Glandŵr Cymru
Canal & River Trust in Wales

Trevor Basin Education Centre
Ecology Assessment

15 May 2025

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Version	Purpose/Change	Author/Reviewed By	Date
1.0	Final, for submission	Jenny Spelling, Ecologist, Canal & River Trust	15/05/2025

Executive Summary

This report has been prepared in connection with proposals to construct a new Education Centre at Trevor Basin. It provides the results of ecological surveys carried out and an assessment of the potential effects of the proposals along with appropriate mitigation measures.

Methodology

A desk study was carried out, which included obtaining information on designated sites, protected and notable species within a 1km radius of the application site. Two site surveys were carried out on 20 March and 03 April 2025, which included identification of the habitats present, and an assessment of the likelihood of the presence of protected species.

Key impacts and mitigation measures

The River Dee Site of Special Scientific Interest and Special Area of Conservation is situated 0.2km downhill from the application site. Mitigation measures to minimise the risk of harm from pollution of the river will be implemented, as detailed in a Construction Environmental Management Plan (CEMP) to be prepared for the project. This will also mitigate harm to protected species at risk of pollution, including otters, invertebrates and fish.

No potential bat roosting or foraging habitat will be lost, however lighting during the construction stage may disturb foraging bats and other nocturnal wildlife that may be passing through or adjacent to the site, such as otters. Measures to avoid disturbance from lighting will also be included in a CEMP.

There is a risk of bird nesting habitat being disturbed or lost during construction. Measures have been detailed in this report to avoid harm to nesting birds, and to mitigate for the loss of potential nesting habitat.

The eastern boundary hedgerow/treeline provides potential sheltering and hibernation habitat for a range of species potentially present, such as hedgehogs, reptiles and amphibians. The hedgerow will be retained and protected and therefore avoidance of harm to such species. However, there is still a small risk of harm to amphibians from the demolition of the grey shed, therefore precautionary methods of working have been provided in this report to minimise this risk.

Several invasive species are present in habitats near to the site, and a patch of Cotoneaster shrub is present within the garden to the south of the site. Measures have been detailed to avoid the introduction or spread of invasive species.

There will be a small loss of grassland habitat as part of the proposed development. Bare ground and the existing building will also be lost. Areas of new wildflower seeding and planting will mitigate for the loss of the grassland. Other enhancement measures are detailed in the Net Biodiversity Benefit report submitted with the application.

Conclusions

Overall, the proposed development will result in no net loss of habitats and any potential risks of harm to designated sites, habitats, and protected/notable species has either been avoided or mitigated. The scheme will result in an overall long term biodiversity benefit, as well as the provision of an education centre of benefit to the local community and visitors to the site.

Introduction and Project Description

Trevor Basin is located in Wrexham, North Wales at the World Heritage Site within the Scheduled Ancient Monument boundary of the Pontcysyllte Aqueduct and within the Pontcysyllte Aqueduct Conservation Area. As a UNESCO landmark attraction, the site has high visitor numbers for the aqueduct, tourism, leisure, education and recreational purposes.

The proposals are to demolish the existing grey storage shed to allow construction of a new education centre, with surrounding landscaping. Further detail on the scope of works can be found within the following documents submitted with the application:

- Design and Access Statement, Buttress, September 2024.
- Proposed Elevations, Buttress, drawing ref. TREVR-BUT-XX-XX-DR-A-05001-P04, 19 March 2025.
- Proposed Landscape Plan, Canal & River Trust, May 2025.
- Arboricultural Appraisal, Salopian Consultancy, 12 May 2025.
- Green Infrastructure and Net Biodiversity Benefit Plan, Canal & River Trust, 15 May 2025.
- Habitats Regulations Assessment Screening, Canal & River Trust, 15 May 2025.

Location

The application site is located in Trevor Basin, Wrexham, LL20 7TY. The Ordnance Survey grid reference is SJ 2715 4225. The application site is within Wrexham County Borough Council.



Figure 1: Location of the Application Site

Methodology

Desk study

A desk study was carried out, which included obtaining information on designated sites, protected and notable species within a 1km radius of the application site. The desk study radius was set at 1km due to the small size of the application site. The desk study included a search of the following sources of data:

- MAGIC Interactive Map (https://magic.defra.gov.uk/MagicMap.aspx) for information on statutory designated sites, European Protected Species Mitigation Licence information and Nature Improvement Areas.
- Cofnod, the Biological Records Centre for North Wales, for information on non-statutory designated sites and protected and notable species within 1km radius of the application site.
- Canal & River Trust biological records.

Site Survey

The site was visited on the 20 March 2025 and 03 April 2025, in order to assess the habitat and potential for the presence of protected species. A survey of the grey shed for bat roost potential was carried out on 03 April 2025, to update a previous bat survey of the shed carried out on 21 September 2023. The surveys were carried out by Canal & River Trust Ecologist Jennifer Spelling.

An extended phase one habitat survey was carried out following the JNCC guidelines. The weather was mild and dry during all surveys. The banks of the canal were surveyed for any evidence of water voles and otters, plus an assessment of habitat suitable for other wildlife such as nesting birds that could be present.

Constraints

There were no significant constraints. The phase one habitat survey was carried out in March and April, which although is outside the optimum time for carrying out botanical surveys, based on the habitats present, this is not considered to be a constraint. A daytime survey of the shed was sufficient to understand the level of bat roost potential provided by the building, with no detailed emergence surveys required.

Results

Desk Study

Statutory and Non-statutory Designated Sites

Statutory Designated Sites

The Application Site is situated 0.2 km from the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) Special Area of Conservation (SAC). It is also designated as Afon Dyfrdwy (River Dee) Site of Special Scientific Interest. The primary reasons for overall designation are:

- Feature 1. Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
- Feature 2. Atlantic salmon Salmo salar
- Feature 3. Floating water-plantain Luronium natans

Other Reason

- Feature 4. Sea lamprey Petromyzon marinus
- Feature 5. Brook lamprey Lampetra planeri
- Feature 6. River Lamprey Lampetra fluviatilis
- Feature 7. Bullhead Cottus gobio
- Feature 8. European otter

Within the SAC unit 7851 Dee-Ceiriog to Alwen that the site falls within, the following Qualifying Features occur:

- Feature 1. Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
- Feature 2. Atlantic salmon
- Feature 5. Brook lamprey
- Feature 7. Bullhead
- Feature 8. European otter

There are several Restored Ancient Woodland Sites and Ancient Semi-natural Woodlands within 1km of the application site, principally located to the south, south west and south east along the River Dee corridor. The closest site is situated 111 metres to the south west.

There are no further statutory designated sites within the 1km search radius.

Non-statutory Designated Sites

Within 1km of the project, the following non-statutory sites are present:

- The project lies within the North East Wales Important Invertebrate Area (IIA), which supports a nationally and internationally important population of the Globally Endangered freshwater pearl mussel *Margaritifera margaritifera*. The IIA also supports a nationally important assemblage of invertebrates.
- Froncysyllte Quarries Local Wildlife Site (LWS) is situated 0.6km south and supports several large disused limestone quarries with cliffs and spoil heaps, colonised by broad-leaved woodland and scrub.
- Spring Wood LWS, which comprises good condition broadleaved woodland is situated 0.83 km west
- Pisgah Quarry North Wales Wildlife Trust Nature Reserve at 0.8km south, is a former limestone quarry that has become woodland.

Due to the limited footprint of the proposed project and lack of ecological connectivity, no other non-statutory designated sites are likely to be affected and are scoped out from further consideration.

Protected and Notable Species

Several protected and notable species have been recorded within 1km of the application site. This includes:

- Badger *Meles meles*
- Bats:
    - Common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*.
- Birds: many bird records were reported for the 1km search radius. Protected and notable species are given in Table 1 below:

Table 1: Desk study records for protected and notable bird species within 1km

Common Name	Latin Name
Black-headed gull	Chroicocephalus ridibundus
Brambling	Fringilla montifringilla
Bullfinch	Pyrrhula pyrrhula
Coal tit	Periparus ater
Common gull	Larus canus
Common sandpiper	Actitis hypoleucos
Cormorant	Phalacrocorax carbo
Crossbill	Loxia curvirostra
Curlew	Numenius arquata
Dipper	Cinclus cinclus
Dunnock	Prunella modularis
Fieldfare	Turdus pilaris
Goldcrest	Regulus regulus
Great black-backed Gull	Larus marinus
Green woodpecker	Picus viridis
Greenfinch	Chloris chloris
Grey wagtail	Motacilla cinerea
Greylag goose	Anser anser
Herring gull	Larus argentatus
Hobby	Falco subbuteo
House Martin	Delichon urbicum

Common Name	Latin Name
House Sparrow	Passer domesticus
Kestrel	Falco tinnunculus
Kingfisher	Alcedo atthis
Lesser black-backed gull	Larus fuscus
Lesser redpoll	Acanthis cabaret
Linnet	Linaria cannabina
Little egret	Egretta garzetta
Long-tailed duck	Clangula hyemalis
Long-tailed tit	Aegithalos caudatus
Mallard	Anas platyrhynchos
Marsh tit	Poecile palustris
Mistle thrush	Turdus viscivorus
Moorhen	Gallinula chloropus
Mute swan	Cygnus olor
Osprey	Pandion haliaetus
Peregrine	Falco peregrinus
Pink-footed goose	Anser brachyrhynchus
Red Kite	Milvus milvus
Redstart	Phoenicurus phoenicurus
Redwing	Turdus iliacus
Rook	Corvus frugilegus
Sand martin	Riparia riparia

Skylark	Alauda arvensis
Song thrush	Turdus philomelos
Sparrowhawk	Accipiter nisus
Starling	Sturnus vulgaris
Stock dove	Columba oenas
Swallow	Hirundo rustica
Swift	Apus apus
Tawny owl	Strix aluco
Teal	Anas crecca

Tree sparrow	Passer montanus
Tufted duck	Aythya fuligula
Wheatear	Oenanthe oenanthe
Whitethroat	Curruca communis
Willow tit	Poecile montanus
Willow warbler	Phylloscopus trochilus
Woodpigeon	Columba palumbus
Wren	Troglodytes troglodytes
Yellowhammer	Emberiza citrinella

- Reptiles:
    - Slow-worm *Anguis fragilis*
    - Grass snake *Natrix helvetica*
- Amphibians
    - Great crested newt *Triturus cristatus*
- Otter *Lutra lutra*
- Water vole *Arvicola amphibius*: no records
- Invertebrates:
    - Black-legged water-snipefly *Ibisia marginata*
    - Wall, *Lasiommata megera*
    - White-letter hairstreak, *Satyrium w-album*
    - Yellow Evening Hawk, *Ephemerella notata*
    - *Rhithrogena germanica*
    - *Tinodes maclachlani*
- Fish:
    - Atlantic salmon *Salmo salar*, bullhead *Cottus gobio*, river lamprey *Lampetra fluviatilis*, brook lamprey *L. planeri*) and sea lamprey *Petromyzon marinus*.
- Dormouse *Muscardinus avellanarius*: no records
- Other mammals, including brown hare *Lepus europaeus*, hedgehog *Erinaceus europaeus* and weasel *Mustela nivalis*.

Invasive Non-native Species

The following invasive plant species have been recorded within 1km: Japanese knotweed *Reynoutria japonica*, Himalayan balsam *Impatiens glandulifera*, rhododendron *Rhododendron ponticum*, Canadian Waterweed *Elodea canadensis*, Montbretia *Crocosmia pottsii x aurea = C. x crocosmiiflora*, variegated yellow archangel *Lamiastrum galeobdolon* subsp. *argentatum* and Nuttall's Waterweed *Elodea nuttallii*.

Canal & River Trust have recorded American mink *Neovison vison* along the Llangollen Canal and River Dee within 1km of the application site.

Phase 1 Habitat Survey

A Phase 1 habitat plan is shown at Figure 2 and photographs of the site are provided overleaf. The habitats comprised of:

- The semi-improved grassland to the north of the grey shed contained abundant red fescue *Fesuca rubra* and moss spp, frequent rough meadow grass *Poa trivialis*, occasional dandelion *Taraxacum officinale* agg., with daisy *Bellis perennis* and creeping buttercup *Ranunculus repens* found rarely. Scattered trees including ash *Fraxinus excelsior* and elder *Sambucus nigra* were present, with cherry *Prunus* sp. and ash on the eastern boundary with the car park. Dense ivy *Hedera helix* ground cover was present along the eastern boundary.

- Near the canal, there was a strip of bare ground from a desire line between the towpath and carpark. Also present was a stone sculpture, a mature ash tree, and two planters. Here, the grass was dominated by perennial ryegrass *Lolium perenne* with abundant clover *Trifolium repens*. There were also two benches in this location and the grass was well worn by pedestrians.

- To south of building, there was a metal container with a concrete pad between the grey shed and container. The eastern boundary continues with small ash and birch *Betula pendula* trees, with bramble *Rubus fruticosus* agg. scrub and rubble piles. On a later visit the container had been removed.

- Within the garden area to the south of the grey shed and container was a moss-dominated lawn with some occasional red rescue. Primroses *Primula vulgaris*, herb-robert *Geranium robertianum*, red campion *Silene dioica*, columbine *Aquilegia vulgaris* and oxeye daisy *Leucanthemum vulgare* were observed around the edges of the lawn. There was a Montbretia clump in the corner by the nearby canal bridge. On the eastern boundary, spring flowers were present including cuckoo pint *Arum maculatum*, daffodils *Narcissus* sp, snowdrop *Galanthus nivalis*, primroses and there was a compost pile in the corner. The boundary hedge contained tall ash trees with holly *Ilex aquifolium* and elder below. Ivy was present on the ground, and a clematis scrambled along the boundary fence between the garden and the grey shed. A section of Cotoneaster sp. hedge was recorded within the garden.

- To the west of the application site lies the towpath and Llangollen Canal. This part of the canal is a busy location, with visitors both on foot and by boat and a popular boar hire business on the opposite bank to the application site. The canal banks are formed of concrete and steel piling with no semi-natural habitat present.

The above habitats are common within the local area and can be regularly found along the Llangollen Canal. The eastern boundary may fall within the definition of the Section 7 of the Environment (Wales) Act 2016 Habitat of Principal Importance (HPI) hedgerows and would therefore be of local level importance for nature conservation.

Photo 1: Grey shed and grassland



Photo 2: Eastern boundary hedge/treeline



Photo 3: Container and bare ground south of shed



Photo 4: Garden to south of shed



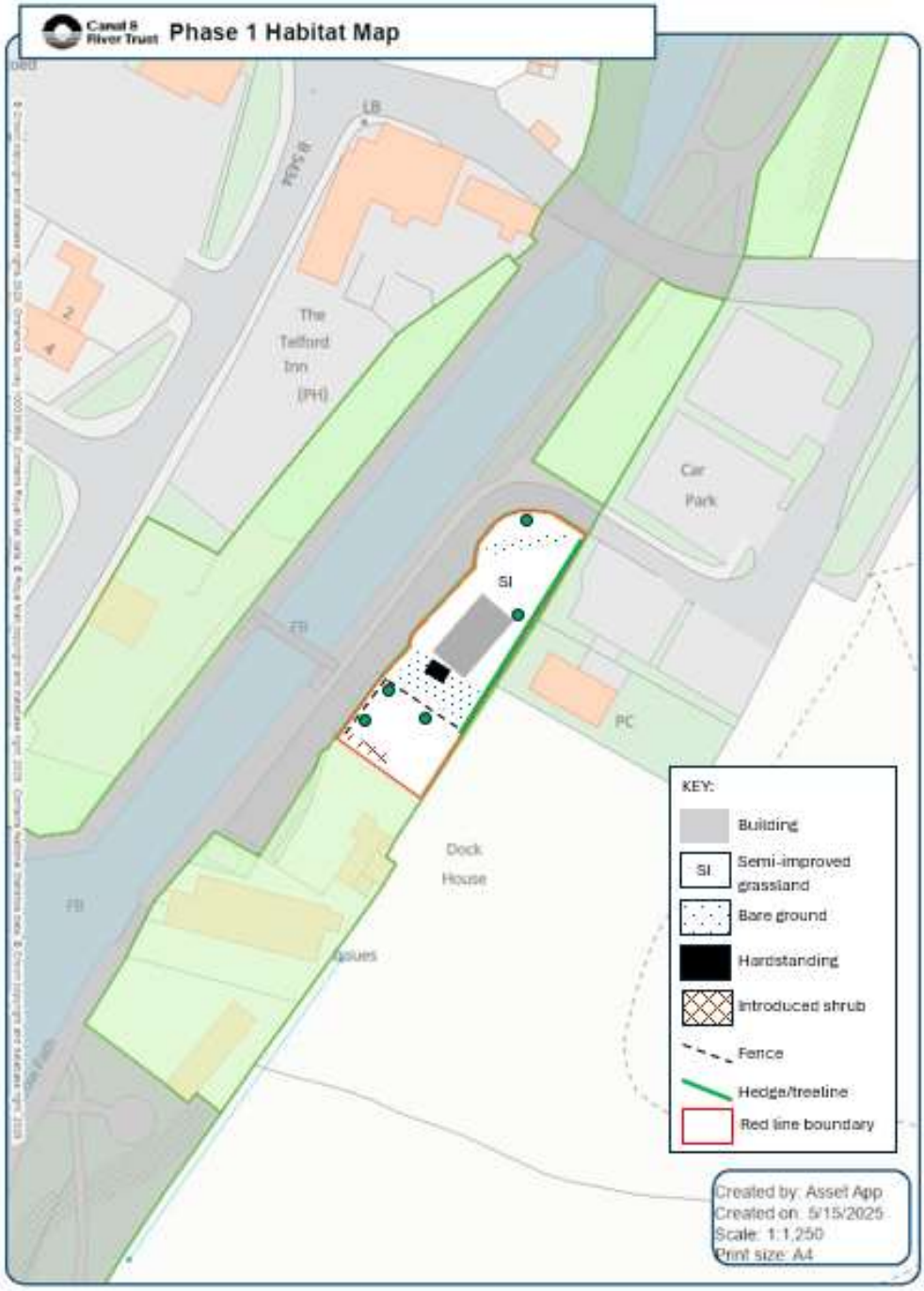


Figure 2: Phase 1 Habitat Plan

Protected Species

Badgers

Badgers have been recorded within 1km of the application site. The River Dee corridor containing woodland and grassland provides year-round suitable habitat for badgers. No evidence of badgers was found within the application site or within a 30 metre radius. High levels of human disturbance around the site means that badgers are less likely to be present and are therefore scoped out from further assessment.

Bats

Photographs of the building are shown below. The grey shed has corrugated metal walls and roof, with no internal lining. It is used for storage of equipment and materials and there is artificial lighting inside. Thick cobwebs were present in areas. Although there are several locations where bats could potentially enter the building, no signs of bat activity were found inside the building and it provides negligible bat roost potential. The Trevor Basin area is illuminated by artificial lighting and is less suitable for foraging bats, however the river corridor and woodland habitat in the wider area is of high quality for foraging and roosting bats. The Llangollen Canal provides a suitable corridor for foraging and commuting bats and the Pontcysyllte Aqueduct also provides numerous potential bat roosting features.

None of the trees within the site or nearby were found to support potential bat roosting features.

Photos 5 and 6: Interior views of grey shed





Birds

A variety of bird species have been recorded within 1km of the site. This includes several specialist species likely to be present in the wider landscape of the River Dee valley and surrounding areas. The application site provides suitable nesting habitat only for more common bird species within the eastern boundary hedgerow/treeline and the grey shed, with a robin *Erithacus rubecula* reported as nesting in the shed. The canal banks hold no marginal vegetation therefore no nesting waterfowl are present nearby.

Reptiles

There are records for reptiles within a 1km radius. The nearby woodland, grassland and wetland habitat of the River Dee valley provides high quality reptile habitat. However, only the eastern boundary feature within the site, which is connected to suitable habitat to the east, provides habitat for the more common species of reptiles, such as grass snake, with potential to be used for sheltering or hibernating. The remaining areas of grassland and hardstanding are not suitable.

Amphibians

There is no aquatic or wetland habitat within the application site, with the nearest waterbody to the site approximately 250 metres to the east, based on maps and aerial imagery of the area. The eastern boundary provides suitable foraging and sheltering habitat for amphibians, including great crested newts *Triturus*

cristatus, which have been recorded within 1km of the site (nearest record c. 0.6km to north east). The remaining habitats on site are generally unsuitable for amphibians.

Otters

Otters are known to use the canal and river corridors for foraging and commuting. During periods of lower use of the canal and less disturbance by humans, such as during the night, there is potential for otters to be present within the canal, however the application site does not contain habitat for otter holts or resting places.

Water Voles

There are no records for water voles within 1km of the application site. The bank of the canal is hard edged in this location and up/downstream of the basin, with little or no marginal vegetation. High levels of human disturbance both from boats and visitors, and the lack of available habitat suggests that water voles are unlikely to be present and are scoped out from further assessment.

Invertebrates

Records for notable invertebrates were identified during the desk study. Four of these (black-legged water-snipefly, *Rhithrogena germanica, Tinodes maclachlani*, and yellow evening hawk) are associated with freshwater river/stream habitats and are unlikely to be using the habitats within the site as part of their lifecycle. Based on the habitats surrounding the site, wall butterfly and white-letter hairstreak butterfly may be found moving through the site and some larval foodplants may be present nearby for these species. However, elm *Ulmus* spp., which is the foodplant for the white-letter hairstreak, is absent from the site. The habitats on site may provide suitable habitat for a range of common invertebrates however are unlikely to support a notable invertebrate assemblage and are scoped out from further assessment.

Fish

Records for notable fish species were found within 1km, primarily associated with the River Dee. The site does not contain suitable habitat for fish, however the Llangollen Canal may contain lamprey species, due to being fed by an intake from the River Dee at Horseshoe Falls, several kilometres upstream.

Other Mammal Species

The hedgerow/treeline within the application site provides limited habitat for hedgehogs and small mammals, but in general the application site is unsuitable for other notable mammal species such as hare.

There are no records for dormouse within 1km of the site although suitable habitat is present in the wider area in the form of woodland and hedgerows. The eastern boundary hedgerow is connected to such habitat, however due to the lack of records, high levels of human disturbance and artificial lighting at the site, they are considered absent from the site.

Invasive Species

There is a patch of Cotoneaster species shrub within the site. Several species of Cotoneaster are listed as invasive, non-native species on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). No other invasive, non-native species[1] were observed within the application site or adjacent habitats, however mink *Neovison vison*, signal crayfish *Pacifastacus leniusculus* and other invasive species may be present within the canal. Mink, Japanese knotweed *Reynoutria japonica* and Himalayan balsam *Impatiens glandulifera* are known to be present along the River Dee nearby.

[1] As listed on the Wildlife & Countryside Act 1981 (as amended), Environmental Protection Act, 1990, or The Invasive Alien Species (Enforcement and Permitting) Order, 2019.

Impact Assessment, Mitigation and Compensation

In order to avoid or minimise harm to protected and notable habitats and species, the following measures will be implemented. As part of the Site Induction, all those working on site must receive a protected species toolbox talk or briefing, to ensure they are aware of the legislation and actions to take in the unlikely event a protected species is found during works. The name and contact details for the Canal & River Trust Ecologist or an Ecological Clerk of Works will be available to site staff throughout the construction period.

Measures to enhance the site for biodiversity are included in a separate report submitted with the planning application.

Statutory and Non-statutory Designated Sites

The application site is situated 0.2km from the River Dee SSSI/SAC boundary. There is a significant change in height, with the Dee positioned downhill from the site. There will be no direct impacts on the habitats within the Dee SSSI/SAC boundary. There is a small risk of runoff during the construction phase from the proposed development into the river via an overspill weir from the canal, which could have an effect on some of the features of importance, such as fish, therefore standard pollution prevention measures will be implemented. These measures will be detailed in a Construction Environmental Management Plan (CEMP), which could be conditioned as part of any planning approval. Since the application site does not contain suitable habitat for otters, no other impacts on the SSSI/SAC features are anticipated. Further details are provided in the Habitats Regulations Assessment (HRA) document submitted with the planning application.

The distance from the application site to the nearest area of ancient woodland is 111 metres. Based on the distance from the site to these areas of woodland, and the implementation of pollution prevention measures as detailed in the CEMP, no significant impact on any other statutory designated sites is anticipated.

The application site is within the North East Wales IIA. The site does not contain habitats suitable for a notable range of invertebrates, however the River Dee is likely to provide suitable habitat. Assuming the implementation of pollution prevention measures within a CEMP, there will also not be any risk of significant harm to the habitat of the freshwater pearl mussel or any other invertebrate populations.

Based on the small size of the application site and distance from other non-statutory designated sites, the proposed development will not affect any other non-statutory sites within 1km radius.

Habitats

The project will result in the following impacts to habitats within the application site boundary:

- Loss of one ash tree situated at the north east corner of the grey shed.
- Pruning of a hedgerow/treeline along the eastern boundary and other trees within the site.
- Demolition/removal of the grey shed.
- Removal/compaction of areas of semi-improved grassland within the site during construction.

The loss of these habitats will be mitigated by the following:

- Native hedge and fruit tree planting to mitigate for the loss of the ash tree and any pruning of the hedge and trees.
- Any loss or damage to the semi-natural grassland will be mitigated by new wildflower grassland seeding and improved management of the grassland, to include allowing some areas to grow longer through the summer months.

Further details on these measures are described in the Net Biodiversity Benefit (NBB) Plan.

Protected and Notable Species

Bats

The proposed development will not result in the loss of roosting or foraging habitat for bats. All except one of the trees within the site will be retained, although some pruning may be required to facilitate construction works. One semi-mature ash tree will be felled.

New artificial lighting will be installed to allow safe access to the building during darker hours. This will comprise the minimum possible required to achieve safe access, and will be motion sensitive and timer controlled, to ensure no additional light spill onto the site or surrounding habitats. Therefore there will be no negative impact on bat foraging activity within or near to the site.

Additional measures for enhancing the site for roosting bats are described in the NBB Plan.

Birds

There may be minimal habitat loss for nesting birds as a result of the development, through felling or pruning of trees or loss of the grey shed. Any clearance likely to affect bird nesting habitat will be programmed outside of bird nesting season, where reasonably possible. If unavoidable, any suitable nesting habitat will be subject to a thorough nesting bird check by a qualified ecologist beforehand. If any nesting birds are found, nests and a suitable buffer will be marked by the ecologist and works will not continue until after the chicks have fledged and the nest is no longer in use.

As mitigation for the loss of bird nesting habitat, three bird boxes suitable for nesting species present locally will be installed on or integrated within the walls of the new Education Centre. This will be complemented by the additional measures for nesting birds described in the NBB Plan.

Reptiles

The only habitat suitable for reptiles within the site is the eastern boundary hedgerow/treeline, which provides potential sheltering and hibernation habitat. During the construction stage, measures will be included to protect this habitat and ensure no harm to reptiles, measures will include:

- The hedgerow is to remain intact and will be protected by Heras fencing as part of the tree protection measures.
- Storage or stockpiling of materials will take place away from the hedgerow.
- Any excavations should be covered overnight or have a 'ramp' inserted to allow trapped animals to escape.

Measures to enhance the site for reptiles are provided in the NBB Plan.

Amphibians

Great crested newts and other amphibians have been found within 1km of the site, and there is a low risk of encountering amphibian species during their terrestrial phase during construction. The measures outlined above for reptiles will ensure potential amphibian sheltering and hibernation habitat along the eastern boundary will be protected.

In addition to this, during the demolition of the grey shed, there is a low risk of amphibians being present during removal of any materials from the ground near the eastern boundary. To minimise the risk of harm, the area will be searched by an Ecological Clerk of Works (ECoW) prior to works commencing and any amphibians found will be removed by hand by the ECoW to an area of suitable habitat away from the construction area.

Otters and Other Notable Mammals

Work has the potential to impact otters and other mammals known to use the canal and adjacent habitats for foraging and commuting. The following precautionary measures must therefore be adhered to minimise the risk of harm or disturbance:

- Work is expected to be carried out during daylight hours therefore no temporary lighting is proposed. Any lighting of the compound for security purposes must be the minimum required to achieve the purpose, be on a timer and avoid lighting any important habitats for nocturnal species, such as the canal and any trees/hedgerows. Permanent lighting is not proposed.
- Any fencing should be designed to allow mammals such as otters to move around the works area and not cause a barrier to their movement along the canal corridor, or cause them to be pushed onto nearby roads.
- Works must not be carried out during the hours of darkness or within an hour of dusk or dawn, to avoid disturbance to otters and other nocturnal species.

Measures to minimise the risk of pollution will be included in the CEMP.

Fish

There is a low risk of fish within the canal and nearby river being affected by pollution from the construction phase of the development. Pollution prevention measures detailed in the CEMP will be implemented and will ensure the risk of pollution is minimised.

Invasive non-native species

There are no invasive species records for this location. A species of Cotoneaster is present within the garden to the south of the application site. This will be removed during construction and material disposed of appropriately. A replacement native species hedge will be planted in this location, to define the new site boundary.

Invasive species are present in the canal and nearby habitats outside the construction footprint. There is also potential for new non-native species to be introduced by fly-tipping, works teams and the general public.

Those working on site must receive a 'Non-native Invasive Species' toolbox talk to ensure workers on site are able to recognise potential invasive non-native plants and animals, including signal crayfish (*Pacifastacus leniusculus*), Himalayan balsam (*Impatiens glandulifera*), and Japanese knotweed (*Fallopia Japonica*), all of which are known to be present on the canal network and can be transferred between sites by plant, equipment and footwear/clothing.

Those working on site must carry out a pre-start check for invasive species. If any are found, biosecurity measures must be implemented by contractors to ensure any non-native species that may be present are contained to the works area. Contact details for the Canal & River Trust ecologist will be on site as part of an environmental appraisal.

All those working on site must implement 'check, clean, dry' procedures before bringing equipment/plant onto site and when leaving at the end of the job.

- Check your equipment and clothing for live organisms - particularly in areas that are damp or hard to inspect.
- Clean and wash all equipment, footwear and clothing thoroughly before leaving site, removing all mud, debris and vegetation. If you do come across any organisms, leave them at the water body where you found them.
- Dry all equipment and clothing - some species can live for many days in moist conditions.

Conclusions

Overall, the proposed development will result in no net loss of habitats and any potential risks of harm to designated sites, habitats, and protected/notable species has either been avoided or mitigated. The scheme will result in an overall long term biodiversity benefit, as well as the provision of an education centre of benefit to the local community and visitors to the site. The mitigation strategy is aimed at minimising habitat loss and avoiding harm to protected and notable species, by replacing lost habitat, along with enhancement of habitats, as detailed in the Net Biodiversity Benefit Plan.