

**Whitcher Wildlife Ltd.
Ecological Consultants.**



**LAND OFF PARK SPRINGS ROAD,
MIDDLECLIFFE.**

OS REF: SE 425 051.

ECOLOGY SURVEY.

Ref No:- 150655.

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1. INTRODUCTION.

1.1. Remediation and drainage works are to be carried out to rectify flooding of arable land to the northeast of Park Springs Road, Middlecliffe. The problem apparently occurred following the construction of Park Springs Road a number of years ago.

1.2. Whitcher Wildlife Ltd has been commissioned to carry out an ecology survey of the site to establish whether there are any issues that may affect the proposed works.

1.3. The initial site survey was carried out on 15th June 2015 and this report outlines the findings of that survey and makes appropriate recommendations.

1.4. Appendices I to IV of this report provide additional information on specific species and are designed to assist the reader to understand the contents of this report.

2. SURVEY METHODOLOGY.

2.1. Prior to visiting the site the survey area was cross referenced to maps and aerial photographs to give a general idea of the habitats and potential issues within the area and to identify potential access and walking routes.

2.2. The survey area and immediate surrounding area was thoroughly searched for evidence of badger (*Meles meles*) activity by looking for the following signs in line with Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*. Mammal Society:-

- * Badger setts.
- * Badger latrines or dung pits.
- * Badger snuffle holes and evidence of foraging.
- * Badger paths.
- * Badger prints in areas of soft mud.
- * Badger hairs caught on fencing.

2.3. The survey area was searched for watercourses and where found all watercourses within the survey area and for approximately 50m in each direction were thoroughly searched for evidence of water vole (*Arvicola amphibius*) activity by looking for the following signs, in line with Rob Strachan, Tom Moorhouse and Merryl Gelling (2011). *Water Vole Handbook: Third Edition*:-

- * Water vole burrows.
- * Water vole faeces and latrines.
- * Water vole feeding stations.
- * Water vole runs.
- * Water vole prints in areas of soft mud.
- * Water vole lawns.
- * Predator field signs.

2.4. The survey area was searched for watercourses and where found all watercourses within the survey area and for approximately 50m in each direction were thoroughly searched for evidence of otter (*Lutra lutra*) activity by looking for the following signs in line with the P Chanin (2003). *Monitoring the Otter and Conserving Natura 2000 Rivers: Monitoring Series No10 Guidelines*:-

- * Otter prints in soft mud.
- * Otter spraints.
- * Otter Holts.

2.5. The survey area was searched for mature trees and derelict buildings and where found these were checked for potential bat roosting sites in line with L. Hundt (2012).

Bat Conservation Trust Good Practice Guidelines by looking for the following signs:-

- * Holes, cracks or crevices.
- * Bat Droppings.

2.6. The survey area was searched for watercourses and waterbodies. Where found, and where safe to enter the water, all were thoroughly searched for the presence of crayfish, for approximately 50m in each direction of the site, by searching under rocks and logs. Where stated, crayfish traps were also deployed into the watercourse. All survey work was carried out in accordance with the *Conserving Natural 2000 Rivers Monitoring Series No 1, Protocol for Monitoring the White Clawed Crayfish*.

2.7. The survey area was searched for mature trees and derelict buildings and where found these were checked for potential bat roosting sites in line with L. Hundt (2012).

Bat Conservation Trust Good Practice Guidelines by looking for the following signs:-

- * Holes, cracks or crevices.
- * Bat Droppings.

2.8. The land immediately adjacent to the survey area was assessed for bat roosting potential and bat foraging potential. Connective routes and flight lines were also assessed whilst on site and using maps of the area.

2.9. The area within 500m of the survey site was cross referenced to maps to highlight all ponds close to the site. Where possible, all ponds identified were accessed using agreed access or public rights of way to assess the potential for great crested newts (*Triturus cristatus*) to be present.

2.10. Where appropriate, the habitat within and surrounding the survey area was searched for species such as hazel, oak, honeysuckle, bramble and other species which may provide potential habitat for hazel dormice (*Muscardinus avellanarius*). Field signs such as feeding remains and nests were also searched for where possible, in line with P Bright, P Morris and T Mitchell-Jones *The Dormouse Conservation Handbook 2nd Ed.*

2.11. Where appropriate, the area within and surrounding the survey area was assessed for its potential to house habitat for red squirrels. Field signs of red squirrels were searched for at least every 50m, looking for any dreys, feeding signs or sightings of red squirrels.

2.12. All surveys were carried out in line with the Chartered Institute of Ecological and Environmental Management (CIEEM) survey standards and advice.

2.13. The survey was undertaken by Derek Whitcher who has over twenty years' experience of surveying for wildlife and has run his own wildlife consultancy since 1998. He has extensive experience of a wide variety of survey techniques for a variety of species of protected wildlife supplemented by attendance on a wide range of training courses through CIEEM, FSC and BCT. As a member of CIEEM he is committed to continuous professional development, a continual process of learning and career development, a condition of CIEEM membership. He holds current Natural England survey licences for barn owl, bat, great crested newt and white clawed crayfish.

3. SURVEY RESULTS.

3.1. Data Search Results.

3.1.1. An internet data search was carried out for existing records of protected species and designated sites within the area around the site.

3.1.2. The MAGIC website holds records of a number of RSPB reserves shown in blue, Carlton Brickworks SSSI to the north, West Haigh Wood Local Nature Reserve to the north and Carlton Marsh Local Nature Reserve to the northwest.



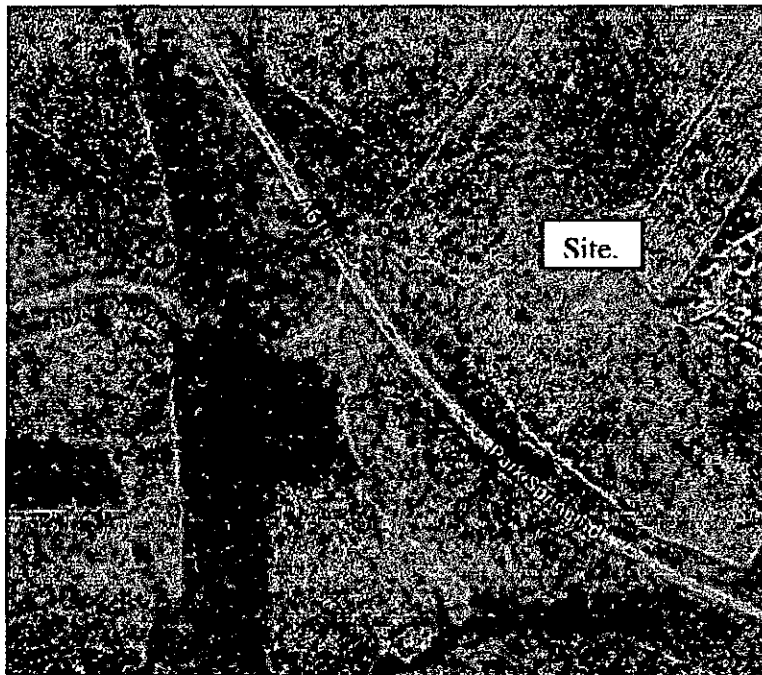
3.1.3. All of these sites are at sufficient distance from the site to be totally unaffected by any works at the site in question.

3.1.4. There are records of a number of species in the surrounding area but none are of relevance to this site.

3.2. The Surveyed Area.

3.2.1. The site lies at the bottom of an arable field to the northwest with the village of Middlecliffe beyond.

3.2.2. Adjacent to the site there is a footpath and a scrub covered sloping bank up to Park Springs Road.



3.2.3. Between the footpath and the site there has been planted a hedgerow, immediately outside the post and wire boundary fence. However, many of the hedgerow plants have died, probably because the plants are growing in standing water when the area floods.

3.2.4. Beyond the fence, in the bottom of the arable field there is the flooded area. The vegetation comprises predominantly reedmace and phragmites with the occasional self-seeded alder.

3.2.5. The photograph below shows the footpath, the dead hedgerow, boundary fence and the site itself.



3.3. Survey Results.

3.3.1. No badger setts or badger field signs were identified in the survey area.

3.3.2. There is no flowing watercourse in the survey area but there is a ditch. However, the water level on the site varies from a relative low level at the time of the survey on the one hand to a flooded area where the footpath is submersed on the other hand. This habitat is unsuitable for water voles, otters or white clawed crayfish.

3.3.3. The only area of standing water is the site itself and as already stated the depth of water fluctuates considerably. The site is unlikely to be suitable for great crested newts as it can dry up early in the season before efts have moved into their terrestrial phase.

3.3.4. The site was visited at the end of the great crested newt survey season, at a time when it was too late to carry out great crested newt surveys. Therefore a water sample was taken and sent to FERA to analyse under the new e-DNA protocol. The results of that analysis are that there was no great crested newt DNA found in the sample and therefore there have been no great crested newts in this pond this breeding season. The full results are provided in Appendix VI.

3.3.5. There are no mature trees or buildings on the site to provide potential bat roosting opportunities.

3.3.6. Bats may forage over the area although the area is not ideal bat foraging territory. A full assessment of the bat foraging activity is not necessary as the proposed works will not impact on the foraging territory.

3.3.7. The vegetation on and around the site is suitable for a variety of birds to nest in during the nesting season.

3.3.8. The site has a low potential for reptiles as the suite is surrounded by arable fields on one side and a busy road on the other.

3.3.9. No alien invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 were identified on the site.

4. EVALUATION OF FINDINGS.

4.1. None of the designated sites are close to the site and therefore there will be no impact on those sites.

4.2. No badger setts or badger field signs were identified in the survey area and therefore draining this area will have no impact on the species.

4.3. There is no flowing watercourse in the survey area but there is a ditch. However, the water level on the site varies from a relative low level at the time of the survey on the one hand to a flooded area where the footpath is submersed on the other hand. This habitat is unsuitable for water voles, otters or white clawed crayfish and the draining of this area will have no impact on these species.

4.4. The only area of standing water is the site itself and as already stated the depth of water fluctuates considerably. An e-DNA sample of the water showed that there have been no great crested newts breeding in this water this year and therefore the drainage works will have no impact on great crested newts.

4.5. There are no mature trees or buildings on the site to provide potential bat roosting opportunities and therefore the drainage works will have no impact on roosting bats.

4.6. Bats may forage over the area although the area is not ideal bat foraging territory. The works will not fragment bat foraging habitat and will therefore have no impact on foraging bats.

4.7. The vegetation on and around the site is suitable for a variety of birds to nest in during the nesting season and therefore any vegetation clearance in the nesting season would have a high impact on nesting birds.

4.8. The site has a low potential for reptiles as the suite is surrounded by arable fields on one side and a busy road on the other and therefore the works will have no impact on reptiles.

4.9. No alien invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 were identified on the site and therefore the proposed drainage will not cause such species to spread.

5. RECOMMENDATIONS.

5.1. It is recommended that any necessary vegetation clearance is carried out outside the nesting bird season, which extends from March to September.

5.2. Any vegetation clearance within the nesting season should be immediately preceded by a nesting bird survey and any nests found must be left undisturbed until the young have fledged.

5.3. The dead hedgerow should be reinstated with a mixture of native species including hawthorn and holly.

5.4. The site has a relatively low ecological value and therefore there are no additional recommendations.

Prepared by:	
Derek Whitcher. BSc, MCIEEM, MCMI.	Date: 17 th July 2015.

Checked by:	
Steven Whitcher. MCIEEM.	Date: 17 th July 2015.

Appendix I.

BACKGROUND GREAT CRESTED NEWT INFORMATION.

The great crested newt population has suffered a major decline in Britain over the last century. Numerous ponds have been lost, unmanaged ponds have become silted up and over-shaded, development has destroyed ponds and associated terrestrial habitat and caused fragmentation of populations. The loss of grassland, scrub and woodland has resulted in fewer opportunities for foraging, dispersal and hibernation.

The UK Biodiversity Plan (BAP) contains a great crested newt Species Action Plan (SAP) aimed at maintaining its existing range and population status, as well as increasing the number of populations through re-colonisation.

The great crested newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000. The great crested newt is therefore subject to the provisions of Schedule 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt.
- Possess or control any live or dead specimen or anything derived from a great crested newt.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt.
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place, which it uses for that purpose.

The great crested newt is also listed on Regulation 41 of the Conservation of Habitats and Species Regulations 2010. Regulation 41 makes it an offence to:

- Deliberately capture or kill a great crested newt
- Deliberately disturb a great crested newt.
- Deliberately take or destroy the eggs of a great crested newt.
- Damage or destroy a breeding site or resting place of a great crested newt.

The legislation applies to all life stages of great crested newts.

The maximum fine on conviction of offences under Section 9 and Regulation 41 currently stands at £5,000. The CroW Act 2000 amendment also allows for a custodial sentence of up to six months instead of, or in addition to, a fine. In addition, items, which may constitute evidence of the commission of an offence, may be seized and detained.

In order to understand the potential effects of development it is essential to understand a little of the great crested newt ecology.

Great crested newts breed in ponds and other water bodies. They can begin to migrate to their breeding ponds as early as the first frost-free days in late January with the

majority reaching their breeding ponds by mid-March. Timing will be influenced by a number of factors, mainly evening temperatures above 5°C and recent rain.

The peak egg-laying period is from mid-March to mid-May. The newts will lay their eggs individually, mainly on the leaves of submerged plants. The larva hatch after three weeks and then take another 2-3 months to complete larval development. Adult newts generally leave their breeding ponds from late May onwards.

Once the larvae have completed metamorphosis (the transition from aquatic larvae to land-adapted juveniles, called efts), they emerge from the pond. This emergence begins in late August and generally continues until late October. It takes 2-4 years to reach sexual maturity, during which time the newts will be land based.

Adults and immature newts spend the winter in places that afford protection from frost and flooding. This will generally be underground amongst tree roots, in mammal burrows, or under suitable refuges above ground like deadwood or rubble piles. Hibernation may last from October to February.

Whilst on land, outside the hibernation period, great crested newts will forage at night, taking a wide range of invertebrate prey.

From the above, it can be seen that great crested newts spend the majority of their time on land and only visit the ponds for breeding purposes. As a result, surveys need to be timed very carefully. Terrestrial surveys are very inaccurate and the only time that surveys can be truly thorough is in the narrow window of opportunity between March and September.

Great crested newts will travel large distances between ponds and terrestrial refuges. It is recommended that anywhere within 500m of a pond should be treated as potential great crested newt habitat and should be surveyed and evaluated.

An experienced surveyor must carry out the surveys and must be in possession of an appropriate Natural England great crested newt survey licence.

It is essential that great crested newt surveys are planned well in advance of any development and ideally before Planning Consent is sought. Surveys can only be carried out at the appropriate time of year and repeat surveys are essential. The guidelines suggest that between four and six surveys need to be carried out, three of these between mid-March and mid-June.

If great crested newts are to be effected by any development, a thorough assessment of the population is essential followed by the design of a comprehensive mitigation package. Only when this has been done can a licence application be submitted to Natural England for approval. It takes 30 working days for a licence application to be determined and the period of time that mitigation measures take can be measured in months. It is therefore essential to plan well in advance of development commencing.

Appendix II. NESTING BIRD INFORMATION.

It is necessary to understand a little about the legal protection offered to nesting birds in order to evaluate the findings of this report.

Part 1.-(1) Of the Wildlife and Countryside Act 1981 states that:-

If any person intentionally:-

- (a) kills, injures or takes any wild bird;
- (b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- (c) takes or destroys an egg of any wild bird,

he shall be guilty of an offence.

Part 1.-(5) of the Act states that:-

If any person intentionally:-

- (a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on, or near a nest containing eggs or young; or
- (b) disturbs dependant young of such a bird,

he shall be guilty of an offence and liable to a special penalty.

The Countryside and Rights of Way Act 2000 amends the above by inserting after "intentionally" the words "or recklessly".

The nesting season will vary according to the weather each year but generally commences in March, peaks during May and June and continues until September.

It is also worth remembering that some birds nest in trees, scrub and buildings but others are ground nesting.

The best way to avoid this issue is to plan for vegetation clearance to be carried out outside the bird-nesting season.

Appendix III.

REPTILES - GRASS SNAKE AND ADDER INFORMATION.

The grass snake (*Natrix natrix*) and the adder (*Vipera berus*) are the two most common snakes to be found in the UK. Adders are found all over Britain while the grass snake becomes rarer towards the north and are rarely found in Scotland.

The grass snake is usually around 120cm long, live in a variety of rough habitats and lay their eggs in warm rotting vegetation. The background colour is dark green and the body is marked with vertical black bars and spots that run along its sides. There is generally a dark collar marking.

The adder is the only native species that is venomous but this is rarely harmful to humans. Adult adders are generally up to 66cm long. Background colouration is a light shade of grey or brown with a black zigzag marking along the length of the back. As with all reptiles, colouration varies and becomes duller as sloughing (skin shedding) approaches.

Both snakes hibernate, spending the winter in burrows or under logs protected from the cold and predators. Maintaining the right body temperature is vital to reptiles' survival. In the morning, they find a warm basking site to heat up their bodies, then later they may move back into the shade because they do not sweat and have to be careful not to overheat. During hot summers, adders will try to move to damper, cooler sites.

Both snakes are protected under schedule 5 of the Wildlife and Countryside Act 1981. They received greater protection following reviews of the schedules published in 1988 and 1991. This means they are protected against intentional or recklessly killing and injuring and against sale or transporting for sale.

Appendix IV. REPTILES - LIZARD INFORMATION.

The common or viviparous lizard (*Lacerta vivipara*) is one of three species of lizard that occur in the UK. They have a dry scaly skin and are variable in colour ranging from brown or yellow-brown to almost green with varying patterns of spots or stripes. The typical length of an adult is 150mm, including the tail.

Common lizards hibernate over the winter, emerging from February onwards depending upon the weather. They begin to mate in April and May and the young are born in late July or August. The lizard gives birth to live young, hence the term viviparous, meaning live bearing.

The lizards draw their body warmth from the sun and consequently spend long periods basking in the sun. They are commonly seen on road and railway embankments and on walls where they sit for long periods soaking up the heat of the sun before going to find food.

They occupy a wide range of habitats including woodland, marshes, heathland, moors, sand dunes, hedgerows and bogs.

Common lizards hunt insects, spiders, snails and earthworms. They stun their prey by shaking it and then swallow it whole.

At night, and when startled, they will shelter beneath logs or stones or under other refuges that may be available.

Common lizards are protected under schedule 5 of the Wildlife and Countryside Act 1981 (they received greater protection following reviews of the schedules published in 1988 and 1991) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) making it a European Protected Species.

Common lizards should not be confused with the somewhat larger sand lizard (*Lacerta agilis*). These are typically 190mm long and stockier than the common lizard. Their marking are distinctly different being considerably more colourful. Sand lizards are confined to moorland and coastal sand dunes where they lay their eggs in the warm sand. The range of the sand lizard in the UK is therefore very limited. Sand lizards are a European protected species.

The third species of lizard is the slow worm (*Anguis fragilis*), which is frequently mis-identified as a snake. The firm body of the slow worm is distinctly cylindrical in shape and the tiny smooth scales result in a very smooth, shiny appearance. Colouration is typically a uniform grey to brown although there is a wide variation from straw coloured to almost black and some animals have very fine stripes or a zig-zag along the centre of the back. The typical length of an adult is 400mm.

Slow worms can be found in a wide variety of habitats throughout Britain and is the most likely reptile to be found in urban and suburban environments.

Slow worms hibernate over the winter, emerging from March onwards depending upon the weather. They begin to mate in April and May and six to twelve young are born in August or September.

Their favourite food is slugs but they will also eat insects and spiders.

Slow worms are hard to find. They will bask in the sun but they quickly and quietly move into cover when disturbed and do not generally attract attention as they retreat from a basking spot.

Slow worms are also protected under schedule 5 of the Wildlife and Countryside Act 1981. They received greater protection following reviews of the schedules published in 1988 and 1991. This means they are protected against intentional or recklessly killing and injuring and against sale or transporting for sale.

Appendix V. e-DNA RESULTS.



DNA ANALYSIS REPORT Commercial in Confidence

Customer: Whitcher Wildlife Ltd
Address: Cliff Edge
Cliff Road
Darfield
Barnsley
S73 9HR

Contact: Derek Whitcher
Email: derek@whitcher-wildlife.co.uk
Tel: 07778660065

Report date: 17 July 2015

Order Number: GCN278

Samples: Pond Water

Analysis Requested: Detection of Great Crested Newt
eDNA from pond water.

Thank you for submitting your sample for analysis with the Fera eDNA testing service. The details of the analysis are as follows:

Method:

The method detects pond occupancy from great crested newts (GCN) using traces of DNA shed into the pond environment (eDNA). The detection of GCN eDNA is carried out using real time PCR to amplify part of the cytochrome 1 gene found in mitochondrial DNA. The method followed is detailed in Biggs J. *et al.* (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

The limits of this method are as follows: 1) the results are based on analyses of the samples supplied by the client and as received by the laboratory. 2) any variation between the characteristics of this sample and a batch will depend on the sampling procedure used. 3) the method is qualitative and therefore the levels given in the score are for information only, they do not constitute the quantification of GCN DNA against a calibration curve. 4) a 'not detected' result does not exclude presence at levels below the limit of detection.

The results are defined as follows:

Positive: DNA from the species was detected.

eDNA Score: Number of positive replicates from a series of twelve.

Negative: DNA from the species was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.

Inconclusive: Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided.



DNA ANALYSIS REPORT
Commercial in Confidence

Results:

Customer Reference	Fera Sample Ref.	GCN Detection	GCN Score	Inhibition	Degradation
-	515-070969	Negative	0	No	No

The results indicate that eDNA for great crested newts was not detected in the sample submitted. Analysis was conducted in the presence of the following controls: 1) Extraction blank 2) appropriate positive and negative PCR controls for each of the TaqMan assays (GCN, Inhibition, and Degradation). All controls performed as expected.

This test procedure was developed using research funded by the Department of Environment, Food and Rural Affairs, and was performed under the conditions of licensing arrangements with Applied Biosystems and patent rights owned by F. Hoffman-La Roche Ltd.

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