



Chorleywood Common (Site  
15A),  
Hertfordshire

## Ecological Impact Assessment

Prepared by  
CSA Environmental

on behalf of  
Three Rivers District Council

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## EXECUTIVE SUMMARY

A 'natural children's play area' is proposed at Chorleywood Common (Site 15A), Hertfordshire, for which detailed planning permission is sought. A shortlist of three Sites were considered within the Common as potential locations for the play area: Site 13, Site 15 and Site 15A. CSA Environmental was instructed by Three Rivers District Council to undertake a review of these three locations and to subsequently undertake an Ecological Impact Assessment (EclA) of the selected Site (15A).

A range of ecological investigations and surveys were completed out across the three Sites, with the following findings:

- Site 13: Broadleaved woodland, badger activity, GCN breeding pond within 250m
- Site 15: Unimproved acid/neutral grassland habitats supporting notable flora, slow-worm population
- Site 15A: Poor semi-improved grassland, secondary broadleaved woodland, slow-worm population

Based on the above findings and other environmental and design considerations, Site 15A was selected as a preferred location for the play area. The selection of this Site minimises potential adverse effects on Chorleywood Common LNR & LWS, as well as its component habitats and floral interest. Planting in the vicinity of the play area is proposed to further guide recreation away from sensitive adjacent grassland habitats. Mitigation measures have been set out for Site 15A in respect of reptiles (slow-worm) and bats. Safeguards have also been proposed to avoid effects on nesting birds.

Based on successful implementation of mitigation measures and other safeguards, no significant adverse effects are predicted as a result of the proposed play area construction and use.

## 1.0 INTRODUCTION

- 1.1 This report has been prepared by CSA Environmental on behalf of Three Rivers District Council. It sets out the findings of an Ecological Impact Assessment (EclA) of proposals for a natural play area at Chorleywood Common (Site 15A), Hertfordshire (hereafter 'the Site'), for which detailed planning permission will be sought. Two other sites within the Common, Site 13 and Site 15 were also considered as potential locations for the play area. These sites are therefore discussed briefly in the below report.
- 1.2 The scope of this assessment has been determined with due consideration for best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2016) and the *Biodiversity: Code of practice for planning and development* published by the British Standards Institute (BS 42020:2013).
- 1.3 The Site occupies an area of c. 0.3ha and is located around central grid reference TQ 02837 95854, to the south-east of Chorleywood. It consists of an area of poor semi-improved grassland surrounded by semi-mature trees and scrub, located to the south of Chorleywood Common (see Habitats Plan in Appendix A).
- 1.4 An initial desk study and extended Phase 1 Habitat survey were undertaken for sites 13 and 15 in February and for Site 15A in July 2017, the findings of which are presented herein. In addition, the following further survey work was undertaken between May and July 2017:
- Detailed botanical survey (May, June & July 2017)
  - Badger survey (April to July 2017)
  - Reptile survey (April to July 2017)
  - Great crested newt eDNA survey (May 2017)
- 1.5 This EclA aims to:
- Establish baseline ecological conditions at the Site.
  - Identify any likely significant effects of the proposed scheme, in the absence of mitigation, including cumulative impacts.
  - Set out any ecological measures necessary to effectively avoid or mitigate likely significant effects, and identify residual impacts.
  - Identify any compensation measures required to offset residual impacts.
  - Set out potential ecological enhancement measures that may be delivered by the proposed scheme.
  - Confirm how proposed mitigation, compensation and enhancement measures will be secured.

- Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation, and where appropriate, to allow conditions or obligations to be proposed by the relevant authority.

1.6 An EclA can be used for the appraisal of projects of any scale. This is a best practice evaluation process, recommended by CIEEM (2016). It is intended that the evaluation of findings presented here-in will aid the Three Rivers District Council in their review of the application.

## **2.0 LEGISLATION, PLANNING POLICY & STANDING ADVICE**

### **Legislation**

2.1 Legislation relating to wildlife and biodiversity of particular relevance to this EclA includes:

- The Conservation of Habitats and Species Regulations 2010 (as amended)
- The Wildlife and Countryside Act 1981 (as amended)
- The Natural Environment and Rural Communities (NERC) Act 2006
- The Protection of Badgers Act 1992

2.2 This above legislation has been addressed, as appropriate, in the production of this report. Further information on the above legislation is provided in Appendix B.

### **National Planning Policy**

2.3 The National Planning Policy Framework (NPPF) (Department for Communities and Local Government, 2012) sets out the government planning policies for England and how they should be applied. Chapter 11: Conserving and Enhancing the Natural Environment, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.

2.4 The Government Circular 06/2005, which is referred to by the NPPF, provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

### **Local Planning Policy**

2.5 A number of local planning policies relate to ecology, biodiversity and/or nature conservation. These are summarised in Table B.1 of Appendix B. These policies have been addressed, as appropriate, in the production of this report.

### **Standing Advice**

2.6 Natural England Standing Advice regarding protected species aims to support local authorities and forms a material consideration in determining applications in the same way as any individual response received from Natural England following consultation. Standing advice has therefore been given due consideration, alongside other detailed guidance documents, in the scoping of ecological surveys and production of this report.

## 3.0 METHODS

### Desk Study

- 3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) online database was reviewed in July 2017 to identify the following ecological features (based on the likely 'zone of influence' of such features):
- Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site.
  - Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature reserves (LNR) within 3km of the Site.
  - Other relevant data e.g. Ancient Woodland Inventory within 1km of the Site.
- 3.2 Hertfordshire Environmental Records Centre (HERC) was contacted for details of any non-statutory designated wildlife sites and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 1km of its central grid reference. This search area was selected to include the likely zone of influence of effects upon non-statutory designations and protected or notable habitats and species.
- 3.3 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts *Triturus cristatus*, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography.
- 3.4 All relevant desk study data are presented in Appendix C.

### Field Survey

#### Extended Phase 1 Habitat Survey

- 3.5 Extended Phase 1 habitat survey was carried out on 31 January and 27 July 2017 by Alexandra Cole GradCIEEM, encompassing the Site and immediately adjacent habitats that could be viewed.
- 3.6 Phase 1 Habitat survey is a method of classification and mapping wildlife habitats in Great Britain. It was originally intended to provide " *...relatively rapidly, a record of semi-natural vegetation and wildlife habitat over large areas of the countryside.*" The Phase 1 Habitat Survey method has been widely 'extended' beyond its original purpose to allow the capture of information at an intermediate level between Phase 1 and Phase 2 Habitat surveys. Here, the standard survey method has been 'extended' in this report to include the following:



- More detailed floral species lists for each identified habitat
- Descriptions of habitat structure, the evidence of management and a broad assessment of habitat condition
- Mapping of additional habitat types (e.g. hardstanding)
- Identification of Priority Habitats under Section 41 of the NERC Act
- Identification of Habitats Directive Annex I habitat types
- Evidence of, or potential for, European Protected Species (EPS) (including bats, great crested newt, dormouse and otter)
- Evidence of, or potential for, other protected species (including birds, reptiles, water vole, badger and certain invertebrates)
- Evidence of, or potential for, other notable species (including S41 Species of Principle Importance as well as notable, rare, protected or controlled plants and invertebrates)

3.7 Results of the extended Phase 1 Habitat survey are presented herein, with a floral species list provided in Appendix D. Site 15A is also illustrated on the Habitats Plan in Appendix A.

#### Further Survey Work

3.8 The following detailed field survey work was carried out between April and July 2017, with full methods and results provided in the relevant Appendices:

- Detailed Botanical Survey (Appendix D)
- Badger Survey (Appendix F)
- Reptile Survey (Appendix G)
- Great Crested Newt Habitat Suitability Index and eDNA (Appendix H)

#### **Evaluation and Assessment**

3.9 Ecological features are identified, evaluated and assessed with due consideration for the CIEEM Guidelines for Ecological Impact Assessment (2016), with detailed methods provided in Appendix E.

## 4.0 BASELINE ECOLOGICAL CONDITIONS

### Designations

#### Statutory

- 4.1 No statutory international designations of nature conservation interest are present within 10km of the Site.
- 4.2 Two national designations of nature conservation interest are present within 3km of the Site. As Sites of Special Scientific Interest (SSSIs) are administered and designated under national legislation, these sites are considered to be important at the National level.
- 4.3 Four statutory local designations of nature conservation interest are present within 3km of the Site, including Chorleywood Common Local Nature Reserve (LNR) which the Site is located within.
- 4.4 These statutory designations are described in Table 1 below.

#### Non-Statutory

- 4.5 Seven non-statutory designations of nature conservation interest were identified within 1km of the Site, including Chorleywood Common Local Wildlife Site (LWS) which the Site is located within. These non-statutory designations are described in Table 1 below.
- 4.6 As LWS's are designated according to criteria applied in a county context, these sites are considered to be ecologically important at the County level.

**Table 1.** Statutory and non-statutory designations within search radii

Site Name & Designation	Distance & Direction from Survey Area	Brief Description of Designated Site
National Designations within 3km		
Sarratt Bottom SSSI	c. 2.9km north-east	An area of alluvial meadow beside the River Chess. The designation is an example of damp, species rich, unimproved neutral grassland, traditionally managed for grazing and characteristic of lowland Britain. The rich plant communities show a transition from damp grassland to marsh and swamp; the latter bordering a river overflow channel which traverses part of the site and provides an important aquatic habitat. Some locally rare species are recorded.
Frogmore Meadows SSSI	c. 3km north-west	Two alluvial meadows surrounded by mature hedgerows beside the River Chess. Damp, species-rich, unimproved

		neutral grassland grades into drier, acidic areas where the soil becomes more free draining. Marshy areas and tall fen communities at the river's edge add diversity to the plant communities.
Local Designations within 3km		
Chorleywood Common LNR	The Site lies within Chorleywood Common LNR	The designation combines acid heathland, neutral grassland and chalk meadow, together with a series of ponds supporting rare plants, amphibians and secondary woodland. 70 plant species, 50 birds and almost 300 fungi have been recorded on the Common in addition to squirrels, rabbits, foxes, hedgehogs, voles, woodmice and Muntjac deer.
Chorleywood House Estate LNR	c. 1km north-east	A 68ha site combining formal parkland, open meadows and mature woodland leading down to the banks of the River Chess. The network of woodlands includes ancient and secondary woodland. Protected species include coralroot bittercress <i>Cardamine bulbifera</i> .
Stockers Lake LNR	c. 2.7km south-east	One of the oldest gravel pits in the Colne Valley and supports wintering duck populations in nationally important numbers. There are over sixty recorded species of breeding birds, including the common tern <i>Sterna hirundo</i> which breeds on specially constructed rafts in the lake. The heronry is the largest in the county.
Rickmansworth Aquadrome LNR	c. 2.8km south-east	Previously used for gravel extraction, the site comprises lakes, grassland and woodland, with public access and parking.
Non-statutory Designations within 1km		
Chorleywood Common LWS	The Site lies within Chorleywood Common LWS	Common land, situated on glacial sands and gravels overlying chalk, supporting a wide variety of habitats. The high ground supports acid/heathland communities which merge into neutral grasslands on the slopes. Areas of herb-rich chalk grassland also occur. Secondary woodland, predominantly of pedunculate oak <i>Quercus robur</i> and silver birch <i>Betula pendula</i> , with numerous bracken <i>Pteridium aquilinum</i> glades has developed over a large part of the site. There are several ponds containing county rarities including bogbean <i>Menyanthes trifoliata</i> and

		bladderwort <i>Utricularia australis</i> . Five species of amphibians have been recorded from the ponds.
Wearing's Field LWS	c. 0.4km south-west	Neutral grassland situated on a moderate south-facing slope with an area of old semi-natural broadleaved, possibly ancient, woodland in the centre. The grassland grades from largely unimproved in the east to a more uniform semi-improved sward in the west.
Darvell's Meadow / Homefield Meadow LWS	c. 0.5km north-west	Two fields supporting old, unimproved neutral to calcareous grassland supporting a good diversity of grasses and herbs.
Shepherd's Lane Wood LWS	c. 0.7km south	Designated for its ancient woodland with a semi-natural canopy and ancient features the site features old secondary and ancient semi-natural broadleaved woodland composed predominantly of pedunculate oak, hornbeam <i>Carpinus betulus</i> and ash <i>Fraxinus excelsior</i> with dense scrub.
Home Wood & Round Spring (Chorleywood) LWS	c. 0.8km east	Old secondary, semi-natural broadleaved woodland with remnant ancient woodland bisected by the M25 motorway.
Pheasant's Wood LWS	c. 0.8km south-east	Designated for its ancient woodland, this is a large woodland site bisected by the M25. The southern section of the woodland is of ancient origin with the northern part largely secondary.
Chorleywood College LWS	c. 0.9km north-east	An area supporting remnant old neutral to acid grasslands with some semi-natural woodland and mixed planting around the boundary and to the south-east. The site is important for protected species with great crested newt <i>Triturus cristatus</i> , badger <i>Meles meles</i> and bats recorded.

### Ancient Woodland

- 4.7 There is no designated Ancient Woodland covering any part of the Site or on immediately adjacent land.

### **Habitats and Flora**

#### Notable Flora Records

- 4.8 HERC provided 90 records of 30 notable plant species from within the search area. The majority of records provided were located on or around Chorleywood Common and include bluebell *Hyacinthoides*

*non-scripta*, heather *Calluna vulgaris*, harebell *Campanula rotundifolia*, eyebright *Euphrasia nemorosa*, tormentil *Potentilla erecta* and coralroot *Cardamine bulbifera*.

- 4.9 None of the above listed species were identified within Site 15A, harebell was found on Site 15, and bluebell was found within woodland adjacent to, but not within Site 13.

#### Habitats

- 4.10 The following habitats were recorded on-site and classified in line with current Phase 1 habitat species guidance (JNCC, 1990), as illustrated in Appendix A. Detailed species lists for each habitat are provided in Appendix D.

#### *Unimproved Acid/Neutral Grassland*

- 4.11 Site 15 is dominated by unimproved acid grassland to the north, grading to neutral grassland to the south. This mosaic of grassland is rare within Hertfordshire although typical across the remainder of the common. Anecdotal records star-of-Bethlehem *Ornithogalum umbellatum ssp. campestre* are known for the Site although are not found in other locations on the Common. The grassland is understood to be cut annually with arisings lifted, as set out in the Chorleywood Common Management Plan.

- 4.12 The grassland at Site 15 is of significant ecological interest and is considered, alone, to be importance at the **Local** level, falling short of county importance only due to its restricted extent.

#### *Poor Semi-improved Grassland*

- 4.13 Much of Site 15A comprises short, poor semi-improved grassland with common grass and herb species. No particular trophic conditions have been identified. A number of informal footpaths are present and in some areas have been worn away to bare ground.

- 4.14 Given the very small extent of the grassland and limited species diversity, the grassland present within Site 15A would not meet the criteria for any Section 41 Priority Habitat, nor would it meet the selection criteria for Local Wildlife Sites in Hertfordshire. This habitat is therefore not considered to be of significant ecological importance.

#### *Woodland*

- 4.15 Site 13 comprises a secondary woodland dominated by silver birch *Betula pendula* and oak *Quercus robur*, with a limited understory mostly comprising bramble *Rubus fruticosus* agg. and bracken *Pteridium* sp.

- 4.16 The edge habitats of Site 15 comprise a small stretch of scrub along the northern boundary, with the western boundary adjacent to the secondary woodland along the eastern edge of Site 15A.

- 4.17 Site 15A is bound on all sides by secondary woodland, mainly comprising oak, ash *Fraxinus excelsior* and hawthorn *Crataegus monogyna*, with some field maple *Acer campestre*, cherry *Prunus* spp., hornbeam *Carpinus betulus* and hazel *Corylus avellana*. The understory comprises bramble with occasional holly and ivy and limited ground flora. Given the structure and species diversity, the woodland would not meet the criteria for any Section 41 Priority Habitat and falls short of the criteria for Local Wildlife Sites in Hertfordshire. This habitat is therefore not considered to be of significant ecological importance.

## **Fauna**

### Bats

- 4.18 HERC have provided 31 records of bats from within the search area dating from 1985 to 2011. Species recorded include common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, noctule *Nyctalus noctula* and Natterer's bat *Myotis nattereri*. A single record of common pipistrelle was provided for Chorleywood Common, dating from 1996 for a foraging bat.
- 4.19 Habitats across all sites provide foraging opportunities for bats albeit small areas. No trees across any site were noted to have significant roosting opportunities, with no Potential Roosting Features (PRFs) identified. However, Site 15A included a number of trees with dense ivy cover which may obscure small PRFs which could be utilised by small numbers of roosting bats.

### Badger

- 4.20 Three records for badger *Meles meles* have been provided by the HERC from within the search area, dating from 2002 and 2007. A further two historical records have been provided dating from 1985.
- 4.21 A single badger latrine was identified within Site 13, no signs of badger were identified at Sites 15 and 15A. All three sites offer sett digging and/or potential for foraging and dispersing badgers within the area.
- 4.22 Badgers are protected under the Protection of Badgers Act 1992 and are therefore included in the assessment of effects below in the context of this legislation.

### Dormouse

- 4.23 The HERC have not provided any records of dormouse *Muscardinus avellanarius* from within the search area and they are not understood to have ever been recorded at Chorleywood Common. Site 15 lacks the habitat to support dormouse, with Sites 13 and 15A providing suboptimal woodland opportunities, given limited structural and botanical diversity. Therefore, dormouse are considered likely absent from the Site and are not considered further in this assessment.

### Water Vole & Otter

- 4.24 HERC have provided a single, historic record for water vole *Arvicola amphibius*, dating from 1987 and no records for otter *Lutra lutra*. The River Chess is located c. 1.7 to 1.8km to the north-east of the three sites, however, it is separated from the sites by the A404. Habitats within the sites are not suitable for either of these species and therefore water vole and otter are not considered further in this report.

### Brown Hare

- 4.25 The HERC have provided two, historic records for brown hare *Lepus europaeus* from 1985. None of the habitats within the three sites or across Chorleywood Common are suitable to support this species and therefore it is not considered further in this assessment.

### Hedgehog

- 4.26 HERC have provided two, historic records for hedgehog *Erinaceus europaeus* from 1985. No evidence of hedgehog was recorded during surveys of the sites. However, grassland and woodland habitats within the three sites provide foraging and refuge opportunities for this species. Given the restricted size of each of the sites, any unidentified populations of hedgehog are unlikely to be of a significant ecological importance and as such fall below the local level. Hedgehog are not considered further in this assessment.

### Birds

- 4.27 HERC have provided 629 records of 57 species of bird from within the search area. The woodland habitat within all three sites provides nesting and foraging opportunities for a range of common bird species.
- 4.28 Wild birds, their active nests and their eggs are protected under the Wildlife and Countryside Act 1981 (as amended) and therefore birds are included in the assessment of effects below, in the context of this legislation.

### Reptiles

- 4.29 Reptile presence/likely absence surveys were undertaken across the three Sites but surveying only the eastern boundary of Site 15A.
- 4.30 No reptiles were identified within Site 13. A peak count of six adult slow-worm were recorded within Site 15/15A, with full results are provided in Appendix G. This indicates a 'good' population in accordance with Froglife (1999), 'low' population in accordance with HGBI guidelines (1998), or 'small' population in accordance with retracted NE Guidelines (2011) [6 peak count within 0.4ha]. Slow-worms were recorded within suitable habitat along the northern and western boundaries of Site 15 and eastern boundary of Site 15A.

### *Importance*

- 4.31 Overall, given the limited extent of habitat available for slow-worm, and the relatively limited numbers recorded, the reptile population associated with Site 15 and 15A is predicted to fall short of the threshold for significant ecological importance. However, slow-worms are protected from killing and injury under The Wildlife and Countryside Act 1981 (as amended) and therefore slow-worms are included in the assessment of effects below, in the context of this legislation.

### Amphibians

- 4.32 HERC have provided 37 records of two species of amphibian (great crested newt *Triturus cristatus* and common toad *Bufo bufo*) from within the search area, dating from 1981 to 2015.

### *Great Crested Newt*

- 4.33 A single pond is located within 250m of Site 13 and within 500m of Sites 15 and 15A (TQ 02940 96200). An eDNA survey conducted on this pond in May 2017 confirmed GCN are present within this pond.
- 4.34 Sites 15 and 15A provide some suitable foraging, dispersal and refuge opportunities for great crested newt, however, given the restricted size of these sites and the fact that they are isolated by the railway line to the north and a road, it is not considered that these sites would support a GCN population of significant ecological importance. However, woodland and dense scrub within all three sites provide hibernation and refuge opportunities for GCN from nearby ponds and there remains some risk of GCN being effected by proposals. As such, GCN have been considered within this report in respect of their legislative protection.

### Invertebrates

- 4.35 HERC have provided 2979 records of 128 species of invertebrates from within the search area, dating from 1878 to 2014.
- 4.36 Both the woodland and grassland habitats across the three sites are likely to support a wide range of terrestrial invertebrate species. However, there is no indication that each of the small Sites would support a particularly large or notable assemblage.

## **Summary of Ecological Features**

- 4.37 Table 2 below summarises all important or legally protected ecological features identified within their respective zones of influence, along with their geographic context of importance and/or protection status:



**Table 2.** Summary of important ecological features and their geographic context

Ecological Feature	Geographic Context of Importance and/or Protection Status		
	Site 13	Site 15	Site 15A
Sarratt Bottom SSSI	<b>National</b>		
Frogmore Meadows SSSI	<b>National</b>		
Chorleywood Common LNR/LWS	<b>County</b>		
Other LNR (no.3)	<b>County</b>		
Other LWS (no.6)	<b>County</b>		
Unimproved Neutral/Acid Grassland	-	<b>County</b>	-
Woodland	<b>Local</b>	-	<b>Local</b>
Bats	Protected Species (The Wildlife and Countryside Act 1981 (as amended); The Conservation of Habitats and Species Regulations 2010 (as amended))		
Badger	Protected Species (Protection of Badger Act 1992)		
Nesting birds	Protected Species (The Wildlife and Countryside Act 1981 (as amended))		
Reptiles	-	Protected Species (The Wildlife and Countryside Act 1981 (as amended); The Conservation of Habitats and Species Regulations 2010 (as amended))	
Great Crested Newt	Protected Species (The Wildlife and Countryside Act 1981 (as amended); The Conservation of Habitats and Species Regulations 2010 (as amended))	-	-

### Site Selection

- 4.38 Of the three sites surveyed, Site 15 is of the highest ecological importance, comprising unimproved acid/neutral grassland with areas of scrub and trees along it's the northern and western boundaries. This Site was excluded from site selection primarily on these grounds, despite optimal location for potential use by the local residents.
- 4.39 Sites 13 and 15A comprise lower importance habitats, with Site 13 as secondary woodland with limited ground flora/understorey and Site 15A dominated by poor semi-improved grassland, albeit with the presence of a population of slow-worms. The selection of either Site 13 or 15A would likely have similar ecological impacts.
- 4.40 However, as the preferred Site location for use by local residents, Site 15A was selected, with a full Ecological Impact Assessment (EclA) set out below.

## 5.0 ASSESSMENT OF EFFECTS

5.1 Proposals at the Site comprise the following within Site 15A:

- Erection of a 'natural' style children's play area
- Removal of an area of poor semi-improved grassland c. 0.1ha, to be replaced with a suitable floor covering for the playground
- Felling and thinning of trees/scrub within the site and along the southern boundary
- Planting of diverse new trees and shrubs along the eastern and northern play area boundary

### Assessment of Likely Significant Effects

#### Sarratt Bottom SSSI & Frogmore Meadows SSSI

##### *Predicted Effects*

5.2 No potential pathways of impact are anticipated on these SSSIs primarily given their relative distance from the proposed play area. In addition, any changes to patterns of recreation caused by the play area are not anticipated to be detrimental to the SSSIs.

#### Chorleywood Common LNR/LWS

##### *Predicted Effects*

5.3 The provision of a children's play area will necessitate the removal of a small area of trees, scrub and poor semi-improved grassland. This direct loss of habitat is not anticipated to significantly impact the integrity of the LNR/LWS and its component habitats and flora, with no priority habitats lost (i.e. acid grassland/heath or herb-rich chalk grassland).

5.4 The provision of a new play area has the potential to attract additional or divert existing footfall within the common, primarily related to families walking to/from the play area. This could include trampling/soil compaction within adjacent grassland habitats to the east. Equally, there is potential for the play area to draw recreation away from other areas of the common, although extent of these effects are difficult to quantify.

5.5 Overall, in the absence of mitigation, a significant adverse effect at the **Local** level is predicted for Chorleywood Common LNR/LWS, with effects impacts predicted primarily to the southern end of the common.

##### *Mitigation Measures*

5.6 The Site is enclosed to the north and west, with footpaths to access the Site from the road to the south. New planting along the eastern boundary of the Site is proposed to prevent access between the play area and the adjacent grassland habitats. Native, locally appropriate

shrub and tree species will be planted to close gaps between the current woodland blocks and encourage those accessing the playground to use footpaths from the south, instead of walking through the acid/neutral grassland habitats. This is anticipated to reduce additional footfall and increased trampling/soil compaction to these sensitive habitats.

- 5.7 The above would be secured by an appropriately worded planning condition and/or intrinsic design measures.

*Residual Effects*

- 5.8 Subject to the implementation of the above mitigation no significant adverse residual effects are predicted.

Other LNRs & LWS

*Predicted Effects*

- 5.9 No potential pathways of impact are anticipated on other LNRs/LWSs primarily given their relative distance from the proposed play area. In addition, any changes to patterns of recreation caused by the new play area are not anticipated to be detrimental to these LNRs/LWSs.

Woodland

*Predicted Effects*

- 5.10 The provision of a children's play area will necessitate the felling and thinning of a small number of trees and an area of scrub. In addition the retained woodland, trees and scrub habitats are vulnerable to damage during the construction phase, such as through ground compaction, damage to roots and limbs. In the absence of mitigation a significant adverse effect on woodland is predicted at the **Local** level.

*Mitigation Measures*

- 5.11 Protection of retained trees and shrub will be implemented through suitable tree protection in accordance with BS 5837:2005, which could be secured by an appropriately worded planning condition.
- 5.12 To compensate for the loss of a small number of trees and scrub, infill planting is proposed along the railway to the north of the Site, in addition to planting along the eastern edge of the Site.

*Residual Effects*

- 5.13 Through the implementation of the above mitigation measures, no significant adverse effects are predicted.

## Bats

### *Predicted Effects*

- 5.14 Bats and their roosts are legally protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended).
- 5.15 The loss of a small area of grassland, trees and scrub habitat is not anticipated to significantly impact foraging resources for bats. Planting along the north and east of the Site is anticipated to compensate for the minimal loss of any foraging.
- 5.16 No substantial Potential Roosting Features (PRFs) were identified on trees which have potential to support roosting bats. However, a number were covered in ivy which may have obscured smaller roosting features and are therefore considered to be of 'Low' suitability for roosting bats. There is therefore a limited risk of potential infringement and therefore a precautionary approach to felling is set out below.

### *Mitigation*

- 5.17 A precautionary approach to felling/tree surgery is required for all trees classified as being of 'Low' suitability for roosting bats. This will involve careful removal of any ivy, where present, followed by an inspection of any PRFs by a suitably qualified ecologist. In the unlikely event that a bat roost is identified and would be unavoidably affected by any scheduled works, a European Protected Species (EPS) licence from Natural England is likely to be required before the scheduled works to that tree can be undertaken. If no bats or evidence of roosting bats is recorded, the scheduled works can proceed carefully, under the direct supervision of a suitably qualified ecologist, whereby any limbs and tree sections which exhibit PRFs (such as but rot, knot holes, other cavities, etc.) are slowly lowered and cushioned, thereby reducing the impact on these tree sections as they are brought to the ground. Tree sections should be left on the ground overnight before removal from the Site. In the unlikely event that any bats are roosting this would allow them to disperse.

## Badger

### *Predicted Effects*

- 5.18 Badgers are protected under the Protection of Badgers Act (1992). Killing or injury of a badger or interference with a sett is prohibited.
- 5.19 No badger setts were noted within the site or surrounding habitats although badger activity (a latrine) was noted nearby. Badger setts are also understood to be present within the wider common.
- 5.20 It is not anticipated that construction methods for the play area do not pose significant risks to badgers (e.g. deep excavations) such that there

is no anticipated risk of killing or injury, and therefore no risk of legal infringement.

### Nesting Birds

#### *Predicted Effects*

- 5.21 Wild birds, their active nests, and their eggs are protected under the Wildlife and Countryside Act 1981 (as amended) from killing. During the nesting bird season (March to August, inclusive) there is the risk of killing and injuring nesting birds, damaging their nests or eggs, as a result of vegetation clearance.

#### *Mitigation Measures*

- 5.22 To avoid committing an offence under the Wildlife and Countryside Act 1981 (as amended), any vegetation clearance will take place outside of the bird nesting period (i.e. outside of March to August inclusive), or failing that, following confirmation by a suitably qualified ecologist that nesting birds are absent from the habitats to be cleared.
- 5.23 The above could be secured by an appropriately worded planning condition and/or intrinsic design measures.

### Slow-worm

#### *Predicted Effects*

- 5.24 Reptiles are protected from killing and injury under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended).
- 5.25 A small area of suitable grassland and scrub habitat will be lost during Site clearance. As such there is risk of killing and injury of slow-worms which could result in offences being caused.

#### *Mitigation Measures*

- 5.26 To avoid committing an offence, a precautionary approach to vegetation clearance will be adopted to minimise the risk of killing or injury of reptiles. This would include phased strimming during the active reptile period (i.e. outside of the hibernation period c. October to end-February inclusive) to encourage the movement of reptiles to habitats off-site to the east. Any reptiles found during clearance will be moved to areas of retained woodland or to suitable off-site habitat surrounding the adjoining grassland. All clearance would be supervised by a suitably qualified ecologist.

#### *Residual Effects*

- 5.27 With the implementation of the above mitigation measures no residual effects are anticipated.

## Great Crested Newt

### *Predicted Effects*

- 5.28 GCN are known to be present within the single pond located c. 335m northeast from the Site beyond a deep railway cutting. As such it is very unlikely that any GCN would utilise the Site and therefore no significant adverse effects or legal infringements are predicted.

### Summary of Effects

- 5.29 Table 3 below summarises the assessment of effects, including any mitigation and subsequent residual effects.

**Table 3.** Summary of effects

Important Ecological Feature	Likely Significant Effect and/or Legal Implication (before mitigation)	Avoidance & Mitigation Measures	Mechanism by which Mitigation is Secured	Residual Effects (after mitigation)
Sarratt Bottom SSSI	No significant effects	-	-	No significant effect
Frogmore Meadows SSSI	No significant effects	-	-	No significant effect
Chorleywood Common LNR/LWS	Significant adverse effect at the Local level	New tree/shrub planting to guide recreational uses	-	No significant effect
Other LNRs and LWSs	No significant effect	-	-	No significant effect
Woodland	Significant adverse effect at the Local level	Tree protection; compensatory planting	-	No significant effect
Bats	No significant effect	Precautionary approach to felling/tree surgery	-	No significant effect
Badger	No significant effect	-	-	No significant effect
Breeding Birds	Potential damage or destruction of nests and eggs	Sensitive timing of works/nest checks by ecologist	Legal requirement; secured via planning permission	No significant effect
Slow-worm	Potential legal infringements (killing and injury of individual reptiles)	Precautionary working/clearance methods	Legal requirement; secured via planning permission	No significant effect

Important Ecological Feature	Likely Significant Effect and/or Legal Implication (before mitigation)	Avoidance & Mitigation Measures	Mechanism by which Mitigation is Secured	Residual Effects (after mitigation)
Great Crested Newt	No legal infringements predicted	-	-	No significant effect

## 6.0 CONCLUSIONS

- 6.1 In the absence of any mitigation measures, the proposed play area would be anticipated to have, at most, adverse effects significant at the Local level. However, with the implementation of some straightforward mitigation and precautionary measures as proposed with this scheme, the play area is not anticipated to result in any significant adverse residual effects to important ecological features.



## 7.0 REFERENCES

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## **Appendix A**

Habitats Plan (15A) & Site Location Plan



- Site 13
- Site 15
- Site 15A







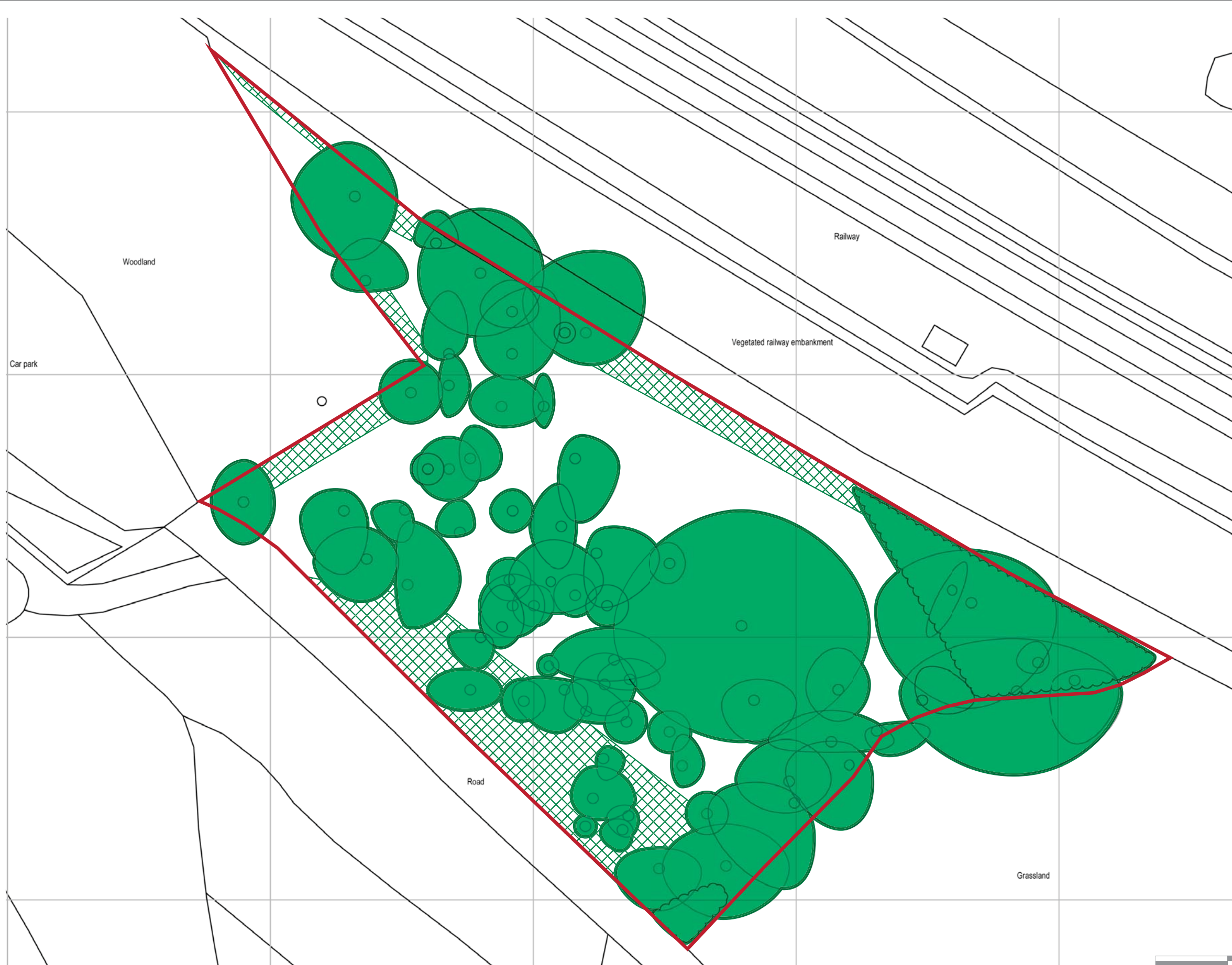
Dixies Barns, High Street,  
Ashwell, Hertfordshire SG7 5NT

t 01462 743647  
e ashwell@csaenvironmental.co.uk  
w csaenvironmental.co.uk

<b>Project</b>	Chorleywood Common	<b>Date</b>	August 2017	<b>Drawing No.</b>	CSA/1387/101
<b>Drawing Title</b>	Site Location Plan	<b>Scale @ A3</b>	NTS	<b>Rev</b>	-
<b>Client</b>	Three Rivers District Council	<b>Drawn</b>	AC	<b>Checked</b>	JW



-  Site boundary
-  Poor semi-improved grassland
-  Woodland
-  Scrub



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Project	Site 15A Chorleywood Common	Date	August 2017	Drawing No.	CSA/3187/100
Drawing Title	Habitats Plan	Scale @ A3	RTS	Rev.	-
Client	Three Rivers District Council	Drawn	AC	Checked	JW

## **Appendix B**

Legislation and Planning Policy

The **Conservation of Habitats and Species Regulations 2010** (as amended) enacts the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, into UK law. The Regulations allow for the designation of Statutory Nature Conservation-sites (SACs and SPAs) and European Protected Species ('EPS' including all UK bat species, great crested newt, hazel dormouse and otter) which are assigned a greater level of protection than under national legislation.

The **Wildlife and Countryside Act 1981** (as amended) forms the primary piece of UK legislation relating to the protection of habitats and species (including nesting birds, reptiles and water vole). Additionally, badgers are protected under the **Protection of Badgers Act, 1992**.

Section 40(1) of the **Natural Environment and Rural Communities (NERC) Act 2006** states that each public authority "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 list of 56 habitats and 943 species of principal importance, irrespective of whether they are covered by other legislation. The S41 list was taken forward for action under the UK BAP (first published in 1994). The UK BAP has now been superseded by the Biodiversity 2020 Strategy<sup>1</sup>, which continues to prioritise the S41 list, setting national targets for the period to 2020, and the UK Post-2010 Biodiversity Framework<sup>2</sup>, which shows how these contribute to targets at the European level. Whilst BAPs are therefore no longer formally recognised, many of the tools and resources originally developed for the BAP remain in use, such as the background information which still forms the basis of work at national level.

**National Planning Policy Framework (2012)**<sup>3</sup> (NPPF) sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 11: Conserving and Enhancing the Natural Environment, paragraph 109, states that the planning system and planning policies should:

- Minimise impacts on, and provide net gains in, biodiversity where possible, "contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".

---

<sup>1</sup> Defra (2011) *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. Defra, London

<sup>2</sup> JNCC and Defra (2012) *UK Post-2010 Biodiversity Framework* (on behalf of the Four Countries' Biodiversity Group). July 2012.

<sup>3</sup> Department for Communities and Local Government (2012) *National Planning Policy Framework*

- Recognise the wider benefits of ecosystem services.

Under these aims, paragraph 117 states the need to plan for biodiversity at a landscape scale, linked to national and local targets. Paragraph 118 sets out the principles that local planning authorities should apply when determining planning applications:

- Refuse planning permission if significant harm cannot be avoided, adequately mitigated, or, as a last resort, compensated for.
- Encourage opportunities to incorporate biodiversity in and around developments.
- Permission should not normally be permitted where an adverse effect on a nationally designated Site of Special Scientific Interest is likely, either individually or in combination with other developments.
- Refuse planning permission if development will result in the loss or deterioration of irreplaceable habitats, such as ancient woodland and the aged or veteran trees, unless the need for, and benefits of, the development in that location clearly outweigh the loss.

The **Government Circular 06/2005**, which is referred to within the NPPF, defines statutory nature conservation sites and protected species as a material consideration in the planning process.

Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table B.1 below.

**Table B.1.** Summary of regional and local planning policy relating to ecology

Policy	Summary
Three Rivers District Council Development Management Policies Local Development Document Adopted July 2013	
DM6 Biodiversity, Trees, Woodlands, Watercourses and Landscaping	<p>Development should result in no net loss of biodiversity value across the District as a whole. The weight given to the protection of sites will be commensurate with their position in the hierarchy:</p> <ul style="list-style-type: none"> <li>• International</li> <li>• National Regional</li> <li>• Local</li> </ul> <p>a) Development that would affect a Site of Special Scientific Interest, Local Nature Reserve, Local Wildlife Site or protected species under UK or European law, or identified as being in need of conservation by the UK Biodiversity Action Plan or the Hertfordshire Biodiversity Action Plan , will not be permitted where there is an adverse impact on the ecological, geological or biodiversity interests of the site, unless it can be demonstrated that:</p> <p>i) The need for the development would outweigh the need to safeguard the biodiversity of the</p>



Policy	Summary
	<p>site, and where alternative wildlife habitat provision can be made in order to maintain local biodiversity; and</p> <p>ii) Adverse effects can be satisfactorily minimised through mitigation and compensation measures to maintain the level of biodiversity in the area.</p> <p>b) The following areas have been highlighted as key areas for biodiversity within the Hertfordshire Biodiversity Action Plan:</p> <ul style="list-style-type: none"> <li>• Mid Colne Valley</li> <li>• Whippendell Woods and surrounds</li> <li>• River Chess Valley</li> </ul> <p>c) In the first instance development should seek to avoid impacts on designated sites and important habitats/species through sensitive design and consideration of alternatives. Proposals should seek to incorporate measures for biodiversity enhancement and Green Infrastructure delivery wherever possible.</p> <p>d) Development must conserve, enhance and, where appropriate, restore biodiversity through:</p> <ol style="list-style-type: none"> <li>i) Protecting habitats and species identified for retention</li> <li>ii) Providing compensation for the loss of any habitats</li> <li>iii) Providing for the management of habitats and species</li> <li>iv) Maintaining the integrity of important networks of natural habitats, and</li> <li>v) Enhancing existing habitats and networks of habitats and providing roosting, nesting and feeding opportunities for rare and protected species.</li> </ol> <p>e) Linked habitats are important in allowing species to adapt and respond to circumstances. Development must not result in fragmentation or isolation of wildlife habitats and should seek opportunities for habitat connectivity with the wider landscape.</p> <p>f) <u>Trees, Woodlands and Landscaping</u></p> <ol style="list-style-type: none"> <li>i) Proposals for new development should be submitted with landscaping proposals which seek to retain trees and other important landscape and nature conservation features. Landscaping proposals should also include new trees and other planting to enhance the landscape of the site and its surroundings as appropriate.</li> <li>ii) Development proposals on sites which contain existing trees and hedgerows will be expected to retain as many trees and hedgerows as</li> </ol>

Policy	Summary
	<p>possible, particularly those of local amenity or nature conservation value or hedgerows considered to meet the criteria of the Hedgerow Regulations 1997.</p> <p>iii) Development proposals should demonstrate that existing trees, hedgerows and woodlands will be safeguarded and managed during and after development in accordance with the relevant British Standards.</p> <p>iv) Development should be designed in such a way as to allow trees and hedgerows to grow to maturity without causing undue problems of visibility, shading or damage. Development likely to result in future requests for significant topping, lopping or felling will be refused.</p> <p>v) Planning permission will be refused for any development resulting in the loss or deterioration to protected woodland (including ancient woodland), protected trees (including aged or veteran trees) and hedgerows, unless conditions can be imposed to secure their protection.</p> <p>vi) Where the felling of a tree or removal of a hedgerow is permitted, a replacement tree or hedge of an appropriate species, size and in a suitable location will be required, taking account of issues such as landscape and biodiversity.</p> <p>vii) Areas forming part of development proposals which are to be transferred to the local authority for maintenance should be designed for ease of access and low cost maintenance overheads and management regimes.</p>

## **Appendix C**

Desk Study Information

8/1/2017

Site Check Report Report generated on Tue Aug 01 2017

**You selected the location:** Centroid Grid Ref: TQ028958

The following features have been found in your search area:

**Ramsar Sites (England) - points**

No Features found

**Ramsar Sites (England)**

No Features found

**Special Areas of Conservation (England) - points**

No Features found

**Special Areas of Conservation (England)**

No Features found

**Special Protection Areas (England) - points**

No Features found

**Special Protection Areas (England)**

No Features found

8/1/2017

Site Check Report Report generated on Tue Aug 01 2017  
**You selected the location:** Centroid Grid Ref: TQ028958  
The following features have been found in your search area:

**Local Nature Reserves (England)**

**Reference** 1083005  
**Name** CHORLEYWOOD COMMON  
**Hectares** 75.64  
**Hyperlink** [http://www.lnr.naturalengland.org.uk/special/lnr/lnr\\_details.asp?themeid=1083005](http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1083005)

**Reference** 1451123  
**Name** CHORLEYWOOD HOUSE ESTATE  
**Hectares** 64.28  
**Hyperlink** [http://www.lnr.naturalengland.org.uk/special/lnr/lnr\\_details.asp?themeid=1451123](http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1451123)

**Reference** 1009168  
**Name** STOCKERS LAKE  
**Hectares** 37.85  
**Hyperlink** [http://www.lnr.naturalengland.org.uk/special/lnr/lnr\\_details.asp?themeid=1009168](http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1009168)

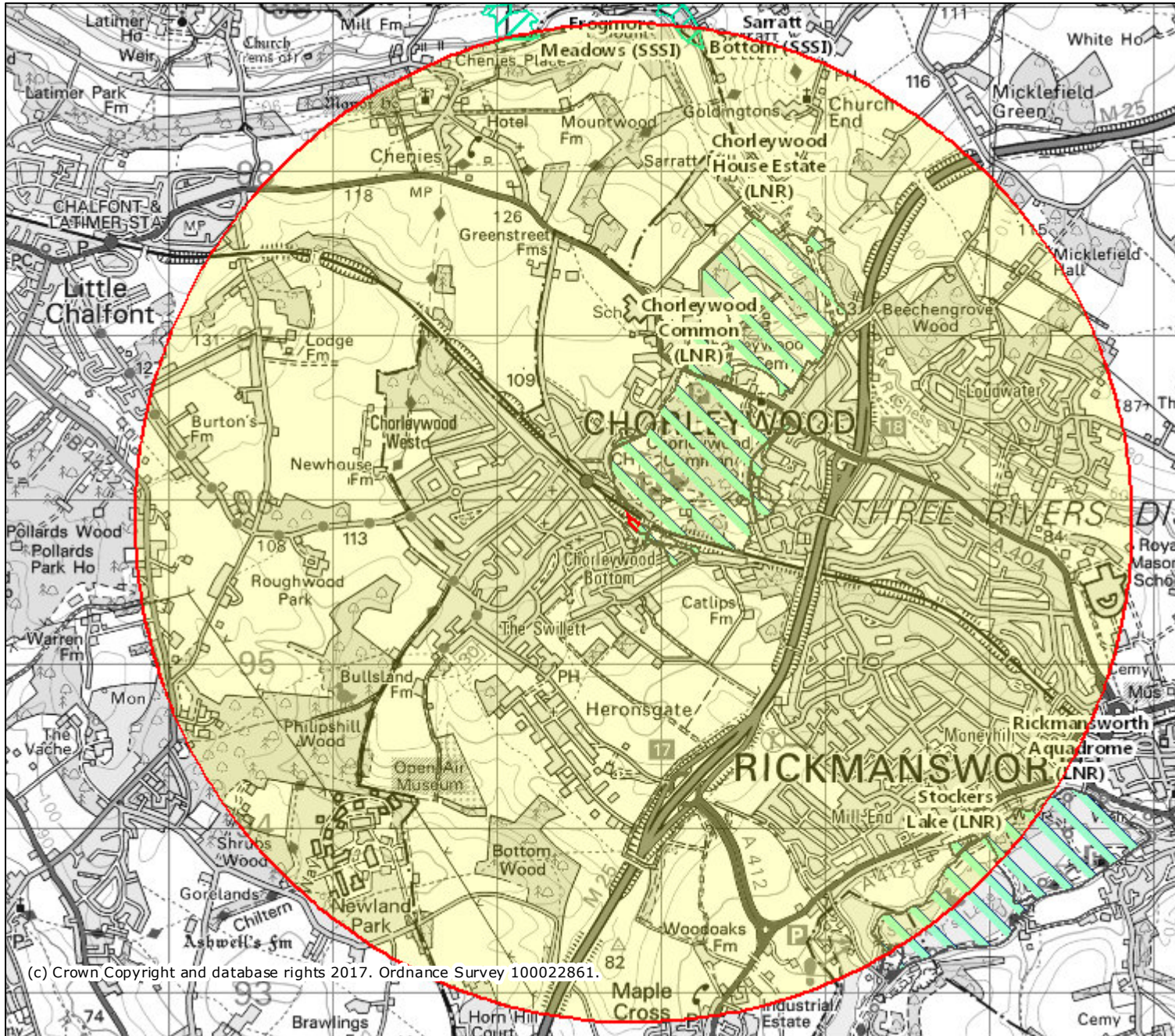
**Reference** 1451122  
**Name** RICKMANSWORTH AQUADROME  
**Hectares** 40.96  
**Hyperlink** [http://www.lnr.naturalengland.org.uk/special/lnr/lnr\\_details.asp?themeid=1451122](http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1451122)

**Sites of Special Scientific Interest (England)**

**Name** Frogmore Meadows SSSI  
**Reference** 1003130  
**Natural England Contact** KAUPE - SONJA  
**Natural England Phone Number** 0845 600 3078  
**Hectares** 4.59  
**Citation** 1002647  
**Hyperlink** <http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1002647>

**Name** Sarratt Bottom SSSI  
**Reference** 1002729  
**Natural England Contact** KAUPE - SONJA  
**Natural England Phone Number** 0845 600 3078  
**Hectares** 3.44  
**Citation** 1001803  
**Hyperlink** <http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001803>

**National Nature Reserves (England)**  
No Features found



**Legend**

-  Local Nature Reserves (England)
-  National Nature Reserves (England)
-  Sites of Special Scientific Interest (England)

Projection = OSGB36  
 xmin = 492500  
 ymin = 190800  
 xmax = 512700  
 ymax = 200900

Map produced by MAGIC on 1 August, 2017.  
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## **Appendix D**

### Habitats and Flora Species List



Flora Species List				
SITE ref. & NAME	3187	Chorleywood Common		
Latin name	Common Name	Site 13	Site 15	Site 15A
<b>Herb species</b>				
<i>Achillea millefolium</i>	Yarrow		X	
<i>Anthriscus sylvestris</i>	Cow parsley		X	
<i>Calystegia sepium</i>	Hedge bindweed			X
<i>Campanula rotundifolia</i>	Harebell		X	
<i>Centaurea nigra</i>	Common knapweed		X	X
<i>Cerastium sp.</i>	Mouse-ear		X	
<i>Cirsium arvense</i>	Creeping thistle		X	
<i>Clinopodium vulgare</i>	Wild basil		X	
<i>Conopodium majus</i>	Pignut		X	
<i>Convolvulus arvensis</i>	Field bindweed		X	
<i>Cytisus scoparius</i>	Broom		X	X
<i>Fragaria vesca</i>	Wild strawberry			X
<i>Galium aparine</i>	Cleavers		X	
<i>Galium verum</i>	Lady's bedstraw		X	
<i>Geranium robertianum</i>	Herb Robert			X
<i>Geum urbanum</i>	Wood avens			X
<i>Heracleum sphondylium</i>	Hogweed		X	
<i>Hypericum androsaemum</i>	Tutsan			X
<i>Hypochaeris radicata</i>	Cat's-ear		X	X
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil		X	
<i>Plantago lanceolata</i>	Ribwort plantain		X	X
<i>Plantago major</i>	Greater plantain		X	
<i>Potentilla reptans</i>	Creeping cinquefoil		X	X
<i>Prunella vulgaris</i>	Selfheal		X	X
<i>Pteridium sp.</i>	Bracken	X		
<i>Ranunculus repens</i>	Creeping buttercup		X	
<i>Rumex acetosa</i>	Common sorrel		X	
<i>Rumex sp.</i>	Dock			X
<i>Senecio jacobaea</i>	Common ragwort		X	X
<i>Stachys sylvatica</i>	Hedge woundwort			X
<i>Stellaria graminea</i>	Lesser stichwort		X	X
<i>Taraxacum officinale agg.</i>	Dandelion		X	X
<i>Torilis sp.</i>	Hedge-parsley			X
<i>Tragopogon pratensis agg.</i>	Goat's-beard		X	
<i>Trifolium pratense</i>	Red clover		X	
<i>Trifolium repens</i>	White clover		X	X
<i>Urtica dioica</i>	Common nettle		X	X
<i>Veronica chamaedrys</i>	Gemander speedwell		X	X
<i>Vicia sp.</i>	Vetch			X
<i>Vicia sativa</i>	Common vetch		X	
<i>Vicia hirsuta</i>	Hairy tare		X	
<i>Viola sp.</i>	Dog-violet			X
<b>Sedges and rushes</b>				
<i>Carex pendula</i>	Pendulous sedge			X
<i>Luzula sp.</i>	Wood-rush		X	
<b>Grasses</b>				
<i>Agrostis capillaris</i>	Common bent		X	
<i>Agrostis stolonifera</i>	Creeping bent		X	X
<i>Anisantha sterilis</i>	Barren brome		X	
<i>Anthoxanthum odoratum</i>	Sweet vernal grass		X	
<i>Arrhenatherum elatius</i>	False oat-grass		X	X
<i>Brachypodium sylvaticum</i>	False brome			X
<i>Bromus hordeaceus</i>	Soft-brome		X	
<i>Dactylis glomerata</i>	Cock's-foot		X	X
<i>Festuca ovina</i>	Sheep's fescue		X	
<i>Festuca rubra</i>	Red fescue		X	
<i>Festuca sp.</i>	Fescue			X
<i>Holcus lanatus</i>	Yorkshire fog		X	X
<i>Hordeum murinum</i>	Wall barley		X	
<i>Lolium perenne</i>	Perennial rye grass		X	X
<i>Poa annua</i>	Annual meadow-grass		X	
<i>Poa pratense</i>	Timothy			X
<i>Trisetum flavescens</i>	Yellow oat grass		X	
<b>Woody species</b>				
<b>Broadleaved</b>				
<i>Acer campestre</i>	Field maple			X
<i>Acer pseudoplatanus</i>	Sycamore			X
<i>Betula pendula</i>	Silver birch	X		
<i>Buddleja spp.</i>	Buddleia			X
<i>Clematis sp.</i>	Clematis			X
<i>Corylus avellana</i>	Hazel			X
<i>Crataegus monogyna</i>	Hawthorn	X		X
<i>Fraxinus excelsior</i>	Ash			X
<i>Hedera spp.</i>	Ivy		X	X
<i>Ilex aquifolium</i>	Holly	X		X
<i>Prunus avium</i>	Cherry			X
<i>Prunus spinosa</i>	Blackthorn			X
<i>Quercus sp.</i>	Oak sp.	X	X	X
<i>Rosa arvensis</i>	Field rose			X
<i>Rubus fruticosus agg.</i>	Bramble	X	X	X
<i>Sambucus nigra</i>	Elder	X		



## **Appendix E**

### Evaluation & Assessment Methods

Ecological features are evaluated and assessed with due consideration for the Chartered Institute of Ecology and Environmental Management (CIEEM) 2016 Guidelines for Ecological Impact Assessment (EclA). For clarity, the evaluation and assessment process adopted within this EclA is set out below.

### Establishing Potentially Important Ecological Features

Ecological features are assessed where they are considered to be important, and where they may be impacted by a proposed development. A feature may be considered important for a variety of reasons, such as quality, extent, rarity and/or statutory protection. Table E.1 below sets out a non-exhaustive list of ecological features that are typically considered, along with key examples:

**Table E.1.** Potentially important ecological features (adapted from CIEEM 2016)

Potentially Important Ecological Features	Typical examples
Statutory designated sites under international conventions or European Legislation	Wetlands of International Importance (Ramsar sites), Special Areas of Conservation (SAC), Special Protection Areas (SPA)
Statutory designated sites under national legislation	Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR, Local Nature Reserves (LNR)
Non-statutory, locally designated wildlife sites	Local Wildlife Sites (LWS), County Wildlife Sites (CWSs), Sites of Importance for Nature Conservation (SINCs)
Country biodiversity lists	Habitats or Species of Principle Importance for the Conservation of Biodiversity (Section 41, NERC Act 2006)
Local biodiversity lists	Local Biodiversity Action Plan (BAP) priority species or habitats
Red Listed / Rare Species	Species of conservation concern, Red Data Book (RDB) species, Birds of Conservation Concern, nationally rare and nationally scarce species
Legally Protected Species	E.g. species listed under Sch.5 of the W&C Act 1981, or Sch.2 of the Hag. Regs. 2010
Legally Controlled Species	E.g. species listed under Sch.9 of the W&C Act 1981

It should also be noted that the social, community, economic or multi-functional importance attributed to ecological features are not assessed as they fall outwith the scope of this assessment.

## Geographic Context

The importance of ecological features, as well as the significance of any likely impacts and their effects, are considered here within a defined geographic context:

- International
- National
- Regional (e.g. East Anglia)
- County
- Local

The size, conservation status and the quality of features are all relevant in determining their importance and assigning this to the geographic scale.

## Establishing Likely Zone of Influence

The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects as a result of the project and associated activities. The project's zone of influence varies across different ecological features, which have different vulnerabilities and sensitivities. For the purposes of this assessment, the following zones were considered:

- International statutory nature conservation designations up to 10km from the Site
- National and local statutory nature conservation designations up to 3km from the Site
- Non-statutory locally designated wildlife sites up to 1km from the Site

These arbitrary distances are considered sufficient for identifying the nature conservation designations which could be subject to significant effects. However, it is acknowledged that in certain circumstances effects beyond these distances are possible and should be considered as far as is reasonably practicable to do so.

For other ecological features, such as habitats and species, the appropriate zone of influence is described and justified as appropriate within the report, depending on their respective sensitivity to an environmental change.

The results of professionally accredited or published scientific studies have been used and referenced, where available, to establish the spatial and temporal limits of the biophysical changes likely to be caused by specific activities, and to justify decisions about the zone of influence.

## Characterising Ecological Impacts and their Effects

Where likely ecological impacts are identified in connection with the proposed project, these are considered and described with reference to the following characteristics (where this is helpful in accurately portraying the ecological effect and determining the significance):

- Positive or negative (i.e. does the anticipated change accord with nature conservation policies and objectives?)
- Extent (i.e. the spatial area over which the impact or effect may occur)
- Magnitude (i.e. the quantified size, amount, intensity or volume)
- Duration (i.e. the timeframe over which the impact or effect may occur, in both human and ecological terms)
- Frequency and timing (i.e. the number of times an activity occurs, where this is likely to influence the effect)
- Reversibility (i.e. is spontaneous recovery possible or may the effect be counteracted by mitigation?)

An effect is considered to be *significant* where this either supports or undermines biodiversity conservation objectives for an important ecological feature.

## **Appendix F**

Badger Surveys

## Legislation

Badgers and their setts are protected under the Protection of Badgers Act 1992 therefore a Natural England licensing system exists to permit certain works that would otherwise be illegal. Works that require a license include direct impacts to badger holes and certain works within close proximity to a badger sett that may disturb badgers.

## Method

A dedicated badger survey was conducted by Alexandra Cole GradCIEEM, using standard survey methods, searching the Site and immediately adjacent areas for field signs of badger and mapping any present such as:

- Feeding signs such as snuffle holes made during foraging.
- Hairs caught on vegetation or fences.
- Latrines, usually positioned on territorial boundaries.
- Foraging tracks through vegetation or under fences.
- Badger setts.

When badger setts are found the number of holes are recorded as well as the level of usage. Recording this information gives an indication of the type of sett by categorising it according to the criteria listed in Table 2 below (Harris *et al.* 1989, Cresswell *et al.* 1990, Wilson *et al.* 1997).

Table G.1. Criteria used to determine sett type.

<i>Sett Type</i>
<b>Main Setts</b> - These usually have a large number of holes with large spoil heaps, and the sett generally looks well used. There will be well-used paths to and from the sett and between sett entrances. Although normally the breeding sett is in continuous use, it is possible to find a main sett that has become disused due to excessive digging or some other reason; it should be recorded as a disused main sett.
<b>Annexe setts</b> - They are often close to a main sett, usually less than 150 metres away, and are usually connected to the main sett by one or more obvious well-worn paths. They usually have several holes, but may not be in use all the time even if the main sett is very active.
<b>Subsidiary setts</b> - These often only have a few holes; four (including all categories of use) was the average number in the first survey. They are usually at least 50 metres from a main sett, and do not have an obvious path connecting with another sett. They are not continuously active.
<b>Outlying setts</b> - These usually have only one or two holes, often have little spoil outside the hole, have no obvious path connecting with another sett, and are only used sporadically. When not in use by badgers, they are often taken over by foxes or even rabbits. However, they can still be recognised as badger setts by the shape of the tunnel (not the actual entrance hole), which is usually at least 250mm in diameter, and is rounded or a flattened oval shape. Fox and rabbit tunnels are smaller and often taller than broad.
<i>Hole Type</i>
<b>Well used holes</b> - These are clear of any debris or vegetation, are obviously in regular use, and may or may not have been excavated recently.

**Partially used holes** - These are not in regular use and have debris such as leaves and twigs in the entrance, or have moss and / or other plants growing in or around the entrance. Partially used holes could be in regular use after a minimal amount of clearance.

**Disused holes** - These have not been in use for some time, are partially or completely blocked, and could not be used without a considerable amount of clearance. If the hole has been disused for some time, all that may be visible is a depression in the ground where the hole used to be, and the remains of the spoil heap, which may be covered in moss or plants.

## **Results**

A single badger latrine was identified within the woodland of Site 13. No further signs of badger were identified on this or any of the other sites.

## **Appendix G**

Reptile Surveys



## **Legislation**

All native British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded protection against killing and injury under parts of sub-section 9(1) of the Act. In addition, all native British reptile species are S41 priority species in England.

## **Methodology**

A total of 16 reptile refugia, comprising rectangles of roofing felt measuring 1.0 x 0.5m, were installed within suitable habitat present at Site 13 and 15 on 18 April 2017 by Alexandra Cole GRadCIEEM.

Following an initial 2-week 'bedding-in' period for refugia, surveys were carried out on seven occasions during favourable weather conditions (e.g. intermittent or hazy sunshine, not too windy, sunny spells following wet or cloudy weather) between May and July 2017. Each survey visit comprised a slow walk of the site to visually and physically check refugia for the presence of reptiles. On each occasion, a watching brief was also maintained for any reptiles elsewhere on site, whilst walking between refugia locations. Seven survey checks are generally considered to constitute a reasonable survey effort with which to establish the presence/likely absence of reptiles at a site.

## **Limitations**

Four of the eight reptile refugia placed at Site 15 were removed or stolen during the course of the survey. This did not compromise the aim of the survey which was to identify presence/likely absence of a reptile population.

## **Results**

Full results are provided in the table below.



## **Appendix H**

Great Crested Newt Surveys

## Legislation

Great crested newts are legally protected as European Protected Species (EPS) under Part 3 (Section 41) of the Conservation of Habitats and Species Regulations 2010. These Regulations make it an offence to:

- Deliberately capture, injure, kill or capture a great crested newt
- Deliberately disturb great crested newts, impairing their ability to survive, breed, reproduce or rear/nurture their young
- Damage or destroy a breeding site or resting place used by a great crested newt

Great crested newts are also fully protected under the Wildlife & Countryside Act 1981, making it an offence to:

- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place of shelter or protection
- Intentionally or recklessly obstruct access to any structure or place of shelter or protection

Disturbance of great crested newts is covered by both the 2010 Regulations and the 1981 Act. Disturbance that impairs survival or successful reproduction would be covered by the Regulations, while less significant acts of disturbance may only be covered by the Act.

It is important to note that great crested newts and their habitats (such as breeding ponds) are protected throughout the year, regardless of whether or not newts are present at the time.

Great crested newts are also listed as a species of principal importance for the conservation of biodiversity in England, under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. The S41 species list is used to guide decision-makers, including planning authorities, in implementing their duty under Section 40 of the NERC Act to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

### Licensing

Where development is proposed that would result in an offence under the Habitats and Species Regulations, a statutory derogation licence may be granted by Natural England to permit an act that would otherwise be unlawful. To obtain an EPS licence for development, it must be demonstrated that the purpose of the act to be licensed is for:

- *“preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53(2)(e))*

In addition, Natural England will not grant an EPS licence unless they are satisfied that:

- *“There is no satisfactory alternative” (Regulation 53(9)(a))*
- *“The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range” (Regulation 53(9)(b))*

## Methods

In accordance with Natural England’s Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts *Triturus cristatus*, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography. 500m is the generally accepted typical maximum dispersal range of this species, with great crested newt most likely to use terrestrial habitat within 250m of breeding ponds.

The desk based search for ponds and subsequent site visits identified 2 water bodies occurring within 500m of the Sites, with only one of these ponds falling within 250m of a single site (Site 13). These ponds are identified on the Pond Plan.

Site	Distance from P1 (TQ 02940 96200)	Distance from P2 (TQ 02938 96370)
13	c. 225m	c. 398m
15	c. 348m	c. 522m
15A	c. 335m	c. 506m

### Environmental DNA (eDNA) sampling

Environmental DNA (eDNA) sampling was used to determine the presence/ likely absence of great crested newts from pond one. This method has been shown to be a highly effective in detecting the presence of great crested newts<sup>4</sup> (Biggs et al. 2014).

Water samples were collected from the pond on 02 May 2017 by Alexandra Cole Grad CIEEM (2015-16726-CLS-CLS) following the recommended procedure. Appropriate biosecurity measures were taken to avoid cross contamination of great crested newt eDNA. Subsequently the samples were sent to ADAS for DNA analysis.

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<sup>4</sup> Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F. 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.

## **Results**

Full results are provided below.



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Tel: 01159 516747  
Email: Helen.Rees@adas.co.uk

[www.adas.co.uk](http://www.adas.co.uk)

Sample/Report ID: 2017-472

Condition on Receipt: Low Sediment

Visual Inspection of Volume: Passed

Client Identifier: P1

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 08/05/2017

Material Tested: DNA extracted from pond water samples

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<b>Determinant</b>	<b>Result</b>	<b>Method</b>	<b>Date of Analysis</b>
Great Crested Newt	Positive	Real time PCR	11/05/2017

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Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

Date of preparation:

12/05/2017

Date of issue:

12/05/2017

*Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.*

## Appendix 1: qPCR GCN eDNA analysis results breakdown

q-PCR eDNA analysis Results			
Experimental Samples	GCN*	Inhibition Control†	Degradation Control§
Extraction Blank	0 of 12	N/A	N/A
P1	2 of 12	2 of 2	Evidence of decay
Controls	Number of Positive Replicate Reactions*		
Negative PCR Control (Nuclease Free Water)	0 of 4		
Positive Control GCN DNA 10 <sup>-1</sup> ng/μL	4 of 4		
Positive Control GCN DNA 10 <sup>-2</sup> ng/uL	4 of 4		
Positive Control GCN DNA 10 <sup>-3</sup> ng/μL	4 of 4		
Positive Control GCN DNA 10 <sup>-4</sup> ng/μL	4 of 4		

\* A sample is considered as positive for great crested newt if any of the replicates are positive.

† Recorded as the number of positive replicate reactions at expected C<sub>t</sub> value. If the expected C<sub>t</sub> value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

§ No decay is expected within time frame of kit preparation, sample collection and analysis.





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