



Land at The Vinery, Arundel, BN18 9PY

Ecological Assessment (Amended)

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Contents

	Page
1.0 Summary	1
2.0 Introduction	2
3.0 Methodology	3
4.0 Results and Analysis	5
5.0 Requirements and Recommendations	11

Appendices

Appendix A: Site plan and proposal

Appendix B: Protected sites and species EPS licenses within 2km

Appendix C: Annotated site map

Appendix D: Wildlife mitigation and enhancements

Appendix E: Building hibernacula

Appendix F: Protected species legislation

Appendix G: eDNA Results

1.0 Summary

The proposal is to build a small car park adjacent to The Vinery industrial site, to provide additional parking. The proposal land contains grassland and ruderal vegetation, bounded by a line of large leylandii trees to the north and a newly planted hedgerow to the southeast. Two ponds lie 50m south, an eDNA survey was undertaken and this came out as negative for Great Crested Newts. The site provides potential habitat for nesting birds, reptiles, amphibians, badgers and hedgehogs. None of the above were observed and there was no evidence that they use the site. An ecological survey of the adjacent site in 2012-2013 as part of a previous application found no reptiles present and a great crested newt translocation was undertaken as part of the proposals but this found no newts on the site. It is therefore assumed that amphibians are not present on the current application site. It is possible that there is a small population of reptiles present within the vicinity that may use the site from time to time when the vegetation is optimal. Provision will be made to clear the site carefully in stages under ecological supervision to ensure no harm comes to any animals if they are present. Clearance will take place outside of the bird nesting season unless a prior check is made by an ecologist confirming no birds are nesting in habitat to be cleared. Additional advice is contained within this report to prevent harm to wildlife. Recommendations have been set out to enhance biodiversity at the site level in line with local and national planning policies.

Liz Rogers (Environment Officer at Chichester District Council) responded to the application on the 11th June 2016 and after further consultation an eDNA survey was undertaken and this ecological assessment was amended.

2.0 Introduction

Background

- 2.1 Peach Ecology was commissioned in May 2018 to carry out an Ecological Assessment of the site for the proposed car park at The Vinery, Arundel Road, Arundel, BN18 9PY, Grid Reference: TQ 05112 05552. This report has been produced to support the planning application which has been submitted to Arun District Council for permission to create an additional 21 car parking spaces for the adjacent industrial site.
- 2.2 This report describes the existing ecology on site based on the findings of a site visit, protected species and habitats data searches and review of previous planning applications and reports and local and national policies.
- 2.3 The report has been updated following discussions with Liz Rogers at Chichester District Council and further eDNA analysis of the nearby pond.

Description of site and surrounding area

- 2.4 The site, which measures approximately 0.1Ha, lies within the west of an industrial area to the northwest of Worthing, just to the north of Poling village in West Sussex and 210m south of the A27. The site consists of a small field with a line of mature leylandii trees to the north, polytunnels to the west and large fields directly to both the south and east. The industrial site to the north and west contains large industrial buildings and polytunnels, with tarmac roads and paths. Farther afield to the west, south and east the landscape is dominated by arable fields.

Brief

- 2.5 To carry out an Ecological Assessment of the site and inform the clients of any ecological implications associated with the current proposals.

3.0 Methodology

Desk Study

- 3.1 This involved gathering ecological data relating to statutory nature conservation sites from within 2km, the results of which are shown in **Appendix B**. A search was undertaken using Multi-Agency Geographic Information for the Countryside (MAGIC), a DEFRA run website, to check for European Protected Species licences and other ecological data nearby. Ordnance Survey maps and aerial images were assessed to check for other relevant data on notable habitats and species nearby including ponds, watercourses and wildlife corridors where the site connects into the surrounding area.
- 3.2 Ecological Assessments from the previous applications on site and nearby were reviewed including:
- The Vinery, Angmering, West Sussex, Reptile Survey, Report for Fargo (The Ecology Consultancy, 2012)
 - The Vinery, Poling, West Sussex, Great Crested Newt Survey Report for Fargo (The Ecology Consultancy, 2013)
 - The Vinery, Poling, West Sussex, Walkover Survey for Fargo Ltd (The Ecology Consultancy, 2014)
- 3.3 The Ecology Consultancy were also contacted for the results of their European Protected Species licence application and for feedback on this.

Site Assessment

- 3.4 The site was assessed on the 24th May 2018 by Clare Halliday, an experienced Herpetologist. This employed techniques based on standard Phase I Habitat Survey methodology (CIEEM, 2016). Habitat types on and adjacent to the site were identified according to standard habitat definitions. The collection of botanical information focused on the dominant and key indicator species for each habitat type. The site survey included an assessment of the habitats immediately adjacent to the site, where possible, to look at the value of the site within the local landscape and to see whether these nearby sites supported protected species. Indicative methodologies for the most likely protected and notable species that could occur on site and be impacted by the proposals are set out below. An annotated map of habitats onsite is shown in **Appendix C**.

Bats

- 3.5 Trees within the footprint of the site and any areas potentially impacted by the proposals were inspected in accordance with current survey guidance (BCT, 2016) for roosting features which could support bats. Trees were checked for ivy cover, crevices and rotten sections.

Birds

- 3.6 Vegetation were surveyed for signs of breeding birds and any nesting activity was noted along with birds in the area.

Badgers

- 3.7 Any area that could be used for foraging or could potentially contain a Badger sett was surveyed and any signs noted. Signs include active or disused setts, digging, latrines and dung pits, foraging signs ('snuffle holes'), footprints and hairs. Badger paths often have no sticks or other obstacles at ground level.

Dormice

- 3.8 The suitability of the habitat was assessed for dormice in terms of scrub and hedges and the connectivity of the site to other areas of suitable habitat locally. Any small mammal feeding signs were checked and assessed, these include teeth marks on hazel nuts and other nuts and any evidence of nest building.

Great Crested Newts

- 3.9 Any ponds on site and within the vicinity of the site were noted and the potential of the land to act as a commuting route, shelter or foraging resource for great crested newts was assessed.

Reptiles

- 3.10 Habitat features that could be suitable as hibernacula, foraging or basking areas were noted. Material on site including strips of wood and plastic were carefully examined to look for reptiles or for evidence of reptiles, including sloughs (shed skins).

4.0 Results and Discussion

Desk study

- 4.1 No sites of statutory conservation interest lie within 2km of the site. The nearest site is Arundel Park Site of Special Scientific Interest (SSSI) which lies 3.5km northwest of the proposal site. This will not be impacted either directly or indirectly by the proposals due to the small scale and limited impact of the application.
- 4.2 It is important that the proposals follow appropriate pollution prevention and drainage guidelines to protect all adjacent habitats as grassland will be replaced with hard standing and drainage may therefore need to be considered.

Site Assessment

Habitats

- 4.3 Habitats recorded within the site boundary (Photo 1) and immediately adjacent comprised of:
- Improved grassland
 - Ruderal vegetation
 - Trees



Photo 1: Overview of the site

Improved grassland

- 4.4 Approximately 50% of the site is made up of improved grassland which was mown to around 100mm at the time of survey. This grassland is species-poor and made up largely of cock's-foot grass *Dactylis glomerata*, with common herbs such as creeping buttercup *Ranunculus repens*, ground ivy *Glechoma hederacea*, ribwort plantain

Plantago lanceolata and spear thistle *Cirsium vulgare*. This area appears to get mown several times a year.

- 4.5 The grassland can be considered to have relatively low ecological value, as the species it contains are common and widespread, although it provides some value for foraging invertebrates, birds and bats. The proposals will result in the removal of a large proportion of the grassland, but will seek to retain an area within the western section and elsewhere where possible.

Ruderal vegetation

- 4.6 The site contains ruderal vegetation in two main areas: within the centre of the site where the soil is raised, up to around 1 metre at its highest point; and to the north of the site with a section around 3 metres wide between the leylandii trees and the main grassland, with a wider section also within the northwest of the site.

Centre of the site

- 4.7 Species growing here included a selection of widespread and common ruderal species. The following species were recorded: common nettle *Urtica dioica*, white dead-nettle *Lamium album*, cow parsley *Anthriscus sylvestris*, broad-leaved dock *Rumex obtusifolius*, Cock's-foot *Dactylis glomerata*, spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, cut-leaved crane's-bill *Geranium dissectum*, cleavers *Galium aparine*, bristly oxtongue *Picris echioides*, curled dock *Rumex crispus*, ribwort plantain *Plantago lanceolata*, field forget-me-not *Myosotis arvensis*, creeping buttercup *Ranunculus repens*, hogweed *Heracleum sphondylium*, rosebay willowherb *Chamerion angustifolium*, teasel *Dipsacus fullonum* and rough meadow-grass *Poa trivialis*.
- 4.8 This area holds some wildlife value due to the diversity of species and the structure it adds to the otherwise mown site. Although it is cut off from other ruderal habitat by the area of shorter grassland, it does provide potential refuge habitat as well as foraging potential for different species. The current proposal is to remove this area and so to mitigate a new hedgerow will be planted around the site boundary, which will increase the availability of refuge habitat and increase environmental connectivity.

North of the site

- 4.9 The species composition here was less varied than in the centre of the site (Photo 2). This area was dominated by common nettle, hogweed and spear thistle, with elder *Sambucus nigra* bushes. A log pile measuring approximately 10m long, 3m wide and 2m high was situated in this area, created from the felling of large leylandii trees.
- 4.10 This area holds wildlife value as it connects to habitat to the east of the site and provides potential refuge and foraging habitat for reptiles and amphibians although previous surveys on adjacent land have found that neither group of species is present in the locality (The Ecological Consultancy, 2012). A short section of this will be removed to create the entrance road for the car park, as well as the log pile. This will be mitigated for by the planting of new hedgerow around the site.



Photo 2: Ruderal vegetation and log pile at the northern site margin

Trees

- 4.11 A line of tall mature leylandii trees lined the eastern section of the north site boundary and extends further east. The south-eastern boundary fence is also lined with a native hedgerow planted 3-4 years previously, on the adjacent land.
- 4.12 The trees and hedgerow have some potential value for nesting birds as well as foraging bats. The trees will not be removed as part of the current proposals. A lighting plan will be required which ensures light does not shine directly onto the trees, which would impact on bats.

Bats

- 4.13 No European Protected Species licences for bats have been granted within 2km of the site.
- 4.14 The tall leylandii trees bounding the north of the site have low suitability for roosting bats. The trees and ruderal vegetation also provide potential foraging habitat for bats, although connectivity with the wider environment is patchy, particularly to the east.
- 4.15 No trees will be removed as part of this proposal and so no further surveys will be required to assess their status as bat roosts. Ruderal vegetation will be removed as part of this proposal, which will be mitigated for by planting hedgerows around the site, which will increase habitat connectivity with the wider environment and mitigate for any loss in diversity. Lighting in the new carpark must be minimised and only used where it is essential. Where lighting is necessary, hoods or cowls can be used on the lamps to direct light and minimise spillage onto the trees and hedgerows.

Reptiles

- 4.16 The short grassland comprising around half of the site has low value to reptiles. The ruderal vegetation provides potential reptile habitat for species such as slow worm and grass snake, but these species are known not to be present within the locality, as found

in a suite of surveys carried out in 2012, although due to low level habitat connectivity it is possible that the status of the site for reptiles has changed in this time. There is potential in the long term for the site to become more suitable for reptiles if the grassland is allowed to grow longer and so it should be managed to keep it short up until construction commences.

- 4.17 Ruderal vegetation and grassland will be removed as part of the proposals and so site clearance will be carried out in a considerate manner in stages (Habitat Manipulation) as there is a small chance reptiles could be present. This will take a staged approach beginning from the interior of the site and moving outwards, to allow any reptiles present to escape unharmed into the habitat on adjacent land. Clearance of both the ruderal vegetation and the large log pile will take place under the supervision of an ecologist, who will carefully move any reptiles or wildlife of interest found to suitable habitat at the edge of the site. New hedgerows, hedgerow margins, log piles and hibernacula will also be created as mitigation for the habitat that gets removed.

Great crested newts, ponds and waterbodies

- 4.18 One license has been granted for great crested newts (GCN) within 500m of the proposal site: 2014-1236-EPS-MIT at a large site adjacent to the eastern boundary of the proposal site. A translocation was undertaken in 2014-2015 as the field contained suitable refuge habitat and one GCN was found during the reptile surveys undertaken on the site. However no GCN were discovered during the translocation (information gathered directly from The Ecology Consultancy) and so none were translocated to the new mitigation pond. The pond where GCN were found (figure 1; pond 5) lies 470m west of the site and is separated by a minor road. The proposal site is a section of the site where the translocation took place and therefore it is considered likely that there remain no GCN on the site.
- 4.19 There are no ponds on the site and 5 ponds within 500m of the site, as shown on figure 1. The nearest pond (pond 1) is the mitigation pond for the GCN translocation which lies 50m south of the site. An assessment for its suitability to be used by breeding GCN recorded the following results:

Factor		Outcome	Score
1	Geographic location	A	1
2	Pond Area	226	0.4
3	Permanence	Never	0.9
4	Water Quality	moderate	0.67
5	Shade	10%	1
6	Water Fowl	minor	0.67
7	Fish	absent	1
8	Pond Count	5	0.75
9	Terrestrial Habitat	good	1
10	Macrophytes	20%	0.5
HSI Score:			0.76
Pond suitability:			Good

Dormice

- 4.24 No European Protected Species licence for dormice have been granted within 2km of the site although it is understood that dormice have been recorded 2.18km from the site as part of another development scheme.
- 4.25 No dormice or signs of dormice were noted at the time of survey. The impacted areas of the site do not contain suitable dormouse habitat and the leylandii hedgerow to the northern boundary is not directly connected arboreally to areas of more optimal dormice habitat. The hedgerow to the north is not proposed to be impacted.

Badgers

- 4.26 No signs of badgers were found during the survey. The mounds in both the centre and the north of the site were checked carefully for signs of paths, tracks, latrines and burrows but none were found. It is possible that badgers could move into this habitat and so prior to site clearance a check will be carried out for badgers. If badgers are found a plan will be made to close the sett prior to habitat clearance.

Other

- 4.27 Hedgehogs, a Biodiversity Action Plan species, may be present locally and the tall ruderal vegetation onsite could conceal a resting or hibernating hedgehog. The clearance of ruderal vegetation on site should be undertaken in a sensitive manner, under ecological supervision so that any hedgehogs found can be moved to safety.

5.0 Requirements and Recommendations

Grassland

- 5.1 The majority of the grassland within the site will be removed due to the proposals. A section within the west of the site will remain and as mitigation for the loss of low-quality grassland, this area will be converted to species-rich grassland.
- 5.2 Native bulbs will be planted around the site margins adjacent to hedgerows to provide additional botanical interest within the site.

Ruderal vegetation

- 5.3 All ruderal vegetation onsite will be removed using a staged clearance approach under ecological supervision, working from the centre of the site outwards, during the active reptile and amphibian season (March to October, inclusive). Clearance will be undertaken in two stages: first vegetation will be cut to a height of 100 - 150mm, then a hand search of the area will be undertaken to check for amphibians, reptiles, hedgehogs and other notable wildlife before the rest of the vegetation is cut to ground level. Logs from the existing log pile and brash will be used by the ecologist to construct two hibernacula and a log pile in an area of suitable ruderal or hedgerow margin habitat – this will be done prior to any vegetation clearance. Any amphibians or reptiles that are found during the hand search can be moved here.
- 5.4 Loss of the ruderal vegetation from the site will be mitigated for by planting new native hedgerow around the site boundaries around the west of the site (see **Appendix D**). The hedgerows will be planted with native species such as guelder rose, elder, hazel, hawthorn and rowan.

Trees and hedgerows

- 5.5 Appropriate fencing will need to be erected prior to construction to protect the retained trees and hedgerows. Fencing will need to account for the root protection area of each tree to ensure that no machinery goes within this zone.

Reptiles, amphibians and hedgehogs

- 5.6 Site clearance will be undertaken in a sensitive staged manner (Habitat Manipulation) to protect reptiles, amphibians and hedgehogs, as outlined in section 5.3. The vegetation on site will be trimmed back from the centre to the boundary in two stages under ecological supervision, cutting it first to a height of approximately 100-150mm then to ground level.
- 5.7 New habitat will be created onsite for reptiles, amphibians and hedgehogs prior to any site clearance. This will involve building one new hibernaculum and one log pile within suitable habitat. See Appendix D for more details.

Birds and bats

- 5.8 Vegetation or tree removal will need to take place outside of the bird nesting which runs from 1st March – 1st August inclusive unless an ecologist is present to ensure there are no birds nesting.

Pollution prevention and drainage

- 5.9 It is important that the proposals follow appropriate pollution prevention guidelines (PPG 6) and drainage guidelines (Defra guidelines for Sustainable Urban Drainage) to protect the nearby watercourse and other habitats connected hydrologically.

Lighting

- 5.10 Any new lighting associated with the proposals should be avoided. If lighting is necessary it will avoid splaying onto the hedgerow to the north.
- 5.11 If external lighting is required, a lighting plan will need to be reviewed by an ecologist to ensure lighting is maintained below recommended levels.

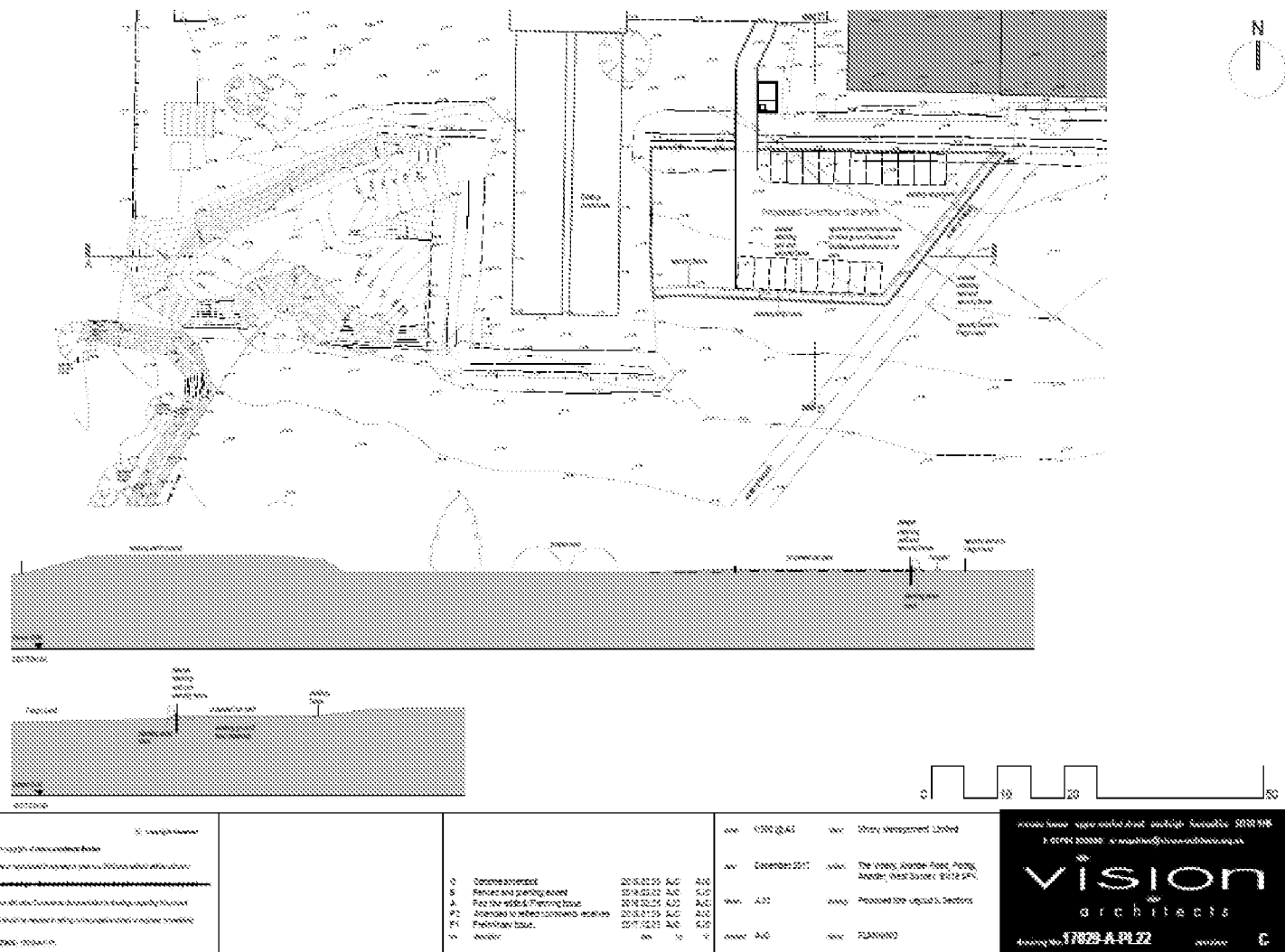
Construction and storage of materials

- 5.12 During construction materials should be stored on areas of hard standing to avoid colonisation by reptiles or other wildlife.

Other

- 5.13 A follow up site visit will be required to determine if there are any changes to the ecological status of the site after a year from the original survey.
- 5.14 Prior to start on site a badger survey should be undertaken to ensure badgers are not using the site. If a badger sett is found onsite, Natural England should be consulted and a mitigation strategy produced.

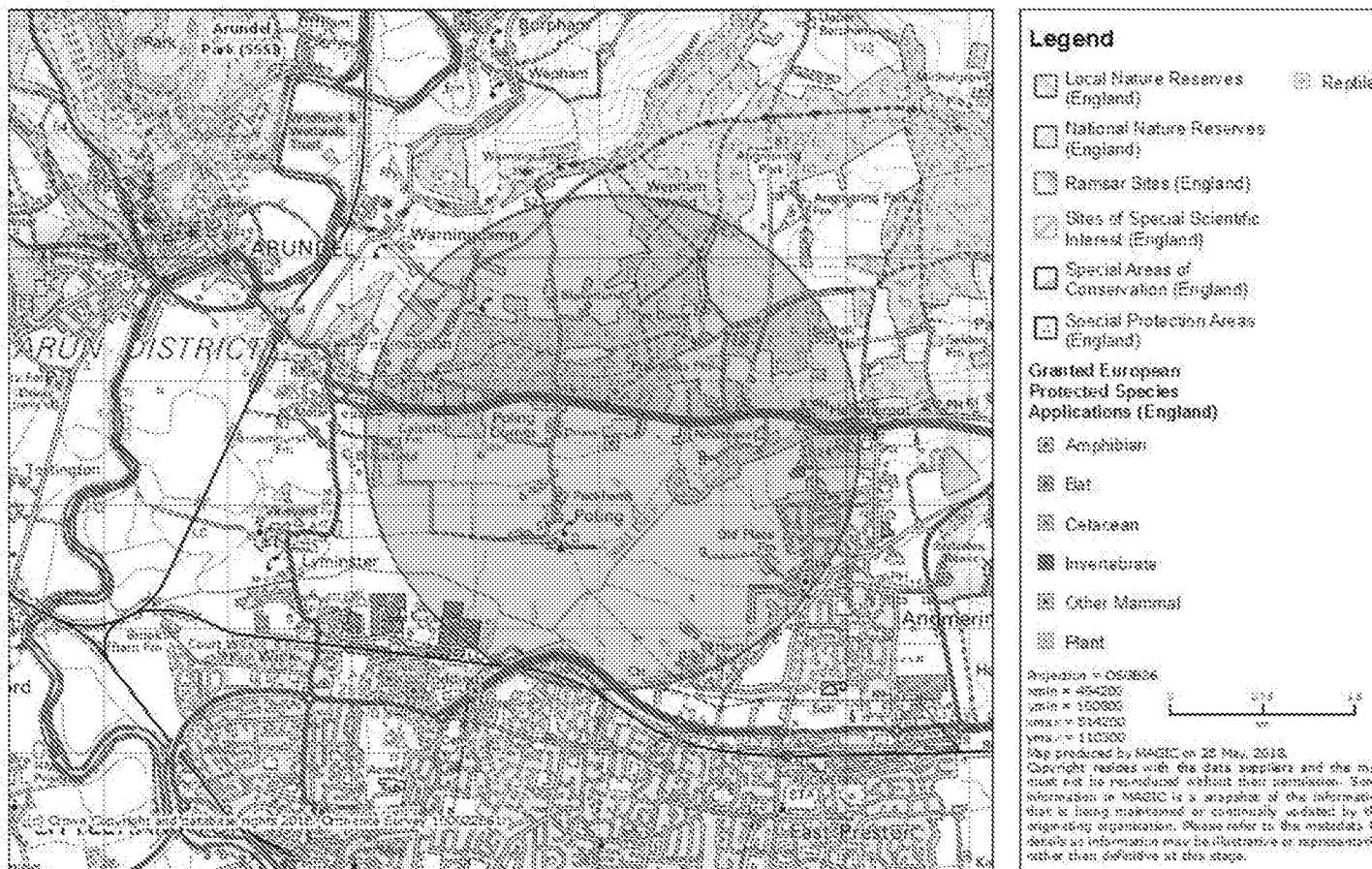
Appendix A: Site plan and proposal



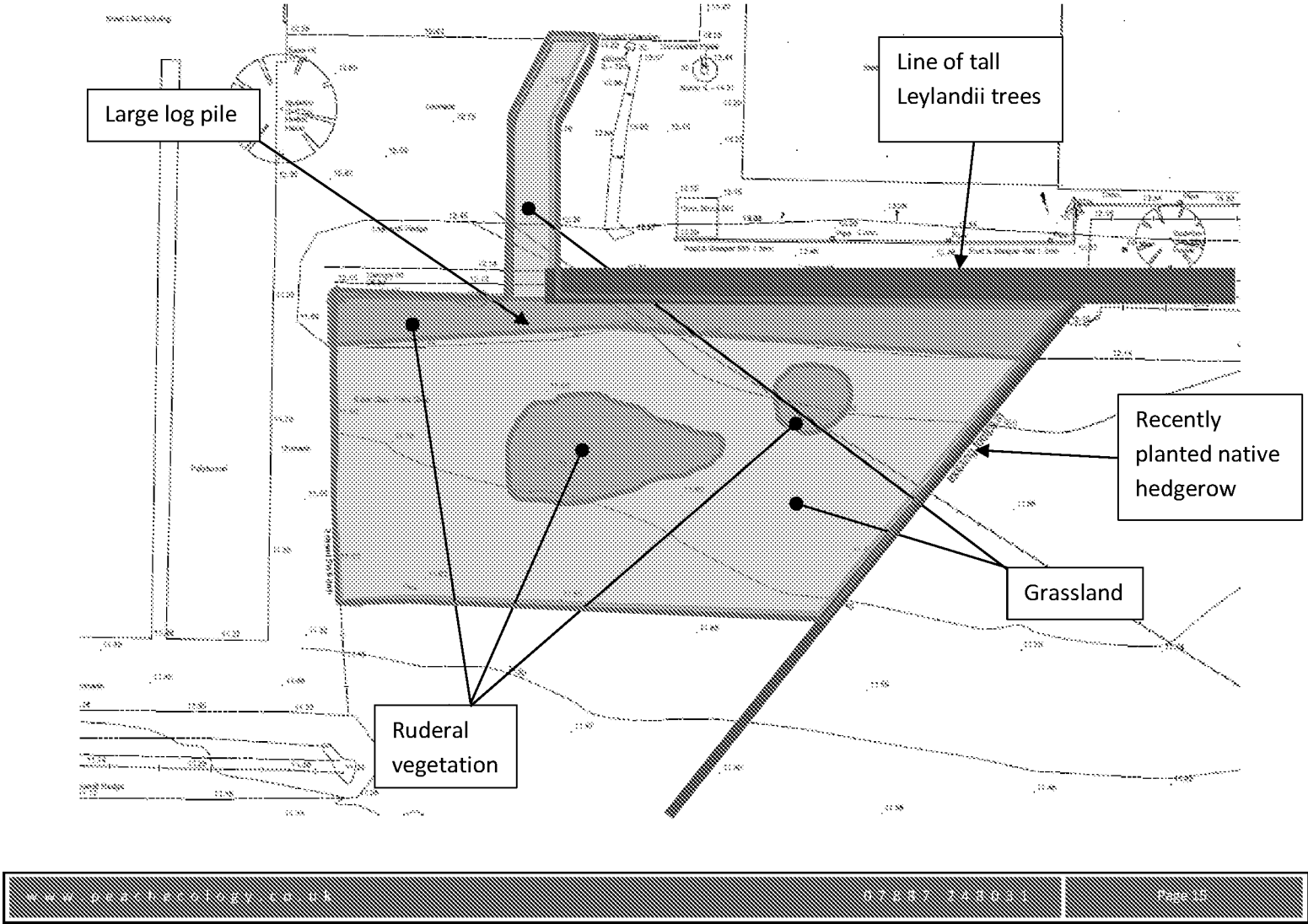
Appendix B: Protected sites and species EPS licenses within 2km

MAGIC

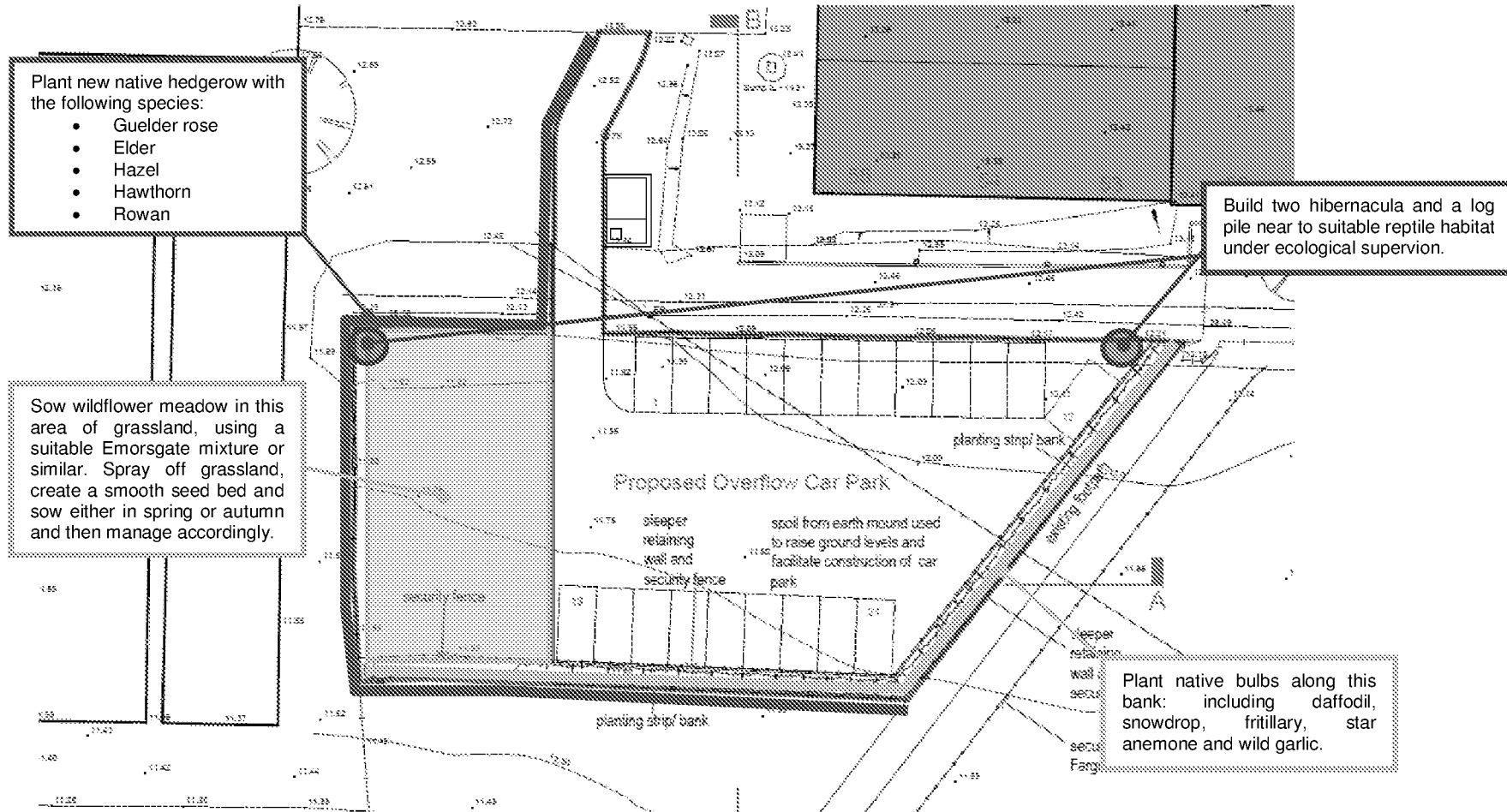
Magic Map



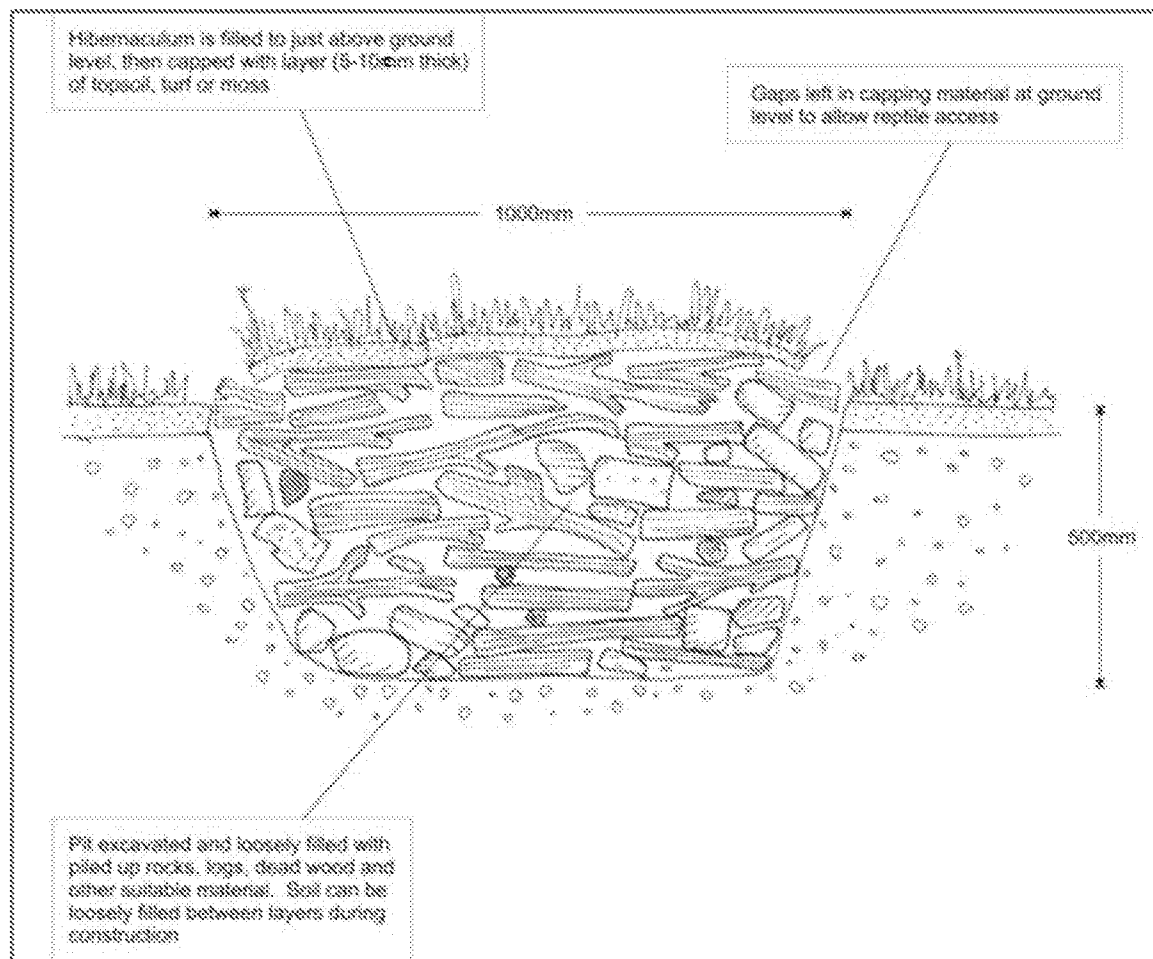
Appendix C: Annotated site map



Appendix D: Wildlife mitigation and enhancements



Appendix E: Building hibernacula



Appendix F: Protected species legislation

European Protected Species

Bats

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
 - to impair its ability to survive, breed, or rear or nurture their young;
 - to impair its ability to hibernate or migrate;
 - to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat (*Rhinolophus ferrumequinum*);
- Lesser horseshoe bat (*Rhinolophus hipposideros*);
- Bechstein's bat (*Myotis bechsteinii*);
- Barbastelle (*Barbastella barbastellus*);
- Greater mouse-eared bat (*Myotis myotis*).

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favorable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Dormouse (*Muscardinus avellanarius*), European otter (*Lutra lutra*) and Great Crested Newt (*Triturus cristatus*)

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
 - to impair its ability to survive, breed, or rear or nurture their young;
 - to impair its ability to hibernate or migrate.
 - to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Nationally Protected Species

Badger (*Meles meles*)

The *Protection of Badgers Act 1992* consolidates previous legislation (including the *Badgers Acts 1973 and 1991 Badgers (Further Protection) Act 1991*). It makes it a serious offence to:

- kill, injure or take a badger;
- attempt to kill, injure or take a badger; or
- to damage or interfere with a sett.

The 1992 Act defines a badger sett as “any structure or place which displays signs indicating current use by a badger”.

Breeding Birds

With certain exceptions¹, all wild birds, their nests and eggs are protected by section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread² species of reptile that are native to Britain, namely common or viviparous lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (*Natrix natrix helvetica*), are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- intentionally kill or injure any of these species.

Water vole (*Arvicola amphibius*)

The water vole is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- intentionally kill, injure, or take (handle) any a water vole (in England only);
- intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection; or
- intentionally or recklessly disturb water voles while they are using such a place

¹ Some species, such as game birds, are exempt in certain circumstances

² The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection under the *Habitats Regulations 1994* and (in England and Wales only) the *Wildlife and Countryside Act 1981* (as amended). However, the distribution of these species are restricted to only a very few sites. All marine turtles (Cheloniidae and Dermochelyidae) are also protected.

Appendix G: eDNA Results



ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

www.adas.uk

Sample ID: 2018-1762 Condition on Receipt: Low Sediment Volume: Passed
Client Identifier: Vinery Description: pond water samples in preservative
Date of Receipt: 06/07/2018 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control*	2 of 2	Real Time PCR	11/07/2018
Degradation Control [§]	Within Limits	Real Time PCR	10/07/2018
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	10/07/2018
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁴ ng/μL)*	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees Report issued by: Dr Ben Maddison

Signed:

Signed:

Position: Director: Biotechnology

Position: MD: Biotechnology

Date of preparation: 12/07/2018

Date of issue: 12/07/2018

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

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

** Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.*

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

**Additional positive controls (10¹, 10², 10⁴ ng/μL) are also routinely run, results not shown here.*

ADAS eDNA Results Sheet: 1040008-30425-(01)

Page | 1 Edition: 03