Land off A489, Newtown
Preliminary Ecological Assessment

Prepared for Berrys
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Rev00
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1 INTRODUCTION

1.1 Purpose of Report

This Preliminary Ecological Assessment has been completed in connection with a proposed residential development on land off the A489, Newtown, Powys (OS Grid Reference SO 086 902). The location of the proposed development is shown in Figure 1 and the proposed development plans are fully detailed in Section 4.

The site survey was carried out on 6th June 2016 by Turnstone Ecology Ltd and consisted of a Phase 1 Habitat Survey and a Protected Fauna Survey and Habitat Suitability Assessment. A single bat activity survey has been completed in July with further visits planned for late July and August 2016.

This report details survey and assessment methodology and the results of a desk based study and on site surveys. It also provides an assessment of potential ecological impacts and appropriate mitigation to offset any ecological impacts associated with the proposal and to satisfy national and local planning policies.

Figure 1. Location of proposed development

1.2 Ecological Context

The proposed development consists of the construction of residential dwellings, associated access and landscaped public open space within agricultural grass fields immediately to the north and south of a section of the A489 on the western edge of Newtown (Figures 2).
Figure 2. Proposed residential development site / survey area (red line boundary)

The southern part of the proposed development site consists of two grass fields separated by a hedgerow. The A489 runs past the northern boundary where there is a section of well-established hedgerow but also a section of hedgerow and boundary fence that has been recently modified for access visibility purposes associated with a construction compound to the west of site. The Mochdre Brook flows south to north along the eastern boundary and there is woodland and scrub along the banks of the brook. A stone wall forms the southern boundary and separates the site from the gardens of Glandulas Farm and a fenceline with a line of trees beyond forms the western boundary. Current access into the fields are via gates along the A489 and a gate in the south-west corner.

The northern part of the proposed development site consists of a single grass field with hedgerows along the southern, western and northern boundaries and the Mochdre Brook and associated woodland along the eastern boundary. Currently there is access for farm animals between the northern and southern parts of the proposed development via the wide tunnel that allows the Mochdre Brook to pass under the A489.

Surrounding the proposed development site there is the Mochdre Industrial Estate to the east of the southern part of the site and Glandulas Caravan Park to the south-west. The Mochdre Brook flows under a railway line to the north of site before entering the River Severn approximately 150m from the nearest part of site. Further grass fields border the other site boundaries and the landscape to the south, west and north is mainly agricultural with scattered woodlands and dwellings. The buildings and roads
associated with Newtown extend away to the east and construction compounds and areas linked to the new Newtown by-pass are within 250m of the western and southern site boundaries.
2 METHODS

2.1 Desk-based Study

Information relating to designated sites, sites where European Protected Species (EPS) Licences have been granted between 2009 and 2015 (only available in England) and historic records of protected species within 2 km of the proposed development site will have been obtained from Magic (www.magic.gov.uk) and other freely available information on the internet, such as planning portals and species distribution maps.

Any species specific historic records are detailed within the relevant species accounts in the Results section.

2.2 Phase 1 Habitat Survey

The survey methods were based on the Phase 1 Habitat Survey approach (Joint Nature Conservation Committee 2003), which is a standardised method to survey main habitat types. Plant nomenclature in this report follows Rose (Revised Edition 2006) for native, naturalised and garden varieties of vascular plant. Introduced species and garden varieties are not always identified.

2.3 Protected Fauna Survey and Assessment

The habitats on site were assessed for suitability for protected fauna that occur in the region and obvious signs and incidental sightings of protected species were noted where present. Taking into consideration the geographical region and habitat types on and adjacent to site, the protected species and species groups that could be encountered are listed below.

- Badger
- Bats
- Dormouse
- Otter
- Water Vole
- Nesting birds
- Great Crested Newts
- Reptiles
- White-clawed Crayfish

Details of initial survey methods for each relevant species are given below.
2.3.1  **Badger**

Where access allowed a comprehensive assessment was carried out to identify areas that are used by Badgers (*Meles meles*) for foraging and sett digging. Signs of Badgers including setts, foraging signs, paths and latrines, were recorded where present.

2.3.2  **Bats**

Any buildings and trees on or adjacent to the site were visually surveyed to assess them for their potential to support roosting bats, although a thorough inspection of all potential roosting features would not be undertaken as part of the Phase 1 survey.

Habitats were assessed for their suitability for use by foraging or commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and those habitats with good numbers of insects, such as woodland, scrub, hedges, watercourses, ponds, lakes and more species-rich or rough grassland.

**Bat Activity Surveys**

Due to the presence of potentially important bat foraging and/or commuting routes within and around the proposed development site Bat Activity Surveys are being undertaken. These surveys will confirm the levels of bat activity and what species use the suitable features and inform appropriate mitigation measures required to ensure there will be no significant negative impacts on bats as a result of the proposals.

The Bat Activity Surveys to be completed include transect surveys along all field boundaries within and around the proposed development site (north and south of A489) and surveys using a static bat detector, which will record any activity along the hedgerow separating the two southern fields over a number of weeks. The transect surveys involve walking slowly around a pre-planned route along all field boundaries and continually listening for/recording any bat activity. Regular stops will also be made along the transect where the surveyor will record any activity during a five-minute period. One transect survey was completed on the 14th July 2016 with one more planned for late July as well as a further survey in August.

A static detector will be deployed in the centre of the hedgerow that separates the two southern fields on the second transect survey (late July). The detector will record any bat activity along the hedgerow throughout July and August.

2.3.3  **Dormouse**

Habitats were assessed for their general suitability for use by Dormouse (*Muscardinus avellanarius*), which generally use areas of dense woody vegetation cover. Dormice are most likely to be found where there is a wide diversity of woody species contributing to three-dimensional habitat complexity, a
number of food sources, plants suitable for nest-building material and good connectivity to other areas of suitable habitat.

2.3.4 Otter

Watercourses and areas of wetland and adjacent habitat were assessed for their suitability for use by Otter (*Lutra lutra*). This included an assessment of water depth, water quality, vegetation and cover.

As a general guide, a survey of 200-250 m both upstream and downstream of the site should suffice for small schemes such as individual bridges, pipeline crossings, local bank work and individual houses. Particular attention should be paid to important riverine habitat features such as in-stream islands and reed beds. For major road schemes and other similar linear developments, the survey should encompass at least 250 m on each side of all alternative routes and the same distance beyond the end of the scheme. All evidence of otter activity should be recorded within this area. In some cases, a broader survey area of 500 m on each side of the various alternative routes may be more appropriate. If access allowed at the time of the preliminary ecological survey all suitable habitat on and within 250 m of the proposed development site was searched for evidence of Otter. Field signs would have been recorded if they had been encountered, including spraint (droppings), footprints, slides, paths, feeding evidence, holts (underground resting places) or couches (temporary resting places).

2.3.5 Water Vole

Initial surveys centre on an assessment of habitat suitability. Most watercourses, waterbodies and other areas where there is surface water for the majority of the year (including marshland, rush-pasture, wetland, mires, ponds and other waterbodies) have some potential to support Water Voles (*Arvicola amphibius*). The following factors were taken into consideration: water quality, water-level regime, channel dimensions, bank type and material, vegetation for cover and food sources, shading, predation and competition and habitat management.

With the exception of those areas initially eliminated as unsuitable for Water Voles, the whole of the development site should be surveyed. For small sites, an extra 50 m upstream and downstream of the development should be surveyed. For larger schemes affecting several 100 m of riparian habitat that result in noticeable water level fluctuations and may lead to population fragmentation and habitat loss, it would be appropriate to survey for 500 m both upstream and downstream of the site. If access allowed at the time of the preliminary ecological survey all suitable habitat on and within 50 m of the proposed development site was searched for evidence of Water Voles. Field signs and direct evidence of the species (including feeding signs, latrines, burrows, footprints, runways, food piles and actual sightings) would have been recorded if they had been encountered.

2.3.6 Nesting birds

Habitat that might be used by nesting birds was identified and actively nesting birds or evidence of nesting birds noted where present.
Different bird species use buildings, trees and shrubs, undergrowth or even open fields for nesting and suitability of the site for use by a range of nesting bird species was considered.

### 2.3.7 Great Crested Newt

The suitability of any aquatic and terrestrial habitat on the site, and in the immediate vicinity, was assessed for suitability for use by Great Crested Newts (*Triturus cristatus*). Great Crested Newts are known to travel up to 500 m between breeding ponds and suitable terrestrial habitat, so a desk-based search was undertaken for any ponds up to 500 m from the site using OS maps and aerial imagery. The terrestrial habitat between the site and these ponds, and therefore connectivity to the site, was also considered.

If required and access allowed, ponds were assessed using the Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000), which is derived from systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect Great Crested Newts:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);
- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent water features (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

Each factor is scored using field and desk-based survey. These ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in Oldham *et al.* (2000) and a HSI result is calculated using the following formula:

$$HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for Great Crested Newts according to the following categories.

- HSI < 0.5 = poor
- HSI 0.5 – 0.59 = below average
- HSI 0.6 – 0.69 = average
- HSI 0.7 – 0.79 = good
- HSI > 0.8 = excellent
HSI cannot guarantee the presence or absence of Great Crested Newts however, there is a positive correlation between HSI scores and presence and abundance. Generally, ponds with high HSI scores are likely to support larger populations. The relationship is however not sufficiently precise to conclude that any pond with a high HSI will support newts in high populations, or that any pond with a low score will support low numbers of newts or no newts at all.

2.3.8 Reptiles

The site was assessed for suitability for use by widespread species of reptiles, with particular attention paid to those features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of hardcore) and opportunities for foraging (e.g. rough grassland and scrub). The site was assessed for its suitability for the commoner reptile species which have broadly similar habitat requirements but more specific requirements include those shown below (Beebee & Griffiths 2000).

- Common Lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to walls and pastures, although one habitat they use is brownfield sites
- Slow-worms (*Anguis fragilis*) use similar habitats to Common Lizards, and are often found in rank grassland, gardens and derelict land
- Grass Snakes (*Natrix natrix*) have broadly similar requirements to Common Lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians
- Adder (*Vipera berus*) use a range of fairly open habitats with some cover, but are most often found in dry heath

2.3.9 White-clawed Crayfish

White-clawed Crayfish (*Austropotamobius pallipes*) are known to occur in the region and watercourses were surveyed for suitability to support this protected species. Factors taken into consideration included water flow, bank conditions, water quality, presence of emergent vegetation, bed substrate and presence of pebbles, rocks and stones.

2.4 Constraints

June is an ideal time to undertake Phase 1 surveys, as the majority of plants are visible and identifiable and animal signs are easier to detect. However, dense vegetation can inhibit searches for early flowering plants and certain animal signs, such as setts and holes. For a site of this size, location and habitat composition it is considered that the time of year of the survey will not have had a significant effect on the survey results or assessment of the site.

2.5 Criteria for Assessment

The scientific value of habitats for nature conservation is assessed according to widely accepted criteria of which the most important are naturalness, extent, rarity, and diversity.
The assessment of impacts is based on the principles within Chartered Institute of Ecology and Environmental Management (CIEEM) Environmental Impact Assessment (EIA) Guidance (2016) which assesses the impacts of the proposal on ecological receptors taking in to consideration extent, duration, reversibility, timing, frequency and certainty.

Mitigation and enhancement is designed to reduce the level of impact upon receptors and provide ecological enhancement in order to meet current legislation and planning policy. The information below has therefore been considered during assessment.

- Criteria that have been developed to assist in the identification of statutory Sites of Special Scientific Interest (SSSIs) (JNCC 2013)
- Habitats and species of Principal Importance included under Section 41 (England) and Section 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006
- The legal status of habitats and species according to the EU ‘Habitats’ Directive 1992
- CIEEM Guidelines (2016) for assessing the value of ecological receptors within a defined geographical context using the following categories: international (i.e. Europe); UK and national (England); regional; county; Unitary Authority; local or parish; and zone of influence. Receptors are identified as ‘important’ at these levels, or as ‘not important
- Species protected by European directives
- Species protected by the Wildlife and Countryside Act 1981 (as amended)
- Other species listed as scarce or notable in literature issued by conservation organisations or learned societies e.g. vascular plant species listed in Stewart et al. (1994) and Red and Amber List Birds of Conservation Concern (Eaton et al. 2015)
- Local Wildlife Site selection criteria
- National Policy Planning Framework (NPPF), 2012
- BS42020:2013 – Biodiversity Code of practice for planning and development
- Protected species handbooks and best practice guidelines
- The Powys Local Biodiversity Action Plan (BAP), which identifies and prioritises local habitats and species of conservation importance. These habitats and species are stated as
  - Habitats: Upland oak woodland, Lowland woodpasture and parkland, Wet woodlands, Coniferous woodland, Scrub and ffridd, Linear habitats (hedges and verges), Rivers and stream, Mesotrophic waters, Lowland raised bog, Rhos pastures, Lowland meadows, Lowland dry acid grassland, Upland calcareous grassland, Upland and lowland heath, Traditional orchards and Farmland and Gardens.
3 RESULTS

3.1 Desk Study

3.1.1 Designated Sites

The proposed development site is located within 2 km of the following designated sites:

- Mochdre Dingle SSSI;
- Gweunydd Penstrowed SSSI; and
- Penstrowed Quarry SSSI.

The nearest part of the Mochdre Dingles SSSI is 1 km to the south of the site and is designated for its semi-natural broadleaved woodland and in particular species-rich upland ash woodland.

Gweunydd Penstrowed SSSI, approximately 1.6 km north-west of site, supports unimproved neutral grassland with some unimproved acid grassland. It also has Montgomeryshire’s best known population of Lesser Butterfly Orchid (Platanthera bifolia).

Penstrowed Quarry SSSI, approximately 1.8 km north-west of site, is designated for its geological interest.

3.1.2 European Protected Species Licence Sites

Records of European Protected Species (EPS) licences are currently not available in Wales.

3.2 Ecological Surveys

Phase 1 habitat types were recorded within and immediately adjacent to the proposed development sites are listed below and can be seen in Figures 3.

- Improved grassland
- Hedgerows
- Woodland and scattered trees
- Scrub
- Watercourse
Figure 3. Aerial image of fields / habitats within and immediately adjacent to the proposed development site

The site or immediately adjacent areas contain habitat suitable for the protected species listed below.

- Badger
- Bats
- Dormouse
- Otter
- Water Vole
- Nesting birds
- Great Crested Newt
- Reptiles
- White-clawed Crayfish
3.3 Phase 1 Habitat Survey

3.3.1 Improved grassland

The three fields affected by the proposals (Fields A, B and C, Figure 3) are all improved grassland grazed by sheep at the time of survey (Plates 1, 2 and 3). The grassland is species poor and dominated by common grass species, such as Perennial Rye-grass (*Lolium perenne*), Crested Dogstail (*Cynosurus cristatus*), Cocksfoot (*Dactylis glomerata*) and a Meadow Grass species (*Poa sp.*). Herb species within the fields are dominated by Creeping Buttercup (*Ranunculus repens*), Ribwort Plantain (*Plantago lanceolata*) and White Clover (*Trifolium repens*) with scattered patches of Common Nettle (*Urtica Dioica*), Broad-leaved Dock (*Rumex obtusifolius*) and Creeping Thistle (*Cirsium arvense*). Around the edges of the fields, such as adjacent to hedgerows and down to the banks of the Mochdre Brook, the grassland is slightly more diverse with Hairy Brome (*Bromopsis ramosa*), Birds-foot Trefoil (*Lotus corniculatus*), Bugle (*Ajuga reptans*), Common Hogweed (*Heracleum sphondylium*), Cow Parsley (*Anthriscus sylvestris*), Lords and Ladies (*Arum maculatum*), Common Mouse-ear (*Cerastium fontanum*) and patches of Bracken (*Pteridium aquilinum*).

*Plate 1. The improved grassland in Field A (looking north-east from the south-west corner)*
3.3.2 Hedgerows

A hedgerow separates Fields A and B (Plate 4) and further hedgerows form the northern boundary of Field B and the northern, north-western and southern boundaries of Field C (Plate 5, 6 and 7). The hedgerows contain a similar mix of species but vary in size with the hedgerow separating Fields A and B mainly outgrown and the other hedgerows well-managed. Blackthorn (Prunus spinosa) and Hawthorn are the dominant species but scattered Hazel (Corylus avellana), Elder (Sambucus nigra), Dog Rose (Rosa canina), Ash (Fraxinus excelsior) and Bramble (Rubus fruticosus) are also present.
Plate 4. The southern end of the hedgerow that separates fields A and B (looking north)

Plate 5. Hedgerow and single mature tree along north-western boundary of Field C (looking south-west)
Plate 6. Field B and C hedgerows to the north and south of the A489 (looking east from access at north-east corner of Field A)

Plate 7. Hedgerow to the north of the A489 and fenceline where the northern boundary of Field A has been modified (looking west from access at north-east corner of Field A)

3.3.3 Woodland and scattered trees

Broadleaved woodland is present along the banks of the Mochdre Brook (Plates 8 and 9). Mature and semi-mature trees species included Oak (*Quercus* sp.), Ash, Alder (*Alnus glutinosa*) and Sycamore (*Acer pseudoplatanus*) whilst the sparse understorey consists of scattered Hazel, Blackthorn, Elder, Hawthorn and patchy Bramble.
Plate 8. Woodland along eastern edge of Field B (Looking south from northern end of Field B).

Plate 9. Woodland along eastern boundary of Field C (looking north from south-east corner of field)

Just beyond the fenceline along the western boundary of Field A there is a line of planted semi-mature broadleaved trees (Plate 10). Species include Sycamore, Oak, Ash, Birch (Betula sp.), Poplar (Populus sp.) Cherry (Prunus sp.) and Wild Service Tree (Sorbus torminalis).
Plate 10. Line of planted trees adjacent to western boundary of Field A (looking south-east)

3.3.4 Scrub

Patchy scrub is present along the eastern edges of Field B and C (Plate 11). Gorse (*Ulex europaeus*) is the dominant species but dense patches of Bramble and young Hawthorn also occur.

Plate 11. Gorse scrub along eastern boundary of Field B

3.3.5 Watercourse

The Mochdre Brook flows along the eastern boundary of Fields B and C (Plates 12 and 13). The brook is mainly fast flowing and shallow and has a stony/rocky substrate. No aquatic vegetation was evident and as water levels were low at the time of survey no marginal vegetation was present. The western banks are mainly low with grazed grassland present whilst the eastern banks are steep and undisturbed
with many of the trees growing immediately adjacent to the water’s edge. There are also sections of bank reinforced with stone gabions to prevent erosion into the adjacent industrial estate.

*Plate 12. Mochdre Brook flowing along eastern edge of the proposed development site (looking downstream from north-east corner of site)*

*Plate 13. The A489 crossing over the Mochdre Brook with animal access between the southern and northern fields under the bridge*

### 3.4 Protected Fauna

#### 3.4.1 Badger

No evidence of Badger was found within or adjacent to the proposed development site.
The improved grassland and hedgerow bases are suitable for setts to be located and these habitats do provide good foraging opportunities for Badgers.

3.4.2 Bats

General

Although no suitable bat roosting features (holes, crack, splits etc.) are present within areas affected by proposed construction activities, a number of trees within the woodland bordering the Mochdre Brook and in the single Oak just beyond the north-western boundary of Field C do support suitable roosting features.

Plate 14. Suitable bat roosting features (holes) in one of the trees along the banks of the Mochdre Brook

During activity surveys around the Newtown Bypass crossing point over the Mochdre Brook (approximately 250m from the proposed development site) Lesser Horseshoe Bat (*Rhinolophus hipposideros*) and Nathusius Pipistrelle (*Pipistrellus nathusii*) were recorded foraging (Atkins, 2014).

Although the improved grassland is unlikely to be important for foraging bats, the hedgerows and especially the woodland lined Mochdre Brook are suitable for regular foraging and/or commuting.

Bat Activity Surveys

A single dusk Bat Activity Survey has so far been completed (on 14th July 2016) with additional surveys planned for the end of July and early August 2016. The results of this first survey showed that bat activity associated with the hedgerows within and around site is limited, with just one or two Common and Soprano Pipistrelles recorded foraging along them. Higher levels of bat activity was recorded along
the Mochdre Brook and adjacent woodland with almost constant foraging pipistrelles and a single pass by a Lesser Horseshoe Bat.

### 3.4.3 Dormouse

Dormouse are known to be present along the valley of the Mochdre Brook to the south of the proposals (surveys completed as part of the Newtown Bypass Environmental Assessment, Atkins Consultants Ltd, 2014).

The woodland bordering the Mochdre Brook along the eastern edge of the site provides suitable cover, foodplants and connectivity for Dormouse, although the A489 may prevent any dispersal to woodland and hedgerows to the north. The field boundary hedgerows also provided good cover and foodplants but there are frequent gaps along the hedgerow that separates Fields A and B.

### 3.4.4 Otter

There are a number of Otter records from along the Mochdre Brook and the section of River Severn to the north of the proposed development site.

Numerous fresh Otter spraints were found along the length of the Mochdre Brook that borders the eastern edge of the proposed development site and suggests the brook is regularly used by Otters. Despite the presence of suitable features, such as holes and voids in banks under tree roots, no Otter holts were found and there was no evidence of resting couches or laying-up places. The improved grassland has no suitability for this species.

*Plate 15. A typical feature along the banks of the Mochdre Brook that could be used by resting Otters*
3.4.5 Water Vole

Water Voles are not known to be present in any waterbodies within 2km of the proposed development site.

No evidence of Water Vole was found during a search of the banks of the Mochdre Brook and the fast flowing generally unvegetated shallow water is not ideal habitat for Water Voles.

3.4.6 Birds

Habitats suitable for breeding birds are limited to the hedgerows, scrub and trees around and within the proposed development site. Kingfisher (*Alcedo atthis*), a Schedule 1 species, may occur along the Mochdre Brook, although steep earth banks with unvegetated access required for nesting are not present.

Ground nesting species such as Skylark (*Alauda arvensis*), a UKBAP and Red List species, are very unlikely to occur in the areas of improved grassland due to the close proximity to hedgerows and/or trees and current grazing levels maintaining a short sward.

3.4.7 Great Crested Newt

There are no known records of Great Crested Newts within 2km of the proposed development site.

There is one pond shown on OS mapping/aerial images within 500m of the proposed development site. The pond is approximately 280m south of site and beyond the route of the Newtown Bypass, which is currently being cleared.

Optimal Great Crested Newt terrestrial habitat is limited to the hedgerows around the boundaries of the improved grass fields, which provide some cover suitable for foraging, hibernation and dispersal. There are also suitable refuges for Great Crested Newts where farm materials and machinery have been discarded around the southern edge of Field A. The grassland that dominates the proposed development site is unsuitable for foraging and hibernating Great Crested Newts due to the compact ground and very short sward not providing any cover. The lack of cover would also deter any dispersal across site.

3.4.8 Reptiles

Optimal reptile habitat is limited to the hedgerows, scrub and within the woodland habitat associated with the Mochdre Brook, which provide some cover for foraging, hibernation and dispersal. There are also suitable refuges for reptiles where farm materials and machinery have been discarded around the southern edge of Field A.

The grassland that dominates the proposed development site is unsuitable for foraging and hibernating reptiles due to the compact ground and grazed sward providing little cover. The lack of cover would also deter any dispersal across site.
3.4.9 White-clawed Crayfish

There are no records of White-clawed Crayfish in waterbodies within 2 km of the proposed development site. Introduced Signal Crayfish (*Pacifastacus leniusculus*) are however known to be present.

It is considered that the section of the Mochdre Brook along the eastern boundary of the site is sub-optimal for White-Clawed Crayfish, with suitable refuges present (stone substrate and gaps under marginal tree roots) but mainly less suitable fast flow with few slow silty areas.
4 EVALUATION

4.1 Summary of Impacts

The proposed development involves construction of residential dwellings and associated, access car parking spaces, gardens and public open space (Figure 4). Works will mainly affect ecologically poor improved grassland with the majority of hedgerows and trees being retained and protected and no construction works immediately adjacent to the Mochdre Brook.

Figure 4. Proposed development plan

The Powys BAP lists 17 Habitat Action Plans but none of these habitats will be significantly affected by the proposed development. The site is also not designated for its wildlife interest at an international, national or local level and no legally protected plant species were identified or are likely in the habitats encountered.
4.2 Designated Sites

No designated sites will be directly affected by the proposals but there are two sites designated for their ecological interest within 2 km of the proposed development site. There are no links between the habitats and/or species these sites are designated for and those found or potentially found within the proposed development site and considering the distances from site there is unlikely to be any significant negative indirect impacts as a result of the proposals.

4.3 Habitats

4.3.1 General

The proposed development will directly affect ecologically poor areas of improved grassland for the construction of the houses and short sections of hedgerow for access purposes. The works also have the potential to indirectly impact the Mochdre Brook and associated woodland via unmitigated drainage, run-off and disturbance. In order to protect habitats and maintain and increase biodiversity of the site the following mitigation measures and safe working methods will need to be incorporated into the proposals.

4.3.2 Mitigation

The proposed areas of groundworks will need to be confined to areas that will not impact on the root systems of the existing and retained boundary hedgerows and trees. An appropriate buffer (as detailed in BS5827:2012) will need to be established and maintained.

A section of hedgerow will be removed along the hedgerow that separates Fields A and B to allow access into the area of public open space and a section of hedgerow will be removed along the southern boundary of Field C for the main access off the A489 and into the northern part of the development. The access off the A489 into the southern part of the development is located where there is no existing hedgerow. The sections of hedgerow to be removed are small and the proposals include hedgerow replacement and creation that will ultimately increase and improve the hedgerow network and connectivity within and around the proposals. The proposals also include tree planting within and around the proposed site. Any hedgerows and trees to be planted should be locally occurring native species and ideally of a similar but improved mix to that found around the existing site boundaries.

Strict pollution control and drainage methods will need to be included in the proposals and must be adhered to to ensure there will be no negative impacts on the hydrology and ecology of the Mochdre Brook and downstream along the River Severn. Appropriate methods during construction will include but are not limited to;

- Spill kits will be stored within the site compound during and post construction and all spills will be cleaned up accordingly and if necessary reported.
• All chemical substances and hazardous materials will be stored in accordance EA guidelines with all diesel fuel and other lubricants will be stored in appropriate containers and within double bunded storage areas.
• Any washing of concreting vehicles will be done well away from any watercourses and/or drainage systems.
• Any re-fuelling and re-lubrication will only be completed in an approved area in which a spill kit is available.

Field B is proposed to be public open space with access from the proposed housing in Field A. Field B is currently ecologically poor improved grassland and it is recommended it is re-seeded with a lowland meadow seed mix and managed for the benefits of wildlife. Open access to the woodland and banks of the Mochdre Brook is not recommended due to the potential for significant negative impacts from human disturbance. It is recommended that an ecological management plan for the proposed area of public open space is produced, which would detail long-term mitigation, habitat enhancement and management to maintain and increase biodiversity within and around the proposed development site.

4.4 Protected Fauna

4.4.1 General

Other than Otter spraint along the Mochdre Brook, no evidence of protected species was found within or immediately adjacent to the proposed development footprint during the survey. There are however habitats with suitability for Badger, bats, Dormouse, Otter, nesting birds, Great Crested Newt and reptiles within or adjacent to the proposed construction areas.

4.4.2 Badger

No evidence of Badgers was found within or immediately adjacent to the proposed development site during the survey and the habitats affected and lack of evidence found during the survey suggests the potential for setts to be dug within or immediately to the site is very unlikely.

Although significant negative impacts on Badgers are not predicted it is recommended that mitigation measures are put in place to ensure foraging Badgers do not become trapped within any excavation works associated with construction works. Excavations should either not be left uncovered overnight or ways of escape for Badgers provided (wooden planks or graded earth banks).

4.4.3 Bats

There are no features suitable for roosting bats that will be directly affected by the proposals but trees within the woodland along the Mochdre Brook and the mature Oak adjacent to the north-western boundary of Field C could support roosting bats. The hedgerows within and around site and the woodland are suitable for foraging and/or commuting bats and may be of significant importance for any local bat populations.
Due to the potential importance of hedgerows and woodland within and around site for foraging and/or commuting bats, transect and static detector surveys are being undertaken to confirm levels of bat activity associated with these features. Initial findings from a transect survey completed on 14th July 2016 showed the hedgerows between and around the fields are not well-used by foraging and/or commuting bats but activity was much higher along the Mochdre Brook, including a record of foraging Lesser Horseshoe Bat.

A lighting plan showing the location and specification for any proposed lights on the site during and post construction will be produced. The lighting plan will reflect the Bat Conservation Trust Bats and Lighting in the UK guidance (2009) and will include directing lighting away from all hedgerows and trees retained within the site boundaries and the use of downlighting to ensure that suitable foraging and commuting habitats remain unlit.

Proposed hedgerow and tree planting within and around this development site along with the provision of suitable roosting features, such as bat boxes, tiles and/or tubes, within the new buildings and on trees will ultimately improve the area for foraging, commuting and roosting bats.

4.4.4 Dormouse

The hedgerows and woodland within and around the proposed development site are suitable for Dormouse and there are records from the valley of the Mochdre Brook. However, the small sections of hedgerow affected by the proposals have frequent gaps in them and are not connected to the woodland along the Mochdre Brook and are poorly connected to other suitable habitats.

Although Dormouse may occur in the woodland and scrub associated with the Mochdre Brook their presence within the hedgerows affected by the proposals is considered unlikely due to poor connectivity. The A489 crossing over the Mochdre Brook also creates a significant break in the suitable habitat along the brook and probably prevents any Dormouse dispersal north of the A489. No further survey or specific mitigation is required prior to the removal of the small sections of hedgerow and the proposed hedgerow replacement and creation and planting of trees should improve connectivity around the site and link to the woodland along the Mochdre Brook. It is recommended scrub is encouraged and left to grow along the edge of the woodland along the Mochdre Brook to improve understorey cover and feeding opportunities and consideration should be given to providing some connecting vegetation under the A489 that would allow dispersal of Dormouse to the north. The addition of permanent Dormouse nestboxes erected on suitable trees on both sides of the Mochdre Brook is also recommended provided public access is restricted along the majority of the brook.

4.4.5 Otter

Evidence of Otter was found along the Mochdre Brook and there are opportunities for breeding along the sections of brook along the eastern boundary of the site.
Although no suitable Otter habitat will be directly affected by the proposals, restrictions on public access in and along the banks of the Mochdre Brook is recommended to ensure there will be no significant disturbance to the Otters using the brook.

4.4.6 Water Vole

The proposed development site is unsuitable for Water Vole and their presence along the nearby Mochdre Brook is considered very unlikely. No further survey or specific mitigation measures for Water Vole are therefore required.

4.4.7 Birds

The hedgerows, scrub and trees are all suitable for nesting birds but the presence of ground nesting birds in the areas of improved grassland affected by the proposals is considered unlikely.

Works affecting these areas should ideally be completed outside the breeding bird season (March – August inclusive). The sections of hedgerow should be cleared, or at least cut down to just above ground level, outside of the breeding bird season. If this is not possible then a pre-construction bird survey will need to be completed by a suitably qualified ecologist and depending on the presence and location of nesting birds, breeding effort may have to be allowed to finish before works commence.

Any habitat creation, enhancement and management, such as the replacement and creation of hedgerows and planting of trees, would only have a positive impact on nesting birds at the site. A mix of open fronted and hole nest boxes should be erected on the proposed buildings and/or retained trees, especially along the Mochdre Brook.

4.4.8 Great Crested Newt

There are no close records of this species and only one pond within 500m of the proposed development site, which is also beyond the Newtown Bypass construction area.

Whilst there is some limited suitability for this species along the hedgerows, the grassland is not ideal for Great Crested Newts. Due to the lack of records within the vicinity of site, the distance and poor connectivity between site and the nearest pond and habitats affected, the presence of Great Crested Newts on or around site is very unlikely and no negative impact anticipated.

4.4.9 Reptiles

Optimal reptile hibernating, dispersing and/or foraging habitat is limited to the hedgerows and woodland within and around the main development site and overall connectivity between suitable reptile habitat on site and more extensive optimal habitat is relatively poor. There are suitable refuges, such as stored and neglected farm machinery and materials, around the southern boundaries of the proposed development site.
The presence of reptiles within the main proposed works areas is considered unlikely but as some suitable habitat will be affected by the proposals (short section of hedgerow) it is appropriate that safe working methods are put in place to ensure no reptiles are harmed. These methods should include habitat modification (e.g. cutting and maintaining the vegetation to just above ground level prior to works) to discourage reptiles from occurring and clearing these areas when reptiles are usually active (March to October inclusive). During construction, any storage of piles of materials and excavated earth on the site should be kept to a minimum and away from the boundaries to deter reptiles from using them for temporary cover. In the unlikely event of a reptile being found during works then an ecologist should be contacted and an appropriate course of action agreed before works continue.

4.4.10 White-clawed Crayfish

Due to the lack of White-clawed Crayfish records from along the Mochdre Brook and along the nearby River Severn and known presence of Signal Crayfish, there are unlikely to be any impacts on White-clawed Crayfish as a result of the proposed development.
5  LEGAL PROTECTION

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

5.1  Badger

Badger is protected in Britain under the Protection of Badgers Act 1992 and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

5.2  Bats

All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended) extended by the Countryside and Rights of Way Act 2000. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European Protected Species listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (SI 2010/490) under Regulation 41. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats in such a way as to be likely to (a) impair their ability to: (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or b), to affect significantly the local distribution or abundance of the species to which they belong; and
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present.

Where it is necessary to carry out an action that could result in an offence under the Conservation of Habitats and Species Regulations 2010 (SI 2010/490) it is possible to apply for a European Protected
Species (EPS) licence from Natural England (NE). Three tests must be satisfied before this licence (to permit otherwise prohibited acts) can be issued:

- Regulation 53(2)(e) states that licences may be granted to “preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.”
- Regulation 53(9)(a) states that a licence may not be granted unless “there is no satisfactory alternative”.
- Regulation 53(9) (b) states that a licence cannot be issued unless the action proposed “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

### 5.3 Otter and Water Vole

Otter and Water Vole are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under Section 9. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRoW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.
- Both species are included as a Priority Species in the UK Biodiversity Action Plan (Anon, 2007).

Otters are also European Protected Species listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (SI 2010/490) under Regulation 41. This legislation makes it an offence to:

- deliberately capture, injure or kill an Otter;
- deliberately disturb Otters in such a way as to be likely to (a) impair their ability to: (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or b), to affect significantly the local distribution or abundance of the species to which they belong; and
- damage or destroy a breeding site or resting place of an Otter; and
- possess, control, transport, sell, exchange an Otter, or offer an Otter for sale or exchange.
5.4 Nesting Birds

All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). The protection was extended by the CRoW Act.

The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Certain species of bird are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Sections 1(4) and 1(5) of the Act. The protection was extended by the CRoW Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

5.5 Great Crested Newt

Great Crested Newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under Section 9. These species are also listed as European Protected Species on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (SI 2010/490) which gives them full protection under Regulation 41. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRoW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The Great Crested Newt is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under Section 74 of the CRoW Act.
5.6 Common Reptile Species

Common Lizard, Grass Snake, Slow-worm and Adder are listed under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended), in respect of Section 9(5) and part of Section 9(1). This protection was extended by the CRoW Act.

Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

5.7 White-clawed Crayfish

The White-clawed Crayfish is listed on Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended), and receives protection under Section 9(1) and 9(5) and was extended by the CRoW Act 2000. These species also receives full protection under Annex II and V of the *European Habitats Directive 1992* and the *European Bern Convention* under Appendix III.

Under the above legislation it is an offence to:

- take from the wild;
- sell or attempt to sell any part of the species alive or dead; or
- intentionally or recklessly disturb such a species.