverse effects are considered unlikely for GCN and other amphibians. However due to the direct link to the Site to the canal there is the potential to have adverse effects to GCN and other amphibians via direct pollution from Site. Adverse effects (injury) to common amphibians is possible during the construction phase.

3.5.4 Hazel Dormouse

Wern

No records of hazel dormouse were provided by the biological records centre (Aderyn, 2022) from within 2 km of the Site.

The hedgerows located along the Site boundaries provide suitable foraging and nesting habitat for dormice. However, the lack of connecting woodland and hedgerow margins provide sub optimal commuting habitat for hazel dormice.

Due to the sub optimal conditions and lack of biological records no adverse effects are considered likely to dormouse.

Carreghofa

No records of hazel dormouse were provided by the biological records centre (Aderyn, 2022) from within 2 km of the Site.

The hedgerows located along the Site boundaries provide suitable foraging and nesting habitat for dormice. Furthermore, the extended site provides an extensive network of hedgerows, providing dormice with habitat connectivity to the wider landscape.

If the works require the removal or degradation of the hedgerow margins there is the potential to cause adverse effects to dormouse.

Red Lane

No records of hazel dormouse were provided by the biological records centre (Aderyn, 2022) from within 2 km of the Site.

The broadleaved woodland and hedgerows located along the boundary of the Site could provide suitable foraging and nesting habitat for dormouse. Furthermore, the Site and wider landscape provides dormice with an extensive network of hedgerows and woodland, providing dormouse with habitat connectivity throughout the landscape.

3.5.5 Hedgehog

Wern

One record of hedgehog was returned by the biological records centre (Aderyn, 2022), within 2km of the Site. This being a sighting 1.5 km north of the Site in 2019.

The habitats within the Site are of moderate ecological value to hedgehogs due to the presence of foraging, commuting, and hibernation habitat such as debris piles, hedgerows and scrub.

Hedgehogs are likely to pass through the Site, therefore there is the potential to cause indirect adverse effects to commuting/foraging hedgehog such as injury during the construction phase.

Carreghofa

Four records of hedgehog were returned by the biological records centre (Aderyn, 2022). The closest record was located 375m east of the Site in 2019.

The habitats within the Site are of moderate ecological value to hedgehogs due to the presence of foraging, commuting, and hibernation habitat such as tall ruderal, hedgerows and scrub.

Hedgehogs are likely to pass through the Site, therefore there is the potential to cause indirect adverse effects to commuting/foraging hedgehog such as injury during the construction phase.

Red Lane

Twelve records of hedgehog were returned by the biological records centre (Aderyn, 2022), from within 2km of the site. The closest record was located 490m south-west of the Site in 2019.

The habitats within the Site are of moderate ecological value to hedgehogs due to the presence of foraging, commuting, and hibernation habitat such as broadleaved woodland, hedgerows and scrub.

Hedgehogs are likely to pass through the Site, therefore there is the potential to cause indirect adverse effects to commuting/foraging hedgehog such as injury during the construction phase.

3.5.6 Reptiles

Wern

One record of reptiles was returned by the biological records centre (Aderyn, 2022), from within 2 km of the Site. This was a sighting of a grass snake (*Natrix helvetica*) 1.2 km south of the Site.

During the survey a log pile (TN2 - Figure 3) was noted in the north-western aspect of the Site. This has the potential to support resting and hibernating reptiles. Removal of this feature has the potential to cause adverse effects to reptiles if present.

The swamp and hedgerow margins within the Site could also provide suitable foraging and hibernation habitat for reptiles. If areas of vegetation in the above habitats are to be removed in the reptile active season (March to October) direct adverse effects (such as injury or death) to reptiles are possible.

Carreghofa

The biological records centre (Aderyn, 2022) returned 24 records of reptiles from within 2 km of the survey Site. These included records of common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow worm (*Anguis fragilis*). The nearest record was that of a grass snake located 150 m north-east of the Site in 2015.

There was a reptile mat noted east of the Site located along the canal at Carreghofa bottom loch (TN1 – Figure 4), placed by the Canal and Rivers Trust indicating previous surveys have been complete.

The tall ruderal, marshy grassland and hedgerow margins may provide suitable foraging and refuge for reptiles. If areas of vegetation in the above habitats are to be removed in the reptile active season (March to October) direct adverse effects (such as injury or death) to reptiles are possible.

Red Lane

The biological records centre (Aderyn, 2022) returned 10 records of reptiles from within 2 km of the survey Site. This includes records of grass snake (*Natrix helvetica*) and slow worm (*Anguis fragilis*). The nearest record was that of grass snake located 1.1 km east of the Site in 2012.

The grassland, woodland fringe and hedgerow base habitats provide habitat for reptiles. If vegetation removal is to be undertaken during the active reptile season (March-October), adverse effects such as injury to reptiles could occur.

3.5.7 Otter and Water Vole

Wern

Three records of otter were returned by the records centre (Aderyn, 2022) from within 2 km of the Site. No records of water vole were returned by the biological records centre (Aderyn, 2022).

The closest record to site was an otter sighting 355m east of the site in 2019.

No evidence of otter or water vole was identified during the survey. The canal is likely to support commuting otters traveling to larger watercourses such as River Calan and River Severn. But it is unlikely to support water vole as the banks of the canal were man made from reinforced steel piles and concrete, with a hard-standing path.

Due to the close proximity of the River Sever to all sites indirect effects (injury) to otter during the construction phase are possible. Due to the lack of evidence and records and the sub optimal habitat throughout Site adverse effects to water vole is negligible.

Carreghofa

No records of otter or water vole were returned by the records centre (Aderyn, 2022) from within 2 km of the Site.

No evidence of otter or water vole was identified during the survey. The canal is likely to support commuting otters moving between larger watercourses River Calan and River Severn. But it is unlikely to support water vole as the banks of the canal were man made from reinforced steel piles and concrete, with a hard-standing path.

Due to the close proximity of the River Severn to all sites indirect effects (injury) to otter during the construction phase are possible. Due to the lack of evidence and records and the sub optimal habitat throughout site adverse effects to water vole is negligible.

Red Lane

Three records of otter were returned by the records centre (Aderyn, 2022) from within 2 km of the Site. No records of water vole were returned by the biological records centre (Aderyn, 2022).

The closest record to the site was an otter spraint 675 m south-east of the Site in 2017.

No evidence of otter or water vole was identified during the survey. The canal is likely to support commuting otters moving between larger watercourses such as the River Calan and River Severn. Although no evidence of water vole was recorded during the survey the banks of the canal could provide some burrowing potential and also provide foraging resources for water vole.

Due to the close proximity of the River Severn to all sites indirect effects (injury) to otter during the construction phase are possible. Due to the lack of evidence and records and the sub optimal habitat throughout site adverse effects to water vole is not anticipated.

3.5.8 White-clawed Crayfish

Wern, Carreghofa and Red Lane

No records of white-clawed crayfish (WCC) were returned by the biological records centre (Aderyn, 2022).

No suitable habitat was located within the Site; therefore, it is deemed unlikely the works will adversely affect white-clawed crayfish.

3.5.9 Wild Birds

Wern

The biological records centre (Aderyn, 2022) returned records of 137 bird species from within 2 km of the Site. These included Schedule 1 species (HMSO, 1981) such as goshawk (*Accipiter gentilis*), merlin (*Falco columbarius*), kingfisher (*Alcedo atthis*) and peregrine (*Falco peregrinus*). Species of Principal Importance (Welsh Government, 2016) include starling (*Sturnus vulgaris*).

The closest record was a Kingfisher seen foraging along canal 165 m north-east of the Site.

The hedgerows and scattered trees located on Site are suitable for a variety of nesting birds.

Due to the specific breeding requirements of Schedule 1 birds and the absence of these habitats on Site, no adverse effects are anticipated.

If the works require any vegetation removal during nesting bird season (March-August), adverse effects to nesting birds through destruction of nests could occur.

Carreghofa

The biological records centre (Aderyn, 2022) returned records of 85 bird species from within 2 km of the Site. These included Schedule 1 species (HMSO, 1981) such as kingfisher and peregrine. Species of Principal Importance (Welsh Government, 2016) include starling, yellowhammer (*Emberiza citronella*) and kestrel (*Falco tinnunculus*).

The scattered trees, scrub, canal and hedgerows are suitable for a variety of nesting birds.

Due to the specific breeding requirements of Schedule 1 birds and the absence of these habitats on Site, no adverse effects are anticipated.

If the works require any vegetation removal during nesting bird season (March-August), adverse effects to nesting birds through destruction of nests could occur.

Red Lane

The biological records centre (Aderyn, 2022) returned records of 245 bird species from within 2 km of the Site. These included Schedule 1 species (HMSO, 1981) such as red kite (*Milvus milvus*), whooper swan (*Cygnus cygnus*) and red wing (*Turdus iliacus*). Species of Principal Importance (Welsh Government, 2016) include starling, herring gull (*Larus argentinus*) and song thrush (*Turdus philomelos*).

The broadleaved woodland, hedgerows, and canal are suitable for a variety of nesting birds.

Due to the specific breeding requirements of Schedule 1 birds and the absence of these habitats on Site, no adverse effects are anticipated.

If the works require any vegetation removal during nesting bird season (March-August), adverse effects to nesting birds through destruction of nests could occur.

3.5.10 Protected Invertebrates

Wern

Eighty-three records of invertebrates were returned by local records centre (Aderyn, 2022). Records of Species of Principal Importance (Welsh Government, 2016) including knot grass (*Acronicta rumicis*) and shaded broad-bar (*Scotopteryx chenopodiata*).

The swamp, hedgerows and semi-improved neutral grassland are likely to support common and widespread invertebrate species. Any adverse effects to invertebrates are likely to be restricted to temporary displacement during construction.

Carreghofa

Three hundred and fifty-six records of invertebrates were returned by local records centre (Aderyn, 2022). Records of Species of Principal Importance (Welsh Government, 2016) including small heath (*Coenonympha pamphilus*), grey dagger (*Acronicta psi*) and cinnabar (*Tyria jacobaeae*).

The hedgerows, tall ruderal, marshy grassland and scrub are likely to support common and widespread invertebrate species. Any adverse effects to invertebrates are likely to be restricted to temporary displacement during construction.

Red Lane

One hundred and seventy-nine records of invertebrates were returned by local records centre (Aderyn, 2022). Records of Species of Principal Importance (Welsh Government, 2016) including small grey dagger (*Acronicta psi*) and cinnabar (*Tyria jacobaeae*).

The broadleaved woodland, hedgerows and improved grassland are likely to support common and widespread invertebrate species. Any adverse effects to invertebrates are likely to be restricted to temporary displacement during construction.

3.5.11 Invasive Non-native Species

Wern, Carreghofa and Red Lane

No records of invasive species were returned by the biological record centre (Aderyn, 2022) from within 2 km of the Site.

No invasive species were recorded during the walkover surveys.

4. Recommendations

Following the initial surveys at the Site, the following recommendations for further survey effort and or mitigation measures have been made.

Table 10 Ecological Recommendations

Ecological Receptor	Recommendation
Montgomery Canal SAC/SSSI	A Habitats Regulations Assessment should be undertaken in advance of the works. The need for SSSI assent may also be considered during the HRA process. Best practice pollution prevention (including the use of spill kits and drip trays) measures should be adhered to at all times.
Habitats	<p>All hedgerows and trees within the Site are to be given a buffer zone. The buffer zone should be at least as wide as the hedge is tall to ensure the majority of roots remain unaffected.</p> <p>Materials and machinery should not be stored along hedgerows or next to scattered trees, or on marshy grassland.</p> <p>If the scope of works includes the removal of hedgerows further survey efforts to include a hedgerow assessment survey and may require a hedgerow removal licence from the Local Planning Authority.</p> <p>Any removal or degradation of hedgerows should be replanted. We recommend that</p> <p>1-1.2m high whips are planted (3 whips per metre) in a double row and included stock proof fencing to ensure adequate protection from browsing livestock. Hedgerow species should consist of an equal mix of:</p> <ul style="list-style-type: none"> • 20% hazel (<i>Corylus avellana</i>); • 20% holly (<i>Ilex aquifolium</i>); • 20% hawthorn (<i>Crataegus monogyna</i>); • 20% blackthorn (<i>Prunus spinosa</i>); • 10% elder (<i>Sambucus nigra</i>); and, • 10% Dog rose (<i>Rosa canina</i>)
Roosting Bats	Trees that have been assessed as having high (Wern – T4, T5, T6, & T7) or moderate (Carreghofa – T1, T2 & T3, Wern – T6, Red Lane – T1, T2, T5, & T6) potential to support roosting bats because of the

	<p>presence of cavities, crevices or cracks will require further survey:</p> <p>If works (felling/pruning) are required to these trees; prior to felling an endoscope inspection should be undertaken to determine the presence or likely absence of bats in PRFs. If it is not possible to downgrade the potential of the trees to low or negligible following the endoscope inspection, then further emergence/re-entry surveys are likely to be required.</p> <p>Trees identified as having moderate potential to support roosting bats because of the presence of thick ivy or are considered unsuitable for an endoscope inspection (1861, 1862, 1864, and 1888) will require further survey:</p> <p>If works (felling/pruning) are required to these trees; prior to felling two emergence/re-entry surveys will be required to determine the presence or likely absence of bats in PRFs. At least one of these surveys should be a dawn re-entry survey. Endoscope inspections can be undertaken at any time of year; however, surveys undertaken between May and August are often most informative. Emergence/re-entry surveys must be undertaken between May and August (weather dependant).</p> <p>Emergence/re-entry surveys must be undertaken a minimum of 2 weeks apart.</p> <p>If a bat roost is identified during the surveys, a European Protected Species licence from NRW will be required before any works can commence.</p> <p>Where trees have been assessed as having negligible or low potential to support roosting bats no further survey effort is required (Collins, 2016).</p>
Badger	<p>Further badger surveys will be required at Carregohfa to check the activity of the two outlier setts prior to works commence. A prework check by an ecologist at Wern nature reserve should be complete a few weeks prior to works beginning to ensure no new activity at the site.</p>
Dormice	<p>Should small areas of vegetation require removal (less than 2m²) it may be possible to complete this under the supervision of a licensed ecologist. If larger areas of vegetation require removal, dormouse surveys of the hedgerow, scrub and woodland edge habitat may be required between March and November 2023 and a European Protected Species Licence acquired from Natural Resources Wales in advance of any works.</p>

Reptiles and Common Amphibians	If removal of highlighted reptile features or vegetation (marshy grassland, scrub and hedgerow margins) is required, an Ecological Clerk of Works should be present prior to and during the works, to conduct checks for reptiles and common amphibians.
Terrestrial Mammals (Badgers, otter and hedgehogs)	<p>Best practice measures such as placing mammal ramps in excavations should be adhered to, to avoid any mammals (and other wildlife) becoming trapped.</p> <p>If vegetation removal (scrub and hedgerow margins) is required, an ECoW should be present prior to and during the works, to conduct checks for hedgehog.</p>
Wild Birds	<p>Any vegetation removal should be undertaken outside of the nesting bird season (March to August inclusive) where possible.</p> <p>Where works within this season are unavoidable, the vegetation should be checked by an ecologist prior to clearance. The pre-works check should be undertaken as close to and no longer than 48 hours prior to the vegetation removal taking place.</p> <p>If nesting birds are present, a buffer will be implemented around the nest, and works cannot proceed in this area until the chicks have fledged.</p>
Nocturnal Wildlife / Lighting	Additional lighting should be avoided. If additional lighting is a requirement (permanent and temporary) it should be reviewed by an ecologist prior to installation to assess the impacts to nocturnal wildlife.

This report and its conclusions are valid for a maximum period of two years from the survey date, unless there is a significant change to the status of the habitats on Site or surrounding landscape during this time.

5. References

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6. Appendices


Appendix 1 – Figures

Figure 1 – Site Boundary – Wern



© Google Maps 2022

Legend
Habitats
 Site Boundary

0 20 40 m




P9809

Wern - Site Boundary Map

Canals and Rivers Trust

18/11/2022


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Figure 2 – Site Boundary – Carreghofa



Legend

Habitats

 Site Boundary

0 2040 m



P9809

Carreghofa - Site Boundary Map

Canals and
Rivers Trust

18/11/2022

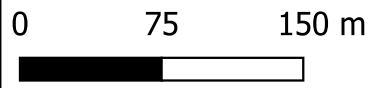
Figure 3 – Site Boundary – Red Lane



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

 Site Boundary

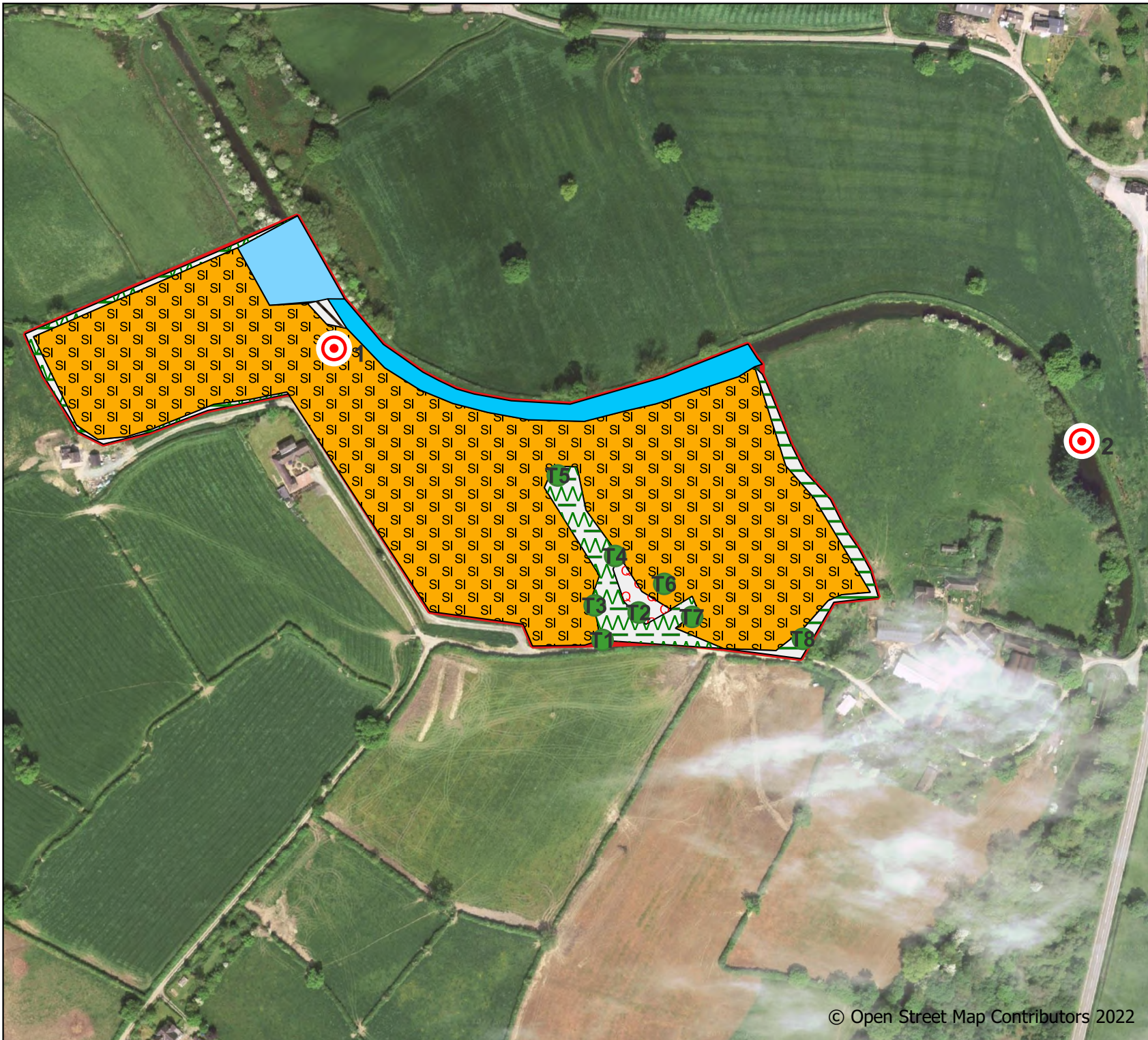


	9809 - Montgomery Canal
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Red Lane - Site Boundary Map

Arcadis	08/03/2023
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





Figure 4 - Phase 1 Habitat Map – Wern



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Legend

Habitats

-  Site Boundary
-  B2.2 - Neutral grassland - semi-improved
-  C3.1 - Other tall herb and fern - ruderal
-  F1 - Swamp
-  G1 - Standing water
-  I2.1 - Quarry
-  J2.1.1 - Intact hedge - native species-rich
-  J2.1.2 - Intact hedge - species-poor
-  J2.2.1 - Defunct hedge - native species-rich
-  Bat Roost Potential Trees - T1 T2 T3 T4 T5 T6 T7 T8
-  Target Note

0 20 40 m



P9809

Wern - PEA Habitat Map

Canals and Rivers Trust

30/11/2022

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(Overleaf)

Target Notes

1 Log pile – Reptile feature










2 Agricultural runoff

Figure 5 – Phase 1 Habitat Map – Carreghofa



Legend

Habitats

-  Site Boundary
-  B5 - Marsh/marshy grassland
-  C3.1 - Other tall herb and fern - ruderal
-  G1 - Standing water
-  J1.2 - Cultivated/disturbed land - amenity grassland
-  J2.1.1 - Intact hedge - native species-rich
-  J2.1.2 - Intact hedge - species-poor
-  Bat Roost Potential Trees - T1 T2 T3 T4 T5 T6
-  Target Notes

0 20 40 m



P9809

Carreghofa - PEA Habitat Map

Canals and Rivers Trust

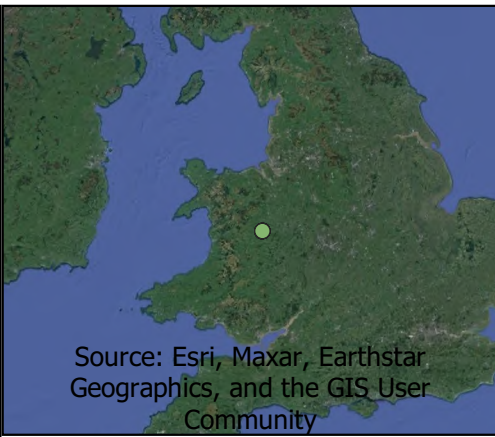
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Target Notes








1 Reptile mat

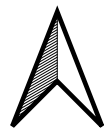
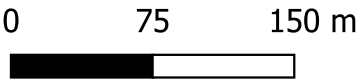
Figure 6 – Phase 1 Habitat Map – Red Lane



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

-  Site Boundary
-  A1.1.1 - Broadleaved woodland - semi-natural
-  B4 - Improved grassland
-  F2.1 - Marginal and inundation - marginal vegetation
-  G2 - Running water
-  J2.1.1 - Intact hedge - native species-rich
-  J2.3.2 - Hedge with trees - species-poor



	9809 - Montgomery Canal
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Red Lane - PEA Habitat Map

Arcadis	08/03/2023
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Appendix 2 – Site Photographs

Wern



Photograph 1: Dense Scrub: A2.1



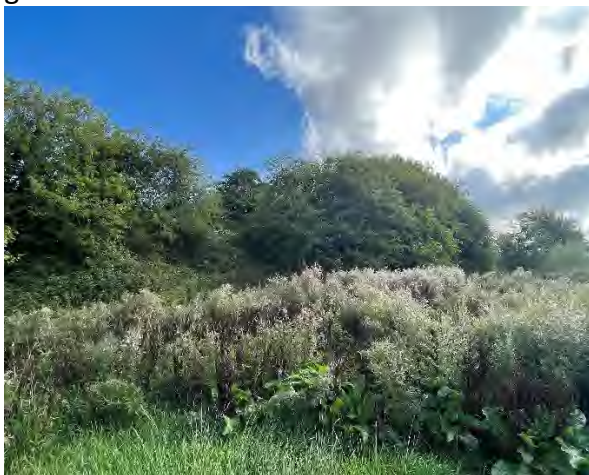
Photograph 2: Scattered trees: A3.1



Photograph 3: Semi-improved neutral grassland: B2.2



Photograph 4: Swamp: F1



Photograph 5: Tall ruderal: C3.1



Photograph 6: Species-rich intact hedgerow: J2.1.1



Photograph 7: Species-poor intact hedgerow: J2.1.2

N/A

Photograph 8: Species-rich Defunct hedgerow: J2.2.1



Photograph 9: Standing water: G1

Carreghofa



Photograph 10: Scattered trees: A3



Photograph 11: Marshy grassland: B5



Photograph 12: Tall ruderal: C3.1



Photograph 13: Standing water: G1



Photograph 14: Species-rich intact hedgerow: J2.1.1



Photograph 15: Species-poor intact hedgerow: J2.1.2



Photograph 16: Arable field: J1.1

Red Lane



Photograph 17: Broadleaved woodland: A1.1



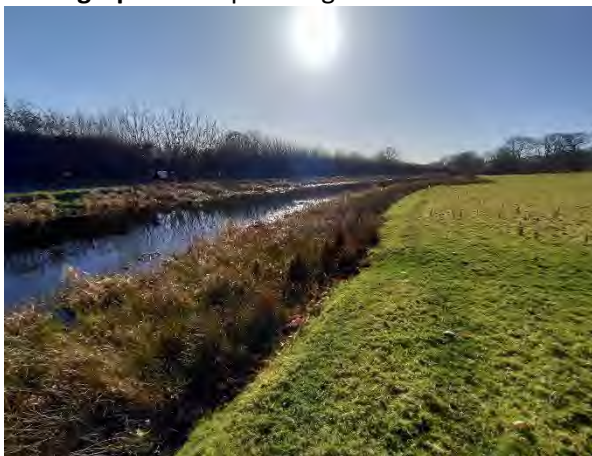
Photograph 18: Scattered trees: A3



Photograph 19: Improved grassland: B4



Photograph 20: Marginal and Inundation



Photograph 21: Standing water: G1



Photograph 22: Running water: G4



Photograph 23: Species-rich hedgerow: J2.1.1



Photograph 24: Species-poor hedgerow: J2.2

Appendix 3 – Relevant Legislation

An overview of the legislation protecting wild animals and plants relevant to the Site is provided below.

Bats

In the United Kingdom (UK) all bat (*Chiroptera* spp.) species and their roosts are legally protected, by national legislation. This protection is detailed in the Wildlife and Countryside Act 1981 (as amended) (HMSO, 1981) and the Conservation of Habitats and Species Regulations 2019 (amendment (EU Exit)) (HMSO, 2019).

Together these pieces of legislation make it a criminal offence to:

- Deliberately take, injure or kill a wild bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a place used by bats for breeding or resting (roosts) (even if bats are not occupying the roost at the time);
- Possess or advertise/ sell/ exchange a bat of a species found in the wild (dead or alive) or any part of a bat; and
- Intentionally or recklessly, obstruct access to a bat roost.

Badgers

Badgers are protected and so are the setts they live in. Under the Protection of Badgers Act 1992, in England and Wales it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so).
- Cruelly ill-treat a badger.
- Dig for a badger.
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it.
- Cause a dog to enter a badger sett.
- Disturb a badger when it is occupying a sett.

Reptiles

Reptiles (adder, grass snake, common lizard and slow worm) are protected through Section 9(1) of the Wildlife & Countryside Act 1981 (as amended) against intentional killing and injuring (note the provision in Section 9(1) of Wildlife & Countryside Act 1981 prohibiting “taking” does not apply to reptiles).

Hedgehog

Hedgehogs have some degree of legal protection in the UK:

- they are listed on schedule 6 of the Wildlife and Countryside Act (1981) which makes it illegal to kill or capture wild hedgehogs, with certain methods listed
- they are also listed under the Wild Mammals Protection Act (1996), which prohibits cruel treatment of hedgehogs
- They are a species of 'principal importance' under the NERC Act (2006) and Environment Wales Act (2016) which is meant to confer a 'duty of responsibility' to public bodies.

Wild Birds

Nesting and nest building birds are protected under the Wildlife and Countryside Act (HMSO, 1981). It is an offence to:

- Intentionally kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird when it is in use or is being built;
- Take or destroy an egg of any wild bird.

Some bird species are listed on Schedule 1 of this act, making it an offence to intentionally or recklessly disturb birds and their young at, on or near an 'active' nest.

Hedgehog

Hedgehogs have some degree of legal protection in the UK:

- they are listed on schedule 6 of the Wildlife and Countryside Act (1981) which makes it illegal to kill or capture wild hedgehogs, with certain methods listed
- they are also listed under the Wild Mammals Protection Act (1996), which prohibits cruel treatment of hedgehogs
- They are a species of 'principal importance' under the NERC Act (2006) and Environment Wales Act (2016) which is meant to confer a 'duty of responsibility' to public bodies.

Common amphibians

Native amphibians are protected under the Animal Welfare Act 2006. This states that is an offence to cause unnecessary suffering to an animal.

The four widespread species of amphibian, the smooth and palmate newts, the common frog and common toad, are protected only by Section 9(5) of the Wildlife and Countryside Act 1981 (as amended). This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.

Otter

Otters (*Lutra lutra*) are fully protected as a European protected species under listed under Annex II of the Habitats Directive and under sections 9 and 11 of the Wildlife and Countryside Act 1981 (HMSO, 1981).

It is an offence to:

- capture, kill, disturb or injure otters (on purpose or by not taking enough care);
- damage or destroy a breeding or resting place (deliberately or by not taking enough care);
- obstruct access to their resting or sheltering places (deliberately or by not taking enough care); and.
- possess, sell, control or transport live or dead otters, or parts of otters.

Sites of Special Scientific Interest (SSSI)

SSSIs are the most important sites for Wales' natural heritage. They are highly protected to safeguard the range, quality and variety of habitats, species and geological features in all parts of Wales. They are the cornerstones of conservation work, protecting the core of natural heritage.

Each SSSI has a list of activities that NRW think are likely to damage the site's special interest.

Before you carry out, or allow someone else to carry out, activities on that list, you must notify NRW in writing and obtain our consent. You should include what you propose to do, and give details about where, when and how it will be carried out.

European sites - Natura 2000

The European Union have identified the most important sites for wildlife in Europe as the Natura 2000 sites. There are two types of Natura 2000 sites:

- Special Protection Areas - designated because of rare or migratory birds and their habitats
- Special Areas of Conservation - for a wide range of habitats and species other than birds

The Special Protection Areas (SPAs) in Wales are areas that have been designated specifically to conserve wild birds that are listed as rare and vulnerable in the Birds Directive. They also include the sites in Wales that migratory birds use as stop-off points on their journeys across the planet.

The Special Areas of Conservation (SACs) have been chosen to make a significant contribution to conserving habitats and wildlife species that live there, named in the EC Habitats Directive.

Marine SACs are also being developed to protect marine habitats and species.