

## Appendix 12.2: Ecology Survey Report

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**WEALDEN BRICKWORKS,  
HORSHAM, SUSSEX**

**ECOLOGY SURVEY REPORT**



# **WEALDEN BRICKWORKS, HORSHAM, SUSSEX**

## **ECOLOGY SURVEY REPORT**

March 2018

**Our Ref: JSL2637\_871**

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## EXECUTIVE SUMMARY

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- RPS was commissioned by Britaniacrest Recycling Ltd to undertake protected species surveys at Wealden Brickworks, Horsham, Sussex in order to help assess any potential impacts on such species in relation to the proposed re-development of the site.
- A Preliminary Ecological Appraisal, conducted by RPS in April 2016, noted one building on site to be of low potential to support roosting bats and also identified seven ponds within 500 m of the site with potential to support great crested newts. A further emergence survey and eDNA screening for great crested newts (GCN) were therefore completed during 2016.
- Proposals for the re-development of the site include the construction of a Resource Recovery and Renewable Energy Facility, along with small amounts of both hard and soft landscaping.
- The bat survey found no bats to be roosting within either of the buildings on site; however, the site was noted as having both common and soprano pipistrelles commuting and foraging around the site. The level of bat activity on site was deemed to be low with most activity found along the boundary with the off-site railway. Therefore, recommendations have been made to enhance the site for foraging/commuting bats.
- Seven ponds were present within 500 m of the development area. Water samples were taken from each of these ponds and sent for eDNA analysis. Two ponds immediately adjacent to the northern boundary of site returned a positive result indicating newt presence, while another pond had GCN eggs present within vegetation but did not return a positive for GCN eDNA. Therefore, recommendations have been made to ensure the development fully accounts for the presence of great crested newts on site. This will include a European Protected Species licence, containing details of suitable mitigation and enhancement.



# 1 INTRODUCTION

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## **Background to the Study**

- 1.1 RPS was commissioned by Britaniacrest Recycling Ltd. to undertake protected species surveys for both bats and great crested newt (GCN) to help inform the re-development of a small area within the larger Wealden Brickworks, Langhurstwood Road, Horsham, Sussex, into a Recycling, Recovery and Renewable Energy Facility.
- 1.2 The surveys were recommended following a Preliminary Ecological Appraisal (PEA) of the site by RPS in April 2016 (RPS 2016).

## **Site Location**

- 1.3 The site is located off Langhurst Wood Road, Horsham, Sussex (OS Grid reference TQ 171 343). The site consisted of hardstanding in the majority, along with eight buildings, dense scrub and patches of ruderal vegetation.
- 1.4 The site is bound by a railway line running parallel to its western boundary. Industrial buildings with ponds and small areas of grassland, scrub and trees are present to the north, south and east of the site.
- 1.5 The wider landscape is largely rural in nature, consisting of arable fields, hedgerows and pockets of woodland. The village of Warnham is further to the south-west of the site.

## **Aims, Objectives and Legislation**

### *Bats*

- 1.6 The objective of the study was to determine the current use of the site by bats, to inform the future development of the site. The study aimed to determine the potential impacts (if any) of the development by establishing:
- whether any bats were roosting on site;
  - the general level of bat activity on site;
  - the range of species using the site; and
  - the best course of action to minimise the impacts of the development on the local bat population.
- 1.7 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as amended. All bat species are also included on Schedule 2 of The Conservation of Habitats and Species (Amendment) Regulations 2012. Taken together, these pieces of legislation make it an offence to:
- intentionally or recklessly kill, injure or capture bats;
  - deliberately or recklessly disturb bats (whether in a roost or not); and



- damage, destroy or obstruct access to bat roosts.

1.8 A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, it is considered within legal opinion that a roost is protected whether or not bats are present at the time of survey.

1.9 Barbastelle bats *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros* are also listed as being species of principle importance to the conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities Act 2006.

#### *Great crested newts*

1.10 The objective of the study was to determine the presence or likely absence of great crested newts on site to inform the future development of the site. The study aimed to determine the potential impacts (if any) of the development by establishing:

- The presence or likely absence of great crested newts on site; and
- Whether further surveys are necessary to determine the population size of great crested newts present.

1.11 Great crested newts are listed on Schedule 5 of the Wildlife and Countryside Act 1981, which affords them protection under Section 9, as amended. They are also listed on Annex II of the EC Habitats Directive. Palmate newt *Lissotriton helveticus*, Smooth newt *Lissotriton vulgaris*, common frog and common toad are also afforded protection against sale only under Schedule 5 of the Wildlife and Countryside Act 1981, as amended. Great crested newts are listed as being a species of principal importance in England under Section 41 of the Natural Environment and Rural Communities Act 2006.



## 2 METHODS

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### **Daytime building inspection**

- 2.1 The building was inspected by a suitably-licensed ecologist (Rosie McLaughlin Bat Licence Number 2016-20398-CLS-CLS) as per the methods in Collins (2016). The building was inspected for features that could support bat roosts such as lifted tiles, gaps in soffits, broken or missing mortar etc.
- 2.2 Where appropriate, an endoscope camera was used to view inside features to look for evidence of bats such as droppings, staining and bats themselves. A 1 million candle-power Clulite torch was also used to look for suitable roosting features on the surface of the building.

### **Emergence surveys**

- 2.3 Following the daytime inspection, one dusk emergence survey of the building with low potential was carried out on the 25<sup>th</sup> October 2016.
- 2.4 Observations were made outside the building from where it was considered bats might emerge. The dusk survey commenced 15 minutes before sunset, and finished two hours after sunset.
- 2.5 Real-time bat detectors (Elekon Batlogger M and EM3+) were used to record bat echolocation calls of any emerging bats and identify species where possible. Recordings were made using built in recorders within the detectors, which were later analysed using the computer software ~~BatSoundq~~ BatSoundq

### **Constraints**

- 2.6 Bats are difficult to locate in large structures, with so many potential roosting areas, finding the exact roosting site can be difficult, especially male/single bat roosting sites. However, the building surveyed had only a single site with roosting potential. Therefore, the survey effort completed is considered sufficient to rule out the likely presence of a bat roost. Notwithstanding this, bats can have seasonal use of buildings and being so mobile may arrive and start using a site after it has been surveyed, or roost somewhere else during the period it was surveyed.

### **Great crested newt e-DNA survey**

- 2.7 Two ponds were present immediately adjacent to, but outside of the proposed development boundary. A further five ponds were present in the surrounding area, within 500 m of the proposed development area (Figure 2.1).
- 2.8 Water samples for eDNA analysis were collected on 2<sup>nd</sup> June 2016, as per Biggs *et al.* (2014), from five ponds in total. Briefly, a 30 mL water sample from 20 locations around the pond margin was collected. All samples were then pooled into a single bag which was then shaken for 15 seconds to thoroughly mix. Six aliquots of 15 mL were then pipetted into separate sterile tubes, which contained 35 mL of ethanol to preserve the eDNA sample, for final analysis by SureScreen Scientifics. This sampling method was carried out for each pond individually.



## **Constraints**

- 2.9 Further follow-up population estimate surveys for the ponds with positive GCN results were not possible due to a site-wide policy of no night working in the areas around the ponds implemented by Britaniacrest Recycling Ltd. for health and safety reasons. Therefore, the interpretation of the data is based on the likely population size from historic surveys results in the surrounding area.



### 3 RESULTS

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#### **Bat building assessment**

- 3.1 The building surveyed is a disused former reception building, located to the south of the site (Figure 3.1). The building was brick walled with a pitched asbestos roof and was generally in good condition with no gaps/cracks that could be used by bats.
- 3.2 The only feature that could be used by bats was a large crack along the brickwork on the northwestern elevation. This was checked with an endoscope to look for evidence of bats. No evidence was found. There was a disused bird nest in the base of the crevice, further decreasing the likelihood of bat presence.

#### **Bat emergence survey**

- 3.3 To further support the above conclusion of no likely bat presence, a single emergence survey was undertaken on the building in the evening. Bat activity can be strongly dependent on weather conditions. The survey was therefore only carried out in favourable conditions when bat activity was deemed to be likely (dry, little to no wind and temperatures greater than 8°C). Table 3.1 summarises the weather during the survey.

**Table 3.1 Weather conditions during the emergence survey at Wealden Brickworks.**

Survey date	Temperature °C	Sunset/Sunrise Time	Weather
25.10.2016	14	17:40	80% cloud cover, dry, wind Beaufort 1.

- 3.4 Two surveyors (positions shown in Figure 3.1) surveyed different elevations of the building on site. The survey commenced at 17:25 and finished at 18:52.
- 3.5 No bats were seen emerging from the building by either surveyor during the survey.
- 3.6 Both surveyors recorded common pipistrelles and soprano pipistrelles foraging and commuting over the site, and along the adjacent railway line. A maximum number of 4 common pipistrelle and 4 soprano pipistrelle passes were recorded by any one surveyor. This equates to 5 bat passes per hour.

#### **Great crested newt e-DNA survey**

- 3.7 Water samples were collected from all seven of the ponds within 500 m of the site (see Figure 3.2 for illustrated results). Table 3.2 summaries the results of the eDNA surveys.



**Table 3.2 – eDNA results for Ponds at Wealden Brickworks.**

<b>Pond Number</b>	<b>eDNA result</b>	<b>Other evidence/eggs found?</b>
1	Positive	No other evidence of newts found
2	Positive	No other evidence of newts found
3	Negative	No other evidence of newts found
4	Negative	No other evidence of newts found
5	Negative	GCN eggs found during eDNA water sampling
6	Negative	No other evidence of newts found
7	Negative	No other evidence of newts found



## 4 EVALUATION

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- 4.1 The surveys were conducted at a time of year when bats are active and the weather conditions suitable, and any bats, if present, should be identifiable.
- 4.2 No evidence of bat presence was found during the daytime building assessment and no bats were recorded emerging from the building during the follow-up emergence survey. The building is located within a highly-disturbed setting with significant lighting surrounding it from the existing site operations further decreasing the likelihood of a roost being present. It is therefore considered unlikely that the building supports a bat roost.
- 4.3 Two species of bat were recorded foraging and commuting over the site. These were common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. The level of bat foraging / commuting activity is deemed to be low (0-10 bat passes per hour qualifies as low Russ & Montgomery, 2002). Therefore, although the site is used for foraging, it is not considered to be of particular importance to foraging / commuting bats.
- 4.4 The eDNA surveys confirmed the presence of great crested newt DNA in Ponds 1 and 2 (immediately north, and connected to the application site). The development site contains habitat (dense scrub, tall ruderal and ephemeral/short perennial that is likely to form part of the core range (0-50 m from the pond) of the GCN population and may therefore be used for foraging/shelter during their terrestrial phase.
- 4.5 Given that further population estimate surveys were not possible due to health and safety issues restricting night time work near the water, it is not possible to conclusively show the size of the population present within Ponds 1 and 2. However, previous GCN surveys in the area found a small breeding population of great crested newt in two ponds (Ponds 5 & 6) approximately 220 m to the north of the site in 2013 (The Ecology Consultancy 2013); great crested newts were not found to be present in the remaining five ponds within 500 m (in 2013). Ponds 1 and 2 were recorded as having common toads and smooth newts present but no GCN at the time (The Ecology Consultancy 2013).
- 4.6 The current results of the eDNA analysis returned positive great crested newt results for Ponds 1 and 2 and negative results for the remaining ponds suggesting that Ponds 1 and 2 had been colonised by GCN sometime between 2013 and 2016.
- 4.7 It is not immediately obvious where the parent population is located. Notwithstanding the negative eDNA result, Pond 5 was found to have great crested newt eggs present on vegetation surrounding the pond during water sample collection and therefore, it is considered that great crested newt, as in 2013, are present in this pond also. It is unclear why the eDNA analysis did not return a positive result from this pond (this is considered further below). However, all recommended methods to limit false negative results occurring were observed (collecting samples from around a pond and pooling, not taking samples from areas contaminated by mud etc.). The presence of eggs confirms a breeding population of this species although not the population size.
- 4.8 The habitat between Pond 5 and the application site is primarily close-mown grass over a capped landfill, with hardstanding and the occasional patch of ruderal vegetation also present.



Therefore, the connectivity between the application site and Pond 5 is very limited as these are all considered to be habitats of sub-optimal value for great crested newts. Further, Pond 5 is separated from the application site (and Ponds 1 and 2) by amphibian-proof fencing erected for other development. Also, directly east and adjacent to Pond 5, there is abundant suitable great crested newt terrestrial habitat suggesting that this population's core terrestrial habitat is likely to be to the east of the pond, rather than to the west, towards the application site and Ponds 1 and 2. On this basis, it is considered highly unlikely that great crested newts are moving between Pond 5 and the application site; i.e. the populations of this species in the two ponds to the immediate north of the application site are unlikely to form a meta population. Therefore, given the distance of Pond 5 from the site and the barriers to newt dispersal from it to the application site, it is considered unlikely that the two populations are currently interchanging.

- 4.9 No other ponds in the surrounding 500 m have been found to support GCN either in the current or historic surveys. Therefore, the population now found in Ponds 1 and 2 may have become established as a result of transfer of vegetation with viable GCN eggs on between the ponds by wildfowl.
- 4.10 As Ponds 1 and 2 have not previously been found to support great crested newts in the recent past (The Ecology Consultancy 2013), it is highly unlikely that either ~~large~~ or ~~medium~~ populations (as defined by English Nature 2001) would have had sufficient time to establish. Therefore, the population is likely to currently be only ~~small~~
- 4.11 Recommendations have been made in Section 5 to ensure the development fully accounts for the presence of these species within the development.



## 5 CONCLUSIONS AND RECOMMENDATIONS

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- 5.1 No bat roosts were identified as present within the proposed development area.
- 5.2 Bats are inherently mobile creatures. Therefore, the site should be re-surveyed if works have not started on site within one year to assess whether further emergence surveys would be necessary.
- 5.3 A total of two species of bat were recorded foraging and commuting across the site. The level of bat activity on site was deemed to be low.
- 5.4 It is recommended that any proposed artificial lighting be minimal on site. Cowl should be fitted to ensure any lighting is directed to where it is needed and there is no unnecessary light spill which would deter bats from using the site. Boundary vegetation and trees should not be subject to any artificial lighting.
- 5.5 In order to enhance the habitat on site for bats, new planting should be provided where possible. This should include a range of night scented flowering plants that would attract night time insects, which in turn the bats would feed on. Bat boxes could also be included within the final development, in order to further enhance the site for bats.
- 5.6 eDNA results confirmed the presence of GCN in both Ponds 1 and 2 located to the immediate north of the site. Although these ponds fall just outside of the application boundary, the immediate surrounds of the pond (dense scrub/small trees) cross over into the application boundary, and provide limited, but suitable terrestrial habitat.
- 5.7 Neither Pond 1 or Pond 2 will be lost as a result of the development and both will be fully protected through the implementation of suitable good-practice methods to ensure no run-off/spills etc. affect them. Therefore, the only potential impact of the development on GCN is through the loss of terrestrial habitat.
- 5.8 The total area of terrestrial habitat loss as a result of the development is small (<0.4 ha . see Figure 4.1).
- 5.9 Given the proximity of the site to Ponds 1 and 2 (within 50 m . therefore %core+newt habitat), the English Nature GCN Mitigation Guidelines (English Nature 2001) identifies the loss of such habitat as having a high impact on the local population. Therefore, because of the protection afforded to GCN and their habitat as European Protected Species under the Conservation of Habitats and Species Regulations 2010, work affecting them on development sites can only be carried out under a mitigation licence issued from Natural England. A Natural England licence will therefore be required prior to the development works on site commencing.
- 5.10 There are three tests detailed in the Conservation of Habitats and Species Regulations (2010) which must be satisfied before a Natural England licence can be issued to permit otherwise prohibited acts:



- Regulation 53(2)(e) states that licences may be granted for ~~%~~preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment~~+~~.
- Regulation 53(9)(a) states that a licence may not be granted unless the licensing authority (Natural England) is satisfied that ~~%~~there is no satisfactory alternative~~+~~.
- Regulation 52(9)(b) states that a licence cannot be issued unless the licensing authority (Natural England) is satisfied that the action proposed ~~%~~will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range~~+~~.

5.11 For Natural England to be able to issue such a licence, full planning permission must first be obtained as this will satisfy tests 1 and 2 described above. Test 3 can be satisfied by measures to ensure that minimal disturbance to newts is caused by the development works. These measures can be incorporated into a method statement to be included in the licence application that, if granted, forms part of the licence. The method statement is presented in the form of an excel spreadsheet that contains all the background and supporting information (i.e. the data obtained from the surveys) and, also, the delivery information which details the mitigation strategy.

5.12 The licence application requires the following documents:

- Application form.
- Method Statement.
- Reasoned Statement Application (this sets out the planning background to the site and includes a copy of the planning permission).

5.13 Natural England licenses are usually completed by an ecological consultant who should be suitably qualified to carry out the mitigation (for example, holds a licence to handle GCN and undertake pitfall trapping, in order to move any newts prior to works).

5.14 The licence is issued to the developer who must ensure compliance with the licence conditions. At least two months should be allowed for the licence application: the Method Statement has to be written, including any survey information relating to the numbers of GCN involved and documentation, including a full mitigation strategy, and the full planning permission, has to be provided. Once the application has been received, Natural England will aim to determine it within 30 working days.

5.15 To mitigate for the loss of the terrestrial habitat, it is proposed to create two new hibernacula, as described within the GCN Conservation Handbook (Langton, Beckett & Foster 2001) adjacent to the pond in suitable locations. Such features will also act as a receptor site for newts to be moved into during site clearance.

5.16 Prior to the construction phase of the development, in order to ensure no GCN are killed/injured during development, it will be necessary to fence off the areas of suitable newt habitat within the construction area with newt-proof fencing and trap any GCN through a programme of pitfall trapping to prevent them being accidentally killed or from straying into the construction zone. Such trapping will be undertaken for 30 suitable days when newts are active. A suitable day is defined



as one when the proceeding night temperature was above 5°C and there has been rain at some point within the previous three-five days. Such trapping will be started once newts are out of hibernation in late February/early March and will continue until five days with no captures have been achieved. These could be the final five days of the initial 30. If newts continue to be found, trapping will continue beyond the 30 days until five such clear days are achieved. Any newts found during trapping will be moved to the newly-created hibernacula.

- 5.17 Once the five days clear has been achieved, the areas of rubble/machinery will be destructively searched under the supervision of an Ecology Clerk of Works (ECoW). Any newts found will be moved to the hibernacula.
- 5.18 Upon completion of the destructive search, the site will be released for development, although the exterior newt fencing, particularly along the site's northern boundary nearest to the pond will, have to be maintained to ensure no newts accidentally move onto the development site.
- 5.19 The redevelopment proposals include habitat enhancements and a mitigation strategy to be agreed and approved in consultation with Natural England. These proposals will be designed to protect newts, ensuring that GCN are not adversely impacted by the scheme and will be of benefit to the population of newts in the local area.



## 6 REFERENCES

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# FIGURES

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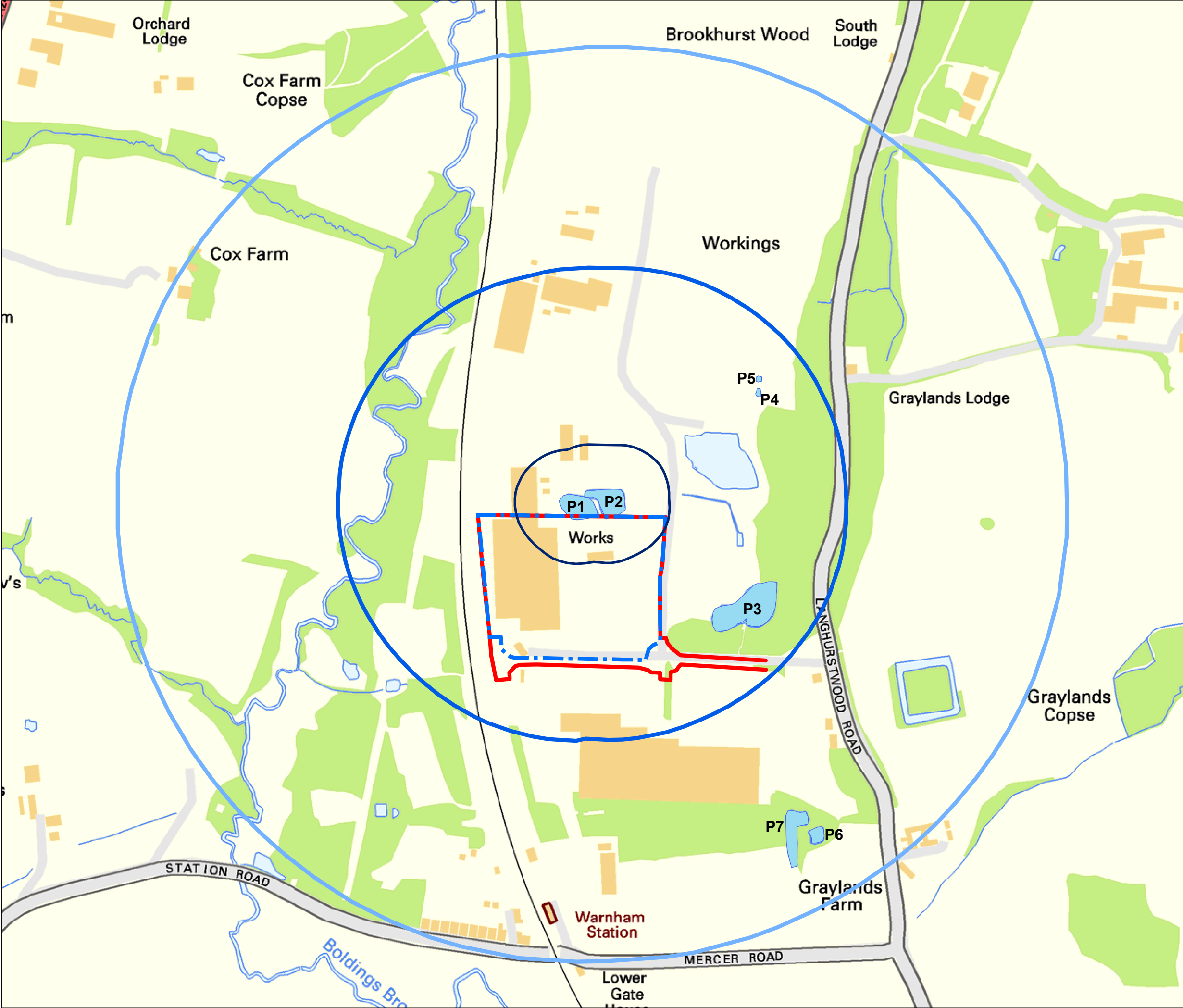
# FIGURE 2.1

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Locations of ponds surveyed for GCN



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**Legend**

- Application boundary
- Ownership boundary
- P2 Ponds surveyed for GCN
- 50 m radius
- 250 m radius
- 500 m radius

Rev	Description	Date	Initial	Checked

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Project Wealden Brickworks

Title Ponds surveyed for GCN

Status Information	Drawn By HK	PM/Checked By NB
Job Ref JSL2637	Scale @ A3 1:4,000	Date Created NOV '16
Figure Number 2.1		Rev -

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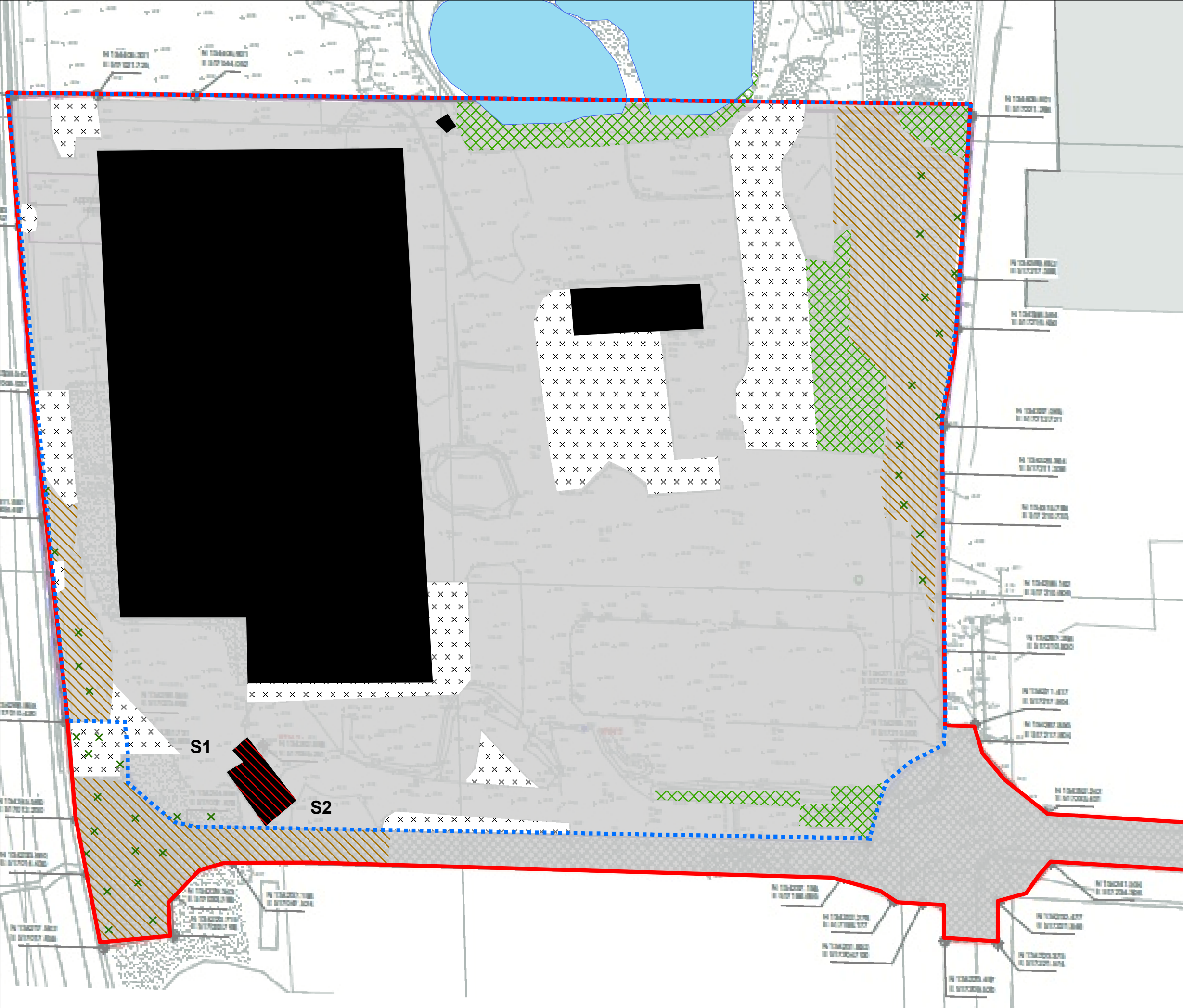


# FIGURE 3.1

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Bat Emergence Survey, 25th October 2016





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**Legend**

- Application boundary
- Ownership boundary
- S1** Surveyor locations
- Building, low bat potential
- Building

Rev	Description	Date	Initial	Checked



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Client **Britannia Crest**

Project **Wealden Brickworks**

Title **Bat Emergence Survey,  
25th October 2016**

Status Information	Drawn By HK	PM/Checked By NB
Job Ref JSL2637	Scale @ A3 1:800	Date Created NOV '16
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# FIGURE 3.2

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GCN eDNA survey results



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Legend

- Application boundary
- Ownership boundary
- P2 Ponds surveyed for GCN
- Pond (positive eDNA survey result)
- Pond (GCN eggs present)

Rev	Description	Date	Initial	Checked



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Title GCN survey results

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Job Ref JSL2637	Scale @ A3 1:2,500	Date Created NOV '16
Figure Number 3.2		Rev -

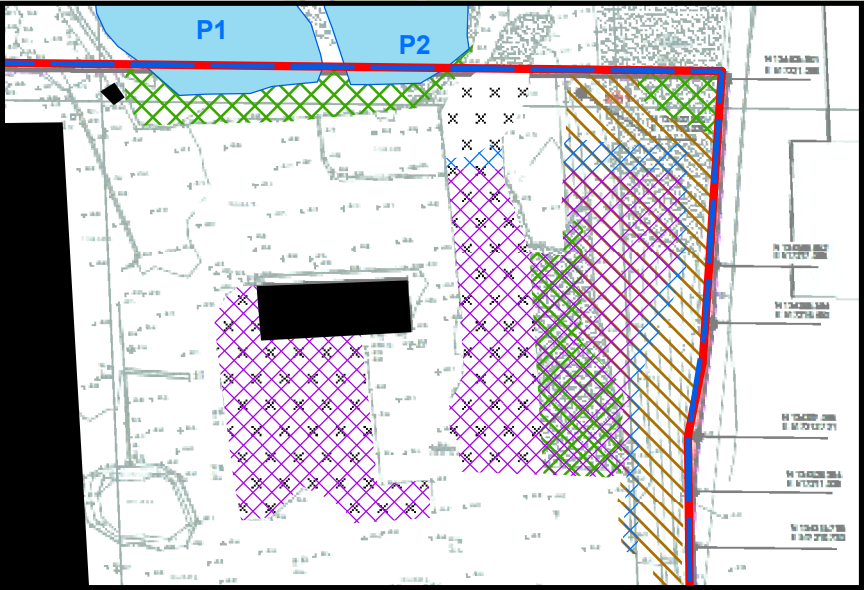
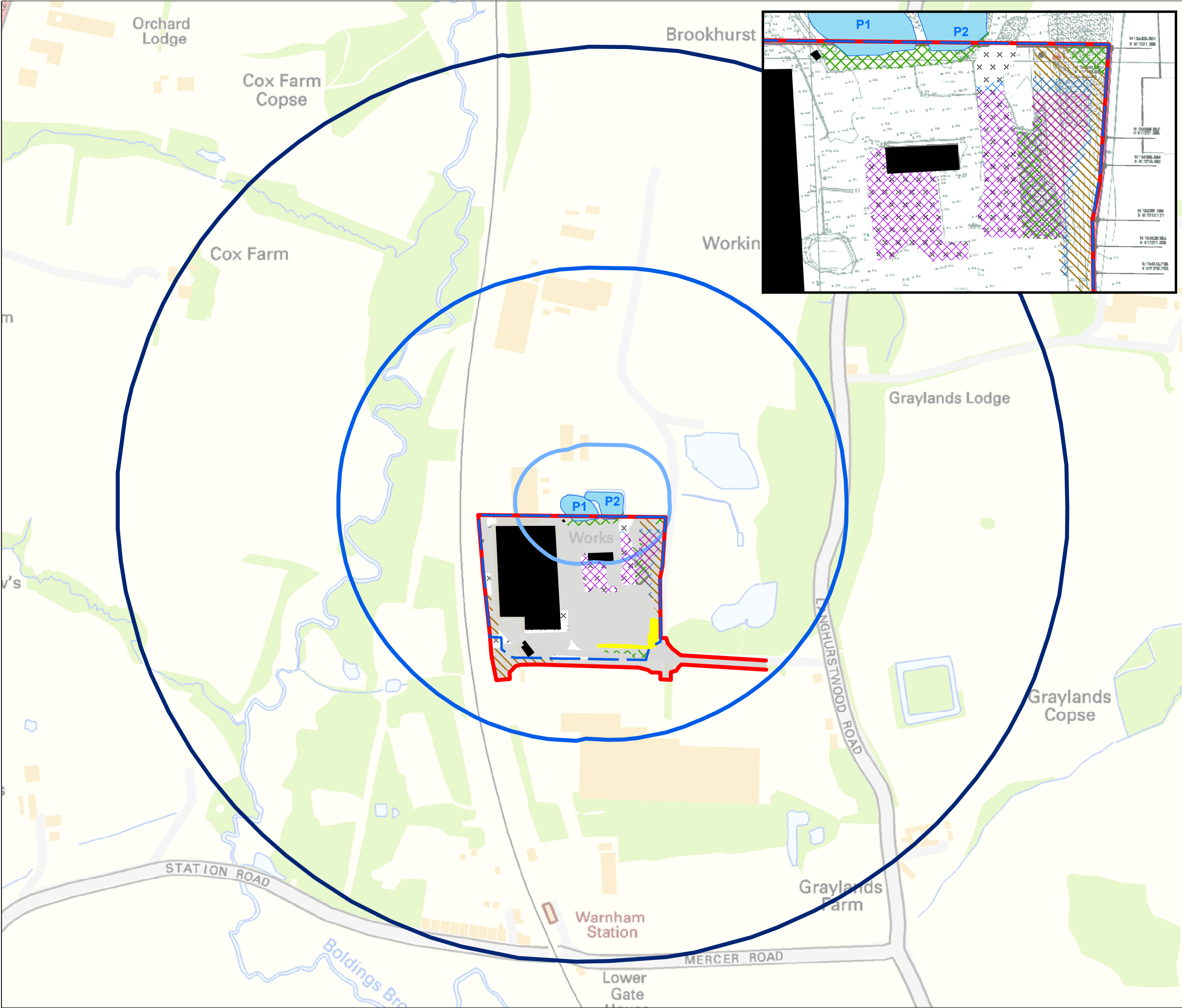


# FIGURE 4.1

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GCN Impacts





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### Legend

- Ownership boundary
- Application boundary
- P1 Ponds supporting GCN
- Temporary habitat loss
- Permanent habitat loss
- 50 m radius
- 250 m radius
- 500 m radius
- Dense scrub
- Short perenial
- Ruderal vegetation

### Habitat Loss

Temporary habitat loss: 329 m2  
Permanent habitat loss: 3,018 m2

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Client Britannia Crest  
Project Wealden Brickworks  
Title Impacts Plan

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