

# Undercliff Landscape and Habitat Management Plan

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## **1 Introduction to the Management Plan.**

This is the management plan for the restoration and subsequent management of Undercliff, Cleadon, South Tyneside.

Nature conservation is the major theme in the management of the grounds. The habitats are to be brought back into favourable condition and improved provision is to be made for a number of protected species, including some that are very rare in South Tyneside.

This part of the estate was once an important element of the 19<sup>th</sup> Century landscaped grounds, but since the division of the estate into several ownerships in 1979 it has been seriously neglected for many years.

Most of the habitats are badly degraded and in “unfavourable condition”, but most of them can be restored in time with some effort and expense. Details of the proposed restoration and subsequent management are given in the management plan.

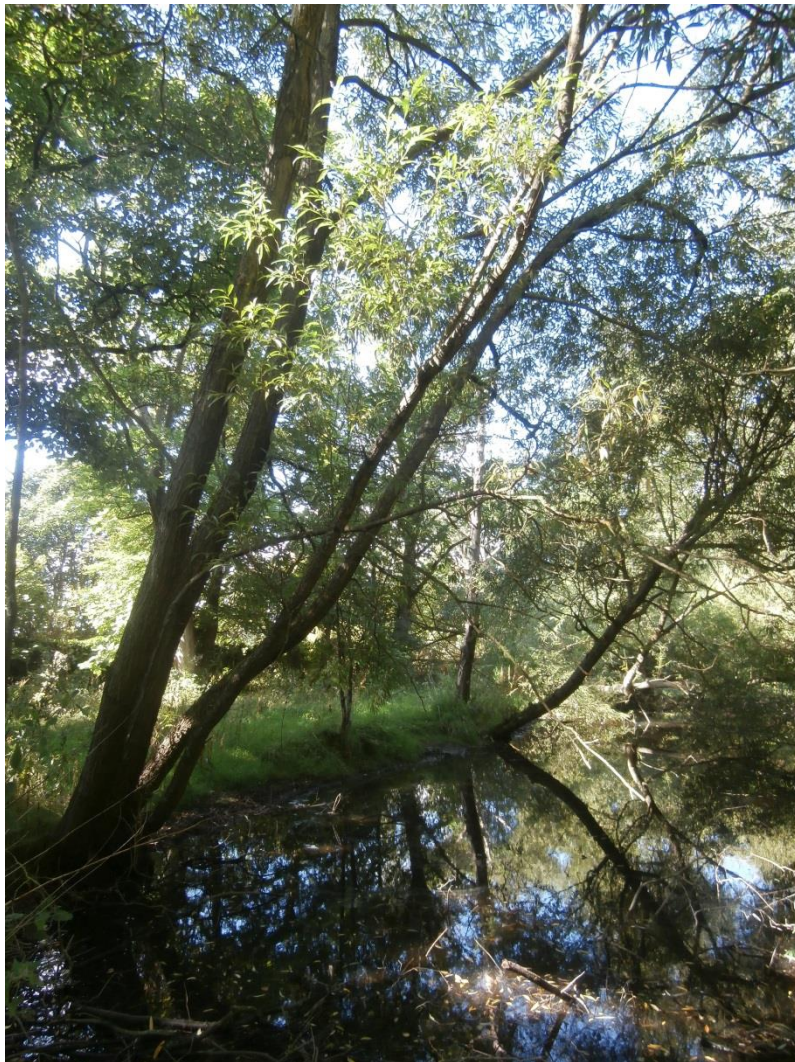
More than half of the site is already designated as a Local Wildlife Site by South Tyneside Council in association with the Local Wildlife Sites Partnership. The designation is because of the large pond, which is a Durham Biodiversity Action Plan priority habitat. It is proposed that the Local Wildlife Site be increased in area to cover 70% of the site.

This management plan is based upon the findings of several surveys, notably an “Extended Phase 1 Ecology Survey” carried out by EcoNorth in 2013, an arboricultural survey carried out by All About Trees in 2013, a bat survey by Veronica Howard in 2015 and an “Extended Phase 1 Ecology Survey” carried out by John Durkin in 2015.

## **2 The Local Wildlife Site (LWS)**

The LWS is correctly designated under the Durham Biodiversity Action Plan (DBAP) criteria for the habitats present. The designation was mainly on the basis of the pond meeting the basic DBAP criteria, although there was previously no full survey to support the designation. The LWS documentation has been updated from the results of the 2015 Extended Phase One Ecological Survey and has been supplied as part of the planning application.

It is proposed that the LWS is extended to include the 0.11 hectare eastern area of woodland meets the criteria for designation but which is currently outside of the LWS boundary. This will increase the LWS area from 0.60 hectares to 0.71 hectares, which is 70% of the planning application site.



**The Pond**

### **3 Existing Habitats**

The whole site is 1.04 hectares; the current Local Wildlife Site is 0.60 hectares of this.

The habitats present are-

- Buildings and hard standing
- Grassland
- Walls
- Pond (entirely in the LWS)
- Woodland

There are no non-native invasive species present on the site.

#### **4.1 Buildings and hard standing 200 square metres/ 0.02 hectares**

##### **4.1.1 Present Situation**

There is a stable block with a small area of hard standing in the grassland near the western edge of the site.

The stables were not in use at the time of the 2015 Extended Phase One Ecological Survey.

##### **4.1.2 Restoration Phase**

The stable buildings are to be removed, outside of the bird nesting season. An alternative nesting structure for Swallows will be included as part of the development. "Continuous cover" will be provided, with no summer without a suitable nest site. Old nests will be moved to the new site to encourage its adoption.

The very small risk of a bat roost being present in the stables is covered in a separate report. Artificial roost sites are to be provided as part of the development.

## **4.2 Grassland 0.52 hectares**

### **4.2.1 Present Situation**

The grassland areas had been overgrazed and heavily poached by horses at the time of the 2013 Extended Phase One Ecological Survey, to the extent that most of the ground was bare mud. Grazing animals had been removed prior to the 2015 survey and strong regeneration from rootstock enabled the composition of the grassland to be determined.

The grassland appears to have originally been semi-improved with a Ryegrass and White Clover mix, including small numbers of Selfheal, Ribwort Plantain, Greater Plantain, Hardheads, Bird's Foot Trefoil and small amounts of Timothy and Meadow Foxtail grasses. With excessive grazing and then none, many weed species have appeared, including Stinging Nettles, thistles, docks and coarse grasses such as Cocks Foot and Creeping Bent. There are large patches of Stinging Nettles along the boundary of the grassland with the East Woodland.

Ringlet, Meadow Brown and Large White butterflies were present at the time of the 2015 survey. Small Tortoiseshell caterpillars were present on the Stinging Nettles.

Two large Horse Chestnuts on the edge of the grassland are notable trees. One (Target note 4) is a good specimen, while the other has major damage creating very good bat roost potential.

The remains of a Woodpigeon predated by a Fox were present in the long grass.

The grassland is currently of low value as a habitat.

### **4.2.2 Restoration Phase**

Up to half of the grassland will be taken up by the development, access, parking, formal garden etc. The rest of the grassland, including all of the grassland in the LWS, could be restored to grazing or hayfield or amenity. The grazing unit would, however, be quite small and therefore difficult to manage effectively.

The grassland could be restored by grazing, but is probably not retrievable as a good wildlife habitat because of its high proportion of Ryegrass and weed species.

Alternatively, a better result for wildlife would be to remove the existing sward and to resow with a wild flower seed mix which could then be cut or grazed. The existing sward and its nutrient-rich topsoil would best be handled by turning the soil over, to bury the fertile soil and to bring less fertile subsoil to the surface. This process would have to avoid the root zones of adjacent trees.

It is proposed to have two different areas of meadow, a neutral meadow sown with a seed mix such as Emorsgate EM3, and a magnesian limestone grassland.

Magnesian limestone grassland is a Durham Biodiversity Action Plan Habitat.

The magnesian limestone grassland will need a layer of graded magnesian limestone to be brought in from one of the working quarries. Some of the edges of the magnesian limestone area would be provided with limestone rocks and boulders to increase the available habitats and to make the overall habitat closer to naturally occurring magnesian limestone grasslands.

The Emorsgate seed mix "EM6" provides the basic limestone wild flowers and grasses, except the classic grass of the magnesian limestone, Blue Moor Grass. This may be sourced from Durham University or may be collected as seed from suitable wild sites.

The nettle patches will be reduced in area, but since they are a good habitat for butterflies some of the patches will be controlled and retained.

### **4.2.3 Longer Term (Two to ten year) Management**

The grasslands could be cut annually, or grazed for a short period in the autumn by a small number of livestock. Fencing would be needed to keep livestock out of the woodland and pond areas.

The nettle patches will need monitoring to prevent them spreading.



### **4.3 Boundaries**

#### **4.3.1 The Wall 202 metres**

##### **4.3.1.1 Present Situation**

The roadside boundary and the east boundary are walls of magnesian limestone, two metres high and in good condition. The walls have a meagre selection of lichens and bryophytes, with sections dominated by Ivy with a small selection of higher plant species. Notable are the ferns Black Spleenwort, rare in South Tyneside, Polypody, at its only site in South Tyneside, and the more common Hart's Tongue.

Some of the limestone blocks are fossiliferous, others show "cannonball" limestone formations.

The wall is of moderate value as a wildlife habitat, but has good landscape value in the context of the Cleadon Hills magnesian limestone area.

##### **4.3.1.2 Restoration Phase**

The wall needs no management at present except for the Badger proposal, see below.

##### **4.3.1.3 Longer Term (Two to ten year) Management**

In the longer term the Ivy should be controlled to prevent the loss of other species.

### **Other Boundaries**

#### **4.3.2 West 102 metres**

##### **4.3.2.1 Present Situation**

The site boundary along the western side is a two metre high close boarded fence. In the mown lawn grassland strip outside of the wooden perimeter fence there are good specimens of Pedunculate Oak and English Elm. Mature elms are scarce in the North East, since Dutch Elm Disease has killed the great majority of this species.

##### **4.3.2.2 Restoration Phase**

A new hedge is to replace the close-boarded perimeter fence along the western boundary along Undercliff drive. The hedge is intended to remain

dense in the winter. A double row Hawthorn/Hazel/Holly/Beech mix with smaller amounts of Elder/Wild Plum/Guelder would be appropriate.

The proposed planting mix is-

100 metres of hedge, double spaced at half metre spaces (60-90cms feathered whips, probably staked and tubed.)

Hawthorn	100
Hazel	30
Holly	30
Guelder	20
Wild Plum	20
Beech	40

#### **4.3.2.3 Longer Term (Two to ten year) Management**

The establishment of the hedge will be monitored to ensure its successful growth.

#### **4.3.3 North 98 metres**

##### **4.3.3.1 Present Situation**

Most of the northern boundary is a 74 m stone-faced retaining wall surmounted by a wooden fence. The wall is of unmortared magnesian limestone. A dozen self-sown Sycamores are rooted in the wall. The north east corner boundary of the site is a slightly damaged boarded fence, which allows access between Undercliff properties for animals such as Foxes and Hedgehogs.

##### **4.3.3.2 Restoration Phase**

The stone retaining wall at the northern boundary is to be restored, which will necessitate the felling of the self-sown trees and the removal of their roots. All of the trees to be felled have been surveyed for their potential as bat roosts and have been assessed as being of no risk. The trees to be felled are detailed in Appendix 1.

A hedge and a new low fence will replace the old close boarded fencing along the northern boundary of the site where it runs along the top of the unmortared magnesian limestone wall and in the north east corner. This location is suitable for climbing plants as well as shrubs.

The proposed planting mix is-

98 metres of hedge, double spaced at half metre spaces (60-90cms feathered whips, not staked or tubed.)

Hawthorn	130
Hazel	40
Holly	40
Guelder	30
Wild Plum	30
Beech	25
Honeysuckle	15
Black Bryony	15

#### **4.3.3.3 Longer Term (Two to ten year) Management**

The establishment of the hedge will be monitored to ensure its successful growth.

## **4.4 The Pond 0.12 hectares**

### **4.4.1 Present Situation**

This is a large pond for South Tyneside, formerly a Victorian ornamental pond with open grassy banks, clumps of willows and some “structural” ornamental plants such as Pendulous and Tussock Sedges, and probably with ferns such as Royal Fern and Lady Fern varieties that were popular when the pond was originally landscaped.

The pond appears on an 1855 map as a smaller area, just the eastern half of the current area. It may have been a natural pond. In the 1890s it was extended to the west to form the current “serpentine” shape. There are a number of 1922 photographs showing swans, punts and a rockery at the western end.

Early plans show that the pond was fed by a spring via a small circular pond or water feature.

In 2015, the pond is very neglected, silted and overgrown with Crack Willows which excessively shade the water. The original inlet is no longer discernible and the outlet is no longer functional. In addition, for some years, sewage has been flowing into the east end of the pond.

There is no submerged vegetation.

Emergent plants are restricted to several large clumps of Yellow Flag with occasional Brooklime, Water Plantain and Bittersweet. There is one plant of Pendulous Sedge and one a single large Tussock Sedge, overgrown with other species, which is probably part of the original planting. This is the only occurrence of this sedge in South Tyneside.

Common Duckweed occurs sparsely as the only floating aquatic species.

A pair of Mallard and a pair of Moorhens with well-grown young were present at the time of the 2015 Extended Phase One Survey.

No fish or amphibians were found during the 2015 Extended Phase One Survey, but the arboricultural survey in April 2013 recorded frogspawn in the pond.

Invertebrates are present but sparse, mainly pollution-tolerant species.

A ditch with a defunct sluice gate goes to a pipe under the wall and presumably under the road to a ditch on the south side of the road.

Ponds are a Durham Biodiversity Action Plan Habitat. The pond has value as a scarce habitat in South Tyneside, though it is currently in poor condition.

#### **4.4.2 Restoration Phase**

The pond needs the overhanging willows cut back to allow more light in, and this will also enable machine access for de-silting. All of the trees to be felled have been surveyed for their potential as bat roosts and have been assessed as being of no risk. The trees to be felled are detailed in Appendix 1.

The outlet ditch and its sluice need repairing. The inlet indicated on old maps needs to be located, if it still exists, and restored, if that is feasible.

Log piles will be constructed in the woodland from the felled timber. These will benefit hibernating amphibians, Hedgehogs and other small mammals.

Quite a large amount of silt would be removed. This could go offsite or could be spread on the already damaged grassland and woodland areas.

The pond is to be planted with suitable submerged, floating, emergent and marginal species of plants. These will be chosen for their value for wildlife, suitability for the conditions and for non-invasive character. Plants of local origin are available from several sources.

The proposed planting mix is-

<b>Structural Plants</b>	<b>Number</b>
Tussock Sedge	10
Pendulous Sedge	10
Royal Fern	7
Lady Fern	13

#### **Submerged Plants**

Milfoil	0.5 m <sup>3</sup>	Wild sourced, to bring in invertebrates.
Bladderwort	0.1 m <sup>3</sup>	

### **Floating Plants**

Frogbit	0.1 m <sup>3</sup>
Ivy-leaved Duckweed	0.5 m <sup>3</sup>

### **Marginals/Emergents**

Water Plantain	10
Purple Loosestrife	10
Yellow Loosestrife	10
Gypsywort	10
Skullcap	10
Marsh Speedwell	20
Brooklime	10
Kingcups	10
Ragged Robin	10
Soft Rush	20

#### **4.4.3 Longer Term (Two to ten year) Management**

Water levels, water quality, light levels and the successful establishment of the planted aquatic flora will be monitored.

A small bridge or pond dipping platform will be constructed when the restored water levels are certain.

The number of water fowl species is expected to increase, as detailed below.

Amphibian numbers are expected to increase significantly with Common Frog and Smooth Newt becoming well established. Other species, including Common Toad, a Durham BAP species, and possibly also Great Crested Newts may be introduced as the pond becomes suitable for them.

## **4.5 Woodland 0.42 hectares**

### **4.5.1 Present Situation**

The woodland area is treated here in two sections, the damp and more species-rich “Pond Woodland”, and the drier and Ivy-dominated “East Woodland”. There is a separate survey report by “All About Trees” on the nature and condition of each tree in the woodland and elsewhere on the site.

The woodland has value as a scarce habitat in South Tyneside, though it is currently in unfavourable condition. The abundance of standing and fallen dead timber is unique in South Tyneside.

The development will have no adverse effect upon the woodlands. The management plan aims to restore the woodland to “Favourable Condition” in the long term.

The woodland is dominated by non-native Sycamore and has a sparse shrub layer and a species-poor ground flora. There are high proportions of standing and fallen dead trees.

#### **4.5.1.1 The Pond Woodland 0.31 hectares**

The woodland around the pond is plantation woodland dominated by Sycamore on the drier ground and Crack Willow closer to the water. There are also Common Lime and Ash trees. A distinctive feature of the Undercliff woodland is the large amount of standing and fallen dead timber, important for some bird species, bats, fungi and invertebrates. This is a unique feature for South Tyneside.

The shrub layer is sparse, with several Laburnums and one Yellow Azalea.

The ground flora has mostly been damaged by the earlier excessive grazing of horses, but a number of species are recovering and the ground flora is in a better condition than the sward in the fields. Red Campion, Feverfew, Hairy Willowherb, Brooklime, Wood Avens and Bluebell are present. Solomon’s Seal, Aquilegia and Giant Bellflower are probably relics of the original planting. Other, spring-flowering species, not visible at the time of survey in July, will also be present.

In the south-east corner of the wood a mammal burrow, used by Foxes, is present.

The woodland is crossed by the pond outlet ditch.

#### **4.5.1.2 The East Woodland 0.11 hectares**

The woodland strip along the eastern side of the site is a fairly even-aged plantation of mainly Sycamore with some Ash and Beech. Like the “Pond Woodland”, standing and fallen dead timber is frequent here.

The shrub layer is sparse and mainly of Elder.

The ground flora layer is dominated by Ivy, which also covers some of the trees. There are small numbers of Primrose and Bluebell. A patch of Monkshood and a number of Giant Bellflowers are probably survivors from the original planting.

#### **4.5.2 Restoration Phase**

It is proposed that the trees, alive and dead, are mostly retained. In the long term, the tree species mix can be improved with more native species.

The shrub layer is to be re-planted with Hazel, Guelder and Holly.

The ground flora may continue to recover now that grazing has ceased, but will probably need supplementary planting.

The proposed planting mix is-

#### **Shrub layer (60-90cms feathered whips, probably not staked or tubed.)**

<b>Species</b>	<b>Number</b>
Hazel	150
Holly	40
Guelder	15
Honeysuckle	15
Red Currant	15
Spindle	15



**Ground Flora**

Primroses	40
Ramsons	40
Dogs Mercury	40
Enchanters Nightshade	40
Wood Avens	40
Hedge Woundwort	40
Lords and Ladies	20
Wood Speedwell	20
Woodrush	20

**Seedmix**

Emorsgate “EG9”, 2 kilos.

The route of the original walk through the woodland and around the pond is to be restored with a soft natural surfaced footpath.

**4.5.3 Longer Term (Two to ten year) Management**

The composition of the woodland will be monitored to ensure that the shrub layer establishes and that the ground flora recovers.

## 5 New Habitats

### 5.1 Living Roof

A magnesian limestone grassland living roof is a fundamental part of the development proposals. This is intended to reflect the magnesian limestone flora of Cleadon Hills, and to provide a habitat for invertebrates, especially butterflies. It will complement the magnesian limestone meadow.

Suitable magnesian limestone species could be used for the whole mix, or could be added to a basic Sedum mix. Useful species likely to grow here and to provide butterfly caterpillar food plants are-

- Blue Moor Grass
- Thyme,
- Birds Foot Trefoil,
- Rockrose,
- Kidney Vetch,
- Hoary Plantain,
- Fairy Flax,
- Carline Thistle,
- Quaking Grass,
- Black Medick
- Mouse Ear Hawkweed
- Glaucous Sedge
- Centaury

There isn't a commercial seed mix with these species, but they can be supplied as young plants.

A variety of grasses are also needed as caterpillar food plants. These are available as seed.

Target butterfly species would be-

- Dingy Skipper, a Durham BAP Species
- Meadow Brown
- Ringlet
- Large Skipper

- Small Skipper
- Essex Skipper, currently colonising the coastal areas of the North East.
- Common Blue
- Small Copper
- Wall

The Durham Argus Butterfly feeds upon Rockrose, and would be a desirable species here, but is not within colonising distance of Cleadon Hills.

Nectar producing plants in adjacent garden areas will boost the number of species with Small Tortoiseshell, Red Admiral, Painted lady and Comma, as well as Large and Small Whites.

Small areas of rocks and dead wood on the living roof would provide shelter and diversify habitats for invertebrates.

## **5.2 Artificial Nesting and Roosting facilities**

The new house will provide a number of artificial nest sites for a range of bird and bat species-

- The Swallow nesting habitat in the stables will be replaced by a similar habitat outside of the house.
- Swift boxes will be incorporated into the building.
- A House Sparrow “Terrace” will be provided for these colonial nesters.
- Starling boxes will be provided.
- Schwegler-type bat roost bricks will be incorporated into the eaves.

## **5.3 House Pond**

A new pond of approximately 50 square metres will be created adjacent to the house to take the run-off from the roofs and to assist with sustainable drainage. The pond will be planted with suitable native aquatic plants. It will provide a useful synergistic effect in association with the restored Victorian pond, enabling better long-term survival and stability of the amphibian and aquatic invertebrate species colonising the ponds.



**The Wall**



**The Grassland and Stables**



**The Pond Wood**



**The East Wood**

## **6 Protected Species**

### **6.1 Breeding birds**

#### **6.1.1 Survey Results**

The Extended Phase 1 Survey was carried out at the end of the bird nesting season, and provides little direct evidence of breeding birds. The pond supported nesting Mallard and Moorhen. Mallard are now “Amber Listed” by the Royal Society for the Protection of Birds (RSPB) due to declining numbers. The woodland, with its abundant standing dead timber, is suitable for a range of woodland birds, particularly hole nesters. Tawny Owl, Great Spotted Woodpecker, Treecreeper, Wood Pigeon and Pied Wagtail would be expected, with a range of common small species. Shrub nesting species would have few opportunities, due to the lack of shrub and woodland ground flora layers. There were Swallow nests in the stable block.

#### **6.1.2 Restoration Phase**

There may be nesting birds in trees that are to be felled, and in brambles and scrub within the grassland. These works should be carried out outside of the nesting season. The height of the grass and scrub should be reduced early in the year to discourage spring nesting.

Swallows, (Amber Listed) nest in the stables, so the buildings will be removed outside of the nesting season. A replacement nesting site will be provided as part of the house design, with a suitable overhanging roof and nest positions available on cross beams. Since Swallows are loyal to nesting sites, there will be either old or new sites available in each nesting season, without a gap. Some of the old nests from the stables will be moved to the new location, to encourage its acceptance by the Swallows.

The house itself will provide nest boxes for Swifts, House Sparrows and Starlings.

Since there are a large number of trees with potential roost holes, there is little need for bat boxes or for bird boxes in the woodland.

#### **6.1.3 Longer Term (Two to ten year) Management**

Restoration of the pond should bring in more species of waterfowl, with Coot, Heron, Tufted Duck (Amber Listed) and Little Grebe (also Amber Listed) being

the most likely colonists. Reed Buntings (Amber Listed) would also be expected to start nesting here.

Restoration of the woodland scrub layer and provision of new hedgerows should provide nest sites for scrub nesting birds such as Robin, Wren, Dunnock, Chiffchaff, Willow Warbler, (Amber Listed) Blackbird and Song Thrush (also Amber Listed).

## **6.2 Badger**

Badgers are a protected species under the Badger Act and the Wildlife and Countryside Act.

### **6.2.1 Survey Results**

There is no sign of Badgers being present on the proposed development site. However, the only known population of Badgers in South Tyneside is located only 600 metres away. The woodland habitat within the proposed development site is very suitable for Badgers but is currently inaccessible to them because of the perimeter stone walls and high close-boarded fences.

### **6.2.2 Restoration Phase**

An artificial Badger sett of breezeblock and paving stone construction will be provided in the north-eastern corner of the woodland. A hole will be constructed under the stone wall nearby, to allow access from Cleadon Hills.

### **6.2.3 Longer Term (Two to ten year) Management**

Experience of the provision of artificial Badger setts within the home range of a group of Badgers shows that occupation of the sett is likely to happen in the period two to five years after construction.

## **6.3 Hedgehog**

Hedgehogs are a UKBAP and a Durham BAP species.

### **6.3.1 Survey Results**

Hedgehogs have not been recorded here, but are likely to be present.

Hedgehogs are a United Kingdom Biodiversity Action Plan Species, because of a sharp decline in their populations.

### **6.3.2 Restoration Phase**

The restoration of the shrub and ground flora layers in the woodland and the provision of log piles will benefit Hedgehogs.

### **6.3.3 Longer Term (Two to ten year) Management**

A strong population of Hedgehogs may be established



## **6.4 Bats**

All species of Bats are European Protected Species.

### **6.4.1 Survey Results**

No bat roosts have been identified on the proposed development site, but there is considerable potential for bats in the woodland areas, due to the number of dead or damaged trees with suitable cracks and hollows. The stable block is unlikely to support bats.

Evening surveys showed that two to three Common Pipistrelle Bats were present feeding over the site. These might originate from the houses to the north.

### **6.4.2 Restoration Phase**

Normal survey and working practices to minimise risks to bats will be in place during the removal of the stables and when trees have to be felled.

Provision for bats is being built into the structure of the house, with “Schwegler” or similar high quality artificial roosts being incorporated into suitable points on the building. Since there are a large number of trees with potential roost holes, there is little need for bat boxes in the woodland.

### **6.4.3 Longer Term (Two to ten year) Management**

The usage of the boxes and the habitats on the site will be monitored.

## **6.5 Great Crested Newts**

Great Crested Newts are a European Protected Species.

### **6.5.1 Survey Results**

Great Crested Newts are present on Cleadon Hills, about one kilometre to the north, and were formerly present at Boldon Flats, to the west. The 2013 Phase 1 report considered the likelihood of this species being present at Undercliff using the “Habitat Suitability Index” method, and concluded that their presence was very unlikely, mainly because of the poor water quality.

### **6.5.2 Restoration Phase**

The restoration phase for the pond will immediately increase aquatic plants and animals, but Great Crested Newts require a more mature pond.

### **6.5.3 Longer Term (Two to ten year) Management**

When the restoration of the pond has produced sufficient amounts of aquatic plants and invertebrates it should be suitable for Great Crested Newts. Natural colonisation is unlikely to occur from the ponds one kilometre distant on Cleadon Hills. Since this is a European Protected Species, a license would be required to introduce them to the pond.

The introduced animals would be sourced under license from a flourishing population elsewhere, or from animals that are being relocated as a result of a licensed development elsewhere.

## **6.6 Common Toad**

### **6.6.1 Survey Results**

Common Toads have not been recorded here, and are unlikely to be present. Common Toads are a United Kingdom Biodiversity Action Plan Species, because of a sharp decline in their populations.

### **6.6.2 Restoration Phase**

The restoration of the pond and the shrub and ground flora layers in the woodland and the provision of log piles will provide suitable habitat for Common Toads.

### **6.6.3 Longer Term (Two to ten year) Management**

There is a small possibility of Toads arriving from elsewhere naturally, or a residual population being present from before the pond was polluted. Otherwise, Common Toad can be introduced as tadpoles from another South Tyneside site once the pond is thriving. It should be possible to establish a strong population.