



### 1.3 Nature of the Proposals

The client proposes to extend the carpark northwards from the original car park at site A. At site B a new bridge is proposed as well as the felling of trees and clearance of vegetation in order to incorporate a new car park on the western side of the road. Site C will have a new path created retaining the majority of the trees on site.

Site A is within the Raincliffe & Forge Valley Woods SSSI however, only a small section of sites B and C are within the SSSI area boundary. The survey was designed to map the habitats and determine the potential suitability of the site for protected species, to inform the funding application.

Figures 2,3 and 4 show the sites to be developed.

Figure 2: Site A









## 2. Planning Policy and Legislation

### 2.1 Planning Policy and Guidance

A series of national and local planning policies are in place which are designed to ensure that development works do not have an adverse impact upon biodiversity, at a site or wider level. Such policies ensure that both developers and public bodies must give due consideration to the potential effects of development works upon both ecological receptors (in line with existing wildlife legislation) and biodiversity.

#### *2.1.1 National Planning Policy Framework (NPPF) (2019)*

The NPPF outlines the Government's policies through the planning process, acting as guidance for local planning authorities and decision-makers. The document places a duty on local authorities to consider the principles included when assessing planning applications and preparing Local Plans and Regional Spatial Strategies. Chapter 15 relates to the conservation and enhancement of the natural environment, in line with existing wildlife legislation. Further details are provided on the gov.uk website.

#### *2.1.2 Biodiversity Action Plans (BAPs)*

The UK BAP was published in 1994 to guide national strategies for the conservation of biodiversity. BAPs were designed to ensure the conservation and re-establishment of natural habitats, and that measures were implemented to aid the conservation and enhancement of habitats and species of local importance, the latter through the development of Local BAPs. The UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in 2012 however, the lists of species and habitats of conservation importance are still considered to remain a valuable tool for identifying features of local and national conservation concern. As such, the potential presence of both Local and UK BAP habitats and species were considered throughout the surveys and assessment.

### 2.2 Legislation

A range of legislation is in place to ensure that habitats and species of conservation importance are protected from both direct and indirect harm. Key legislation includes:

- The Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations)
- The Convention on the Conservation of European Wildlife and Natural Habitats 1979 (The Bern Convention)
- The Wildlife and Countryside Act 1981 (as amended)
- The Natural Environment and Rural Communities (NERC) Act 2006



- The Countryside and Rights of Way (CROW) Act 2000
- The Wild Mammals (Protection) Act 1996
- The Protection of Badgers Act 1992
- The Hedgerow Regulations 1997

SSSIs are protected in England under the Wildlife and Countryside Act 1981 (as amended). An overview of the above legislation is provided in Appendix A.

The potential presence, on or near the site, of species afforded protection under the above legislation was considered throughout the surveys and assessment. Species considered include:

- Bats
- Great crested newt *Triturus cristatus*
- Otter *Lutra lutra*
- Freshwater pearl mussel *Margaritifera margaritifera*
- Reptiles
- White-clawed crayfish *Austropotamobius pallipes*
- Water vole *Arvicola amphibius*
- Red squirrel *Sciurus vulgaris*
- Badger *Meles meles*
- Birds
- Migratory fish

An overview of the legislation and level of protection relating to such species is provided in Appendix A.





## 3. Methodology

### 3.1 Desk Study

Contextual information was gathered as part of a desk study undertaken prior to the start of field surveys. Such information can identify protected or notable species which may occur on the proposed development site or in the local area, as well as identifying statutory and non-statutory ecological sites which may have the potential to be affected by the proposals. Species records and the location of statutory and non-statutory nature conservation sites within 2km of the survey site were requested from North & East Yorkshire Ecological Data Centre (NEYEDC) and from the Multi-Agency Geographic Information for the Countryside (MAGIC) website ([www.magic.gov.uk](http://www.magic.gov.uk)).

Additionally, 1:10,000 Ordnance Survey maps were consulted to help identify waterbodies or watercourses within 500m of the site. This search reflects the potential for great crested newt (GCN) to utilise terrestrial habitat up to 500m from their breeding ponds and also helps determine the potential for other riparian or semi-aquatic species which will move away from a watercourse to be present (e.g. otter).

It should be noted that an absence of records is likely to reflect an absence of survey data and cannot be taken as confirmation that a particular species is not present in the site or surrounding area.

### 3.2 Field Survey

#### 3.2.1 Habitats

Mapping of the habitats within the site followed the Phase 1 survey methodology outlined in the 2010 edition of the 'Handbook for Phase 1 habitat survey' by the Joint Nature Conservation Committee (JNCC). This follows a standardised system which can be easily interpreted, with habitats and boundary features correlating to one of around ninety set definitions. Target notes were used to record further information regarding features of interest, or specific habitats or features identified during the survey which do not closely match any of the Phase 1 criteria.

Plant species were identified in accordance with Rose (2006) and Stace (2010). A search was also conducted for presence of Schedule 9 invasive non-native plant species such as Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*.


The results of the Phase 1 habitat survey are shown in Appendix B, with Target Notes provided in Appendix C and site photographs in Appendix D.

An assessment of the potential suitability of the habitats within the site and surrounding area for bats was undertaken on 13/05/2019, as part of the survey. This included an



assessment using the criteria set out in the Bat Conservation Trust Survey Guidelines, as shown in Table 1, below.

**Table 1: BCT Guidelines for Assessing the Value of Habitats for Bats.**

Feature	Value
<p>Evidence indicating that a structure/feature is used by bats, such as:</p> <ul style="list-style-type: none"> <li>• Bats seen roosting or emerging/entering a structure/feature;</li> <li>• Field signs such as droppings, feeding remains or carcasses found; and/or</li> <li>• Bats heard calling or ‘chattering’ within a roost</li> </ul> <p>Bats recorded/observed using an area for foraging or commuting</p>	<p>Confirmed Roost</p>
<ul style="list-style-type: none"> <li>• Site is close to known roosts</li> <li>• Site is connected with the wider landscape by strong linear features that would be used by commuting bats <u>e.g.</u> river/stream valleys or hedgerows</li> <li>• Habitat of high quality for foraging bats <u>e.g.</u> broadleaved woodland, tree-lined watercourses, parkland</li> <li>• Buildings, trees or other structures <u>e.g.</u> mines, caves, tunnels, ice houses and cellars, with features of particular significance for roosting bats</li> <li>• Site is connected with the wider landscape by linear features that could be used by commuting bats <u>e.g.</u> lines of trees and scrub or linked back gardens</li> <li>• Habitat could be used by foraging bats <u>e.g.</u> trees, scrub, grassland or water</li> <li>• Several potential roosts in the buildings, trees or other structures</li> <li>• Isolated site not connected by prominent linear features (but if suitable foraging habitat is adjacent it may be valuable if it is all that is available)</li> <li>• Isolated habitat that could be used by foraging bats <u>e.g.</u> a lone tree or patch of scrub, but not parkland</li> <li>• Small number of potential roosts generally of lower conservation importance <u>e.g.</u> probably not maternity roosts or hibernacula</li> </ul>	<p>High Value Habitat</p> 



Feature	Value
<ul style="list-style-type: none"> <li>No features that could be used by roosting bats for foraging, roosting or commuting</li> </ul>	Low Value Habitat

The above criteria were used to provide a guide as to the potential suitability of the site for bats. It is important to note that an absence of potential commuting routes or ‘good quality’ foraging areas around a site cannot be used to confirm the absence of bats from a site. Bats are highly mobile animals which will use different habitats at different times of the year, therefore an appropriate level of additional survey work must be carried out in order to determine if and how bats utilise a particular site.

### 3.2.2 Protected and Notable Species

Throughout the field survey, searches were made for field signs indicating the presence of protected and notable species, including but not being limited to those species listed in Section 3.2. Any field signs recorded (including sightings of the animals themselves) were mapped; any such signs are illustrated in Appendix B and listed as Target Notes in Appendix C. An assessment was also made of the potential for the site and adjacent areas to support protected and notable species, to identify where the proposals may impact upon such species and identify any requirements for further (species-specific) surveys.

### 3.2.3 Habitat Suitability Index (HSI) Survey for Great Crested Newt

Where access permitted, ponds and areas of water within 500m were checked for their suitability to support breeding GCN following methodology described by Amphibian and Reptile Groups of the UK (2010) and Oldham et al. (2000). Each pond/waterway was scored using ten criteria. These scores were then used to calculate the suitability of that pond/waterway for supporting breeding GCN. The HSI score is used to inform the need for specific GCN surveys in the breeding season.

### 3.2.4 Survey Conditions and Personnel

The extended Phase 1 habitat survey was completed on 13<sup>th</sup> May 2019 by EcoNorth Ecologist Sarah Hawes MSc BSc (Hons) GradCIEEM and David Beaver TechArborA Arboricultural Consultant.

Table 2 shows the conditions during the survey.





**Table 2: Survey Conditions**

Date	Precipitation	Temperature (°C)	Cloud Cover (Octas)	Wind (Beaufort Scale)
13/05/19	Scattered showers	7 - 10 °C	6/8	4

Any constraints or limitations to the survey are discussed in Section 6.1.

### 3.3 Assessment

The botanical value of the habitats on site and the value of the site for protected species, as determined through the extended phase 1 survey, were based on the criteria published by the Chartered the Institute of Ecology and Environmental Management (CIEEM) in 2018 (<http://www.cieem.net/ecia-guidelines-terrestrial->). Each feature was classified as being as one of the following levels of value:

- International
- National
- Regional/County
- City/District/Borough
- Local
- Low

Examples of different ecological features meeting each of these criteria are outlined in Appendix E.



## 4. Baseline Conditions

### 4.1 Desk Study

#### 4.1.1 Designated Sites

Table 3 shows those designated sites identified through the desk study as lying within 2km of the site boundary.

**Table 3: Designated Sites within 2km**

Designated Site	Site location	Reasons for Designation
Raincliffe & Forge Valley Woods SSSI	SE984864; SE991877	<p>Forge Valley Woods flank the steep east and west facing slopes of the Derwent valley and extend along a northwest facing spur into Raincliffe Woods. They comprise one of the best examples known of mixed deciduous woodland in north-east England. There is a sequence of woodland types occupying different levels of the valley sides. In the wet valley bottom alder <i>Alnus glutinosa</i> and willow <i>Salix</i> sp., predominate with a ground flora of opposite-leaved and alternate-leaved golden saxifrage <i>Chrysosplenium oppositifolium</i> and <i>C. alternifolium</i>, yellow flag Iris <i>pseudacorus</i> and pendulous sedge <i>Carex pendula</i>.</p> <p>The middle slopes support a mixed canopy in which ash <i>Fraxinus excelsior</i> and wych elm <i>Ulmus glabra</i> are largely dominant with sycamore <i>Acer pseudoplatanus</i> locally prevalent, and an understorey of hazel <i>Corylus avellana</i>, field maple <i>Acer campestre</i>, holly <i>Ilex aquifolium</i>, bird cherry <i>Prunus padus</i> and spurge laurel <i>Daphne laureola</i>. The base-rich soils here support a diverse field layer dominated by dogs mercury <i>Mercurialis perennis</i>, ramsons <i>Allium ursinum</i> and bramble <i>Rubus fruticosus</i> with other herbs such as sanicle <i>Sanicula europaea</i>, wood anemone <i>Anemone nemorosa</i>, toothwort <i>Lathraea squamaria</i>, and ferns including soft shield fern <i>Polystichum setiferum</i> and harts tongue <i>Phyllitis scolopendrium</i>. Several species of orchid occur, including early purple-orchid <i>Orchis mascula</i>, broad-leaved helleborine <i>Epipactis helleborine</i> and birds-nest orchid <i>Neottia nidus-avis</i>.</p> <p>At the top of the slope more acidic soils support pedunculate oak <i>Quercus robur</i> with rowan <i>Sorbus aucuparia</i> and holly. The field layer contains bilberry</p>



Designated Site	Site location	Reasons for Designation
		<p><i>Vaccinium myrtillus</i>, great woodrush <i>Luzula sylvatica</i>, heather <i>Calluna vulgaris</i> and wavy hair-grass <i>Deschampsia flexuosa</i>. In the Raincliffe sector chickweed wintergreen <i>Trientalis europaea</i> is recorded. Small areas of calcareous grassland are associated with limestone outcrops at the southeast end of the valley and here rock-rose <i>Helianthemum nummularium</i>, carline thistle <i>Carlina vulgaris</i> and thyme <i>Thymus praecox</i> occur. There are also several well-developed tufa springs.</p> <p>The woodland supports a rich population of breeding birds including nuthatch <i>Sitta europaea</i>, tree creeper <i>Certhia familiaris</i>, garden warbler <i>Sylvia borin</i>, wood warbler <i>Phylloscopus sibilatrix</i>, redstart <i>Phoenicurus phoenicurus</i> and black-cap <i>Sylvia atricapilla</i>.</p>
Cockrah Wood SSSI	SE969881	<p>The site was formerly on oakwood <i>Quercus</i> sp. situated on a steep slope with acid soils. It has been largely replanted with conifers but there remain populations of scarce plants, notably the may lily <i>Maianthemum bifolium</i>, hay scented buckler fern <i>Dryopteris aemula</i>, chickweed wintergreen <i>Trientalis europaea</i> and the club moss <i>Lycopodium clavatum</i>. The ground flora comprises acidic species such as wood sage <i>Teucrium scorodonia</i>, bracken <i>Pteridium aquilinum</i>, wood sorrel <i>Oxalis acetosella</i> and abundant ferns including soft shield-fern <i>Polystichum setiferum</i> and narrow buckler fern <i>Dryopteris carthusiana</i>.</p> <p>The site is noted for the presence of several colonies of the may lily the habitat of which is being carefully managed with the co-operation of the owners in an attempt to provide optimum conditions for its growth.</p>
Spiker's Hill Quarry SSSI	SE980861	<p>Newhurst Quarry is the only British site where pre-existing hypogene mineralisation, originating from ascending mineral-rich fluids in pre-Triassic times, has been notified by weathering and resedimentation during Triassic times, some 225 million years ago. No other locality in Britain shows such effects, and Newhurst Quarry is the only British occurrence of the minerals Coulsonite (a vanadium-rich variety of magnetite) and Vesignieite (a complex hydrated copper-barium-vanadium mineral).</p>
Betton Farm Quarries SSSI	TA001855	<p>The best Coral Rag sections in the Scarborough area are to be seen at Betton Farm Quarries. A series of <i>Thamnasteria</i> patch reefs rest upon Malton Oolite,</p>



Designated Site	Site location	Reasons for Designation
		surrounded by calcareous muds and reef detritus. The best example of coral patch reefs in the Yorkshire Corallian outcrop here, with a rich associated molluscan fossil fauna, notably gastropods which occur both in and around the reefs. This is an important palaeoecological locality in the classic Coral Rag of Yorkshire.

Table 4: SINC Sites within 2km

Site	Site location
Raincliffe & Forge Valley Woods SSSI	SE984864; SE991877
Cockrah Wood SSSI	SE969881
Spiker's Hill Quarry SSSI	SE980861
Betton Farm Quarries SSSI	TA001855
North York Moors National Park	All of search area north of A170
Racecourse Road Plantation SINC (TA08-17)	TA008861
Sikes Plantation SINC (TA08-10)	TA001844
Irton SINC (TA08-25)	TA005856
Betton Farm Road Verges SINC (TA08-37)	SE005857
Black Rigg and Long Plantation SINC (TA08-31)	TA002865

#### 4.1.2 Protected and Notable Species

A range of protected and notable species were identified through the desk study as having been recorded within 2km of the site boundary within the last 10 years. This includes badger, bats (including *Myotis* sp., common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, and brown long-eared *Plecotus auritus*) within 2km of the site boundary.

Further information is provided in Appendix F.

## 4.2 Field Survey

### Habitats

Overall the habitats within the three sites were found to be dominated by deciduous woodland, with semi-improved grassland, tall ruderal vegetation, marginal habitats as well



as fence lines, hard standing and running water. Such habitats are described in the following sub-sections. The results of the Phase 1 habitat survey are shown in Appendix B, with Target Notes provided in Appendix C and site photographs in Appendix D.

#### **4.2.1 Site A**

Site A is predominantly hard standing consisting of a car park located in the south-east of the site and a boardwalk parallel to the river in the north-west of the site. The car park and board walk are connected via a bridge across the River Derwent. A small section of woodland is also included within the survey site as well as a small area of tall ruderal vegetation directly to the north of the car park. There is a steep slope of woodland to the west of the board walk running along the river as well as a steep riverbank immediately to the east of the board walk.

##### **Woodland**

Woodland habitat is present to the south, north and north east of the car park as well as along a steep bank to the west of the boardwalk. Sycamore *Acer pseudoplatanus*, common ash *Fraxinus excelsior*, and wych elm *Ulmus glabra* is present within the woodland and the understorey is dominated by common nettle *Urtica dioica*, with frequent ivy *Hedera helix*, wood forget-me-not *Myosotis sylvatica*, common hogweed *Heracleum sphondylium*, wild garlic *Allium ursinum* and cleavers *Galium aparine*.

##### **Tall Ruderal**

Tall ruderal vegetation is located to the north of the car park, cleavers is dominant with abundant creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, common dandelion *Taraxacum officinale*, occasional hogweed, wild garlic and wood forget-me-not.

##### **Semi-improved Grassland**

Small areas of semi-improved grassland are present along the western margin of the road. Cock's-foot *Dactylus glomerata* is dominant, broad-leaved dock and common dandelion is abundant, cow parsley *Anthriscus sylvestris* and lesser celandine *Ficaria verna* is frequent, occasional wild garlic, ground ivy, creeping buttercup and common nettles are also present.

#### **4.2.2 Site B**

There is a small car park to the east consisting of hard standing and semi-improved grassland. On the western side of the site between the road and the river there is a strip of woodland with marginal habitat along both sides of the river.



### **Woodland**

Woodland is present between the river and the road. Willow sp., *Salix*, common alder *Alnus glutinosa*, and wych elm trees are present. The understorey habitat is dominated by wild garlic with abundant dog's mercury *Mercurialis perennis*, cleavers and wood anemone *Anemone nemorosa*, as well as frequent wavy bitter-cress *Cardamine flexuosa*, creeping buttercup, cleavers, occasional large bitter-cress *Cardamine amara*, lesser burdock *Arctium minus*, herb Robert *Geranium robertianum*, ground ivy *Glechoma hederacea*, bramble *Rubus fruticosus*, common nettle, and rarer woodland speedwell *Veronica montana*, red campion *Silene dioica*, pignut *Carya glabra*, and bluebell *Hyacinthoides non-scripta*.

### **Semi-Improved Grassland**

Semi-improved grassland is present to the east of the road within the car park. Cock's-foot is dominant, broad-leaved dock and common dandelion is abundant, cow parsley and lesser celandine is frequent, occasional wild garlic, ground ivy, creeping buttercup and common nettle are also present.

### **Marginal Habitat**

Marginal habitat is present along the river to the west of the site. Marsh marigold *Caltha palustris* is dominant and lesser celandine is also present.

### **4.2.3 Site C**

The current car park area on the eastern side of Site C consists of hard standing and semi-improved grassland. The car park is bordered to the north and south by a wooden fence and large log on the eastern boundary (Target Note 19). The western side opens to the road. The western section of site C consists of deciduous woodland with a wild garlic dominant ground layer, hard standing and tall ruderal. The River Derwent runs parallel north to south near to the western border meeting the site boundary along the north-western edge.

### **Woodland**

The woodland is located to the north-west and north-east of the road. Horse chestnut *Aesculus hippocastanum*, common beech *Fagus sylvatica*, common lime *Tilia x europaea* and sycamore are present. Wild garlic is dominant species in the understorey, common hogweed, cleavers, and cow parsley are abundant, common dandelion is occasional and red campion, wood speedwell and common dog violet *Viola riviniana* are rare.

### **Semi-improved Grassland**

Areas of semi-improved grassland are present within the car park. Semi-improved grassland is also present along the western margin of the road. Cock's-foot is dominant, broad-leaved dock and common dandelion is abundant, cow parsley and lesser celandine is





frequent, occasional wild garlic, ground ivy, creeping buttercup and common nettle are also present.

#### **Tall Ruderal**

Tall ruderal vegetation is present in the clearing between the two areas of woodland. Common nettle is dominant, cleavers and creeping buttercup are abundant, hogweed, broad-leaved dock, bramble and willow herb sp., *Epilobium* are frequent, wild garlic and crosswort *Cruciata laevipes* are occasional and red campion, ground ivy, wood forget-me-not and cock's foot are rare.

#### **4.2.4 Schedule 9 Plant Species**

No schedule 9 plant species were recorded at the time of the survey at any of the three sites.

#### **4.2.5 Protected and Notable Species**

##### **Bats**

There is high value foraging habitat within the woodland, along the woodland edge and along the river, as well as low to high suitability for roosting opportunities within trees on site. The surrounding landscape provides optimal habitat as the woodland edge habitat and river provide excellent foraging opportunities for bats. All three sites are connected via the river and woodland as well as being connected to the wider landscape from the hedgerow bordering the surrounding agricultural fields.

##### *Site A*

The trees within the woodland areas at site A are mature enough to have bat roosting potential.

##### *Site B*

The majority of the trees at site B are densely packed and are of negligible to low potential for roosting bats. There is one very large tree directly to the south of the site which has high potential due to its size and should be retained.

##### *Site C*

The trees at site C, are less densely packed than sites A and B therefore, individual trees could be identified and assessed for bat roosting potential. Trees with low to high bat roosting potential have been target notes and identified within the Phase 1 habitat map. The site has a mixture of low to high trees with bat roosting suitability.



### **Great Crested Newt**

The data search returned no records for great crested newt and the River Derwent is fast moving and considered to be unsuitable for supporting the species. One water body (445m to the south of site C) was identified within 500m of the three sites. The HSI (Habitat Suitability Index) was below average and is considered unlikely to support great crested newt. The streams entering the river near site A are fast flowing and are also considered unsuitable to support great crested newt.

### **Otter**

No signs of otters were recorded on site, and no signs returned from the data search however the riverine habitat is highly suitable for foraging otter with the potential for couch sites as well along the riverbanks.

### **Freshwater Pearl Mussel**

The river habitat is considered potentially suitable for freshwater pearl mussel and is within its distribution range. No signs were recorded.

### **Reptiles**

No signs of reptiles were recorded, or records returned from the data search and the habitats present are considered to be sub-optimal for supporting reptiles.

### **White-clawed Crayfish**

The river habitat is considered potentially suitable for white-clawed crayfish and is within its distribution range, with records for the species further upstream. No signs were recorded.

### **Water Vole**

No signs of water voles were recorded on site, and no records returned from the data search however the habitat present on all three sites is suitable for water vole.

### **Red Squirrel**

No signs of red squirrels were recorded during the survey and no records were returned from the data search. As the woodland is mostly deciduous it reduces the likelihood that red squirrel are present on the sites.

### **Badger**

No evidence of badgers was recorded during the survey, and no setts are located within or close to the three sites, however, the semi-improved grassland, tall ruderal vegetation and woodland habitat provide suitable foraging habitat for badgers and they have been recorded within 2km of the site in the last ten years.



### **Birds**

The woodland, grassland, riverine and marginal habitats are likely to support a range of breeding bird species and Goldcrest *Regulus regulus* was recorded at site A. Kingfisher *Alcedo atthis* a Schedule 1 breeding species (Wildlife and Countryside Act 1981, as amended) was noted on a display board at the site as being present.

### **Migratory Fish**

The river is considered to support suitable habitat for migratory fish.

### **BAP and Other Species**

The site is suitable for hedgehog *Erinaceus europaeus* which are a UK BAP species.



## 5. Interpretation and Discussion

### 5.1 Survey Constraints and Further Survey Requirements

There were no major survey constraints and all three areas were accessible for the purpose of the habitat survey.

However, before a robust assessment of the value of the site and potential impacts of the proposals can be made, the following additional surveys are required:

- Otter surveys at each site prior to works, (which can be undertaken throughout the year).
- Any trees to be removed from site A need to be identified and a ground level tree assessment for bat root potential carried out.
- Any trees to be removed within site B should be subject to an inspection by a suitably qualified ecologist prior to felling under a method statement.
- Any trees which require felling within site C will require further surveys for roosting bat potential. See Target Notes in Appendix C for further details.
- Water vole survey at each site which can be undertaken between mid-April and September.
- Badger checks carried out within one month of the works commencing at each site (best undertaken in early spring or autumn).

### 5.2 Assessment of Value

Based on the results of the desk study and field work completed to date, the ecological interests of the site are valued as shown in Table 5, below, using the criteria outlined in Section 4.3 and Appendix E.

**Table 5: Value of Ecological Features Recorded on Site**

Ecological Feature	Ecological Value	Justification
Mixed deciduous woodland	High – National	The woodland at Site A is within and at Site B and C partially within a SSSI/NNR.
Semi-improved grassland	Low	Supports a small range of locally common species typical of such habitats.
Tall ruderal	Low	
Marginal	Low	



Ecological Feature	Ecological Value	Justification
habitat		
Waterbody	High	The River Derwent provides habitat for a number of protected species eg white-clawed crayfish, kingfisher
Hard standing	N/A	N/A
Fence line		
Invasive Plant Species	N/A	Himalayan Balsalm has been recorded on the three sites in the past therefore, preventative measures should be carried out including a tool box talk by a suitably qualified ecologist (SQE) prior to the works commencing.
Bats	Moderate	Potential destruction of bat roosts as some trees will be removed.  Bat roosts are protected under the Habitats Regulation 2017 and Wildlife and Countryside Act 1981 (as amended).
Great Crested Newt	Low	Great crested newts are unlikely to be present within the sites and the scale of the works is unlikely to impact the local population. However, a method statement for site clearance works will reduce the risk further.  GCN are protected under the Habitats Regulation 2017 and Wildlife and Countryside Act 1981 (as amended).
Otter	Moderate	Damage and disturbance to otters and their holts/places of shelter e.g. couches on the riverbanks.  Otters are protected under the Habitats Regulation 2017 and Wildlife and Countryside Act 1981 (as amended).
Freshwater Pearl Mussel	Moderate	The proposed bridge at site B will not directly impact the species as it is designed to avoid any structure in the watercourse and will have a buffer zone either side.  Pollution e.g. spills from the works could affect the water quality of the river so Pollution measures to be followed.
Reptiles	Moderate	If reptiles are present, there is a risk of individual killing or injury during the proposed works. The scale of the works is unlikely to impact the local population. However, a method statement for site clearance works will reduce the risk further.  Reptiles are protected under the Wildlife and Countryside Act 1981 (as amended).
White-clawed Crayfish	Moderate	The proposed bridge at site B will not directly impact the species as it is designed to avoid any structure in the watercourse and will have a buffer zone either side.  Pollution e.g. spills from the works could indirectly affect the water quality of the river so pollution prevention measures to be followed.



Ecological Feature	Ecological Value	Justification
		White-clawed crayfish are protected under the Salmon and Freshwater Fisheries Act 1975, the Habitats regulation 2017 and the Wildlife and Countryside Act 2017 (as amended).
Water Vole	Moderate	Potential destruction and disturbance to water voles and their burrows during works on banks, vegetation clearance.  Water voles are protected under the Wildlife and Countryside Act 1981 (as amended).
Red Squirrel	Low	Potential risk of destroying active squirrel drey if present in tree to be felled.
Badger	Moderate	Moderate risk of disturbing a badger sett if present on or near site, if within 30m of works areas.
Birds	High	Potential disturbance and loss of bird nests due to clearance if the works are carried out within the nesting bird season (March to August inclusive). Including Schedule 1 species kingfisher <i>Alcedo atthis</i>  Active bird nests are protected under the Habitats regulation 2017 and the Wildlife and Countryside Act 2017 (as amended).
Migratory Fish	Moderate	The proposed bridge at site B will not directly impact the species as it is designed to avoid any structure in the watercourse and will have a buffer zone either side.  Pollution e.g. spills from the works could indirectly affect the water quality of the river so pollution prevention measures to be followed.  Fish are protected under the Salmon and Freshwater Fisheries Act 1975

### 5.3 Input into the Design Process

In order to minimise the potential impacts of the proposals upon the key ecological interests of the site, namely the river and deciduous woodland, the proposals will ensure that the river will be unaffected by the development works and that minimal impact (ie tree removal) on will be carried out on the deciduous woodland.

### 5.4 Impact Assessment

Based on the current proposed development plans shown in Figures 2, 3 and 4, the development will potentially have the following impacts upon the ecological interests of the site:

- Felling of trees may result in loss of bat roosts and therefore have a High impact.





- The works could have a Moderate impact on otters and badgers due to the disturbance cause by the works.
- The works could have a Moderate impact on water vole due to the disturbance cause by the works.
- The works could have a Moderate impact on nesting birds due if the works are carried out within the nesting bird season (March to August, inclusive).
- Loss of deciduous woodland habitat would be Low due to the possibly impact areas being small and the retention of connectivity within the woodland.
- Loss of foraging habitat for bats would be Low due to the retention of the remaining woodland.



## 6. Mitigation and Compensation Strategy

The following measures will be implemented in order to minimise the ecological impacts of the proposals, including the risk of protected species being adversely affected:

- It is recommended where possible that any veteran trees or trees with bat roost potential are retained.
- Bat boxes placed on younger trees along the woodland edge which currently have no bat roosting features. The bat boxes should be long lasting trees with a lifespan over 20 years, be placed within the tree between 4 to 6 metres and on a south or south-western aspect. An example of suitable bat boxes includes 2F Schwegler Bat Box.
- The natural vegetation on either side of the river must be retained where possible.
- Restrict bank management to small areas and work on one bank at a time.
- No additional lighting should be included in the development proposal. During the works, any additional lighting should be restricted to 30 minutes after sunrise to 30 minutes prior to sunrise.
- The bridge design should consider the use of the river by foraging and commuting bats. An external bat box could be installed onto the bridge in order to provide roosting opportunities for bats.
- Any brash / timber piles created will be situated in the retained areas of habitat for use as shelter by hedgehogs or other mammals. If brash / timber piles are left or are present on site, these will be checked by hand in order to determine that no hedgehogs or other mammals are sheltering within before mechanical movement.
- Works will be carried out under a method statement to avoid pollution of aquatic habitats, see Appendix H.
- No works will be undertaken until a species-specific pre-construction badger, water vole and otter inspection is undertaken within the month prior to the start of works, in order to prevent disturbance or destruction to an active sett that may be built in the intervening period before works take place.
- It is advised that the works avoid the bird nesting season, however if the works will be undertaken between March and August, then a nesting bird pre-construction check must be carried out prior to the works commencing.
- If the works will be undertaken between February and September, then a red squirrel drey pre-construction check must be carried out within one month prior to the works commencing.



- Where any trenches / excavations greater than 0.5m deep are created these will be closed overnight where possible. Alternatively, one side will be cut at no more than a 45° angle, or a plank large enough for a person to walk up will be installed overnight to provide any wildlife which may fall in with an escape route. All such excavations will be checked for wildlife prior to the recommencement of works each morning.
- Bird boxes could be included within the woodland. The boxes would ideally be placed over 2m high on a tree between north and east with a clear flight path to the nest box entrance. An example of a suitable nest box would be the Woodcrete by Schwegler 32mm nestbox.
- The proposed works would require permission from Natural England. David Clayton is responsible for Raincliffe & Forge Valley Woods SSSI NNR (Unit ID: 102682).



## References

- Bat Conservation Trust (2016) *Bat Surveys: Good Practice Guidelines, 3<sup>rd</sup> Edition*. Bat Conservation Trust, London.
- England Field Unit – Nature Conservancy Council 1990 (2010). *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.
- Rose, F. (revised and updated by O'Reilly, C.) (2006). *The Wild Flower Key: How to identify wild flowers, trees and shrubs in Britain and Ireland*. Frederick Warne.
- Stace, C (2010). *New Flora of the British Isles, 3<sup>rd</sup> Edition*. Cambridge University Press.



## Appendix A – Key Legislation

Table A1: Overview of Key Legislation

Legislation	Key Features
<p>The Conservation of Habitats and Species Regulations 2017 (The Habitats Regulations)</p>	<p>The Habitat Regulations transpose <i>Council Directive 79/409/EEC on the Protection of Wild Birds</i> (the EC Birds Directive 1979) and <i>Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna</i> (the EC Habitats Directive 1992) into UK law. The Birds Directive was amended in 2009, becoming Directive 2009/147/EC.</p> <p>The Habitat Regulations make it an offence (with certain exceptions) to deliberately capture, disturb, kill or trade in those animal species listed in Schedule 2, or to pick, cut, uproot, collect, destroy or trade in those plant species listed in Schedule 4.</p> <p>The EC Birds Directive requires member states to establish and monitor Special Protection Areas (SPAs) for all rare or vulnerable species included in Annex I, as well as for all regularly occurring migratory species, with key focus on wetlands of international importance. Annex I and II of the Habitats Directive respectively list those habitats and species for which a similar network of sites – Special Areas of Conservation (SACs) – must be established and monitored. Collectively, SPAs and SACs form a network of pan-European protected areas which are referred to as ‘Natura 2000’ sites.</p>
<p>The Convention on the Conservation of European Wildlife and Natural Habitats 1979 (Bern Convention)</p>	<p>The Bern Convention was adopted in 1979 and ratified by the UK Government in 1982. The principal aims of the Convention are to ensure the conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species).</p> <p>Members of the European Community meet their obligations via the Birds Directive and the Habitats Directive. These are transposed into UK law by the Wildlife and Countryside Act 1981 (as amended), Nature Conservation (Scotland) Act 2004 (as amended), Wildlife (Northern Ireland) Order 1985, and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985.</p>



Legislation	Key Features
<p>The Wildlife and Countryside Act 1981 (as amended)</p>	<p>The Wildlife and Countryside Act consolidates and amends existing national legislation to implement the requirements of the Bern Convention and the Birds Directive throughout Great Britain. The Act is the primary UK mechanism for the designation of statutory ecological sites - Sites of Special Scientific Interest (SSSIs) - and the protection of individual species listed under Schedules 1, 2, 5, 6 and 8 of the Act, each of which is subject to varying levels of protection.</p> <p>Schedule 9 of the Act also lists those plant species which it is an offence to plant or otherwise cause to grow in the wild, while Schedule 14 prevents the release into the wild or sale of certain plant and animal species which may cause ecological, environmental or socio-economic harm.</p>
<p>Natural Environment and Rural Communities Act 2006</p>	<p>The NERC Act places a duty on public bodies to consider and conserve biodiversity through the exercise of their functions and includes a range of measures to strengthen the protection of both habitats and wildlife. The Act makes provision in respect of biodiversity, pesticides harmful to wildlife, protection of birds and invasive non-native species.</p>
<p>The Countryside and Rights of Way (CRoW) Act 2000</p>	<p>The CRoW Act, which applies to England and Wales only, strengthens the provisions of the Wildlife and Countryside Act 1981 (as amended), both in respect of protected species and statutory ecological sites, the latter primarily relating to the management and protection of SSSIs. It also provides for better management of Areas of Outstanding Natural Beauty (AONBs).</p> <p>The Act places a statutory obligation on public bodies to further the conservation of biodiversity through the exercise of their functions, thereby providing a statutory basis to the Biodiversity Action Plan (BAP) process. Section 74 of the Act lists those habitats and species of principal importance in England.</p>
<p>The Wild Mammals (Protection) Act 1996</p>	<p>This Act provides protection for wild mammals from acts of cruelty. An offence is committed if any person mutilates, kicks, beats, nails, or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.</p>
<p>The Protection of Badgers Act 1992</p>	<p>This consolidates the existing legislation relating to the protection of badgers, and makes it an offence in England and Wales to wilfully kill, injure or take a badger (or attempt to do so) and affords protection to both the animals themselves and their setts.</p>





Legislation	Key Features
Hedgerow Regulations 1997	The Hedgerow Regulations are intended to protect important countryside hedgerows from destruction or damage in England and Wales.

**Table A2: Overview of Key Protected Species Legislation and Protection**

Species	Key Legislation and Protection
Bats	<p>All European bat species are protected in Britain under the Habitat Regulations 2017. All British bat species are included on Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended) and the whole of Section 9 applies to European bat species. The above collectively prohibits the following:</p> <ul style="list-style-type: none"> <li>• Deliberately or recklessly capturing, injuring, taking or killing of a bat</li> <li>• Deliberately or recklessly harassing a bat</li> <li>• Intentionally or recklessly disturbing of a bat in its place of rest (roost), or which is used for protection or rearing young</li> <li>• Deliberately or recklessly damaging, destroying or obstructing access to any resting place or breeding area used by bats</li> <li>• Deliberately or recklessly disturbing a bat in any way which is likely to significantly affect the local populations of the species, either through affecting their distribution or abundance, or affect any individuals' ability to survive, reproduce or rear young</li> <li>• Possession or advertisement/sale/exchange of a bat (dead or alive) or any part of a bat</li> </ul> <p>Bats are also protected by the Wild Mammals (Protection) Act 1996. Licenses are issued by Natural England for any works which may compromise the protection of European protected species, including bats. This license is required irrespective of whether the works require planning permission. Selected species are also listed in the UK BAP.</p>
Great Crested Newt	Great crested newts receive the same levels of protection under British and European law as is afforded to bats (see above). Great crested newts are included on the UK BAP.
Otter	Otter are protected under British and European law, receiving the same level of protection as bats (see above). Otter are also listed as a priority species in Appendix II of the Bern Convention. Otter are included on the UK BAP.
Freshwater Pearl Mussel	Freshwater pearl mussels are protected under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended), which make it an offence to:



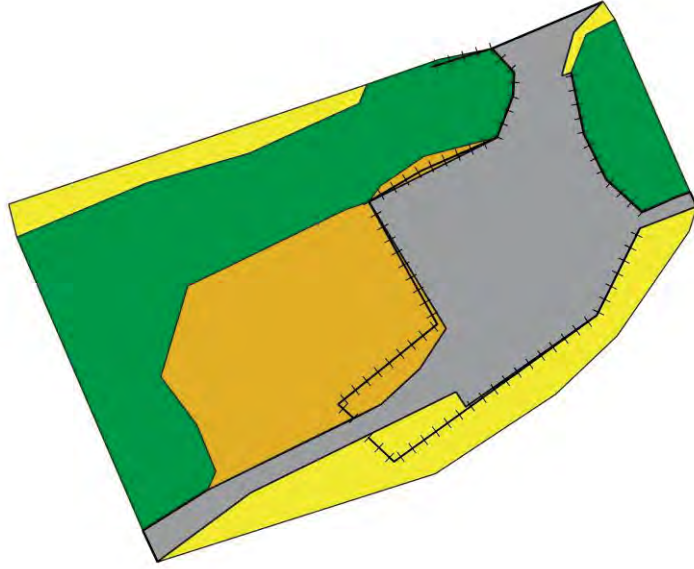
Species	Key Legislation and Protection
	<ul style="list-style-type: none"> <li>• Intentionally kill, injure or take the species</li> <li>• Intentionally or recklessly damage, destroy, or obstruct access to any place used by the species for shelter or protection, or to disturb the species while they are using such a place</li> </ul> <p>The species is also included in Appendix III of the Bern Convention and is listed on the UK BAP.</p>
Reptiles	<p>Common reptiles (grass snake, adder, common lizard and slow-worm) receive partial protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to:</p> <ul style="list-style-type: none"> <li>• Intentionally or recklessly kill or injure these species</li> <li>• Sell, offer or advertise for sale, possess or transport for the purposes of sale these animals, whether alive or dead, or any part thereof</li> </ul> <p>In addition, smooth snake and sand lizard are also protected under the Habitat Regulations 2017, which makes it an offence to:</p> <ul style="list-style-type: none"> <li>• Intentionally or recklessly kill, injure, capture, disturb or handle these species;</li> <li>• Intentionally or recklessly damage or destroy any place used by these species for shelter, protection, resting or breeding; and</li> <li>• Intentionally or recklessly obstruct access to any place used for shelter, protection, resting or breeding by these species.</li> </ul> <p>All 6 species of native reptile are listed on the UK BAP.</p>
White-clawed Crayfish	<p>White-clawed crayfish are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:</p> <ul style="list-style-type: none"> <li>• Take white-clawed crayfish</li> <li>• Sell, possess or transport white-clawed crayfish for the purpose of sale</li> <li>• Advertise the buying or selling of white-clawed crayfish</li> </ul> <p>The species is also protected under the Habitats Directive, being listed under Annex II and V, and is included on the UK BAP.</p>
Water Vole	<p>Water voles are protected under Schedules 5 and 6 of the WCA 1981 (as amended). This makes it an offence to:</p> <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take water voles</li> <li>• Possess or control the species</li> <li>• Damage or destroy any place used by water vole for shelter or protection</li> <li>• Disturb water vole while they occupy such places of shelter</li> <li>• Sell, possess or transport water vole for the purpose of sale</li> <li>• Advertise the buying or selling of water vole</li> </ul>



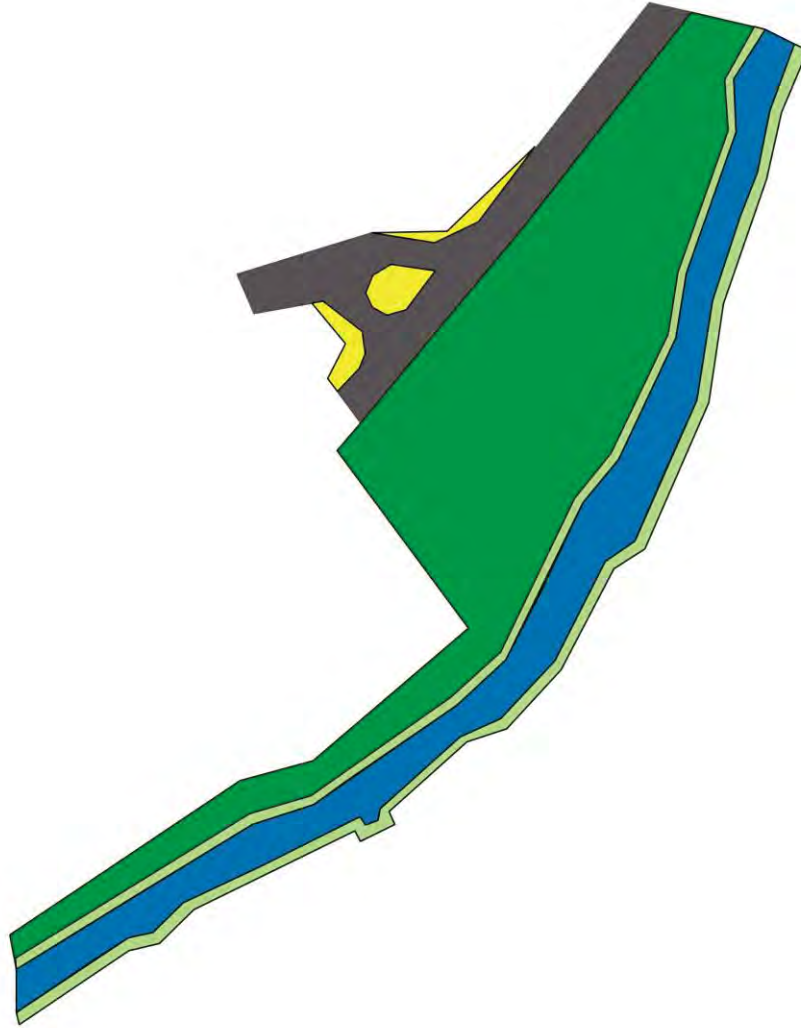
Species	Key Legislation and Protection
	The species is also protected under the Wild Mammals (Protection) Act 1996 and is listed on the UK BAP.
Red Squirrel	Red squirrels are protected under Schedules 5 and 6 of the WCA 1981, receiving the same level of protection as water vole. The species is also protected under the Wild Mammals (Protection) Act 1996 and listed on the UK BAP.
Badger	<p>Badger are protected under the Protection of Badgers Act 1992, which makes it an offence to:</p> <ul style="list-style-type: none"> <li>• Knowingly kill, capture, injure or disturb any individual</li> <li>• Intentionally damage or destroy a badger sett, or any part thereof</li> <li>• Obstruct access to an area which is used for breeding, resting or shelter</li> <li>• Disturb a badger while it is using any place used for breeding, resting or shelter</li> </ul> <p>The species is also protected by the Wild Mammals (Protection) Act 1996 and receives partial protection through inclusion on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).</p>
Birds	<p>With the exception of some species listed on Schedule 2, the majority of bird species are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> <li>• Kill, injure or take any wild bird</li> <li>• Take, damage or destroy any nest which is in use or being built</li> <li>• Take, damage or destroy the eggs of any such bird</li> </ul> <p>Additional protection against disturbance at the nest is also afforded to any bird species listed on Schedule 1 of the Act. Selected bird species are also listed on the UK BAP.</p>
Migratory Fish	<p>Atlantic salmon and sea trout are protected under the Salmon and Freshwater Fisheries Act 1975, supplemented by the Salmon Act 1986. Both species also listed under the EC Habitats Directive 1992, Annexes IIa and V.</p> <p>All three species of lamprey receive a degree of legal protection, being listed under Annexes IIa and Va of the Habitats Directive. The conservation of species listed under Annex II of the Habitats Directive requires the designation of Special Areas of Conservation. Species listed under Annex V of the Directive are also considered to be of community interest and their taking in the wild and exploitation may be subject to management measures.</p> <p>River and sea lampreys, Atlantic salmon, European eel and brown/sea trout are listed on the UK BAP.</p>









## Appendix B – Phase 1 Habitat Map Sites A, B & C

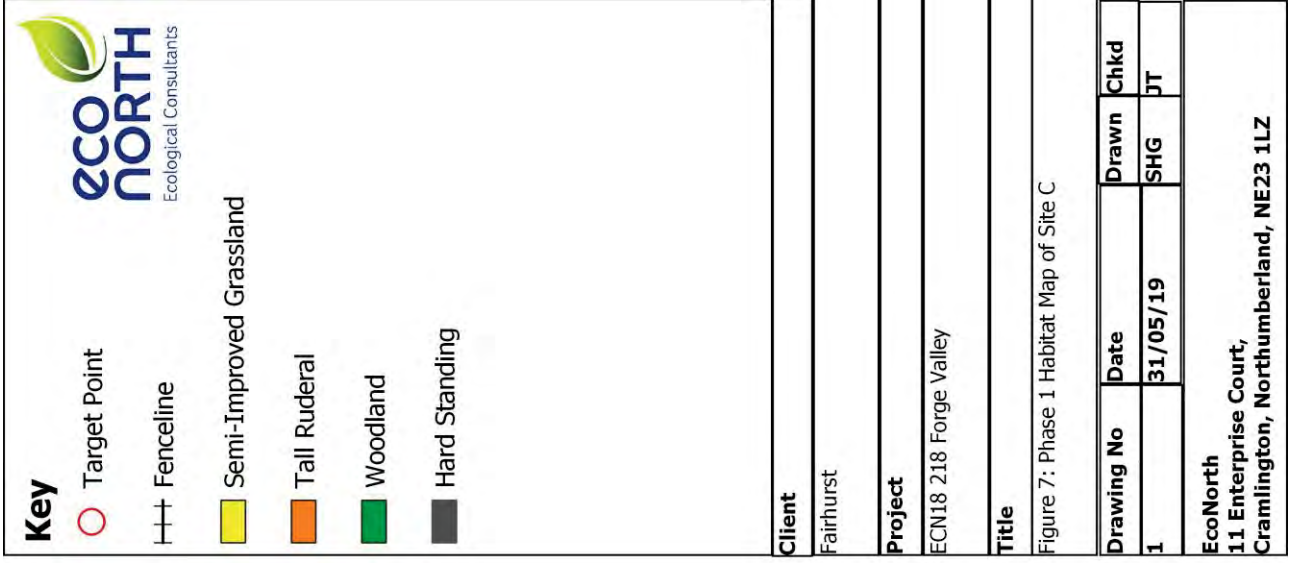


<b>Key</b>			
---	Fence		
■	Semi-Improved Grassland		
■	Tall Ruderal		
■	Hard standing		
■	Woodland		
<b>Client</b>			
Fairhurst			
<b>Project</b>			
ECN18 218 Forge Valley			
<b>Title</b>			
Figure 5: Phase 1 Habitat Map of Site A			
<b>Drawing No</b>	<b>Date</b>	<b>Drawn</b>	<b>Chkd</b>
1	31/05/19	SHG	JT
<b>EcoNorth</b>			
11 Enterprise Court, Cramlington, Northumberland, NE23 1LZ			



			
<b>Key</b>			
	Marginal Habitat		
	Waterbody		
	Woodland		
	Semi-Improved Grassland		
	Hard Standing		
<b>Client</b>	Fairhurst		
<b>Project</b>	ECN18 218 Forge Valley		
<b>Title</b>			
Figure 6: Phase 1 Habitat Map of Site B			
<b>Drawing No</b>	<b>Date</b>	<b>Drawn</b>	<b>Chkd</b>
1	31/05/19	SHG	JT
<b>EcoNorth</b> 11 Enterprise Court, Cramlington, Northumberland, NE23 1LZ			









## Appendix C – Target Notes

Table C1: Target Notes Relating to Phase 1 Habitat Map C (see Appendix B)

Number	Description
1	Low bat potential horse chestnut tree.
2	Low bat potential horse chestnut tree.
3	Low bat potential horse chestnut tree.
4	Moderate bat potential horse chestnut tree.
5	Low bat potential horse chestnut tree.
6	Low bat potential horse chestnut tree.
7	Low bat potential horse chestnut tree.
8	Low bat potential horse chestnut tree.
9	Maple tree of negligible bat potential.
10	Low bat potential horse chestnut tree.
11	Moderate bat potential tree.
12	Moderate bat potential tree.
13	Negligible bat potential tree.
14	Moderate bat potential tree.
15	Low bat potential tree.
16	Low bat potential tree.
17	Low bat potential tree.
18	Deadwood log.
19	Deadwood log.





## Appendix D – Site Photographs

<p><b>Photo 1:</b> Tall ruderal vegetation</p>	<p><b>Photo 2:</b> Target Note 18</p>
 A photograph showing a dense thicket of tall, green, leafy plants, likely ruderal species, growing in a field. The plants are tall and thin, with some bare branches visible in the background.	 A photograph of a large, moss-covered tree stump in a grassy area. The stump is covered in bright green moss and is surrounded by other green plants. A dirt path is visible on the right side of the image.
<p><b>Photo 3:</b> Mixed deciduous woodland</p>	<p><b>Photo 4:</b> River Derwent</p>
 A photograph of a mixed deciduous woodland. The trees are tall and have dense green foliage. The ground is covered in green grass and other vegetation. The scene is brightly lit, suggesting a sunny day.	 A photograph of a narrow river flowing through a wooded area. The water is dark and reflects the surrounding trees. The banks are covered in green grass and other vegetation. The scene is brightly lit, suggesting a sunny day.
<p><b>Photo 5:</b> Target Note 19</p>	<p><b>Photo 6:</b> Site C car park</p>
 A photograph of a dirt path leading through a wooded area. The path is covered in green grass and other vegetation. The trees are tall and have dense green foliage. The scene is brightly lit, suggesting a sunny day.	 A photograph of a paved car park area. The car park is surrounded by trees and greenery. The ground is dark and appears to be made of asphalt or concrete. The scene is brightly lit, suggesting a sunny day.



## Appendix E – Value of Ecological Receptors

Table E1: Examples of Ecological Receptors of Differing Value

Value	Examples
International	<ul style="list-style-type: none"> <li>• An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site) or an area which meets the designation criteria for such sites.</li> <li>• Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• Any regularly occurring, globally threatened species.</li> <li>• A regularly occurring population of an internationally important species, which is threatened or rare in the UK, of uncertain conservation status.</li> <li>• A regularly occurring, nationally significant population/number of any internationally important species.</li> </ul>
National	<ul style="list-style-type: none"> <li>• A nationally designated site (<u>e.g.</u> SSSI, NNR) or a discrete area which meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified.</li> <li>• A viable area of a UK BAP priority habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole.</li> <li>• A regularly occurring significant number/population of a nationally important species <u>e.g.</u> listed on the Wildlife and Countryside Act 1981 (as amended).</li> <li>• A regularly occurring population of a nationally important species that is threatened or rare in the county or region.</li> <li>• A feature identified as being of critical importance in the UK BAP.</li> </ul>
Regional/County	<ul style="list-style-type: none"> <li>• Viable areas of key habitat identified in the Regional or County BAP or smaller areas of such a habitat, which are essential to maintain the viability of the larger whole.</li> <li>• Regional/county significant and viable areas of key habitat identified as being of regional value in the appropriate English Nature (now Natural England) Natural Area.</li> <li>• A regularly occurring significant population/number of any important species important at a regional/county level.</li> <li>• Any regularly occurring, locally significant population of a species which is listed in a Regional/County Red Data Book</li> </ul>





Value	Examples
	<p>or BAP on account of its regional rarity or localisation.</p> <ul style="list-style-type: none"> <li>• Sites of conservation importance that exceed the district selection criteria but that fall short of SSSI selection guidelines.</li> </ul>
City/District/Borough	<ul style="list-style-type: none"> <li>• Areas of habitat identified in a District/City/Borough BAP or in the relevant Natural Area profile.</li> <li>• Sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on District/City/Borough ecological criteria.</li> <li>• Sites/features that are scarce within the District/City/Borough or which appreciably enrich the District/City/Borough habitat resource.</li> <li>• A diverse and/or ecologically valuable hedgerow network.</li> <li>• A population of a species that is listed in a District/City/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation.</li> <li>• A regularly occurring, locally significant number of a District/City/Borough important species during key phases of its life cycle.</li> </ul>
Local	<ul style="list-style-type: none"> <li>• Areas identified in a Local BAP or the relevant natural area profile.</li> <li>• Sites/features which area scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context, e.g. species-rich hedgerows.</li> <li>• Local Nature Reserves selected on Parish/Local ecological criteria.</li> <li>• Significant numbers/population of a locally important species <u>e.g.</u> one which is listed on the Local BAP.</li> <li>• Any species, populations or habitats of local importance.</li> </ul>
Low	<ul style="list-style-type: none"> <li>• Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.</li> </ul>



## Appendix F – Protected and Notable Species Identified by the Desk Study

Table F1: Protected Species Records within 2km

Species	Number of Records	Most Recent Record	Within Forge Valley?	Level of Protection		
				HR 2017	WCA 1981	NERC /UK BAP
Eurasian Badger	1	2018	Yes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Myotis sp.	1	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Noctule	4	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Common pipistrelle	4	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Soprano pipistrelle	3	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Brown long-eared	1	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Key

HR 2017 – The Conservation of Habitats and Species Regulations 2017

WCA 1981 – The Wildlife and Countryside Act 1981 (as amended) (Bird species listed relate solely to those included on Schedule 1)

NERC – The Natural Environment and Rural Communities Act 2006

UK BAP – UK Biodiversity Action Plan



## Appendix G – HSI Results

Waterbody	<b>Waterbody 1</b>
Grid Reference	SE 98909 85072
Location	1
Area of Open Water (m <sup>2</sup> )	1
Permanence (years/10 it dries out)	0.1
Water Quality	0.33
Shade (%)	1
No. of Wild/Water-fowl	0.67
Fish	1
Ponds within 1km	0.1
Terrestrial Habitat within 0.5km (ha)	0.67
Macrophyte Cover (%)	0.9
HSI Score	0.516
Quality	<b>Below Average</b>



## Appendix H – Method Statement

### Outline Sediment Pollution method statement

- Chemicals should not be used during the construction work.
- Ensure sediment/pollution prevention control methods are in place:
  - Straw bales used where hydrological connections to water bodies off site are identified.
  - No refuelling within 10 m of any watercourse / waterbody.
  - Spill kits available at all times.
  - Plant nappies for all plant used on site.
  - Sediment barriers will be installed surrounding extensive excavation or tree clearance areas.

### Site Clearance

- A toolbox talk will be provided by a Suitably Qualified Ecologist (SQE) to all site personnel (including clearance, construction and sub-contractors) to raise awareness of wildlife potentially present and legislative requirements.
- Removal of vegetation in stages. Reduce ground vegetation to 10cm in height initially, then remove all vegetation in order to reduce the possibility of impacting wildlife.

### Outline Felling method statement

- Felling of trees/shrubs, clearance of dense vegetation should be avoided during the bird nesting season (March to August inclusive).
- A toolbox talk will be provided to all site personnel (including clearance, construction and sub-contractors) by a SQE prior to work commencing on site.



- All trees with Bat roosting Potential (BRP) will be subject to updated inspections for roosting bats immediately prior to soft-felling (subject to results of tree inspection).
- Works will be subject to an inspection for breeding birds immediately prior to works by a SQE.
- Should active bird nests be found in trees that are to be cleared, removal of the relevant tree(s) will not be undertaken until a SQE has confirmed that the nest is no longer active.
- All trees with BRP will be soft felled in sections.
- All felling will be directional and avoid damage to adjacent trees.

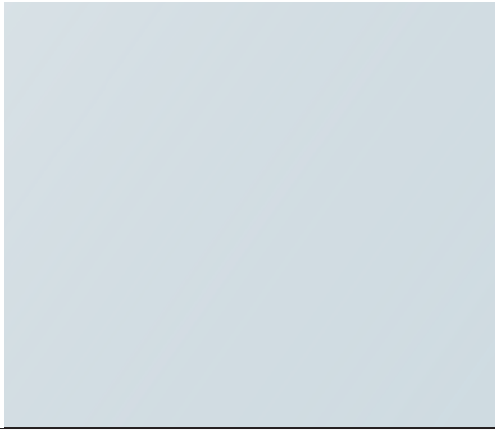


# Forge Valley, Scarborough

## Construction Method Statement

D/I/D/128858/04  
June 2019

NYMNPA  
20/06/2019



**CONTROL SHEET**

**CLIENT:** Scarborough Borough Council  
**PROJECT TITLE:** Forge Valley, Scarborough  
**REPORT TITLE:** Construction Method Statement  
**PROJECT REFERENCE:** 128858  
**DOCUMENT NUMBER:** D-I-D/128858/04

ISSUE 1 DRAFT	Name	Signature	Date
Prepared by	Naomi King		11/06/19
Checked by	Emily Russell		20/06/19
Approved by	Stephen Goodchild		20/06/19

Revision Record	Rev.	Date	Status	Description	Signature		
	1					By	
						Checked	
						Approved	
	2					By	
						Checked	
Approved							

This document has been prepared in accordance with procedure OP/P02 of the *Fairhurst Quality and Environmental Management System*

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| <b>1.2</b> | <b>Rationale for the project</b> |
| <b>1.3</b> | <b>Accessibility and use</b>     |

### **2.0 Design and construction**

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|------------|--------------------------|
| <b>2.1</b> | <b>Tree Felling</b>      |
| <b>2.2</b> | <b>Materials</b>         |
| <b>2.4</b> | <b>Bridge Crossing</b>   |
| <b>2.6</b> | <b>Car Parking</b>       |
| <b>2.7</b> | <b>Path construction</b> |
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### **3.0 Site designations / Environmental protection**

### **4.0 Construction method**

### **5.0 Preliminary and temporary site measures**

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|------------|-----------------------|
| <b>5.1</b> | <b>Site Induction</b> |
| <b>5.2</b> | <b>Site Briefings</b> |
| <b>5.3</b> | <b>Toolbox Talks</b>  |

### **6.0 Pollution Control Plan**

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|------------|---|
| <b>6.3</b> | <b>Pollution Prevention</b>                       |
| <b>6.4</b> | <b>The Control of Fuel and Lubricating Fluids</b> |
| <b>6.5</b> | <b>Emergency Equipment</b>                        |
| <b>6.6</b> | <b>Site Precautions</b>                           |
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**7.0 Timing/ Schedule of Works**

**8.0 Hours of Operation**

**9.0 Insurances**

**10.0 Compounds**

**11.0 Site Demobilisation**

**12.0 Future Maintenance**

## **1.0 INTRODUCTION**

### **Aim of the project**

- 1.1 The aim of the project is to safeguard the current walkway and to improve accessibility in the Forge Valley Nature Reserve by:
- Restoring and protecting the natural environment;
  - Providing a year round accessible route for wheelchair users, walkers and runners;
  - Creating a new footbridge at the southern end of the boardwalk to connect with Public Rights of Way (PRoW) on the East Ayton side of the River Derwent;
  - Improving parking provision with two spaces specifically for disabled persons and two mini bus parking bays; and
  - Providing a more robust and lower maintenance boardwalk.

### **Rationale for the project**

- 1.2 An accessible route through the Forge Valley Nature Reserve that creates a recreational, educational and tourist destination, meanwhile protecting and restoring the natural environment.

### **Accessibility and use**

- 1.3 Improved access to the nature reserve is likely to be popular with locals and visitors of all ages and ability. The proposed boardwalk will be built at a suitable gradient to ensure suitability for those with accessibility needs. Where possible the existing boardwalk will be redesigned to improve gradient/ alignment, and include better passing places to accommodate buggies, wheelchairs and mobility scooters.

## **2.0 DESIGN AND CONSTRUCTION**

### **Tree felling**

- 2.1 Where trees will need to be felled to accommodate the works, this will be carried out using the appropriate equipment, techniques and qualified personnel. This will be done outside the bird breeding season to avoid disturbance. Any removal of trees
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with low to high bat roosting potential will require further surveys to be carried out, as detailed in the Extended Phase 1 Habitat Survey.

## **Materials**

- 2.2 Imported quarried aggregate will be required for the construction of both the car park and footpaths. Aggregates are to be sourced from local quarries to minimise delivery distance and suitable 'as dug' material is to be utilised wherever possible to alleviate the amount and cost of imported aggregate materials. Recycled plastic will be used for the footbridge and boardwalk.
- 2.3 All aggregates and cementitious materials must be stored away from water courses and covered when necessary to reduce sediment run-off. COSHH statements will be available for all hazardous materials. As far as possible, materials when not required for site should be stored in a secured compound. Generally, materials are to be stored safely to ensure no injury occurs from falling items. Any materials considered hazardous are to be stored in a locked container within the Contractor's compound.

## **Bridge Crossing**

- 2.4 A 1.5m wide footbridge with a 12m span is to be installed across the River Derwent. No vehicular access will be permitted to the bridge and it is to be designed to accommodate the load of a powered wheelchair. The footbridge is to be comprised of structural steelwork with a recycled plastic finish and will be designed, manufactured and installed by a specialist sub-contractor. Reinforced concrete pad foundations are likely to be utilised to support both ends of the bridge, subject to confirmation of ground conditions and subsequent detailed design. The concrete foundations will be contained by a permanent waterproof formwork, such as a GRP liner, in order to prevent contamination of the adjacent water course.
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- 2.5 It is anticipated that the bridge is to be prefabricated, transported to site and installed via a crane located within the new constructed car park. As such, the proposed car park construction is to be designed to sufficiently support HGV access in line with the Arboricultural Impact Assessment (AIA) recommendations.

### **Car Parking**

- 2.6 The proposed car park will be constructed using a reinforced gravel grid designed to facilitate occasional HGV access, due to the requirement for crane installation of the timber footbridge. A well compacted Type 3 sub-base is to be used in conjunction with a geotextile layer to provide a sufficient base below the gravel grid whilst also maintaining permeability and free drainage, providing appropriate SuDS attenuation and levels of treatment.

### **Path Construction**

- 2.7 Proposed pedestrian footpaths are to be approximately 1.5m wide and will be graded and rolled in order to provide an even surface with a sufficient crossfall to shed surface water away from the footpath. The top layer is to consist of a layer of 6-10mm sized gravel and is to be supported by a well compacted Type 1 sub-base. As part of the pedestrian footpaths, new boardwalks are also to be installed which will be designed, manufactured and installed by a specialist sub-contractor.

### **Ground Conditions**

- 2.8 Based on a review of the British Geological Survey (BGS) Online Viewer, historic BGS borehole records and Magic Map viewer for environmental data, the following ground conditions are considered to be present beneath the proposed car park and footbridge development:

#### **Superficial Geology**

- 2.9 Information provided by the British Geological Survey (BGS) online Viewer (Ref. 01) indicates that superficial geology is locally absent along the length of the Forge Valley footpath, likely to be attributable to the erosional force of the River Derwent.
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### Bedrock Geology

- 2.10 Information provided by the BGS Online Viewer (Ref. 01) indicates the site to be underlain by bedrock geology of the Lower Calcareous grit Formation, comprising sandstone and Yedmandale Member comprising limestone and calcareous sandstone.
- 2.11 The nearest BGS historic borehole (SE98NE12), is located approximately 300m south east of the proposed car park and bridge location.

### BGS Borehole Information

- 2.12 The nearest BGS historic borehole (SE98NE12), is located approximately 300m south east of the proposed car park and bridge location. The ground conditions encountered within this borehole are as follows;
- Clayey sandy gravel to a depth of 3.80mbgl;
  - Sandy limestone, some shells to a depth of 8.60mbgl;
  - Soft silty clay with limestone fragments, to a depth of 9.80mbgl;
  - Sandy limestone to a depth of 11.20mbgl;
  - Calcareous fine sandstone with silty clay & limestone fragments to a depth of 13.90mbgl;
  - Clay & calcareous sandstone to a depth of 19.0mbgl; and
  - Alternating sandstone and limestone to a maximum borehole depth of 35.00mbgl.
- 2.13 Based on the information provided above, and localized absence of superficial geology within the vicinity of the site as reported within the BGS viewer (Ref 01) it is considered that the site will be underlain by weathered mudstone and sandstone bedrock underlain by competent interbedded rock at shallow depth.

### Hydrogeology

- 2.14 Information provided within the Magic Map online viewer (Ref. 02) indicates the bedrock geology underlying the site, is classified as a Principle Aquifer. Principle aquifers are defined as geology that exhibit high permeability and/or provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. Based on the resource potential of the bedrock aquifer it is classified as a Zone 1 – Inner source protection zone. Groundwater levels underlying the

proposed car park and bridge crossing are anticipated to be encountered at shallow depth and in hydraulic continuity with the River Derwent.

#### Hydrology

- 2.15 The nearest surface water feature to the development is the River Derwent located adjacent to the west of the proposed car park, and flows north to south past the site. The Magic Map online viewer (Ref. 02) indicates that the River Derwent valley (Forge Valley) is located within a Drinking Water Protection Area (surface water) and a Drinking Water Safeguard Zone (Surface Water).

### **3.0 SITE DESIGNATIONS/ ENVIRONMENTAL PROTECTION**

- 3.1 The site is designated a Site of Special Scientific Importance (SSSI) and a National Nature Reserve (NNR). Full environmental protection measures are to be in place prior to any works taking place, including a Bespoke EA Permit, protected species licences and supporting method statements.

### **4.0 CONSTRUCTION METHOD**

- All trees and vegetation to be felled/cleared as necessary by qualified personnel prior to construction work;
  - The existing raised boardwalk is to be cleared as necessary by qualified personnel prior to construction work in a phased manner;
  - Surfacing to car park areas to be laid;
  - Surfacing to new path network to be laid;
  - Footbridge foundations to be constructed;
  - Prefabricated footbridge to be installed via crane located within new car park;
  - New boardwalk to be installed;
  - New trees to be planted;
  - All street furniture such as bins and cycle stands to be installed; and
  - Site to be tidied and all excess or waste materials to be removed from site (if not being reused within the site).
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## **5.0 PRELIMINARY AND TEMPORARY SITE MEASURES**

### **Site Induction**

5.1 The Principal Contractor will carry out a site induction specific to the site, with specific reference to the SSSI and NNR context. Information will be provided to staff on any hazards of the site and will be told the site rules. Inductees will be informed of the requirement to observe specific site elements appropriate to their own work activities and/or site wide hazards. These might include:

- Working near/ over water, Vehicle movements, Traffic Management Systems;
- Ensure that inductees are made aware of specific requirements for the production of risk assessments and method statements where specific hazards are identified; and
- Ensure inductees are made aware of restricted areas and the reasons for the control measures in place.

### **Site Briefings**

5.2 The Site Supervisor/ Principle Contractor will be required to conduct site briefings on a daily basis as a means of sharing health and safety problems; fostering a good health and safety culture on site and encouraging staff to report potential health and safety issues. The process should cover the following:

- Remind staff to consider the SLAM technique i.e. Stop the task and think. Look at each step; Look before, during and after completion of the task to identify potential hazards; Assess. Are workers equipped to perform the task safely check they have the correct knowledge, skills, training, and tools; Manage. Managers should take appropriate action to eliminate or minimise any hazards on site.
  - Any staff/site changeovers;
  - Check risk assessments and method statements are still relevant;
  - Weather conditions;
  - Ground conditions;
  - Excavations;
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