

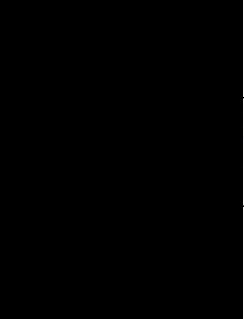
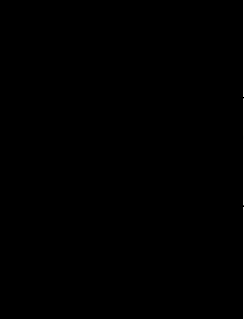
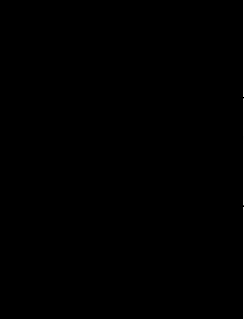


## **Extended Phase 1 Habitat Survey**

Redmire Bridge, Northumberland

# Quality Control

Report Status: Final, update report

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**EXTENDED PHASE 1 SURVEY**  
**Redmire Bridge, Northumberland**

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## 1.0 EXECUTIVE SUMMARY

Total Ecology was commissioned by Northumberland County Council in August 2017 to undertake a desk based study and an updated extended Phase 1 survey of Redmire Bridge in Northumberland. The approximate National Grid Reference for the centre of the site is **NY 78787 85880**. The survey is required prior to repair works to the bridge.

The site is located on land near Lanehead, 5.7km west of Bellingham and 33km north of Hexham (Figure 1, Appendix A). The site consists a bridge of sandstone construction supporting four arches spanning the Tarsset burn which flows west to east. The Tarsset Burn is a tributary of the River Tyne approximately 30 metres wide and fairly fast flowing with a stony substrate. Lining the burn is broad-leaved woodland along the banks, and beyond this habitat the land is dominated by improved grassland grazed by sheep. Other features and habitats recorded includes fences, stone walls, a ditch which runs adjacent to the road and into the burn, tall ruderal habitat to the north-west of the bridge, and a road over the bridge which provides access between Redmire and Rushend.

Following the survey effort, nine main habitat land categories were identified on site under the Phase 1 system of habitat description. These included broad-leaved woodland, built structure (bridge), ditch, fence, hard standing, improved grassland, running water, tall ruderal and wall. Two target notes also illustrate the evidence of Badger presence in the form of foraging in the woodland, and latrines on the bridge grass verge. From the original survey, evidence for the presence of Otters was discovered.

The bridge and surrounding habitats have potential to support several protected species. The Tarsset Burn is suitable for Otters, Fish and White Clawed Crayfish, the woodland is suitable for foraging mammals such as Badgers, and the bridge and trees are suitable to support nesting birds or roosting Bats. The following recommendations are made based upon findings of the survey effort:

- Undertake a minimum of three nocturnal bat surveys;
- Undertake an Otter and Water Vole absence / presence survey;
- Carry out a Badger absence / presence survey;

- A Red Squirrel absence /presence survey is recommended for the adjacent trees;
- A White Clawed Crayfish survey is recommended;
- Repairs to take place outside bird nesting season (or checked by a suitably qualified person prior);
- Undertake works outside main Salmon spawning season;
- General pollution prevention protocols to be adopted.

Full details are provided in section 5.

## **2.0 INTRODUCTION**

### **2.1 Background**

Total Ecology was commissioned by Northumberland County Council in March 2016 to undertake a desk based study and an extended Phase 1 survey of land near Lanehead in Northumberland. This survey was completed on 7<sup>th</sup> April 2016. A re-survey was instructed in August 2017. The approximate National Grid Reference for the centre of the site is **NY 78787 85880**. The survey is required prior to repair and maintenance works to Redmire Bridge.

### **2.2 Site Description**

The site is located on land near Lanehead, 5.7km west of Bellingham and 33km north of Hexham (Figure 1, Appendix A).

The site consists a bridge of sandstone construction supporting four arches spanning the Tarsset burn which flows west to east. The Tarsset Burn is a tributary of the River Tyne approximately 30 metres wide and fairly fast flowing with a stony substrate. Lining the burn is broad-leaved woodland along the banks, and beyond this habitat the land is dominated by improved grassland grazed by sheep. Other features and habitats recorded includes fences, stone walls, a ditch which runs adjacent to the road and into the burn, tall ruderal habitat to the north-west of the bridge, and a road over the bridge which provides access between Redmire and Rushend.

### **2.3 Survey Objectives**

The principal objective of the ecological assessment was to characterise and map the habitats present within the site. In addition, the study area was assessed for features that would indicate the presence of protected species, habitats of nature conservation importance and the presence of non-native invasive species that could represent a constraint to development. Any trees and surrounding habitats were assessed in terms of their potential to support, or actual evidence of, roosting bats. This assessment will form the basis of recommendations for further survey work and/or mitigation and compensation for the species.

## 3.0 METHODOLOGY

### 3.1 Desk Based Study

An area search was conducted using the Multi Agency Geographic Information for the Countryside (MAGIC) website to ascertain whether there are any designated sites of interest, on or near the site being surveyed. Environmental Records Information Centre for the North East of England (ERIC) was contacted for records of protected species and sites within 2km of the site.

### 3.2 Extended Phase 1 Survey

The original ecological assessment took place on 7<sup>th</sup> April 2016 in accordance with the standard Phase 1 Habitat Survey methodology (JNCC, 2003). The survey was carried out by Natalie Whitehead (GradCIEEM), Sacha Elliott (BSc (Hons) and Charlotte Wade (GradCIEEM), experienced ecologists with professional experience of carrying out such surveys. The information collected during the survey was then approximately mapped and can be found in Figure 3, Appendix A.

A re-survey of the bridge took place on 29<sup>th</sup> September 2017, undertaken by Victoria Telford MSc ACIEEM and Sacha Elliott BSc (Hons) GradCIEEM.

### 3.3 Controlled Invasive Species

The site was surveyed during an Ecological Walkover survey for the presence of invasive non-native species including Japanese Knotweed *Fallopia japonica*, Himalayan Balsam *Impatiens glandulifera* and Giant Hogweed *Heracleum mantegazzianum*, which are listed under Schedule 9 part ii of the Wildlife and Countryside Act 1981 (as amended). Under section 14 of the Act it is an offence to cause the spread or relocation of either species.

### 3.4 Protected Species and Other Species of Nature Conservation Importance

An appraisal of the habitats present on the site was undertaken during the Ecological Walkover survey, to identify whether there were any signs to suggest the presence of populations of legally protected species or other species of nature conservation importance including mammals, birds, reptiles, amphibians and invertebrates or that the features present could potentially provide these species with suitable habitats. Where possible, a buffer of 30m outside of the site boundary was also assessed for signs of Badger.

### **3.5 Constraints and Assumptions**

Due to the time of year some annual flowering species may be under represented. However due to the identification of a variety of common and widespread species, habitats present and the experience of the surveyors, it is considered that there is sufficient information to produce a reasonable ecological assessment of the areas of site to be affected by the current proposals.

In addition to this, during the re-survey undertaken 29<sup>th</sup> September 2017, land which was not previously inaccessible was marked as private/ no entry; this applied to the southern areas of land adjacent the bridge, restricting access to fully survey the southern river bank.



## 4.0 SURVEY RESULTS

### 4.1 Desk Based Study

The results obtained from the MAGIC search revealed one Site of Special Scientific Interest (SSSI) within 2km of the site known as Greenhaugh Meadow approximately 1.14km to the north-east. Additionally, this area is also designated as North Pennine Dales Meadows (SAC).

The consultation with ERIC NE revealed three Northumberland Local Wildlife sites (NLWS) within 2km of the site. The Taret Burn is located approximately 1.1km north to the site. The Chirdon burn lies approximately 900m to the south of the site flowing on from the River Tyne. The Hesleyside Mill lies approximately 1.3km south to the site. A summary of designated sites within 2km of the land in question is given in Table 1 below. Summarised data relating to other species of conservation concern is incorporated into the relevant species sections below.

**Table 1** Designated sites within 2km.

Site Name	Designation	Approx. Distance from Site	Further Information
Greenhaugh Meadow	SSSI	1km north-east	Designated site of species- rich northern hay meadow used for agricultural purposes.
North Pennine Dales Meadows	SAC	1km north-east	The site encompasses the range of variation exhibited by Mountain hay meadows in the UK and contains the major part of the remaining UK resource of this habitat type. A wide range of rare and local meadow species are contained within the meadows, including globeflower <i>Trollius europaeus</i> , the lady's-mantles <i>Alchemilla acutiloba</i> ,

			A. monticola and A. subcrenata, and spignel Meum athamanticum.
Tarset Burn	LWS	Site lies 1.1km north	Designated site of fauna and flora including European otter, Water shrew, Red squirrel and five species of bats (Brandt's, Common pipistrelle, Soprano pipistrelle, Noctule and Brown long-eared).
Chirdon Burn	LWS	Site lies 900m south	No information provided.
Hesleyside Mill	LWS	Site lies 1.3km south	No information provided.

#### 4.2 Walkover Survey

Nine main habitat land categories were identified on site under the Phase 1 system of habitat description. These were:

- Broad-leaved Woodland
- Built Structure
- Ditch
- Fence
- Hard Standing
- Improved Grassland
- Running Water
- Tall Ruderal
- Wall

Appendix A shows the habitat map for the site whilst Appendix B gives selected photographs. Two target notes are also included.

##### Broad-leaved Woodland (Appendix B, image 5)

Adjacent to both sides of the river was a mixture of broadleaved trees, Ash *Fraxinus excelsior*, Alder *Alnus glutinosa*, Sycamore *Acer pseudoplatanus*, Hazel *Corylus avellana* and Willow *Salix spp.* The ground flora to the south of the site,

comprises of Greater Woodrush *Luzula sylvatica*, Smooth Rush *Juncus effusus*, Dogs Mercury *Mercurialis perennis*, Dandelion *Taraxacum officinale*, Lesser Celandine *Ficaria verna*, Common Dog Violet *Viola riviniana*, Spear Thistle *Cirsium vulgare*, Common Sorrel *Rumex acetosa*, Cocksfoot *Dactylis glomerata*, Yorkshire Fog *Holcus lanatus*, Tufted Hair Grass *Deschampsia cespitosa*, Yarrow *Achillea millefolium*, Bramble *Rubus fruticosus*, Germander Speedwell *Veronica chamaedrys*, Barren Strawberry *Potentilla sterilis*, Creeping Bent *Agrostis stolonifera*, Snowdrop *Galanthus spp.*, Daffodil *Narcissus pseudonarcissus* and *Umbelliferae spp.* Not all of these species were present during the re-survey due to the time of year. This habitat has potential to support a range of foraging mammals including badger and red squirrel, as well as nesting birds and roosting bats.

#### Built Structure (Appendix B, images 1, 2 &3)

The built structure comprises the bridge itself, of sandstone construction with four arches spanning the Tasset Burn and supporting a small road linking Redmire to Rushend. The bridge supports features suitable for roosting bats and nesting birds, such as crevices in the stone work and a Dipper nesting box.

#### Ditch

Present along the west side of the road north of the bridge there is a drainage ditch masked by tall ruderal vegetation which carries land run-off down into Tasset Burn.

#### Fence

Between the woodland and the adjacent sheep grazed fields is wooden fencing fixed with wire mesh and barbed wire.

#### Hard Standing (Appendix B, image 1)

The road which crosses the bridge consists of tarmacadam covered ground.

#### Improved Grassland (Appendix B, image 5)

Sheep grazed, improved grassland is present adjacent the woodland bordered bridge and Tasset Burn to the north and south. Dominant grass species include Perennial rye-grass *Lolium perenne* and Cocksfoot *Dactylis glomerata*. Creeping Buttercup *Ranunculus repens* is also present. Pasture areas dominate the south of Tasset burn, ground flora present consists of Common Mouseear *Cerastium fontanum*, Lesser Celandine *Ficaria verna* and Creeping Buttercup *Ranunculus*

*repens*. The grazed fields show signs of occasional waterlogging via the presence of Soft Rush (*Juncus effuses*).

#### Running water (Appendix B, image 6)

The Tarsset burn, a tributary of the River Tyne, flows through the site from west to east. Due to recent rainfall, the river was fast flowing and approximately 30 metres wide. The banks adjacent to the Tarsset burn are slightly sloped and vegetated with broad leaf woodland. The burn supports a stony substrate suitable for spawning fish and White Clawed Crayfish, and the habitats present offer suitable foraging and refugia opportunities for species such as Otter or Water Vole. During the survey in 2016, Otter spraint was recorded. The burn has potential to support riparian mammals such as Otter and Water Vole, as well as other species such as White Clawed Crayfish and Fish.

#### Tall Ruderal (Appendix B, image 2)

Lining the road and stretching along near the north west section of the bridge is tall ruderal habitat dominated by Nettle *Urtica dioica*, with frequently occurring Creeping Thistle *Cirsium arvense*, Cocksfoot *Dactylis glomerata*, False Oat Grass *Arrhenatherum elatius* and Yarrow *Achillea millefolium*. Occasionally, Silverweed *Argentina anserina* and Common Knapweed *Centaurea nigra* occur within the vegetative composition.

#### Wall

Separating the road from the grazed fields are 4 metre tall stone walls.

#### Target Notes

Evidence of the presence of Badger was noted in the form of latrines consisting of two dung pits (Appendix A, target note 1 & Appendix B, image 7) on the bridge itself within the narrow grass verge, and foraging in the woodland (target note 2) along the northern bank to the west of the bridge.

### **4.3 Controlled Invasive Species**

No Japanese Knotweed, Himalayan Balsam or Giant Hogweed species were noted within the site boundary.

#### 4.4 Protected Species and Species of Nature Conservation Importance

##### Breeding and wintering birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy the nest (whilst being built or in use) or its eggs.

Bird species listed in Schedule 1 of the 1981 Act, receive further protection which makes it an offence to intentionally or recklessly disturb these species while building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird.

Several common bird species were seen during the original ecological walk-over survey in 2016, including Curlew *Numenius arquata*, Chaffinch *Fringilla coelebs*, Blue Tit *Cyanistes caeruleus*, Great Tit *Parus major*, Coal Tit *Periparus ater*, Grey Wagtail *Motacilla cinerea* and Sparrow Hawk *Accipiter nisus*. All are widespread and common species in Northumberland and typical for the habitats present on site.

Bird Ringing Group data (direct knowledge; Sacha Elliott) shows the dippers are actively using a nest located on the eastern elevation of Redmire Bridge. The ERIC consultation data revealed thirty-eight bird records within 2km of the site. All are widespread and common species in Northumberland and none were listed on the Schedule 1 species. Schedule 1 species are afforded a higher degree of legal protection than common species.

In 2017, the Dipper nest box attached to the bridge appeared to have been in use this year, having nesting material present.

The bridge and the woodland have potential to support nesting birds.

##### Mammals

##### Bats

All bat species and their roosts in Britain are protected under the Wildlife and Countryside Act 1981 (as amended) (WCA) through their inclusion on Schedule 5. The implementation of the Countryside and Rights of Way Act 2000 (CRoW 2000)

has amended the WCA 1981 to include 'reckless' damage to, or destruction of a roost, disturbance of bats whilst in a roost.

Bats are also included on Annex IV of Council Directive 92/43/EEC of 21<sup>st</sup> May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the United Kingdom ratifying this directive, all British bats are protected under The Conservation of Habitats and Species Regulations 2010. Combined, these make it an offence to kill, injure, capture or disturb bats or obstruct access to, damage or destroy roosts.

Paragraph 41(1) (b) of the Regulations states: A person who deliberately disturbs wild animals of any such (European Protected) species, is guilty of an offence. For the purposes of this paragraph, the disturbance of animals includes in particular any disturbance which is likely: -

- a. to impair their ability-
  - 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.

Under the law, a bat roost is any structure or place used for shelter or protection e.g. A building, bridge or tree. Bats use many roost sites and feeding areas throughout the year and they tend to re-use the same roosts for generations.

Redmire Bridge has multiple mortar gaps and cracks within the stonework which have the potential to provide roosting for bat species. ERIC provided forty records within 2km of the site. The nearest record of a bat roost (Common Pipistrelle) is within an outbuilding adjacent to the River Tyne approximately 865m south of the site in 2008. Species records include Common Pipistrelle, *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared *Plecotus auritus*, Whiskered/Brandt's *Myotis mystacinus/brandtii*, and Noctule *Nyctalus noctula*.

### Badger (*Meles meles*)

Badgers receive strict protection under the Protection of Badgers Act 1992, which makes it an offence to wilfully kill, injure or take a badger or interfere with a badger sett by damaging a sett or any part thereof. It is also an offence to wilfully destroy a sett, obstruct access to a sett or disturb a badger while occupying a sett. The 1992 Act defines a badger sett as 'any structure or place, which displays signs indicating current use by a badger'. Work that disturbs badgers whilst occupying a sett is illegal without a licence.

Badgers are largely nocturnal, omnivorous mammals and live predominately in social groups within setts. They are territorial, marking the borders of the territory with dung which is deposited in latrines or boundary dung pits. Territories occupied by a badger group or 'clan' can be between 14 and 300 ha in size dependant on the quality of the habitats present, with a cited average of 50 ha (Neale and Cheeseman, 1996). Badger territories will usually include a wide range of habitats and favour areas with a mosaic of habitats that include woodland, pasture and arable land and will locate their setts in a variety of habitats including woodland (deciduous, coniferous and mixed), scrub, hedgerows, orchards, quarries, sea cliffs, moorland, open fields and down land, although they show a marked preference for wooded areas.

The site offers potential suitable foraging habitat for badger mainly consisting of broad-leaf woodland. ERIC data reveals 11 Badger records, one badger was found 750m from the site in 2005. During the original site walkover survey no signs of Badger were present. On 29<sup>th</sup> September 2017, a Badger latrine was found on the narrow grass verge over the bridge, and signs of foraging discovered in the woodland to the west on the northern bank. The southern bank was inaccessible due to restricted access/private land.

### Red Squirrel

Red Squirrels have been declining in Britain for many decades, largely as a consequence of the introduction of the Grey Squirrel *Sciurus carolinensis*. They currently receive full protection under the Wildlife & Countryside Act 1981 (as amended).

Red Squirrels and their resting places are fully protected in Britain; it is an offence to deliberately capture, injure or kill a Red Squirrel, or to damage, destroy or

obstruct their breeding or resting places. It is also an offence to disturb them whilst in their breeding or resting places.

Red Squirrel are adapted for living and moving around in trees and are able to exploit various types of woodland. Food sources may include ripe tree seeds and nuts, berries and fruits, fungi, shoots, flowers, bark, lichens and invertebrates. Red Squirrels live in either a dense ball of twigs and leaves located in the branched fork of a tree or against a tree trunk called a drey or a hollow in a tree called a den. Northumberland has a nationally important population of Red Squirrel with 9 of 16 red squirrel reserves established across the north of England to conserve the species located within the county.

Red Squirrel are listed as a UK priority species (UK BAP, 2007) and also feature as a Species of Principal Importance under Section 41 of the NERC Act (2008). The species are also listed within Northumberland BAP (Northumberland BAP, 2010).

A total of 45 records of Red Squirrel were returned from ERIC NE. The most recent record is associated with Greenhaugh recorded in 2015 over 1km from the bridge. Other records from as recent as 2014 are associated with Lanehead 440 metres to the east. Due to the proximity and the date of these records, it is likely that Red Squirrels frequent the wooded area.

#### Riparian mammals

Otter *Lutra lutra* is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of The Conservation (Natural Habitats, &c.) Regulations 1994 as a European protected species. It is an offence under the Wildlife and Countryside Act 1981 (sections 9(1) and 9(4), Schedule 5) to intentionally kill, injure or take any wild animal included on Schedule 5. Under Section 9(4) it is an offence to damage or destroy or obstruct access to, any structure or place which any wild animal include in Schedule 5 uses for shelter or protection, or disturb any such animal while it is occupying a structure or place which it uses for that purpose. The term given to places of shelter or protection for otters includes 'holt', 'couch' and 'den'. These terms all have slightly different origins and meaning, but all are related to places of shelter. Otter is also included as a priority species in the UK BAP.



Water vole *Arvicola terrestris* received habitat protection in 1998 through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of Section 9(4) only. Under Section 9(4) it is an offence to damage or destroy or obstruct access to, any structure or place which any wild animal include in Schedule 5 uses for shelter or protection, or disturb any such animal while it is occupying a structure or place which it uses for that purpose. Water vole is included in the UK BAP.

Otters have been recorded as exploiting virtually all types of waterway in the UK including fresh water and estuarine sites and ranging in size from ditches and ponds to rivers and reservoirs (Chanin, 2003). Riparian habitat for otters however requires adequate food resources (e.g. fish, amphibians, crayfish) and suitable shelter (typically trees, shrubs along watercourses and potential den sites). Water voles are typically associated with slow-flowing water ways and water bodies without extreme water level fluctuations. Water voles prefer sites with a bank profile (soft soil to permit excavation) that shows a stepped or steep incline into which the vole can burrow and create nest chambers above the water table. The amount of bank side and emergent vegetation cover is very important, with the best sites offering a continuous swathe of tall and luxuriant riparian plants (waterside vegetation of grasses, sedges and rushes, rhizomes, bulbs and roots of herbaceous plants). Sites excessively shaded by shrubs or trees are less favourable (Strachan and Moorhouse, 2006).

During the original survey, signs of Otter spraint were present on the site walkover survey, located 15m from Redmire Bridge (see Appendix B, image 8). ERIC provided 21 records of Otter during 1992-2010 within 2km of the site, with one of the records being in 2016 provided by Total Ecology at the Redmire Bridge. Otherwise, the nearest record is approximately 660m east of the site adjacent to a bridge by the banks of the River Tyne. The site provides some suitable habitat for Water Voles with food sources and opportunities for burrow creation. ERIC provided no records of Water Vole.

### Fish

A number of fish species, including the European eel *Anguilla anguilla*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*, brook lamprey *Lampetra planeri*, Atlantic salmon *Salmo salar* and sea/brown trout *Salmo trutta*, are species of principle importance for the purpose of conservation of biodiversity

under the Natural Environment and Rural Communities Act (2006), and should be taken into consideration by local authorities when determining planning applications.

Northumberland's rivers and streams are important locations for migratory salmonids in the UK. The gravels of the upland streams provide ideal breeding habitats and the good water quality supports both the diversity and richness of aquatic invertebrates needed as a food source.

Atlantic salmon and sea trout spend the early part of their lives in freshwater, defending the territories provided by the broken water of the gravels and boulders of the upland streams. Both species migrate to the sea once they are about two years old, only returning to rivers to breed. Spawning occurs in excavations in the gravel of the river bed. Brown trout differ to sea trout as they do not migrate, despite having exactly the same requirements and being genetically the same (Northumberland BAP, 2008).

Common or European eels are catadromous meaning they migrate from freshwater out to the ocean to reproduce. The European eel is found throughout the UK in streams and rivers, but has undergone a significant decline since 1980, due to overfishing, introduced parasites and the construction of dams and weirs which block migratory routes from rivers to the sea and cause fatalities in hydro-electric turbines (Freyhof J and Kottelat M, 2010). They are most often found on the floor of the river or estuary they are living in.

All three species of lamprey are found in UK rivers and are widely distributed throughout the British Isles. Both sea and river lampreys are anadromous, with adults typically inhabiting coastal and offshore waters (Maitland *et al.* 1994). The brook lamprey is a non-parasitic species that spends its whole life-cycle in fresh water. All three species spawn in fresh waters, and juveniles of all three species, known as ammocoetes, are found within the same catchments, using similar microhabitats, but with varying geographical distribution. Sea lampreys are typically found in the lower reaches of rivers, while river and brook lamprey are more closely associated with the middle and upper catchment, where their ranges often overlap. Lamprey show a preference for gravel-dominated substratum for spawning, and mainly silt and sand dominated substratum for nursery habitat. Other important environmental characteristics for optimal ammocoete habitat are

shallow waters with low water velocity, and the presence of organic detritus and/or plant material. Spate rivers, with high flow velocities, tend to support fewer ammocoetes because they contain smaller areas of stable sediment (Harvey J and Cowx I, 2003).

The Tarset burn consists of a fast-flowing watercourse approximately 30 metres wide with a stony substrate. It is possible that species of Eel, Lamprey, Trout and Salmon exist on the Tarset burn. ERIC provided 16 records of Atlantic Salmon, three records of Brook Lamprey, 16 records of Brown/Sea Trout, 13 records of European Eel and one record of Lamprey all within 2km of the site. The majority are recorded to the south of the site. Records of Brown Trout, European Eel and Atlantic Salmon were recorded by ERIC approximately 115m south of the site.

White-clawed crayfish (*Austropotamobius pallipes*)

White-clawed Crayfish are classified as Endangered in the IUCN Red List of Endangered Species and their populations are declining throughout much of their range with predictions that the species will face extinction in much of their former range within the next few decades. White-clawed Crayfish populations are under threat in Britain and Ireland from a fungal disease, crayfish plague *Aphanomyces astaci*, carried by a number of introduced North American species of crayfish, and competition from alien crayfish populations.

White-clawed Crayfish are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Under this Act, it is an offence to:

- Intentionally take white-clawed crayfish from the wild;
- Sell, or attempt to sell, any part of a white-clawed crayfish, alive or dead, or advertise that one buys or sells, or intends to buy or sell any part of a white-clawed crayfish.

White-clawed Crayfish in England are also listed under Section 41 of the Natural Environment and Rural Communities Act (2006) and as such is a priority species for conservation. Government policy dictates that local planning authorities consider such species when determining planning applications.

The White-clawed Crayfish occurs in areas with relatively hard, mineral-rich waters on calcareous and rapidly weathering rocks. They are found in a wide variety of environments, including canals, streams, rivers, lakes, reservoirs and water-filled

quarries. The White-clawed Crayfish is typically found in watercourses of 0.75m to 1.25m deep, but the species may occur in very shallow streams (about 5cm of water) and in deeper, slow-flowing rivers (2.5m). The White-clawed Crayfish typically occupies cryptic habitats under rocks and submerged logs, among tree roots, algae and macrophytes, and holes in undercut banks. It emerges to forage for food, mainly at night. Juveniles in particular may also be found among cobbles and detritus such as leaf litter. Adults may burrow into suitable substrates, particularly in the winter months.

The Tarsset burn consists of a shallow watercourse with a stony substrate and some areas of undercut bankside suitable for this species. No records of White-clawed Crayfish were recorded within 2km of the site.

## 5.0 CONCLUSION AND RECOMMENDATIONS

### 5.1 Habitats

Nine main habitat land categories were identified on site under the phase 1 system of habitat description. The survey was centred on the bridge itself requiring repairs. The bridge is of sandstone construction supporting features suitable for roosting bats and nesting birds. Beneath the bridge flows the Tarsset Burn, a tributary of the River Tyne, from west to east. The burn is lined with broad-leaved woodland, which constitutes a Northumberland BAP habitat. The burn has potential to support riparian mammals, fish and White-clawed Crayfish. The woodland and the bridge supported evidence for the presence of Badgers. Adjacent habitats recorded include sheep grazed improved grassland, tall ruderal habitat present along the roadside, a ditch which flows into the tarsset burn, as well as fences, hardstanding and walls. The proposed works are likely to impact upon the bridge and potentially the woodland / trees closest to the bridge.

### 5.2 Bats

Redmire Bridge contains numerous gaps that may provide roosting opportunities for bat species. The proposed works include a number of masonry repairs. It is therefore recommended that a minimum of three nocturnal surveys are carried out during the main bat activity season (May-September inclusive) by suitably qualified ecologists under appropriate weather conditions as per current guidelines (BCT, 2016).

### 5.3 Other Protected species

**Birds** - It is an offence to intentionally or recklessly disturb the birds close to their nest during the breeding season. The site was surveyed in September which is outside the main nesting season. A number of features, such as, gaps in the bridge could provide nesting opportunities. Currently, a dipper nest box is located under an arch on the bridge and showed signs of being occupied earlier in the year. Therefore, work should be undertaken outside of the main nesting season (March-August). Alternatively, an experienced ecologist should check the bridge for nests before any work is undertaken.

**Badgers** – No setts were found within the vicinity of the bridge although evidence of their presence was discovered in the form of a latrine on the bridge and foraging within the adjacent woodland. Additionally, access was limited along the southern bank, and the woodland does offer potential opportunities for Badger setts. It is therefore recommended that a badger absence / presence survey is undertaken stretching 30 metres from the bridge and access is arranged with landowners for a full survey to take place.

**Riparian mammals** – This section of the Tarsset Burn is considered to provide suitable foraging habitat for Otter, with habitats suitable for holt creation up and down stream of the site. Otter spraint was noted during the 2016 survey approximately 15 metres from the bridge. No signs of Water Vole were observed during the survey, however, the site provided suitable habitat with food sources and opportunities for burrow creation. Therefore, an Otter and Water Vole absence presence survey will be undertaken.

**Red Squirrel** - Due to the proximity of records returned from ERIC NE and the habitats present within close proximity to the bridge, a Red Squirrel absence / presence survey is recommended to take place.

**White-clawed crayfish** – No evidence of White-clawed Crayfish was noted during the survey, however due to the suitable substrates for the crayfish to utilise, it is considered that a White-clawed Crayfish survey should be carried out before any of the planned works proceed.

**Fish** - The proposed works include maintenance works to the bridge. It is highly unlikely that the proposed works will significantly disrupt the flow of the river and therefore further surveys are not deemed necessary. To minimise disruption of the life cycle of spawning fish in rivers, it is recommended that no works take place in October through to December (this is based on the typical Salmon spawning timings).

**Pollution Prevention** - It is recommended that general pollution prevention guidance is adopted during works where necessary to prevent pollutants entering the watercourse. All contractors should be fully briefed on the pollution control measures to be adopted on site and the importance of not allowing waste materials or pollutants to enter the watercourse.

Any pollution incidents such as fuel spillage, discharge of contaminated or silt-laden run-off to a watercourse, or disturbance to the river bed should be immediately reported to the EA Incident Hotline on 0800 80 70 60.

#### **5.4 Potential Ecological Enhancements**

**The National Planning Policy Framework (NPPF) outlines government planning policies and how they should be applied within local authorities. The framework places an emphasis on sustainable development, encouraging the re-use of land that has previously been developed in preference to using land that has a higher environmental value and by minimising impacts on biodiversity. The NPPF states that developments should aim to conserve or enhance biodiversity and encourages opportunities to incorporate biodiversity in and around developments.**

Taking the requirements of the NPPF into account, opportunities should be sought where possible for nature conservation enhancement at this site. As further survey work is required recommendations for the site fall outside the scope of this report and will be provided following the completion of the recommended surveys.

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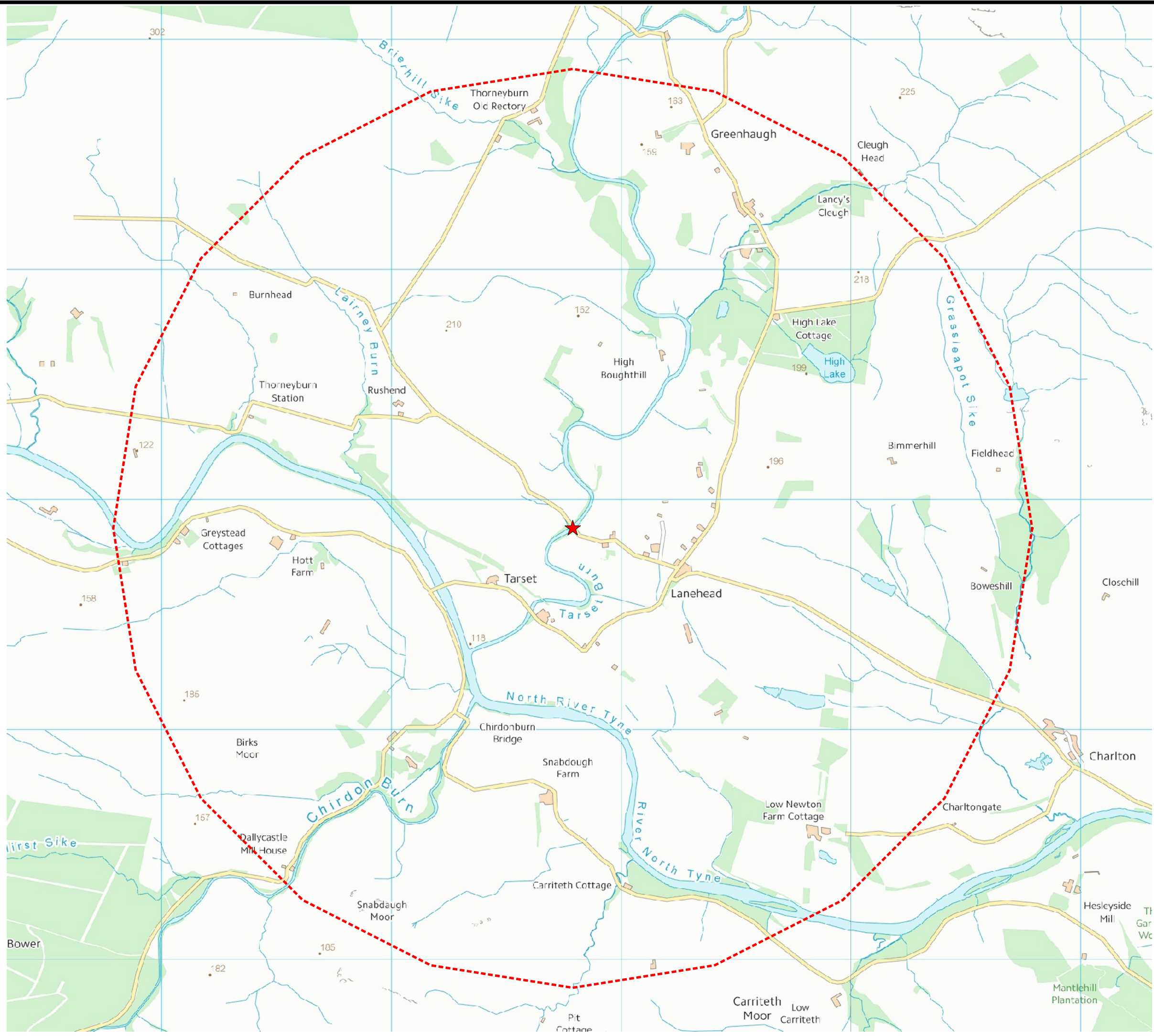
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<http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0014700> – accessed 06/10/2017 (reasoning for North Pennine Dales Meadows SAC designation)

## **APPENDIX A**

### **Figures**



**Legend**

- ★ Site Centre
- ⬡ 2km Buffer

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<b>Project</b>	Redmire Bridge
<b>Title</b>	Site Centre
<b>Client</b>	Northumberland County Council
<b>Date</b>	06/10/2017
<b>Ref</b>	Figure 1



## Legend

★ Site Location

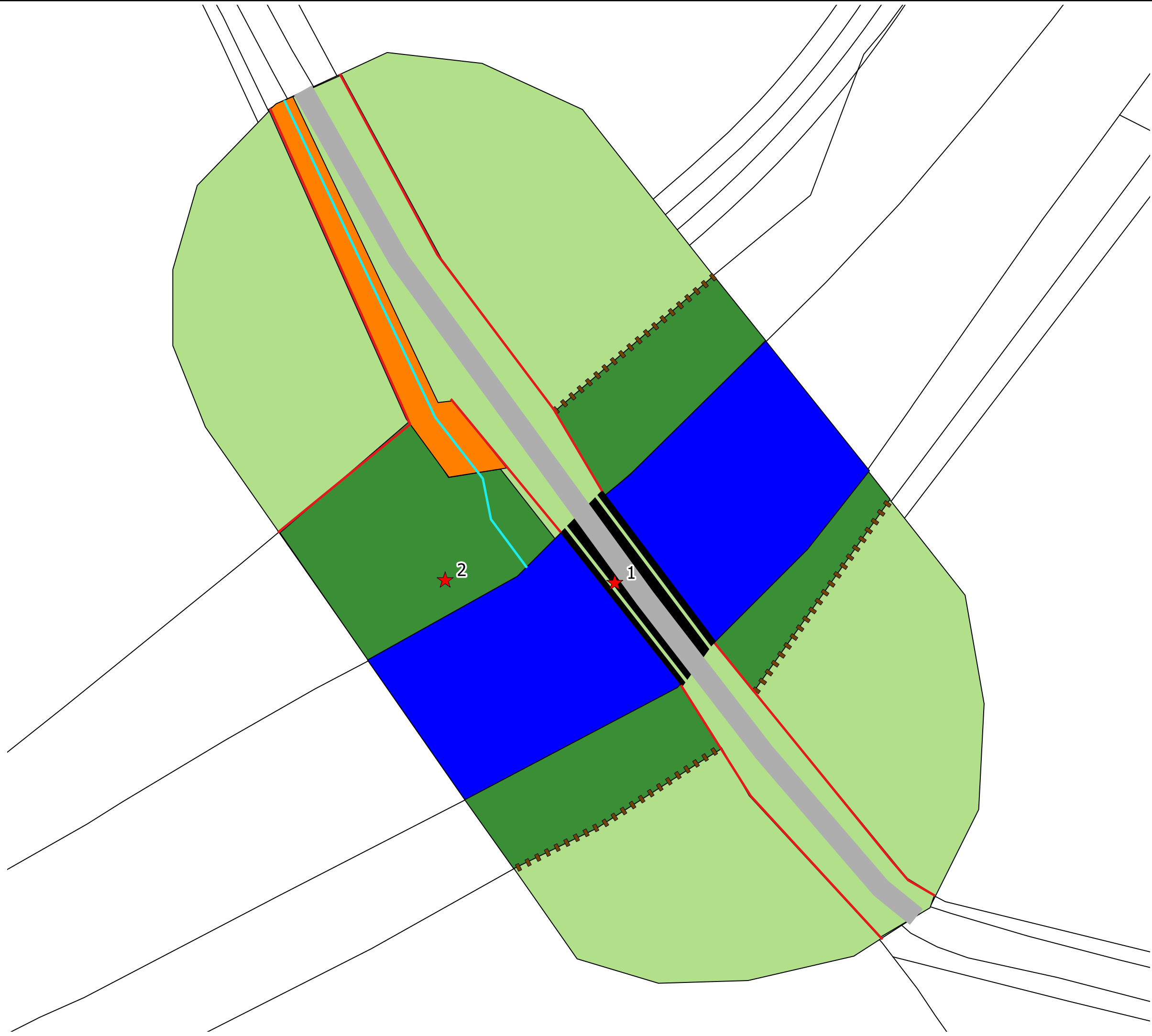
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<b>Client</b>	Northumberland County Council
<b>Date</b>	06/10/2017
<b>Ref</b>	Figure 2



**Legend**

- Broadleaved Woodland
- Built Structure
- Ditch
- Fence
- Hard Standing
- Improved Grassland
- Running Water
- Tall Ruderal
- Wall
- ★ Target Note

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<b>Project</b>	Redmire Bridge
<b>Title</b>	Habitat Plan
<b>Client</b>	Northumberland County Council
<b>Date</b>	10/10/2017
<b>Ref</b>	Figure 3

**APPENDIX B**  
**Selected Photographs**



**Image 1:** Road over the bridge



**Image 2:** Bridge north-west side with tall ruderal vegetation



**Image 3:** Crack in the bridge stonework



**Image 4:** Dipper box beneath bridge arch





**Image 5:** Woodland and improved grassland



**Image 6:** Tarsset Burn



**Image 7:** Badger latrine on bridge



**Image 8:** Otter spraint found during original phase 1 survey (2016)

**APPENDIX C**  
**Report Conditions**

# Total Ecology Ltd

## REPORT CONDITIONS

### Redmire Bridge, Northumberland

*This report is produced solely for the benefit of Northumberland County Council and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.*

*This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Total Ecology. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of Total Ecology using due skill and care in the preparation of the report.*

*This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.*

*This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.*

*Reliance has been placed on the documents and information supplied to Total Ecology by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.*

*Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.*

*Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.*

*The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.*

*The performance of environmental protection measures and of buildings and other*

*structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Total Ecology accept no liability for issues with performance arising from such factors*

*February 2008*