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ECOLOGICAL CONSULTANTS



Preliminary Ecological Appraisal

Former Stairfoot Brickworks, Wombwell Lane, Barnsley, S70 3NS, Barnsley

Project No: PottIn01 | Client: Potters Ballotini Ltd. and Hanson Packed Products Ltd. | Date: 21/08/2023

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Checked by	Jonathan Brickland Director
Approved by	Charlotte Haylock Senior Ecologist

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Peak Ecology is accredited under ISO9001 and as such this report follows the styles and formatting template set out within our Quality Management Form.

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EXECUTIVE SUMMARY

Overview

This report has been prepared by Peak Ecology Ltd on behalf of Potters Ballotini Ltd. and Hanson Packed Products Ltd. It details the results of a Preliminary Ecological Appraisal carried out on 27th June 2023, in relation with planning application 2022/1218 – Enabling works consisting of the erection of perimeter security fencing, entrance gates and associated tree works on the Brickworks, Wombwell Lane, Barnsley site (Barnsley Metropolitan Borough Council).

The survey is an update to a Preliminary Ecological Appraisal undertaken by Peak Ecology Ltd in 2020.

As part of the Preliminary Ecological Appraisal the broad habitat types were identified, mapped and assessed for their ecological importance. The site and the land immediately adjacent to site was also assessed for its potential to support protected species

Implications and Recommendations

Feature	Recommendations	Further survey required?
Designated Sites and Habitats		
Mature trees and woodland edge habitat	All mature trees and woodland edge habitat on site are to be retained throughout works and should be adequately protected in line with BS5837:2012	No further surveys.
Protected and Notable Species		
Amphibians	Given the presence of water bodies within the area, fence installation works should take place following Reasonable Avoidance Measures (RAMs)	No further surveys.
Badgers and hedgehogs	A pre-commencement check should be carried out on site to ensure no new badger setts have been excavated prior to works. Precautionary methodology to be adhered to during the construction phase.	A pre-commencement check, ideally 3-4 weeks prior to works starting on site.
Willow Tit	Removal of any scrub and immature trees onsite should be carried out avoiding the most sensitive periods for breeding willow tits which is generally considered to be February to September (inclusive). Vegetation clearance should be carried out under ecological supervision. The overseeing Ecological Clerk of Works (ECoW) will select deadwood/newly cut wood for use as nesting features. Replacement planting/compensatory planting to be incorporated into the scheme.	No further surveys. Ecological supervision during onsite vegetation removal and ECoW to oversee creation of nesting features.

Feature	Recommendations	Further survey required?
Breeding birds	It is recommended that scrub and immature tree removal is undertaken outside of the main breeding bird season, which is generally considered to be March to September (inclusive), to minimise the risk of damaging active nests. If this is not possible, a suitably experienced ecologist should search all areas for active nests no longer than 48hrs prior to vegetation removal. Any identified active nests must be protected from disturbance until the chicks have fledged, using suitable barriers where necessary.	Pre-commencement check where scrub and immature trees are required to be removed in March to September (inclusive)
Reptiles	Onsite habitat is of value for reptiles. Fence installation works should take place following Reasonable Avoidance Measures (RAMs).	No further surveys.

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1 INTRODUCTION

1.1 Scope of Report

This report has been prepared by Peak Ecology on behalf of Potters Ballotini Ltd. and Hanson Packed Products Ltd. It provides the results of a Preliminary Ecological Appraisal (PEA) associated with the proposed enabling works consisting of the erection of perimeter security fencing, entrance gates and associated tree works on the Brickworks, Wombwell Lane, Barnsley site. The purpose of this report is to:

- Describe the ecological baseline of the site, including existing habitats, presence of protected and priority species (see Appendix A for description) and nearby designated sites;
- Highlight potential significant ecological impacts and constraints associated with the proposals;
- Confirm any further ecological surveys required, for example to confirm presence / likely absence of a specific protected species.
- Provide outline recommendations for mitigation and/or avoidance measures where appropriate; and
- Highlight opportunities for ecological enhancement where appropriate.

In relation to planning and development, this report provides all relevant details to support a planning application, however, it should be read in conjunction with any other ecological surveys that have been undertaken for the site.

The approach to this assessment follows best practice published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2013 & 2017) and the British Standards Institution (BSI, 2013). Details of individual survey methods and associated supporting information are provided in Section 2.

1.2 Site Description

The site extends to approximately 6.6ha of land (shown by the blue line boundary in Figure 1) located to the north east of Wombwell on the south eastern outskirts of Barnsley (central grid reference: SE 37915 04997). The site is dominated by brownfield where the historic brickwork buildings had been demolished and rubble piles left across the site. The Trans Pennine Trail defines the northern boundary of the site with Wombwell Lane (A633) located adjacent to the southern boundary. The immediate surrounding landscape was dominated by industrial and agricultural use; however, restored quarries lie adjacent to the north east of the site. Low density residential is located along Wombwell Lane, with the larger residential developments of Ardsley and Kendray located approximately 200m north east and 800m west of the site respectively.

The location of the site is shown on the plan in Figure 1 below.

Figure 1: Location Plan*



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1.3 Proposed Development

The proposed works include the erection of perimeter security fencing, entrance gates and associated tree works. A proposed development plan has been included in Appendix D.

1.4 Zone of Influence

The geographical extent of the potential impact of a proposed development is known as the Zone of Influence (ZOI). The ZOI is determined by the nature of the development, the habitat requirements and mobility of individual species relevant to the site, and the distances they typically cover as indicated in best practice guidelines.

In relation to great crested newts (GCN) *Triturus cristatus,* and badgers *Meles meles* the zone of influence is considered to be up to 500m and 30m respectively from the

development boundary. In regards to bats, the zone of influence is considered to be the site itself and any connecting habitat links suitable for use as commuting and foraging corridors.

1.5 Planning Context and Legislation

The National Planning Policy Framework 2021 requires that when assessing a planning application all Local Planning Authorities (LPAs) must consider potential impacts on biodiversity that may result from the proposals. In addition to this, county and borough councils typically have biodiversity policies within their Local Development Frameworks that they must also comply with.

In practice, this means that potential impacts on designated sites, priority species and habitats such as those listed on the UK Post-2010 Biodiversity Framework (formerly the UK Biodiversity Action Plan) and species that receive legal direct protection (typically via the Conservation of Habitats and Species Regulations 2017 (as amended) and/or the Wildlife and Countryside Act 1981 (as amended)) are all material planning considerations.

In relation to European Protected Species, the LPA requires sufficient information about likely impacts and mitigation or compensatory measures to satisfy the three Habitats Directive tests, the most relevant to ecological reports being that which relates to the Favourable Conservation Status of the species in question.

Appendix A provides a definition of “protected or priority species” for the purposes of this report, and Appendix B provides details on the legislation for species relevant to this site.

2 METHODOLOGY

2.1 Desk Study

The desk study comprised a review of existing information held by the local biological records centre and other specialist groups, as appropriate. Sheffield Biological Records Centre was contacted to obtain locations of designated sites and any existing records of protected or priority species within 2km of the site.

In addition, a site-specific check has been carried out using the online interactive mapping tool MAGIC (Multi-Agency Geographic Information for the Countryside) to identify any statutory designated sites within the search radius and any previously granted European Protected Species (EPS) Applications.

2.2 Habitat Survey

The survey was undertaken on 27th June 2023 by Helen Staton, BSc (Hons). Helen is experienced in the use of various Habitat Survey methodologies, identification of vascular plants and scoping assessments for protected species. She is also registered to use a Natural England Class licence for GCN and Bat surveys (Class Licence Number: 2015-14490-CLS-CLS and 2015-18041 -CLS-CLS respectively).

Following standard methodology (JNCC, 2010) the survey comprised a walkover of the site to classify and map the extent of individual habitat types, based on the identification of individual plant species. Nomenclature for vascular plant species follows Stace (2019).

Any evidence of invasive plants such as Japanese knotweed *Reynoutria japonica* was also noted.

2.3 Scoping for Protected and Priority Species

The habitats present were assessed for their potential to support any legally protected or otherwise notable species. Any incidental sightings or field signs discovered during the survey were also recorded.

All British wildlife and countryside legislation, policy and guidance were taken into consideration, including:

- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC;
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way Act 2000;
- The Hedgerow Regulations 1997;

- The Natural Environment and Rural Communities Act 2006; and
- The UK Post-2010 Biodiversity Framework (formerly known as UK BAP).

Details of surveys undertaken for protected and priority species are provided below, Appendix C provides detailed methodologies for individual surveys carried out.

2.4 Limitations

2.4.1 *3rd Party Data*

Desk study data obtained for this assessment is provided and validated by third parties therefore Peak Ecology have no control over any errors within the dataset. The data represents the information available at the date of request and a lack of records for any particular species does not necessarily indicate absence from the local area as many species are under-recorded.

2.4.2 *Survey Methods*

Based on the identification of individual plant species, the survey provides sufficient information to enable classification of broad habitat types; however, it does not constitute a detailed botanical survey. Plant species lists compiled by this type of survey should not be considered definitive as not all species will be apparent at all times of year.

The scoping assessment for protected species highlights habitats and features suitable for protected species and notes any incidental sightings or field signs discovered; however, it should not be interpreted as providing a comprehensive presence/ likely absence survey for individual species.

It should be noted that if there were no records or observations of certain protected or rare species, this does not preclude their presence on site. There is always a risk of species being overlooked, either owing to the timing of the survey or the scarcity of the species occupying the site.

2.5 Lifespan of Data

The results and recommendations contained within this report are considered to be valid for up to two years from the date of survey, assuming that there are no significant changes to the site condition or management within this period. After this period, or should the site conditions change, an update may be required in order to inform ecological constraints to development proposals and/or accompany a planning submission.

3 RESULTS

3.1 Desk Study

3.1.1 *Designated Sites*

Two statutory designated sites were identified within 2km of the site; the Stairfoot Brickworks Site of Special Scientific Interest (SSSI), located adjacent to the south eastern boundary of the site and the Dearne Valley Park Local Nature Reserve (LNR) located 1.7km to the north west of the site. Details relating to these designations are provided below. Sheffield Biological Records Centre (SBRC) provided details of five non-statutory designated sites. Descriptions for all sites have been included within Table 1.

The south eastern corner of the site falls within the SSSI Impact Risk Zone for the Stairfoot Brickworks SSSI. Proposed works fall into the identified risk category of "all planning applications – except householder applications" as defined by Natural England and is considered, by definition, likely to cause an impact to the SSSI. As such, the Local Planning Authority (LPA) will be required to consult with Natural England prior to granting planning permission for any development on site.

The closest Priority Habitat to the site is an area of Deciduous Woodland 140m to the east of the site, with an additional area of Young Tree Woodland mapped under the National Forestry Inventory in 2014 bordering the north west boundary of the site. The next closest Priority Habitat to the site is the Open Mosaic Habitats on Previously Developed Land of the historic Mineral Works approximately 120m to the north east of the site.

Table 1: Designated sites identified during the desk study

Name	Status	Reason for designation	Approximate distance & direction from site
Statutory Sites			
Stairfoot Brickworks	SSSI	Designated for its geological significance, the Stairfoot Brickworks SSSI is of international importance for it Aegiranum Marine Band.	Adjacent to the site boundary.
Dearne Valley Park	LNR	Designated for its value as an acidic oak woodland, with a mosaic of wetland habitats.	1.7km to the NW
Non-Statutory Sites			
Swaithe Flood Meadows	LWS	Priority habitats supported by the network of river corridors.	0.35km to the SW
Stairfoot Disused Railway	LWS	Historic railway line, closed in 1930	0.7km to the NW
Sunny Bank, Horse Carr and Storrs Wood	LWS *(Ancient Woodland)*	Ancient woodland, lowland mixed deciduous woodland and some unimproved neutral grassland.	1.2km to the NE
Wombwell Wood	LWS *(Ancient Woodland)*	Ancient woodland supporting a large variety of woodland bird species.	1.5km to the SW

Name	Status	Reason for designation	Approximate distance & direction from site
Cliff Wood	LWS	Woodland supporting a varied habitat structure	1.7km to the NW

3.1.2 *Protected / Notable Species*

The table below provides a summary of the species records received from SBRC that are considered most relevant to the site and/or proposals, from the last ten years. The full dataset is not included here but is available on request.

Two records of European Protected Species (EPS) mitigation licences were noted within 2km of site, both of which included destruction of breeding and resting places for soprano pipistrelle *Pipistrellus pygmaeus,* granted in 2016 and 2018.

Table 2: Summary of protected and notable species records relevant to the site and/or proposals

Species		Location and date of closest record	Location and date of most recent record	Total Number of Records
Common name	Latin name			
Amphibians				
Common frog	*Rana temporaria*	1.6km SSW (2011)		1
Birds (BoCC Red and Schedule 1 species only)				
Barn owl	*Tyto alba*	0.3km E (2018)		1
Redwing	*Turdus iliacus*	0.5km SSW (2016)		15
Yellowhammer	*Emberiza citrinella*	0.6km ENE (2017)	1.7km E (2017)	21
House sparrow	*Passer domesticus*	0.65km SE (2016)	1.1km SE (2017)	7
Linnet	*Linaria cannabina*	0.7km S (2016)	1.95km NW (2019)	12
Willow tit	*Poecile montanus*	0.75 SSE (2016)	1.05km NNW (2020)	24
Lapwing	*Vanellus vanellus*	0.8km S (2016)	1.45km NE (2017)	21
Woodcock	*Scolopax rusticola*	0.8km S (2016)	1.6km NW (2018)	3
Skylark	*Alauda arvensis*	0.8km S (2016)	1.85km NE (2017)	21
Song thrush	*Turdus philomelos*	0.8km SSE (2016)	1.35km NNW (2019)	27
Fieldfare	*Turdus pilaris*	0.8km SW (2016)		5
Grey partridge	*Perdix perdix*	0.95km SSE (2013)	1.7km NW (2019)	11
Lesser redpoll	*Acanthis cabaret*	0.95km SSE (2016)		2
Starling	*Sturnus vulgaris*	1.1km SSE (2017)		1
Mistle Thrush	*Turdus viscivorus*	1.2Km WSW (2015)	1.85km NW (2019)	15
Grey wagtail	*Motacilla cinerea*	1.25km ESE (2019)		13
Marsh tit	*Parus palustris*	1.4km SSW (2012)		1

Species		Location and date of closest record	Location and date of most recent record	Total Number of Records
Common name	**Latin name**			
N.B. An extensive number of bird records were returned within the original data set. As such, only species listed on the BoCC4 Red List and Schedule 1 have been listed above. Additional species returned and listed on the BoCC4 Amber List within 2km of the site included species such as: black-headed gull, kestrel, kingfisher, mallard, reed bunting, snipe, stock dove, tawny owl, teal and willow warbler.				
Bats				
Common pipistrelle	*Pipistrellus pipistrellus*	0.6km SW (2010)		1
Soprano pipistrelle	*Pipistrellus pygmaeus*	0.6km NNE (2016)		6
Pipistrelle species	*Pipistrellus sp.*	0.6km NNE (2016)		11
Noctule	*Nyctalus noctula*	0.6km NNE (2016)		4
Myotis	*Myotis sp.*	0.6km NNE (2016)		1
Mammals (excl. bats)				
Badger	*Meles meles*	*Within 2km of survey area		14
European hedgehog	*Erinaceus europaeus*	0.75km NE (2018)	1.5km E (2020)	3
Otter	*Lutra lutra*	1.65km N (2020)		1
Brown hare	*Lepus europaeus*	1.95km SSW (2014)		1
Reptiles				
Grass snake	*Natrix helvetica*	1.4km S (2012)	1.9km NW (2018)	2
Common lizard	*Zootoca vivipara*	1.7km SW (2017)		6
UK BAP Invertebrates				
Dingy Skipper	*Erynnis tages*	0.65km NW (2013)	1.7km to NW (2018)	13
Latticed Heath	*Chiasmia clathrata*	0.65km NW (2013)		1
Cinnabar moth	*Tyria jacobaea*	1.7km NW (2018)		8

*NB. Due to high risk of persecution of this species, the records remain confidential at the request of the records centre.

3.2 Habitat Survey

The individual habitat types recorded at the site are described under the sub-headings below, with the location and extent of each illustrated on the Habitat Map in Figure 2. Details of Target Notes (TN) can also be found on Figure 2. Full species lists with associated scientific nomenclature for each habitat type has been provided in Appendix E.

Habitats found on site, listed in order of dominance, included:

- Bare ground and hardstanding;
- Ephemeral/short perennial vegetation;
- Broad-leaved semi-natural woodland;
- Poor semi-improved grassland;

- Dense scrub;
- Scattered scrub;
- Tall ruderal;
- Scattered broad-leaved trees and coniferous trees;

3.2.1 *Bare Ground and Hardstanding*

The southern and central sections of the site are dominated by large areas of hardstanding and bare ground. Earth bunds were located adjacent to the western and north western boundaries of the site.

Ephemeral/short perennial vegetation cover was present within the areas of bare ground (TN3) and hardstanding (TN2). Within the areas of bare ground vegetative cover was sparse, with approximately 5% cover at ground level and between 10%-30% cover on the earth bunds. In general, the areas of hardstanding supported a higher level of vegetative cover, approximately 10%-30% on average. However, there were large sections, particularly within the centre of the site and in the eastern section of the site, where the ground was completely clear of vegetation. Descriptions of the ephemeral/short perennial vegetation in each of these areas has been provided within the next section (Section 3.2.2).

	
Hardstanding and rubble areas with sparse patches of vegetation.	Earth bund along the north eastern boundary of the site

3.2.2 *Ephemeral/Short Perennial Vegetation*

Newly generated ephemeral/short perennial vegetation was encroaching into areas of hardstanding, rubble piles, earth mounds and bare ground. Density of vegetation cover varied across the site in these areas. In the southern and central section of the site across the hardstanding and around the earth mounds the vegetation cover ranged from 5%-30% with large concrete areas and bare, unvegetated ground still dominant. Vegetation was

noted to be taller in these areas, with a sward of approximately 15cm-20cm. These areas were dominated by buddleia, rosebay willowherb, teasel, toadflax and creeping thistle, with species such as coltsfoot, ribwort plantain, oxeye daisy and groundsel abundant.

In the northern section of the site ephemeral/short perennial vegetation was the dominant habitat type with small areas of bare earth (accounting for approximately 10% of the area) present throughout. The denser vegetation cover had a shorter sward height (approximately 5cm-10cm) species that were more prevalent in this area included oxeye daisy, shepherds' purse, hawkbits, common daisy, creeping thistle and dandelion.

Grass species showed a greater dominance around the edges of the northern area, with dense patches of false oat grass interspersed with red fescue, Yorkshire fog and timothy.



Ephemeral/short perennial vegetation in the northern section of the site

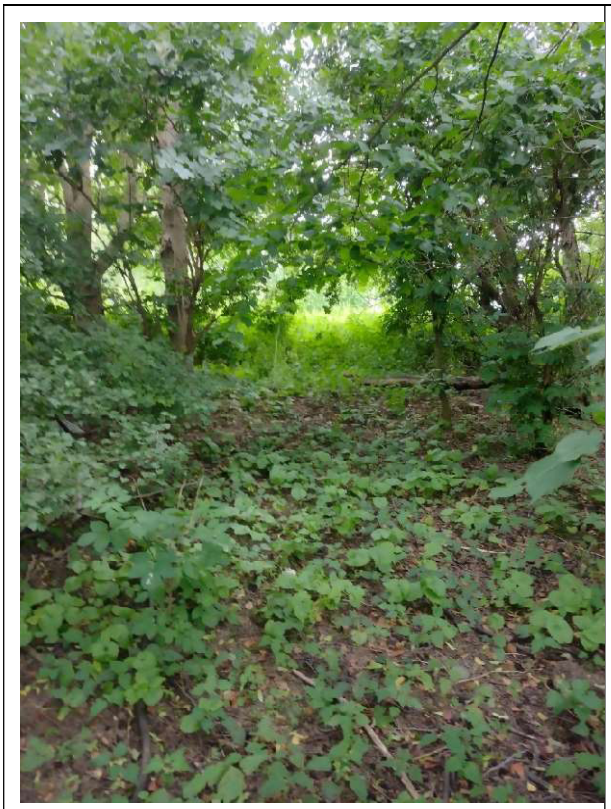
3.2.3 ***Broad-leaved Semi-natural Woodland***

Areas of woodland were located along the edges of the southern, eastern and northern boundaries of the site. The planted woodland along the south westerly boundary of the site was dominated by sycamore. The woodland has a canopy of approximately 15m-18m high. A line of planted hawthorn is growing on the inside edge (north eastern) of the woodland. All trees were mature and in good health with no missing limbs, cracks or deadwood.

The woodland on the south easterly side of the site was generally above site level, growing on bunds and providing screening for residential areas. The woodland was of a varying canopy height ranging from approximately 8m-15m. Species diversity was greater in these areas of woodland with additional species including alder, ash, field maple, oak, common lime, aspen and silver birch. Species present on the outskirts of the woodlands included rowan and elder.

The woodland sections towards the northern sections of the site, and along the boundaries were of varying canopy height from approximately 10-12m. these sections were elevated above site by approximately 1m. Species diversity was similar in these areas of woodland with additional species including crack willow and sessile oak.

The understories of all the woodland areas were sparsely vegetated with heavy leaf litter and areas of bare ground. Scrub level vegetation was present including dogwood, bramble, snowberry and dog-rose.

	
Woodland structure in the south easterly sections of the site	Woodland structure in the south westerly sections of the site

3.2.4 *Species Poor Semi-Improved Grassland*

Small areas of species poor semi-improved grassland were scattered throughout the site. No management was evident within the areas, as with the rest of the habitats on site. The grass

species in these areas were dominated by false oat-grass and perennial rye grass with occasional cock's-foot, red fescue and timothy. Forb species that were also recorded in these areas were dominated by greater plantain, creeping buttercup, white clover, common ragwort, herb-Robert and ribwort plantain. Occasionally occurring species also included red clover, bush vetch, curled leaf dock, cinquefoil and fox and cubs. Species that were rarely occurring, mainly in the grassland in the northern section of the site included common mouse-ear, sweet melilot, bird's-foot trefoil, dove's-foot cranesbill and wild strawberry.



Area of species poor semi-improved grassland in the south of the site

3.2.5 *Tall Ruderal Vegetation*

Tall ruderal vegetation was dominant in the south east of the site due to the lack of management in the grassland field. Species were dominated by rosebay willowherb, mugwort, hogweed and common nettle with rarely occurring spear thistle, goat willow saplings and cow parsley. A small section of tall ruderal was also present along the northern boundary of the site between the northern bund and the adjacent Trans Pennine Trail. Species present reflected those found within the southern section of the site, although less species diversity was recorded in this section.



Tall ruderal field in the west of the site

3.2.6 *Dense Scrub and Scattered Scrub*

Scattered scrub was present throughout the site where a lack of disturbance had allowed progression of habitats. Denser patches of scrub were apparent in areas often adjacent to areas of scattered scrub. The largest section of dense scrub divided the tall ruderal field in the west of the site, from the adjacent woodland. Scrub areas were dominated by bramble with occasional species including blackthorn, hawthorn, dog-rose and elder.



Area of dense scrub separating the northern section of the site

3.2.7 *Scattered broad-leaved trees and coniferous trees*

Scattered immature trees were present in many of the areas of dense and scattered scrub. Species were dominated by silver birch. Scattered trees were also present along the tops of the earth bunds in the western areas of the site.



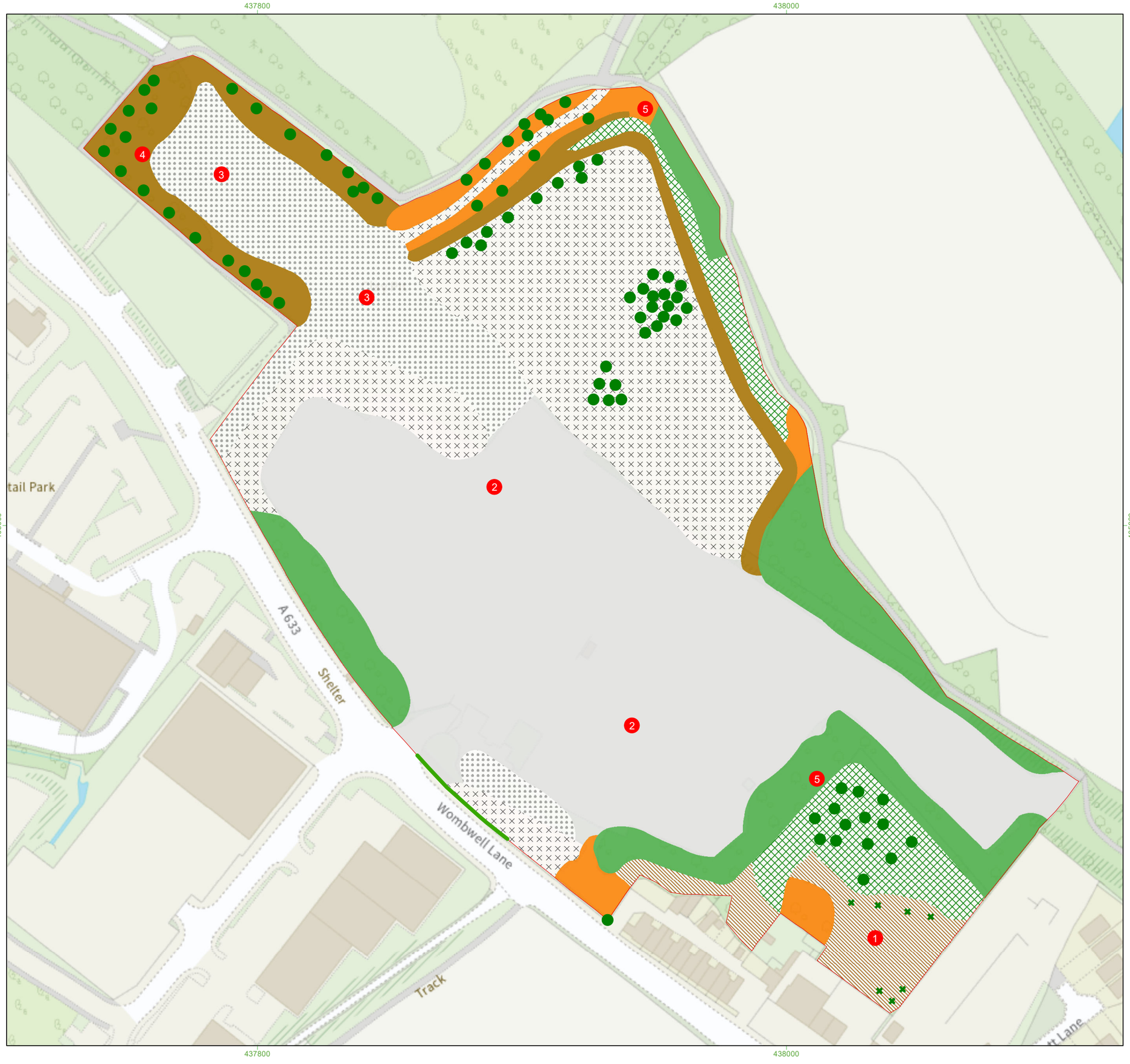
Scattered trees along north western boundary

3.2.8 *Species poor intact hedgerow*

A hawthorn dominated hedgerow was located on the sites south western boundary. It measured approximately 20m in length and was approximately 2.5m in height. It was semi mature, largely unmanaged and gappy at the base.



Species poor intact hedgerow located on the sites south eastern boundary.





Survey Information	
	Site boundary (63,627.0m^2)
Phase 1 Habitat Survey	
	Broadleaved woodland (6,605.1m^2)
	Dense scrub (3,473.3m^2)
	Semi-improved grassland (2,080.1m^2)
	Tall ruderal (2,338.7m^2)
	Ephemeral / short perennial (13,316.3m^2)
	Earth bund (4,570.7m^2)
	Hardstanding (24,477.4m^2)
	Bare ground (6,765.4m^2)
	Hedgerow (46.5m)
	Scattered tree
	Scattered scrub
	Target note

Target Notes:

1 – Mammal path
2 – Hardstanding dominant with 10-30% ephemeral / short perennial cover
3 – Bare ground dominant with minimal vegetation at ground level
4 – Earth bunds with 10-30% ephemeral / short perennial cover
5 – Rabbit activity

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N

0 10 20 40
Metres

PROJECT TITLE

FORMER STAIRFOOT BRICKWORKS

DRAWING TITLE

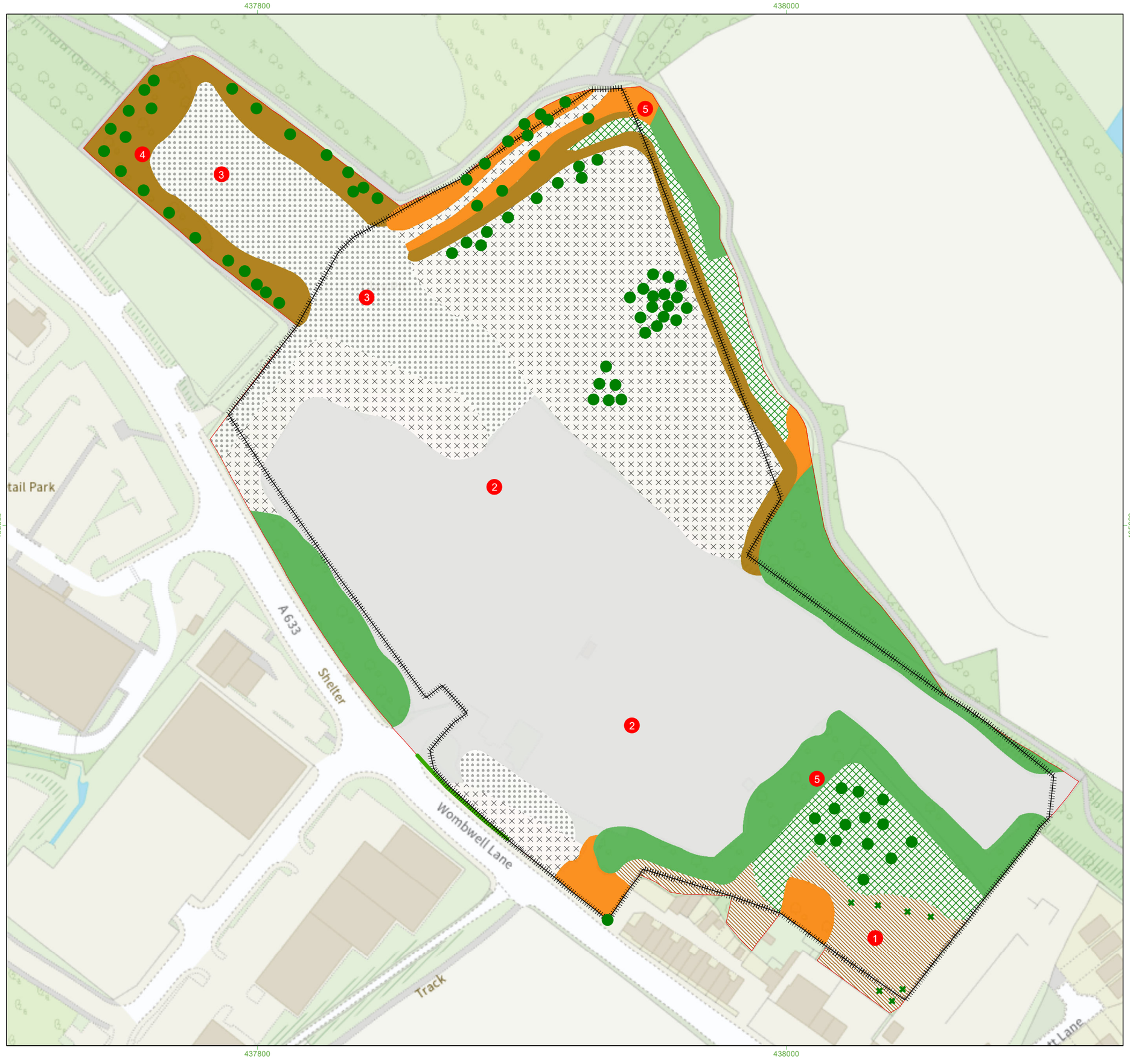
Figure 2. Phase 1 Habitat Plan

VER	DATE	REMARKS	Drawn	Checked
2.3	21/08/23	Phase 1	MP	HS

DRAWING NUMBER:
PeakEcology/Stairfoot Brickworks/Phase1

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Deepdale Business Park,
Bakewell,
Derbyshire.
DE45 1GT.
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DATUM	OSGB
PROJECTION	BNG
PLOT SIZE	A3
SCALE	1:1,400





Survey Information	
	Site boundary (63,627.0m^2)
Phase 1 Habitat Survey	
	Broadleaved woodland (6,605.1m^2)
	Dense scrub (3,473.3m^2)
	Semi-improved grassland (2,080.1m^2)
	Tall ruderal (2,338.7m^2)
	Ephemeral / short perennial (13,316.3m^2)
	Earth bund (4,570.7m^2)
	Hardstanding (24,477.4m^2)
	Bare ground (6,765.4m^2)
	Hedgerow (46.5m)
	Fence (1,040.0m)
	Scattered tree
	Scattered scrub
X	Target note

Target Notes:

1 – Mammal path
2 – Hardstanding dominant with 10-30% ephemeral / short perennial cover
3 – Bare ground dominant with minimal vegetation at ground level
4 – Earth bunds with 10-30% ephemeral / short perennial cover
5 – Rabbit activity

Source:
Ordnance Survey © Crown copyright 2023, All rights reserved. License Number 100049837.

N

0 10 20 40
Metres

PROJECT TITLE

FORMER STAIRFOOT BRICKWORKS

DRAWING TITLE

Figure 3. Phase 1 Habitat Plan with Proposed Fenceline

VER	DATE	REMARKS	Drawn	Checked
2.3	21/08/23	Phase 1 plus fence	MP	HS

DRAWING NUMBER:
PeakEcology/Stairfoot Brickworks/Phase1

peakecology LIMITED
ECOLOGICAL CONSULTANTS
Arden House,
Deepdale Business Park,
Bakewell,
Derbyshire.
DE45 1GT.
www.peakecology.co.uk

DATUM	OSGB
PROJECTION	BNG
PLOT SIZE	A3
SCALE	1:1,400

3.3 Protected and Priority Species

3.3.1 *Amphibians*

No waterbodies were present onsite. Previous Great Crested Newt surveys undertaken by Peak Ecology Ltd in 2021, identified the presence of a waterbody, referred to as Pond 1 (P1), within the centre of the site which has since been removed following the repair of underground drainage systems. No evidence of the former pond exists onsite (i.e. no aquatic vegetation, or water tolerant terrestrial vegetation present).

Following a search of aerial photography and OS mapping, and based on previous site surveys, an additional four waterbodies were found within a 500m radius as shown on Figure 2, and detailed within Table 3.

Figure 3: Pond Location Plan and Approx. distance away



During the survey P2 and P4 were subjected to a Habitat Suitability Index (HSI) assessment (Oldham *et al,* 2000) with results summarised in Table 3 (methodology shown in Appendix C, full results shown in Appendix F). It was not possible to access P5 at the time of the survey due to its location within private land. P3 was inaccessible due to dense scrub vegetation preventing surveyor access, although where access points were made into the vegetation, no water was visible suggesting that it may be dry.

P6 was discounted due to its location over Wombwell lane which is considered to be a major barrier to dispersal for great crested newts.

Table 3: Habitat Suitability Index Assessment of Ponds on Site, photo and pond description

Pond ref	Pond description and HSI score	Pond photo
P2	Large waterbody measuring approximately 12,000m^2 located within Oaks Plantation. At the time of the survey, the waterbody had significantly dried, appeared shallow with an algae bloom present. Waterfowl noted although not envisaged to have a major impact, fish possible. Marginal and aquatic vegetation present. **HSI score: 0.71 Good**	
P4	Drainage ditch located to the south east. At the time of the survey the pond was dry and densely vegetated with bullrushes. No standing water present. **HSI score: 0.62 Average**	

The HSI calculation takes into account a number of factors to produce a final score between 0 and 1, which can be translated into a suitability rating. Whilst the HSI score cannot be used to confirm presence/likely absence of GCN, it can provide an indication of habitat quality.

Although dominated by hardstanding and bare ground, the rubble piles, tall ruderal, scrub and areas of undisturbed grassland provided suitable opportunities for commuting and foraging amphibians, including GCN in their terrestrial phase. In addition, the rubble piles and woodland, tree and scrub habitat have been assessed as suitable hibernaculum for overwintering amphibians.

3.3.2 ***Badger***

No evidence of badger was identified on site during the survey e.g. snuffle holes, latrines, mammal trails or active setts. However, several areas of the site were inaccessible due to dense vegetation, in particular the dense scrub located towards the south eastern side of the site, and along the bunds on the north eastern boundary.

The embankments and woodland areas across the site were considered suitable to support potential sett excavations, however, all other habitats were considered unsuitable due to the flat nature and dominance of hardstanding of the site.

Numerous rabbit *Oryctolagus cuniculus* holes were found scattered across the site (TN5). A small network of mammal paths was recorded across the tall ruderal vegetation in the east of the site (TN1). Fox *Vulpes vulpes* scat was found along the south eastern boundary of the site near the field, and fox activity could also account for the mammal paths. However, due to the suitable nature of the habitats on site for both sett excavation (earth bunds and woodland) and foraging and commuting badgers, it cannot be discounted that badgers may commute and forage through the site or use it for sett excavation in the future.

3.3.3 ***Bats***

3.3.3.1 Roosting Bats

No buildings present onsite. All trees assessed to be of **negligible roosting** value (based on ground level assessments).

3.3.3.2 Foraging and Commuting Bats

The woodland edge habitat and tree lines on site provide suitable commuting and foraging habitat for bats. In addition, the areas of tall ruderal, scrub, grassland and ephemeral/ short perennial vegetation are likely to support a good invertebrate assemblage for foraging bats. The site is well connected with the wider habitats including a network of hedgerows and woodland edge habitats. Additional linear features of note for commuting bats include the tree lined Trans Pennine Trail adjacent to the northern site boundary and the River Dob Sike (a tributary of the River Dove) and the River Dearne located 125m and 1km to the south and north respectively. As such, the site was assessed as having **High** potential for foraging and commuting bats.

3.3.4 ***Willow tit***

The data search returned records of willow tit *Poecile montanus* within the search area. A total of 24 records were returned, the closest of which is for a site located 0.75km SSE. The most recent record dates 2020, for a site located 1.05km NNW. Dearne Valley and Dearne Valley Wetlands SSSI, located 2.9km SSE, is a stronghold for the nationally rare and declining willow tit.

Willow tit will occupy habitat which is generally damp and can support thickets of dense scrub; wet woodland, former industrial sites (gravel pits, quarries, spoil pits) and scrubby margins to drier woodland, upland heath and mires, wet grassland, wetland and wooded areas within farmland are all potential areas for willow tit to colonise.

Rotting deadwood is a critical element of breeding willow tit habitat, as they require this to excavate their nests. Structure is also important within breeding territories. A low canopy with a dense understory comprising thorny scrub and standing deadwood and young trees is ideal (Willow Tit Conservation Handbook 2021).

Given the habitat connectivity between the application site and areas of favourable habitats for this species, its presence onsite cannot be discounted although breeding onsite is considered less likely due to an absence of deadwood.

3.3.5 ***Breeding Birds***

The woodland, scattered trees and dense scrub all provide suitable nesting opportunities for birds, with nesting material recorded in the sycamore dominant woodland in the south of the site. Goldfinch *Carduelis carduelis*, chiff chaff *Phylloscopus collybita*, house sparrow *Passer domesticus*, robin *Erithacus rubecula*, great tit *Parus major*, nuthatch *Sitta europaea*, blackbird *Turdus merula,* long-tailed tit *Aegithalos caudatus*, magpie *Pica pica* and wood pigeon *Columba palumbus* were seen and heard onsite at the time of the survey. In addition, the areas of grassland, tall ruderal and ephemeral/short perennial vegetation offer extensive foraging opportunities for birds.

Whilst the site may not support a high diversity of bird species, due to the habitats present, it does have potential to support species of high conservation value. These species include Schedule 1 listed woodlark and red listed linnet and lesser redpoll.

Although there are suitable habitats for ground nesting birds on site, the use of the site by local dog walkers, motorbikes and by BMX riders means the high level of disturbance caused by these activities reduces the suitability for ground nesters and may reduce the number of ground nesting species.

3.3.6 ***Reptiles***

The woodland, tall ruderal, scrub and grassland habitats scattered across the site offer suitable shelter for foraging and commuting reptiles, with the adjacent open habitat of bare ground and hardstanding providing suitable basking opportunities. In addition, the rubble piles provided suitable opportunities for hibernating reptiles.

3.3.7 *Water Vole, Otter and White-clawed Crayfish*

Due to the lack of watercourses, the habitats on site were considered unsuitable to support white-clawed crayfish *Austropotamobius pallipes,* water vole *Arvicola amphibious* or otter *Lutra lutra.* The River Dearne provides suitable habitat for otter although given its distance away (over 1.2km) it is highly unlikely otter would be present on site. As such, no further consideration has been given to any of these three species in this report.

3.3.8 *Other Protected and/or Priority Species*

The habitats offered some suitability for hedgehog *Erinaceus europaeus,* which is a Priority Species under the UK Post-2010 Biodiversity Framework (formerly UKBAP) and also a Local Biodiversity Action Plan (LBAP) species.

The site is not considered likely to support any other protected or priority species.

4 EVALUATION

4.1 Impact Assessment of Development Proposals

Current proposals (Figure 3) for the site will require the removal of some onsite vegetation to facilitate the fence installation, namely small areas of tall ruderal, ephemeral/short perennial and scrub around the site's perimeter. The fence will traverse along the edges of two woodland sections (on the eastern boundary and north eastern boundary) although no trees will be removed.

4.2 Designated Sites

The installation of fencing around the sites' perimeter is not envisaged to have any impact on locally designated sites including Dearne Valley Park LNR or Swaithe Flood Meadows LWS.

Located adjacent to the eastern boundary of the site is the Stairfoot Brickworks SSSI, with approximately 60m^2 of the SSSI overlapping the north eastern corner of the site. The development site falls within the SSSI Impact Risk Zone (IRZ) for the SSSI and it is noted that all planning applications must undergo consultation between the Local Planning Authority (LPA) and Natural England (NE) prior to approval of planning. It is therefore recommended that a working standoff zone is implemented during proposed work, as detailed in Section 5, to prevent a negative impact on the SSSI.

4.3 Habitats & Botanical Interest

4.3.1 *Lowland Mixed Deciduous Woodland*

The woodlands along the eastern and northern boundaries of the site are considered to fall within the Lowland Mixed Deciduous Woodland Priority Habitat, due to their structure, composition and size. In addition, Mixed Deciduous Woodland is also listed as a Priority Habitat under the Barnsley LBAP. All areas of woodland will be retained and should also be adequately protected during the works, through demarcation of Root Protection Areas (RPA's) and/or incorporation of Precautionary Working Method Statements as per the Arboricultural Method Statement (Wharncliffe Trees and Woodland Consultancy, 2021).

4.3.1.1 Open Mosaic Habitats on Previously Developed Land

Habitats recorded on site (bunds, ephemeral/short perennial and bare ground) identified the site for assessment under the criteria for the 'Open Mosaic Habitats on Previously Developed Land' as detailed in the UK Post-2010 Biodiversity Framework and on the LBAP. Under UK Habitat Classification, the Open Mosaic Habitat on Previously Developed Land has been assessed to be of moderate value.

Proposed fence installation around the perimeter of the site will have minimal impact on this habitat and therefore further surveys and/or mitigation are not required.

4.4 Protected and Priority Species

4.4.1 *Amphibians*

GCN are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are protected as European Protected Species (EPS) under The Conservation of Habitats and Species Regulations 2017 (as amended). Additionally, GCN and common toads *Bufo bufo*, are included on the UK Post-2010 Biodiversity Framework.

No GCN were identified within the desk study and the closest record of common amphibians was common frog *Rana temporaria* located over 1.6km to the south southwest of the site.

GCN eDNA sampling of P1, P2, P3 and P4 was undertaken by Peak Ecology Ltd in 2021 (results shown in Appendix G). All four ponds sampled for GCN eDNA were recorded as 'negative', which confirmed the likely absence of GCN from the ponds sampled in 2021. No further surveys for GCN Population Size Class were undertaken as a result.

While the results of the 2021 eDNA sampling are now considered out of date, the removal of P1 and the natural habitat degradation of P3 and P4, renders it unlikely that the results from the 2021 surveys would differ were they to be repeated. There have been no changes to surrounding terrestrial habitats, and the aquatic value of the ponds identified within the 500m radius have decreased in value.

Nevertheless, given the absence of data for P5, a precautionary approach should be undertaken during any vegetation removal and construction within potential terrestrial habitat. Reasonable Avoidance Measures should be implemented as detailed in Section 5.

4.4.2 *Badger and Hedgehogs*

No evidence of badger was recorded during the survey. However, badgers have been recorded within 2km of the site in the desk study. In addition, the habitats within the woodland and earth bunds, were considered suitable for future sett excavation. Although all woodland habitat is to be retained, some of the earth bunds in the west will be reduced in size and all works may fall within 30m (Zone of Influence) of these habitats, should future sett excavation occur on site.

It is recommended that a pre-commencement check for new setts is carried out prior to works starting and a precautionary method of works is adhered to throughout construction, as detailed in Section 5.

Although no evidence of hedgehog was recorded during the site visit, habitats present on site are considered suitable to support foraging, commuting and hibernating hedgehog. As such, the precautionary methodology outlined in Section 5 should be followed during all construction works.

It is currently unknown the type of boundary fencing that will be used surrounding the site, but due to the retention of the woodland and all of the northern and western sections of the site, it is highly unlikely that the site, when complete, would form a significant barrier to commuting mammals, including badgers and hedgehogs.

4.4.3 ***Bats***

Bat species and their roosts are fully protected under the Conservation of Habitats and Species Regulations 2017 and under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Section 1 (Schedule 5). Bats are also a UK Post-2010 Biodiversity Framework species.

The site was assessed as having **Negligible** potential for roosting bats. As such, no further surveys are required.

The site was assessed as having **High** potential for foraging and commuting bats, with common pipistrelle *Pipistrellus pipistrellus,* soprano pipistrelle *P. pygmaeus*, noctule *Nyctalus noctula* and Myotis *myotis sp.* all previously recorded within 0.6km of the site. Proposed works included the retention of all linear commuting features on site. As such, it is considered that no negative impact to the favourable conservation status of any bat species will result from the proposed works and therefore no further surveys are required at this time.

4.4.4 ***Willow tit***

The site has potential for supporting willow tit foraging and commuting. While suboptimal for breeding (given the lack of deadwood), the site falls within the Zone of Influence of bounding and connected habitats which are of optimal value.

A precautionary approach should be undertaken during any vegetation removal and construction within potential habitat. Reasonable Avoidance Measures should be implemented as detailed in Section 5.

4.4.5 ***Breeding Birds***

The site has potential to support a range of bird species across a variety of habitats, in particular the woodlands and scrub, but also potentially the open ground areas.

The removal of any habitats which may support breeding birds, such as the areas of dense scrub or immature scattered trees should take place outside the main bird nesting season, which typically runs from March to September (inclusive), however, where this is not possible a pre-commencement check must be carried out, by an appropriately experienced ecologist prior to their removal, as detailed in Section 5.

4.4.6 ***Reptiles***

All reptiles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the rarer species are also protected as European Protected Species under The Conservation of Habitats and Species Regulations 2017 (as amended). Additionally, reptiles, are included on the UK Post-2010 Biodiversity Framework.

Suitable habitat was recorded across the site to support commuting, foraging and hibernating reptiles. In addition, grass snake *Natrix helvetica* and common lizard *Zootoca vivipara* were recorded historically within the desk study, although these were over 1.4km and 1.7km from the site respectively. The site is considered to be well connected to the surrounding habitats to the north, which also provide suitable opportunities for reptiles.

Peak Ecology Ltd undertook presence/likely absence surveys for reptiles during 2021. No reptiles were recorded throughout the survey period.

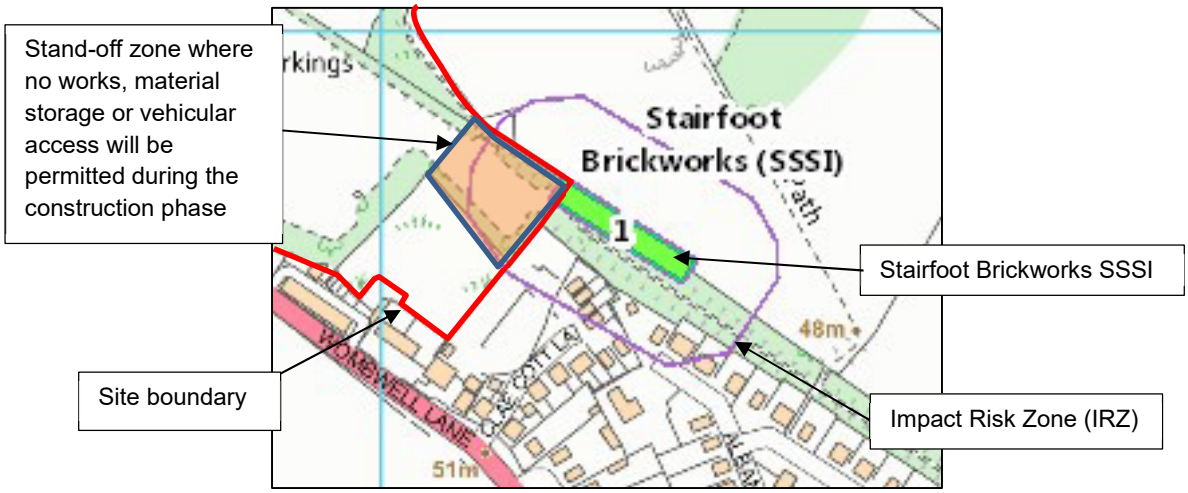
Proposed fence installation will result in minor loss of habitat. A precautionary approach should be undertaken during any vegetation removal and construction within potential habitat. Reasonable Avoidance Measures should be implemented as detailed in Section 5.

5 RECOMMENDATIONS

5.1 Designated Sites

Due to the proximity of the site to the Stairfoot Brickworks SSSI, it is recommended that a stand-off zone is retained throughout the construction phase of works to prevent any negative impact to the SSSI. An extract from the MAGIC mapping software has been used below to show the location of the SSSI, associated IRZ and a proposed location for a stand-off zone.

Figure 4: Location of proposed working stand-off zone



This approach will be subject to approval by the LPA following the required discussions with NE, prior to approval of the planning.

As there is no proposed change to the habitats that fall into the IRZ of the SSSI it is considered unnecessary to retain the construction phase stand-off zone during the operational phase of the site. However, it is recommended that discussions are had with NE for the requirement of protective fencing around the 60m^2 of the SSSI site that overlaps with the site boundary.

5.2 Habitats & Botanical Interest

5.2.1 *Woodland habitats*

As all woodland is to be retained throughout works these should also be protected in line with *BS5837:2012 Trees in relation to design, demolition and construction recommendations* and through the incorporation of Precautionary Working Method Statements as per the Arboricultural Method Statement (Wharncliffe Trees and Woodland Consultancy, 2021).

5.3 Protected and Priority Species

5.3.1 *Amphibians*

The proposed fence installation will result in the loss of minor areas of suitable terrestrial habitat for great crested newts. While the 2021 surveys undertaken by Peak Ecology Ltd

identified an absence of GCN within 500m of the site, one pond – P5 was not assessed. A precautionary approach should therefore be taken during vegetation removal and fence installation with the following Reasonable Avoidance Measures (RAMs) incorporated:

- All site workers to be given a toolbox talk, including identification of great crested newts and how to proceed should one be found.
- Any removal of vegetation to facilitate fence installation should be carried out by hand where possible.
- Storage of materials to be within the hardstanding area and ideally on a raised platform. Waste materials to be stored within skips (or suitable containers/raised platforms)
- Any trenches/open excavations to be filled in overnight. If this is not possible, then a ramp should be left to allow a means of escape – i.e. wooden plank.
- Should a great crested newt, or suspected great crested newt be found onsite, works should cease immediately and ecological advice sought.

5.3.2 *Foraging and Commuting Bats*

During the construction phase it is recommended that works are not carried out after dusk and they do not commence until after dawn. Generators and machinery that emit significant noise levels must not be left to run through the night.

5.3.3 *Badgers and Hedgehogs*

A pre-commencement check should be carried out on site to ensure no new setts have been excavated prior to works. Should a new active sett be found, a buffer would be established around the sett, in which no works can be undertaken.

The following precautionary measures should also be implemented during site works:

- Open trenches or pits must be covered over at night or left with a sloping end, to prevent mammals such as badger from falling in and becoming trapped;
- Pipes over 120mm will need to be capped off at night to prevent mammals from using them for shelter; and
- Night works should be avoided where possible with illumination of works kept to a minimum.

In the unlikely event a badger sett is found during works, then all works should cease and a suitably qualified ecologist contacted for advice on how to proceed.

5.3.4 *Willow Tit*

The removal of any habitats which may support willow tits, such as dense/scattered scrub and immature scattered trees, should take place under ecological supervision and outside the main bird nesting season for willow tits. The general nesting season runs from March to September (inclusive), although as willow tits tend to nest early, and start to establish territories February onwards, ensuring vegetation clearance is carried out before the end of January would minimise impacts.

During the ecological supervision, the overseeing Ecological Clerk of Works (ECoW) will highlight any features for retention, and will ensure habitat loss is kept to a minimum. The ECoW will select pieces of deadwood/freshly cut wood for use in creating nesting features onsite. The wood will be attached to retained trees across the site to create nesting opportunities and will comprise of birch or willow 10-20cm diameter. Logs can be attached using wire and staples for sturdiness and should measure 1-1.5 metres in height, placed just off the ground. A minimum of ten nesting features should be incorporated.

To mitigate for the loss of scrub, replacement planting should be incorporated into the scheme (Appendix I). Suitable species include alder, birch and willow. The groups of existing scattered young immature trees on the sites northern side could be extended along the sites boundary to provide a suitable habitat corridor onsite for this species. It would also be of benefit to create a shallow water scrape within the planted area (50cm depth in the centre of the feature with gently sloping edges) which will be of benefit for invertebrates and therefore foraging birds.

5.3.5 *Breeding Birds*

The removal of any habitats which may support breeding birds, such as the areas of dense scrub or immature scattered trees should take place outside the main bird nesting season, which typically runs from March to September (inclusive).

Where this is not possible, and vegetation removal is to take place within the nesting season, a pre-commencement check must be carried out by an appropriately experienced ecologist immediately prior to vegetation removal. Should an active nest be discovered, an exclusion zone around the nest will be demarcated in which no works can take place until the young have fledged the nest.

5.3.6 *Reptiles*

The proposed fence installation will result in the loss of minor areas of suitable habitat for reptiles. While the 2021 surveys undertaken by Peak Ecology Ltd, identified an absence of reptiles onsite, a precautionary approach should still be taken during vegetation removal and fence installation with the following RAMs incorporated:

- All site workers to be given a toolbox talk, including identification of reptiles and how to proceed should one be found.
- Any removal of vegetation to facilitate fence installation should be carried out by hand where possible.

- Storage of materials to be within the hardstanding area and ideally on a raised platform. Waste materials to be stored within skips (or suitable containers/raised platforms)
- Any trenches/open excavations to be filled in overnight. If this is not possible, then a ramp should be left to allow a means of escape – i.e. wooden plank.
- Should a reptile be found onsite, it should be allowed to leave the area of its own accord and works should cease until ecological advice sought.

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APPENDICES

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APPENDIX A : Protected and Priority Species

Legal protection is afforded to particular habitats and species (as well as designated sites), see Appendix B. The legislation, and the habitats and species listed, vary between the different jurisdictions. Certain habitats and species are also considered to have some level of nature conservation importance, due to factors such as their rarity, vulnerability or declining population/status. This document uses the term 'priority habitats' and 'priority species', as they are those which should be considered as priorities for conservation (it should not be confused with priority habitats and species as listed in the EU Habitats Directive). Priority habitats and species are defined as those which are:

1) listed as a national priority for conservation (such as those listed as habitats and species of principal importance for the conservation of biodiversity);
2) listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan (BAP);
3) Red Listed using International Union for the Conservation of Nature (IUCN) criteria (e.g. in an all-Ireland Red List, in one of the UK Species Status Project reviews, in the Species of Conservation Concern Red List, Birds of Conservation Concern in Wales, or BWI/ RSPB Red List for Ireland and Northern Ireland (Birds of Conservation Concern in Ireland 2014 to 2019) or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
4) listed as Near Threatened or Amber Listed e.g. in an all-Ireland Red List, in one of the UK Species Status Project reviews, in Birds of Conservation Concern in Wales, in the Species of Conservation Concern Amber List or BirdWatch Ireland (BWI)/RSPB Amber List for Ireland and Northern Ireland (Birds of Conservation Concern in Ireland 2014 to 2019);
5) listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
6) endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

Most protected species are also considered to be priority species, although there are some exceptions. There are numerous priority habitats and species which do not receive any legal protection.

Note that the terms 'priority habitat' and 'priority species' used in this document differ from the following uses of the same terms:

a) These terms were previously used to denote those habitats and species afforded the highest level of priority for conservation under the UK BAP; this has been superseded by the lists of habitats and species of principal importance for the conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, Section 7 of the Environment (Wales) Act 2016, or their equivalents in Scotland (Nature Conservation (Scotland) Act 2004, Scotland's Biodiversity Strategy and the

Scottish Biodiversity List15) and Ireland (Actions for Biodiversity – Ireland's National Biodiversity Plan 2017 -202116; and Valuing Nature – A Biodiversity Strategy for Northern Ireland to 2020).

b) The terms 'Priority Natural Habitat Type' and 'Priority Species' are used to denote specific lists of habitats and species under The Conservation of Habitats and Species Regulations 2017; these are defined in Articles 1(d) and 1(h) respectively of the Habitats Directive.

APPENDIX B : Relevant Legislation

The following text provides information on the key legislation, which is applicable to this survey.

The main wildlife legislation in the UK is as follows:

European Legislation

The relevant sections of the EC Directives and international conventions are summarised below:

- EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitat Directive 1992) as amended (92/43/EEC)

The Directive requires Member States to introduce a range of measures including the protection of species listed in the Annexes. The 189 habitats listed in Annex I of the Directive and the 788 species listed in Annex II, are to be protected by means of a network of sites. Once adopted, these are designated by Member States as Special Areas of Conservation (SACs), and along with Special Protection Areas (SPAs) classified under the EC Birds Directive. The Habitats Directive introduces the precautionary principle; that disturbance to the designated sites can only be permitted having ascertained no adverse effect on the integrity of the site.

- EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC)

The main provisions of the Directive includes; the maintenance of the favourable conservation status of all wild bird species across their distributional range.

- Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)

The Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

UK Legislation

The sections of UK legislation considered to be of relevance include:

- The Conservation (Natural Habitats, and c.) Regulations 2017 (as amended)

This transposes the Habitats Directive into national law. The Regulations provide for the designation and protection of 'European sites', and the protection of 'European protected species.

- The Wildlife and Countryside Act 1981 (as amended) (WCA)

This consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.

- The Countryside and Rights of Way Act 2000 (CRoW)

This act strengthens wildlife enforcement legislation.

- The Protection of Badgers Act 1992

Species-Specific Legislation

Species specific legislation is provided in the Table below:

Species-Specific Wildlife Legislation

Feature/Species	Legislation	It is an offence to:
Plants	Sch. 8 Wildlife and Countryside Act 1981 (as amended)	• Pick; • Uproot; • Trade; • Possess (for trade) Any wild plant listed.
Invasive weeds – Japanese knotweed, Himalayan balsam,	Sch. 9 Wildlife and Countryside Act 1981 (as amended)	• Allow to spread.
Hedgerows	Hedgerow Regulations 1997.	Outlines a number of criteria for designation of 'important' hedgerows. 'Important' hedgerows cannot be removed without notifying the relevant body.
Breeding birds	Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	• Kill; • Injure; • Take; any wild bird, their eggs or nest (with the exception of those on Sch. 2).
Specially protected birds	Sch. 1 Wildlife and Countryside Act 1981 (as amended).	As above but includes: • Disturbing birds at their nest, or their dependent young.
Badgers	The Protection of Badgers Act 1992	• Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so; • Possess any dead badger or any part of, or anything derived from, a dead badger; • Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, causing a dog to enter a sett, or obstructing access to it. A badger sett is defined in the legislation as "*any structure or place, which displays signs indicating current use by a badger*".

Feature/Species	Legislation	It is an offence to:
Bats	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Conservation of Habitats and Species Regulations 2017 (as amended).	• Intentionally or deliberately kill, inure or capture (or take) bats: • Deliberately disturb bats (whether in a roost or not); • Recklessly disturb roosting bats or obstruct access to their roosts; • Damage or destroy bat roosts.
Common reptiles	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	Deliberate or reckless: • Killing; • Injuring • Sale.
Common amphibians	Sch. 5 and Sch. 9 Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	• Sell; • Transport; and • Advertise for sale.
Great crested newt	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Conservation of Habitats and Species Regulations 2017 (as amended).	• Kill; • Injure; • Disturb • Destroy any place used for rest or shelter.

In addition, species and habitats listed on the UK Post-2010 Biodiversity Framework (formally the UK BAP) are also considered. Details on these species and habitats can be found at: http://jncc.defra.gov.uk/page-5705.

Protected Sites

A network of protected sites, at varying levels, have been put in place across the UK. Further details are provided below;

International importance

- Natura 2000

Natura 2000 is the name of the European Union-wide network of nature conservation sites established under the EC Habitats and Birds Directives. This network will comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- Special Areas of Conservation (SAC)

SACs are designated under the EC Habitats Directive. The Directive applies to the UK and the overseas territory of Gibraltar. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are designated under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). New and/or amended Habitats Regulations

are shortly to be introduced to provide a mechanism for the designation of SACs and SPAs in UK offshore waters (from 12-200 nm).

National importance

- Sites of Special Scientific Interest (SSSI)

The SSSI series has developed since 1949 as the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-government organisations. The SSSIs designation may extend into intertidal areas out to the jurisdictional limit of local authorities, generally Mean Low Water in England and Northern Ireland; Mean Low Water of Spring tides in Scotland. In Wales, the limit is Mean Low Water for SSSIs notified before 2002, and, for more recent notifications, the limit of Lowest Astronomical Tides, where the features of interest extend down to LAT. There is no provision for marine SSSIs beyond low water mark. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

Regional/local importance

- Wildlife Sites

Local authorities for any given area may designate certain areas as being of local conservation interest. The criteria for inclusion, and the level of protection provided, if any, may vary between areas. Most individual counties have a similar scheme, although they do vary. These sites, which may be given various titles such as 'Listed Wildlife Sites' (LWS), 'County Wildlife Sites' (CWS), 'Local Nature Conservation Sites' (LNCS), 'Sites of Importance for Nature Conservation' (SINCs), or Sites of Nature Conservation Importance' (SNCIs), together with statutory designations, are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.

APPENDIX C : Methodologies

Assessment Method for Great Crested Newts

Ponds were evaluated using the Habitat Suitability Index (HSI) assessment method (Oldham et al, 2000). During a daytime site visit, each pond was assessed against 10 key habitat criteria, or Suitability Indices (SI) as follows:

- SI1 Geographic area
- SI2 Pond area
- SI3 Pond drying
- SI4 Water quality
- SI5 % shoreline shade
- SI6 Presence of waterfowl
- SI7 Presence of fish
- SI8 Pond count within 1km
- SI9 Terrestrial habitat quality
- SI10 % macrophyte cover

Based on a standardised scoring system, each SI achieves a score of between 0 and 1, and these are used to calculate an overall score for that pond. The scores equate to a habitat suitability rating as per Table 5 below.

In general, ponds with high HSI scores are more likely to support GCN than those with low scores. This alone does not determine whether or not a pond should be subject to further survey, but rather provides an indication of habitat quality to aid professional judgment on survey requirements and is a useful tool for informing mitigation or ecological enhancement proposals.

Table 4: Summary of HSI Assessment Scale

HSI score	Pond Suitability	Occupancy Rate
<0.5	Poor	3%
0.5 – 0.59	Below average	20%
0.6 – 0.69	Average	55%
0.7 – 0.79	Good	79%
>0.8	Excellent	93%

Assessment Method for Bats

Following current good practice guidelines (Collins (ed) 2016), the assessment comprised a visual inspection of each of the trees and built structures, for the latter including any internal

areas such as roof voids or cellars. For ease of reference, each structure was numbered B1, B2, B3 etc and trees were numbered T1, T2, T3 etc.

The location and description of any features such as holes, crevices or internal voids that could potentially be used by roosting bats was recorded and a search was made for any evidence of bat presence such as droppings or feeding remains. Binoculars, ladders, high powered torches and endoscopes were used where necessary to facilitate more detailed inspection of individual features.

Based on the number, location and type of any potential roost features, structures and trees were categorised as having negligible, low, moderate or high potential for roosting bats, or confirmed roost where direct evidence of bat presence was encountered. Evaluation of roost potential is necessarily subjective and relies on the professional judgment of the surveyor; however, the table below provides a useful guide to how this is informed.

Examples of characteristics that inform assessment of roost potential

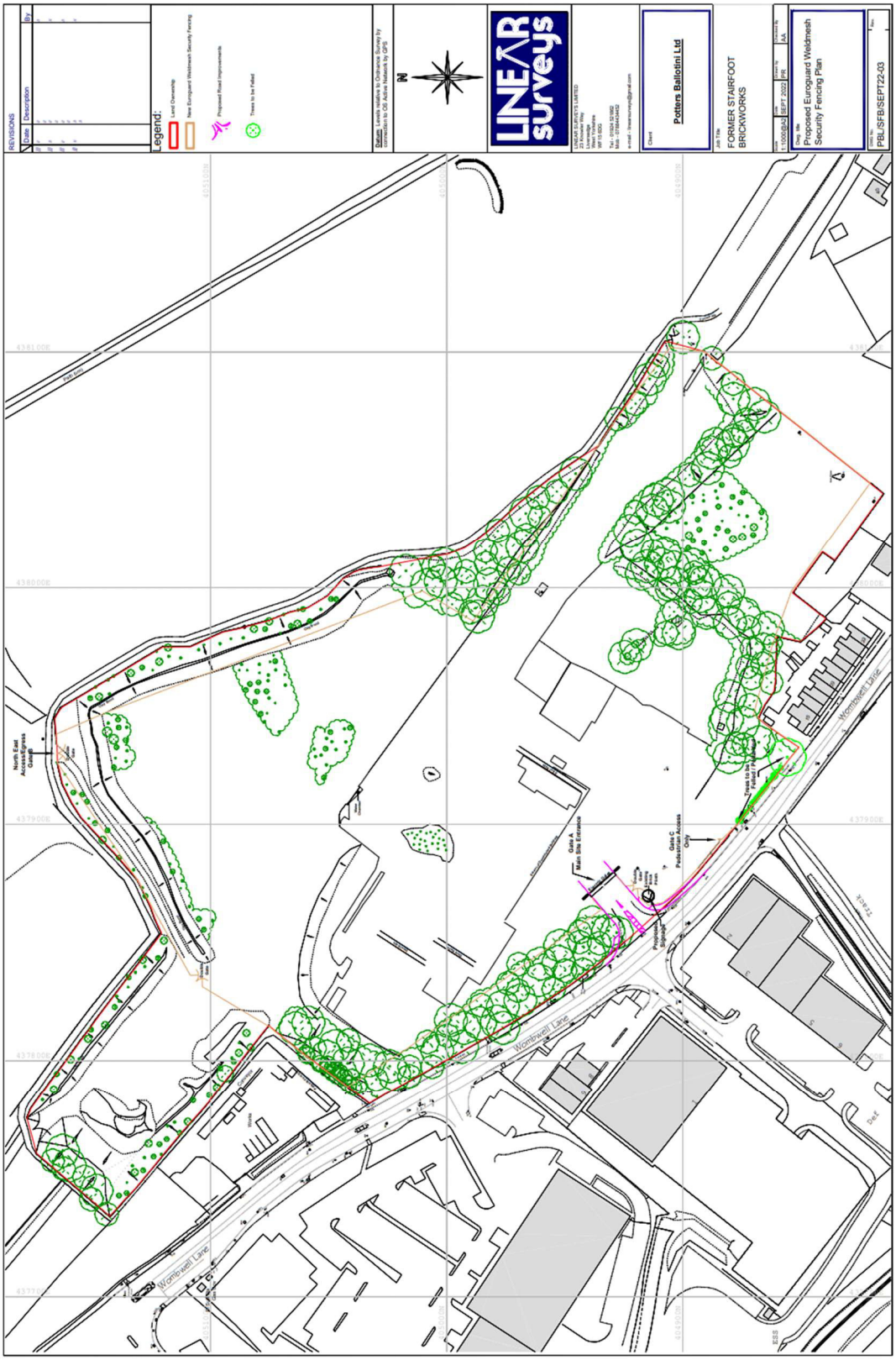
Status	Typical characteristics
Negligible potential	• Modern construction / immature trees • Lack of access points for bats • Situated within very poor quality foraging habitat • High levels of external lighting
Low potential	• Small number of minor hole / crevice features suitable for opportunistic roosting • Lack of roof voids or small cluttered roof spaces • Features obscured by dense cobwebs • Unlikely to support breeding or hibernating bats • Situated within poor quality foraging habitat
Moderate potential	• One or more hole / crevice features suitable for roosting, e.g. damaged soffits, uneven roof tiles • Access into large, dark internal spaces such as roof voids • Trees with small fissures and crevices in dead wood suitable for day roosting • Situated within or near to moderate/good quality foraging habitat
High potential	• Old buildings / mature or veteran trees • Trees with woodpecker holes or deep fissures and crevices in dead wood • Structures with large, uncluttered roof voids • Traditional brick, stone or timber framed barns • Features suitable for large numbers of bats and/or several different species • Types of structure suitable for hibernation, e.g. caves, tunnels, ice houses etc • Low level of disturbance by humans • Little / no external lighting • Situated within good quality foraging habitat

Status	Typical characteristics
Confirmed Roost	Bats seen or heard within the roost feature during the survey Bat droppings, particularly if piled rather than scattered Feeding remains such as moth wings Existing record of roost at that location

Guidance for assessing the overall value of potential development sites for bats (Collins (ed), 2016)

Site Status	Description
Increasing site value for bats ↓	• No features likely to be used by bats • Small number of potential roost sites but unlikely to be suitable for maternity roosts or hibernacula • Isolated habitat that could be used by foraging bats • Isolated site not connected by prominent linear features to suitable other/adjacent foraging habitats • Several potential roost sites in buildings, trees or other structures • Habitat suitable for foraging bats (e.g. trees, water, scrub, grassland present) • Site is connected with the wider landscape by features that could be used by foraging/commuting bats (e.g. gardens backed by scrub or line of trees) • Buildings, trees or other structures (e.g. caves or underground structures) of particular significance for roosting bats • Site includes high quality foraging habitat (e.g. broadleaved woodland, tree-lined watercourses, parkland with mature trees and rough grass) • Site is connected with the wider landscape by strong linear features that could be used by commuting bats (e.g. hedgerows, river valleys) • Site is close to known roosts • Bats recorded or observed using an area for foraging or commuting close to a potential roost

APPENDIX D : Proposed Development Plans



APPENDIX E : Botanical Species List

Ephemeral/ short perennial vegetation	
Forb species	
black medic	*Medicago lupulina*
bristly oxtongue	*Helminthotheca echioides*
buddleia	*Buddleja davidii*
colt's-foot	*Tussilago farfara*
common bird's-foot-trefoil	*Lotus corniculatus*
common daisy	*Bellis perennis*
common toadflax	*Linaria vulgaris*
creeping thistle	*Cirsium arvense*
cut-leaved crane's-bill	*Geranium dissectum*
dandelion	*Taraxacum officinale agg.*
foxglove	*Digitalis purpurea*
groundsel	*Senecio vulgaris*
hawkweed sp.	*Hieracium sp.*
oxeye daisy	*Leucanthemum vulgare*
ribwort plantain	*Plantago lanceolata*
rosebay willowherb	*Chamerion angustifolium*
Shepherd's purse	*Capsella bursa-pastoris*
silver birch sapling	*Betula pendula*
sycamore sapling	*Acer pseudoplatanus*
weld	*Reseda luteola*
wood avens	*Geum urbanum*
woody nightshade	*Solanum dulcamara*
yarrow	*Achillea millefolium*
Grass species	
false oat grass	*Arrhenatherum elatius*
perennial rye grass	*Lolium perenne*
Yorkshire fog	*Holcus lanatus*
Species poor semi-improved grassland	
Grass species	
cock's-foot grass	*Dactylis glomerata*
false oat grass	*Arrhenatherum elatius*
red fescue	*Festuca rubra*
timothy grass	*Phleum pratense*
Forb species	
bush vetch	*Vicia sepium*
common bird's-foot-trefoil	*Lotus corniculatus*
common mouse ear	*Cerastium fontanum*
creeping buttercup	*Ranunculus repens*

creeping cinquefoil	*Potentilla reptans*
creeping thistle	*Cirsium arvense*
curled dock	*Rumex crispus*
dove's-foot cranesbill	*Geranium molle*
fox-and-cubs	*Pilosella aurantiaca*
greater plantain	*Plantago major*
herb Robert	*Geranium robertianum*
ragwort	*Jacobaea vulgaris*
red campion	*Silene dioica*
ribwort plantain	*Plantago lanceolata*
sweet melilot	*Melilotus officinalis*
white clover	*Trifolium repens*
wild strawberry	*Fragaris vesca*
Tall ruderal vegetation	
Forb species	
colt's-foot	*Tussilago farfara*
common nettle	*Urtica dioica*
cow parsley	*Anthriscus sylvestris*
creeping buttercup	*Ranunculus repens*
goat willow	*Salix caprea*
groundsel	*Senocio vulgaris*
hard rush	*Juncus inflexus*
hawthorn	*Crataegus monogyna*
hedge bindweed	*Calystegia sepium*
hogweed	*Heracleum sphondylium*
mugwort	*Artemisia vulgaris*
rosebay willowherb	*Chamerion angustifolium*
spear thistle	*Cirsium vulgare*
Grass species	
false oat grass	*Arrhenatherum elatius*
Scattered & dense scrub	
apple	*Malus sp.*
blackthorn	*Prunus spinosa*
common mallow	*Malva sylvestris*
crack willow	*Salix fragilis*
dog rose	*Rosa canina*
dogwood	*Cornus sanguinea*
elder	*Sambucus nigra*
hawthorn	*Crataegus monogyna*
hazel	*Corylus avellana*
hedge bindweed	*Calystegia sepium*
oak	*Quercus robur*

Woodland	
Canopy species	
alder	*Alnus glutinosa*
apple	*Malus sp.*
ash	*Fraxinus excelsior*
aspen	*Populus tremula*
crack willow	*Salix fragilis*
elder	*Sambucus nigra*
field maple	*Acer campestre*
hawthorn	*Crataegus monogyna*
hazel	*Corylus avellana*
oak	*Quercus robur*
rowan	*Sorbus aucuparia*
silver birch	*Betula pendula*
sycamore	*Acer pseudoplatanus*
Understorey species	
bramble	*Rubus fruticosus*
buddleia	*Buddleja davidii*
common nettle	*Urtica dioica*
dog rose	*Rosa canina*
dogwood	*Cornus sanguinea*
guelder rose	*Viburnum opulus*
snowberry	*Symphoricarpos*

APPENDIX F : Habitat Suitability Index Score

Pond Number	2	
SI_1 - Location	A	1.0
SI_2 - Pond Area (m^2)	5000	0
SI_3 - Pond Drying	Sometimes dries	0.5
SI_4 - Water Quality	Moderate	0.67
SI_5 - Shoreline Shade (1m from the shore) (%)	25	1
SI_6 - Fowl	Minor	0.67
SI_7 - Fish	Possible	0.67
SI_8 - Pond Count	4	0.72
SI_9 - Terrestrial habitat	Good	1
SI_{10} - Macrophytes (% of the pond surface area occupied by macrophyte cover)	10	0.4
Habitat Suitability Index (HSI Score)		0.71
Pond Suitability		Good

Pond Number	4	
SI_1 - Location	A	1.0
SI_2 - Pond Area (m^2)	300	0.6
SI_3 - Pond Drying	Annually dries	0.1
SI_4 - Water Quality	Moderate	0.67
SI_5 - Shoreline Shade (1m from the shore) (%)	50	1
SI_6 - Fowl	Absent	1
SI_7 - Fish	Absent	1
SI_8 - Pond Count	4	0.72
SI_9 - Terrestrial habitat	Good	1
SI_{10} - Macrophytes (% of the pond surface area occupied by macrophyte cover)	0	0.3
Habitat Suitability Index (HSI Score)		0.62
Pond Suitability		Average

APPENDIX G : GCN eDNA results 2021

SureScreen Scientifics

Folio No: E9773
Report No: 1
Purchase Order: ACEnv04.1
Client: PEAK ECOLOGY LTD
Contact: Michelle Cullimore-Pike

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 28/04/2021
Date Reported: 11/05/2021
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
2376	Pond 1	SE 37892 04995	Pass	Pass	Pass	Negative	0
2378	Pond 2	SE 37819 05426	Pass	Pass	Pass	Negative	0
2379	Pond 4	SE 38165 04888	Pass	Pass	Pass	Negative	0
2380	Pond 3	SE 37809 05075	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth **Approved by:** Chris Troth

Forensic Scientists and Consultant Engineers
SureScreen Scientifics Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE
UK Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 08950940

SureScreen Scientifics

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

SIC: **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

DC: **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

IC: **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

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Company Registration No. 08950940

APPENDIX H : Reptile results 2021

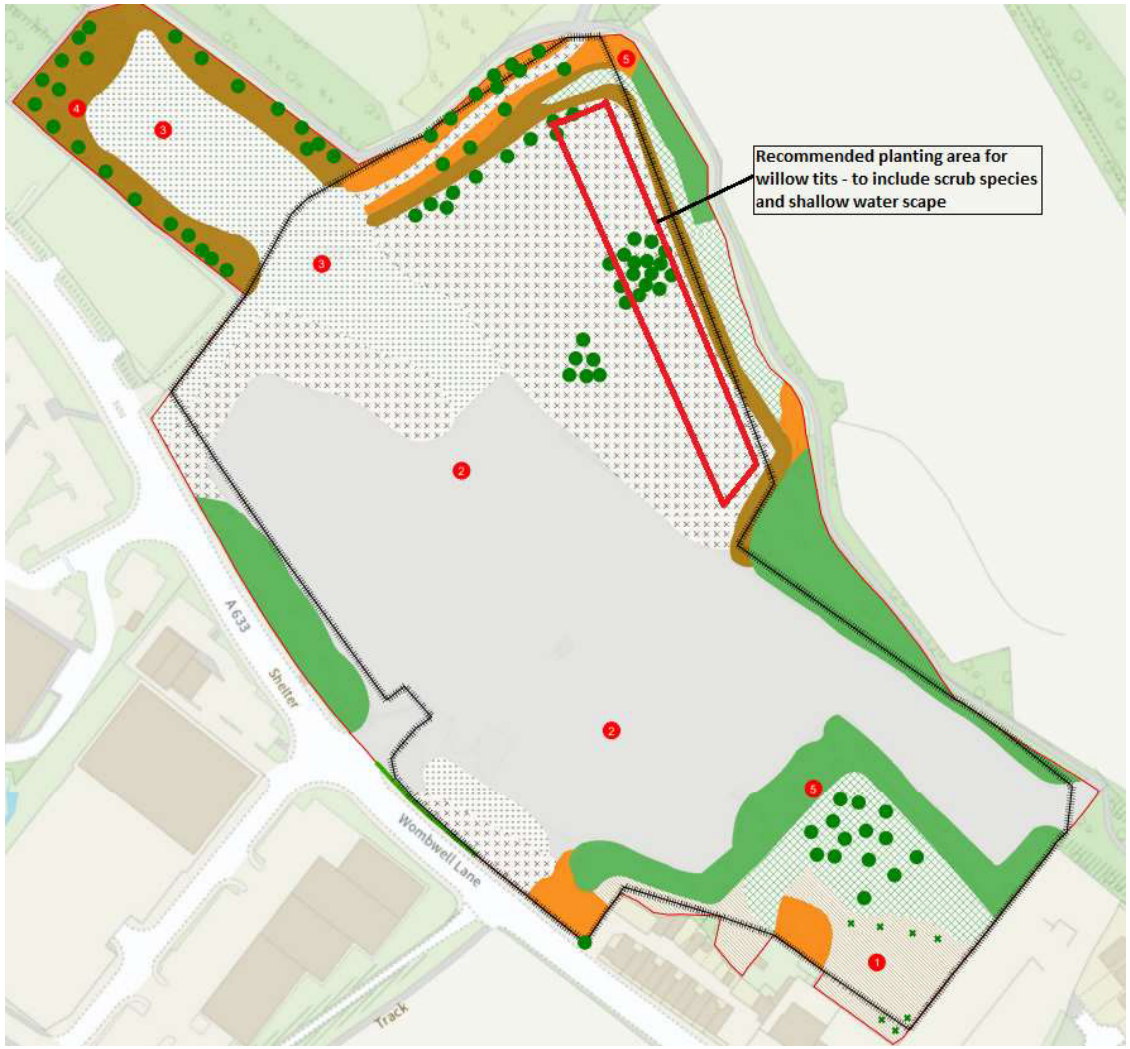
Results of Reptile Survey

No common reptiles were recorded throughout the survey in September 2021. A number of small mammals, namely vole species and common shrews, were recorded under mats on site. Common amphibians; smooth newt *Lissotriton vulgaris* and common toads *Bufo bufo*, were also recorded throughout the survey period in low numbers. The details of the reptile survey results are found in Table 2 below.

Table 2. Reptile Survey Results

Survey Visit	Date	Time	Results
Visit 1	06.09.21	09:35 - 10:25	No reptiles. Common shrew under mat 84 & 89
Visit 2	10.09.21	07:55 - 09:00	No reptiles.
Visit 3	15.09.21	09:00 - 09:55	No reptiles. One female smooth newt adult under mat 8, one common shrew under mat 57 and a small rodent under mat 83 & 84
Visit 4	17.09.21	09:00 - 10:05	No reptiles. One juvenile toad under mat 119.
Visit 5	20.09.21	08:50 - 09:50	No reptiles. Small mammal under mat 56, juvenile toad under mat 119.
Visit 6	22.09.21	08:50 - 09:35	No reptiles. Small mammal under mat 56.
Visit 7	24.09.21	09:05 - 09:45	One vole under mat 84, one adult toad under in-situ refugia.

APPENDIX I : Willow Tit Planting



Survey Information	
	Site boundary (63,627.0m²)
Phase 1 Habitat Survey	
	Broadleaved woodland (6,605.1m²)
	Dense scrub (3,473.3m²)
	Semi-improved grassland (2,080.1m²)
	Tall ruderal (2,338.7m²)
	Ephemeral / short perennial (13,316.3m²)
	Earth bund (4,570.7m²)
	Hardstanding (24,477.4m²)
	Bare ground (6,765.4m²)
	Hedgerow (46.5m)
	Fence (1,040.4m)
	Scattered tree
	Scattered scrub
	Target note

Target Notes:

1 – Mammal path
2 – Hardstanding dominant with 10-30% ephemeral / short perennial cover
3 – Bare ground dominant with minimal vegetation at ground level
4 – Earth bunds with 10-30% ephemeral / short perennial cover
5 – Rabbit activity