

Ecological Walkover Survey

of

Land at Water Lane, Angmering, West Sussex

on behalf of

Barratt Homes Southern Counties

March 2020

REV A

© James Blake Associates Ltd 2020

Over 30 Years of Service, Value and Innovation

The Black Point, Half Road, Lewes, East Sussex BN24 0JG

www.jba-landmarc.com

Company Secretary: Louise Blake BSc PGD
Directors: Elizabeth Zebrowicz MSc Eng Arch MRSA; Kevin Jackson Dip Arch MAston A
Associate Directors: Valerie Jackson CMAA; Alan Lowe CMAA Cert BA

Registered in England No 02060899 VAT no 212 412781

Revision	Purpose	Originated	Checked	Authorised	Date
		RH	SR	JBA	February 2020
REV A	Minor admenments	RH	SR	JBA	March 2020
Job Number: JBA 19/283		 Title: Ecological Walkover Survey of Land at Water Lane, Angmering, West Sussex			

Disclaimer

James Blake Associates Ltd have made every effort to meet the client's brief. However, no survey ensures complete and absolute assessment of the changeable natural environment. The findings in this report were based on evidence from thorough survey: It is important to remember that evidence can be limited, hard to detect or concealed by site use and disturbance. When it is stated that no evidence was found or was evident at that point in time, it does not mean that species are not present or could not be present at a later date: The survey was required because habitats are suitable for a given protected species, and such species could colonise areas following completion of the survey.

This report was instructed by Barratt Homes Southern Counties. Neither James Blake Associates Ltd nor any associated company, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use of the report.

© James Blake Associates Ltd 2020 (Copyright of this report remains with James Blake Associates Ltd: Content must not be reproduced, in whole or part, without formal written consent).

CONTENTS

NON-TECHNICAL SUMMARY	4
1 INTRODUCTION.....	6
2 METHODOLOGY.....	8
3 RESULTS	11
4 PROTECTED SPECIES – RESULTS AND EVALUATION.....	17
5 EVALUATION, LEGISLATION AND RECOMMENDATIONS.....	21
6 ECOLOGICAL CONSIDERATIONS AND ENHANCEMENTS.....	28
7 CONCLUSION	29
8 REFERENCES	30
9 BIBLIOGRAPHY.....	31
10 APPENDICES.....	32
Appendix A: Statutory designated wildlife sites within 7km	32
Appendix B: Habitat Suitability Index results	33

Non-technical Summary

Site:	Land at Water Lane, Angmering, West Sussex
Ordnance Survey National Grid Reference (from centre of site):	TQ 07480 04510
Report Commissioned by:	Barratt Homes Southern Counties
Date of Walkover Survey:	11 th February 2020

Considerations	Description	Potential impacts and timing
Statutory designated wildlife areas within 7km of the site:	Four Sites of Special Scientific Interest (SSSI) one Local Nature Reserve (LNR), and one National park.	For any planning application in this area, consultation between NE and the LPA will be required.
Results of walkover survey:	The site is considered suitable to support bats, badger, great crested newt, hedgehog, water vole, otter, breeding birds and wintering birds. The site is considered to be of 'moderate' habitat value for foraging and commuting bats.	-
Phase 2 surveys:	Badger survey.	Six months prior to development works. Optimal period for badger survey is between February to April or in September.
	Bat activity survey.	Once a month between April and October and left in situ for 5 consecutive days.
	Water vole and otter survey.	Water vole: two surveys; one between April-June; second between July to September Otter: All year round.
	Breeding bird survey.	Once a month between March and June.
	Reptile survey.	Between March and October (8 survey visits in total).
	Great crested newt eDNA.	15 th April to 30 th June.

Considerations	Description	Potential impacts and timing
Phase 2 surveys dependent on development layout:	Bat emergence survey.	April/May to September/October if trees with 'moderate' bat roost potential are to be removed.
	Dormouse survey.	If scrub vegetation to north of site is to be removed then a check for dormouse recommended (by a licenced ecologist) prior to works.
Precautionary measures:	Vegetation removal.	Scrub should be cut to 20cm using hand-held tools and checked for hedgehogs. No clearance should take place until further surveys are complete and necessary mitigation agreed.

1 Introduction

Background

- 1.1 James Blake Associates Ltd. was commissioned by Barratt Homes Southern Counties to undertake a ecological walkover survey of Land at Water Lane, Angmering, West Sussex. Ordnance Survey National Grid Reference TQ 07480 04510 (taken from the centre of site).
- 1.2 The assessment was required to accompany a planning application for the development of 175 residential units and associated infrastructure.

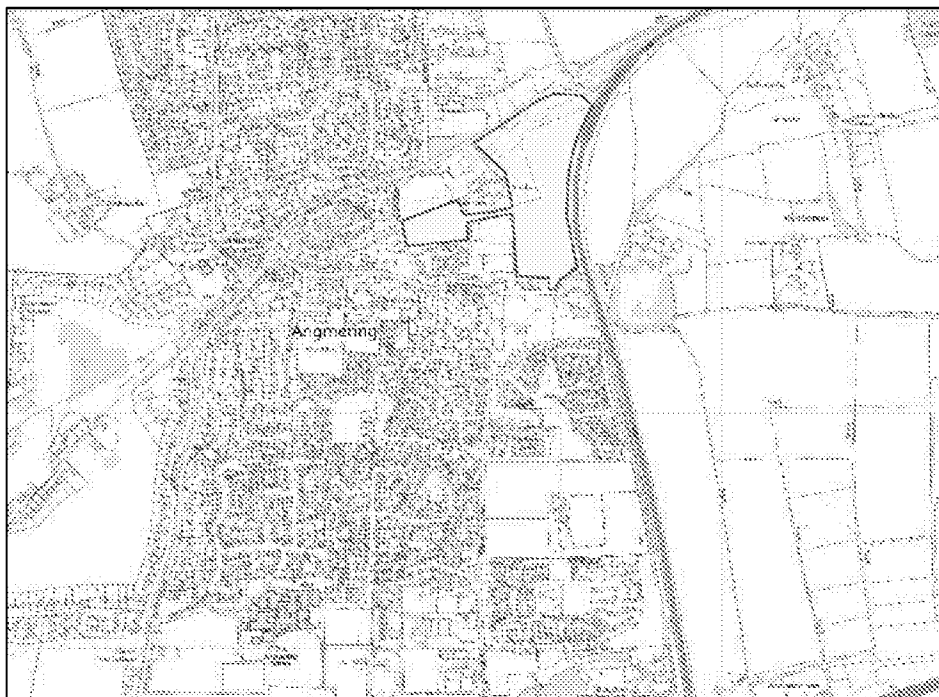
Previous surveys

- 1.3 A previous PEA was undertaken by The Ecology Partnership in 2017. See Section 3: Desk Study for previous survey details.

Site Description

- 1.4 The site is approximately 9.3 hectares in size and is located to the south of Water Lane in the town of Angmering, West Sussex. The wider landscape includes the town of Angmering, residential and arable land. The A280 runs east of the site (see Figure 1 below).

Figure 1: Site location



Reproduced from Magic maps data licence number 100059700

Aims and objectives

1.5 The aim of the survey was to:

- Identify the presence, or potential presence, of any protected or notable species or habitats on, or adjacent to, the site; and
- make recommendations for further surveys if required, to advise on avoidance and/or mitigation measures following the survey (if necessary) and provide suggestions to enhance the wildlife value of the site post-development to provide a net gain in biodiversity value.

Wildlife Legislation and Planning Policy

1.6 The relevant wildlife legislations and planning policies are listed below:

- Conservation of Habitats and Species 2019 (Amendment) (EU Exit) 2019, ('The Habitats Regulations'). The Habitats Regulations implement The Habitats Directive 1992 (92/43/EEC) into English Law. (Amended by the Conservation of Habitats and Species (Amendment) Regulations 2012 S.I. 2012/1927).
- Wildlife and Countryside Act, 1981 (as amended) (WCA). (Amended by the Countryside and Rights of Way Act (2000).
- The Natural Environment and Rural Communities Act, 2006 (NERC).
- The Protection of Badgers Act, 1992 (The Badgers Act).
- The Wild Mammals (Protection) Act, 1996.
- The Hedgerows Regulations, 2007.
- National Planning Policy Framework, 2019 (NPPF).

2 Methodology

Desk study

- 2.1 A desk study was undertaken for statutory designated wildlife sites within a 7km radius of the site, using 'MAGIC', the Multi-Agency Geographic Information system for the Countryside.

Walkover Survey

- 2.2 The survey was undertaken by Sam Rigg BSc (Hons) ACIEEM (Natural England Bat Class Licence CL17 and Natural England Great Crested Newt Class Licence CL08) and Rachel Hall BSc (Hons) (Natural England Great Crested Newt Class Licence CL08) on the 11th February 2020.
- 2.3 The survey methodology followed the standard Phase 1 methodology of Joint Nature Conservation Committee Guidelines (JNCC, 2010). An extension of this basic methodology was also undertaken to provide further details in relation to notable or protected habitats present within the survey area, or in relation to habitats present that have the potential to support notable or protected species (CIEEM, 2013).
- 2.4 **Badgers (*Meles meles*):** A visual survey for setts, hair, latrines, prints, snuffle marks or other signs of badgers was undertaken within the site boundary, following guidelines set out by the Mammal Society (1989).
- 2.5 **Bats:** Trees within the site boundary were surveyed, from the ground, for their potential to support roosting bats in accordance with Bat Conservation Trust's Guidelines (Collins (ed.), 2016).
- 2.6 **Hazel Dormouse (*Muscardinus avellanarius*):** Hedgerows within the site boundary were surveyed, from the ground, for their potential to support hazel dormouse in accordance with survey guidelines in Bright et al (2006) and Natural England.
- 2.7 **Otter (*Lutra lutra*) and Water Vole (*Arvicola amphibius*):** A visual survey for the presence of field signs was carried out to assess if otter and/or water vole were likely to be present.
- 2.8 **Birds:** A visual survey of bird activity and suitable nesting habitat was carried out, to determine if any areas would be suitable for WCA Schedule 1 birds, BoCC or other common and widespread nesting birds.

2.9 **Reptiles:** A visual survey for the presence of suitable habitat was carried out according to the criteria given in the Herpetofauna Workers' Manual (Gent and Gibson 1998).

2.10 **Amphibians:** Where accessible, known ponds within 250m of the site (unless ecologically separated from the site by significant barriers, such as major roads or rivers) were assessed for potential to support breeding amphibians, such as great crested newts (GCN) (*Triturus cristatus*). Ponds were assessed for their potential suitability to support GCN by undertaking a Habitat Suitability Index (HSI) assessment (Oldham *et al.*, 2000). The HSI for GCN is assessed using ten habitat variables (suitability indices – SI) which are known to affect the survival and ability to breed, of GCN. The variables include:

- Geographical location.
- Pond area.
- Pond permanence (number of years a pond is likely to dry out per decade).
- Water quality.
- Percentage of shade of margin.
- Number of waterfowl.
- Occurrence of fish.
- Pond density.
- Terrestrial habitat.
- Macrophyte (plant) cover.

Each variable (or suitability index) is assessed in the field and expressed on a scale from 1 (optimal suitability for GCN) to 0 (totally unsuitable). The ten variables, or indices, are combined using geometric mean to derive the final HSI score for the waterbody. The scoring system is presented in Table 1 below:

Table 1: HSI score and suitability of a waterbody habitat to support breeding GCN

HSI Score	Suitability of water body habitat to support breeding GCN
0.01-0.49	'Poor'
0.50-0.59	'Below average'
0.60-0.69	'Average'
0.70-0.79	'Good'
0.80-1.00	'Excellent'

2.11 **Invertebrates:** The site was scoped for significant rotting deadwood, and high quality

aquatic or other habitats, which could be used by significant assemblages of invertebrates, or by any of the invertebrates highlighted in the data search.

2.12 **Flora and habitats:** All habitats and plant species that were identifiable at the time of the survey were recorded.

2.13 **Adjacent Habitat:** Habitats close to the site were identified, using aerial maps and field observation, so that the ecological impact of the proposed works on the wider landscape could be assessed.

Limitations and Assumptions

2.14 The baseline conditions reported in this document represent those identified at the time of the survey on 11th February 2020. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. The survey was conducted in February, which is outside the optimal season for the identification of flora, however this is not considered a significant constraint.

3 Results

Desk Study

Statutory Designated Wildlife Sites

- 3.1 Four 'Sites of Special Scientific Interest' (SSSI), one 'Local Nature Reserve' (LNR) and a National Park were identified within 7km of the site. Statutory designated sites are detailed in Appendix A.
- 3.2 All planning applications in this area fall under the criteria for consultation between Natural England and the Local Planning Authority (LPA).

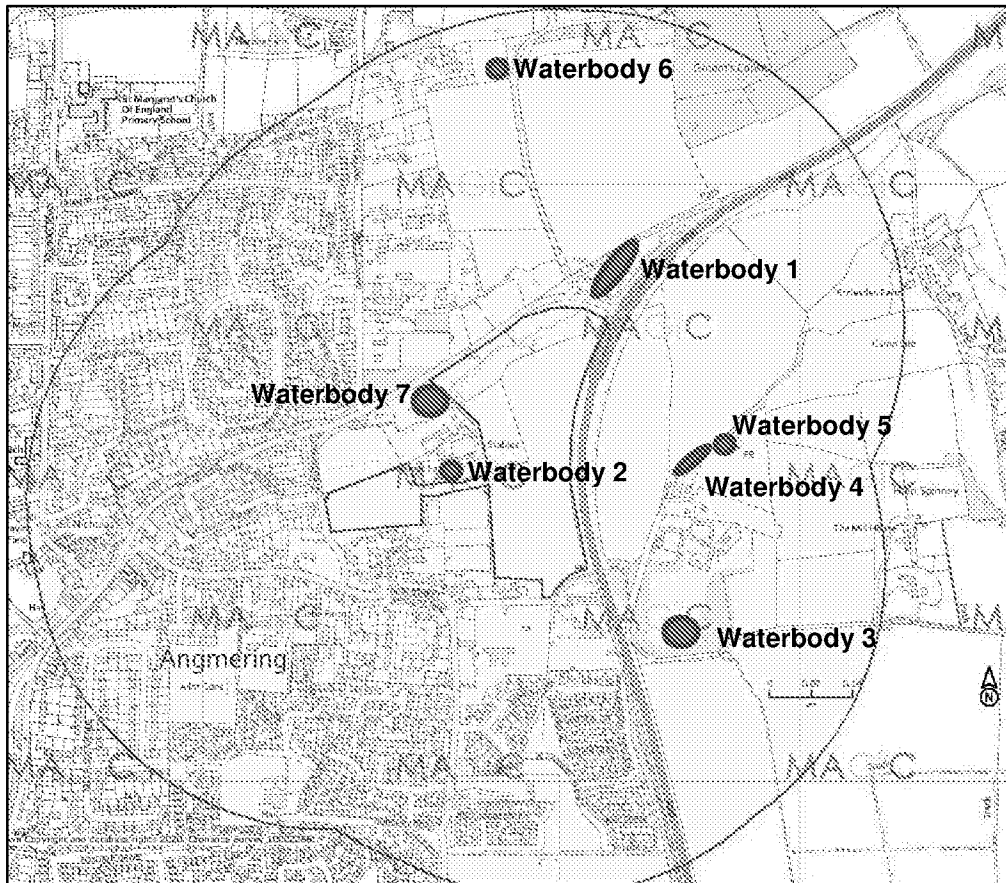
Previous surveys

- 3.3 Results from a previous survey The Ecology Partnership (2017) commissioned by Rydon homes and Gleeson Strategic Land Ltd. were consulted and referred to in this report. The initial PEA was undertaken on 7th August 2015, with an additional PEA undertaken on the 19th February 2016.
- 3.4 During the desk study The Ecology Partnership (2017), dormice were identified approximately 2km north east in 2011, along with a confirmed presence within Groom's Copse woodland 330m north of the site.
- 3.5 The bat survey The Ecology Partnership (2017) found the activity across the site was considered typical of a green field site with the majority of the activity being from common pipistrelles commuting across the site to more suitable foraging areas. A few Nathusius' pipistrelle, serotine, noctule and Leisler's, brown long eared and *Myotis* passes were also recorded.
- 3.6 Within The Ecology Partnership (2017) desk study, GCN were identified approximately within 2km in 2012. Subsequently, an eDNA was undertaken for waterbody 1 (an offsite pond to the north of the red line boundary). The results from the sample water analysis confirm likely GCN absence from waterbody 1 (The Ecology Partnership, 2017).
- 3.7 The Ecology Partnership (2017) recorded evidence of water vole such as a feeding station and latrine during eDNA testing of waterbody 1.
- 3.8 Reptiles were deemed to be likely absent from the site during the time of the 2016 reptile survey by The Ecology Partnership (2017).

Ponds/Waterbodies within 500m

- 3.9 Seven waterbodies were identified within 500m of the site boundary (Figure 2); waterbody 2 13m north, waterbody 7 23m west of the site, waterbody 1 30m north east, waterbody 3 173m south east, waterbody 4 206m east, waterbody 5 257m east, and waterbody 6 410m north.

Figure 2: Ponds within 500m of the site boundary



Reproduced from Magic maps data licence number 100059700

Walkover Survey

- 3.6 The habitats on site were considered with respect to their potential to support protected species.
- 3.7 Within the redline boundary the site comprises a number of dominant 'habitat types', taken from those listed in the Handbook for Phase 1 Habitat Survey (JNCC, 2010). The baseline conditions reported and assessed in this document represent those identified at the time of the survey on 11th February 2020. Although a reasonable

assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed.

- 3.8 The majority of the site comprises grazed improved grassland with areas of scattered scrub and species poor hedgerows. Other habitats present on site are semi-improved grassland, amenity grassland, stream, marshy grassland, scattered scrub, hardstanding, tall ruderal, buildings, and scattered trees.
- 3.9 The following photographs in Table 2 show the Target Notes referred to in Figure 3.

Figure 3: Phase 1 Habitat Map

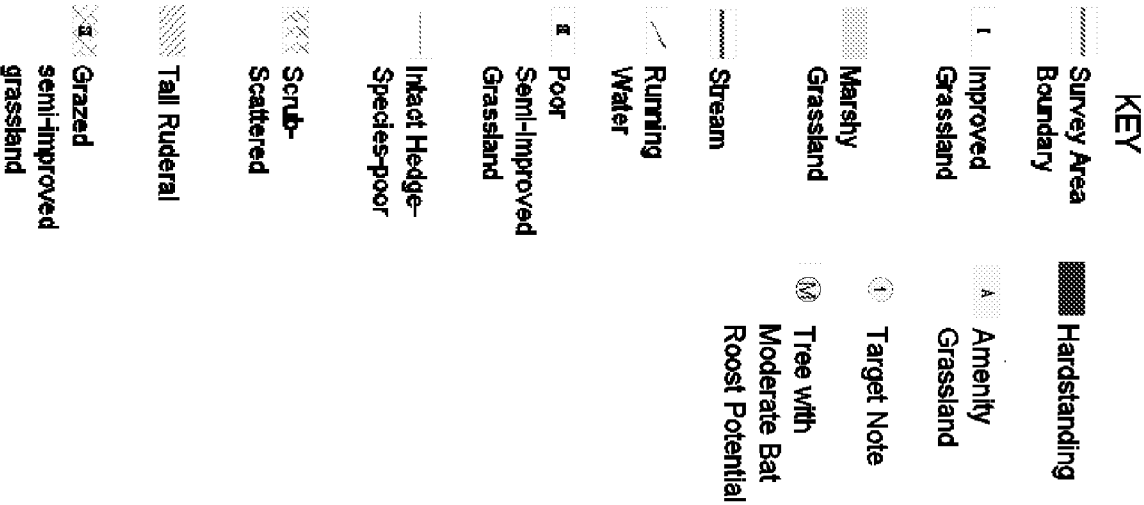
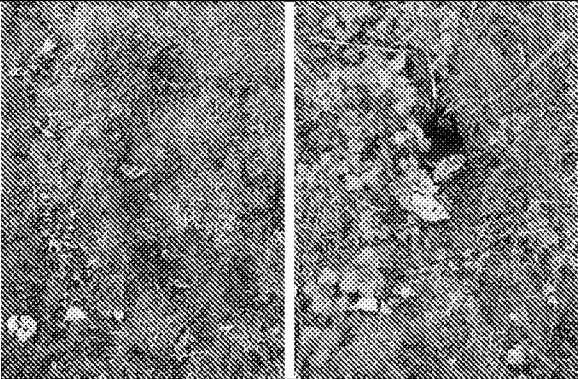
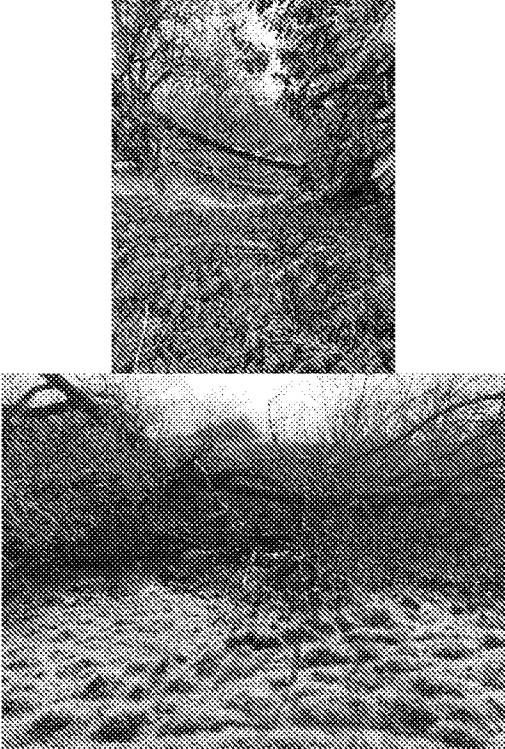


Table 2: Target Notes

Target Note	Description	Photo
1	Rabbit (<i>Oryctolagus cuniculus</i>) activity	
2	Magpie (<i>Pica pica</i>) nest in construction	
3	Deadwood	

Target Note	Description	Photo
4	Manure/compost pile	
5	Rubble/debris	
M	Tree with 'moderate' BRP	

4 Protected Species – Results and Evaluation

Badger

- 4.1 The site provides moderate quality foraging habitat and sheltering opportunities for badgers, with fair connectivity to the wider landscape providing further access to larger areas of suitable habitat.
- 4.2 Some mammal push-throughs were present during the survey, particularly to the southern and eastern boundary of the site, although these were deemed to be rabbit due to the size and shape observed.
- 4.3 No setts or evidence of badger activity with regard to hair, latrines or snuffle holes were recorded on the site itself during the survey. However, badgers can move into an area relatively rapidly, especially if there is pressure on the habitat they are currently using or if foraging opportunities increase.

Bats

- 4.4 The scattered boundary trees were assessed from the ground for bat roost potential. Majority of the trees are considered to have 'negligible' to 'low' BRP due to no or minimal suitable features present, such as dense ivy cover, peeling bark or knot holes.
- 4.5 One tree to the north of the site was considered to have 'moderate' bat roost potential due to the large broken limb and peeling bark arising from historic branch wounds. A few trees also showed recent storm damage and had fallen.
- 4.6 The old corrugated shelter (B1) and wooden opened-fronted stable (B2) were assessed from the ground for bat roost potential (BRP). B1 and B2 were deemed to have 'negligible' BRP.
- 4.7 Habitat on-site was assessed as 'moderate' for foraging and commuting bats. The habitats could be used by commuting and foraging bats as there is moderate connectivity to the wider landscape. The habitats on site also provide fair foraging opportunities such as the waterbodies, semi-improved grassland and trees, however, these are limited due to large areas of the site comprise improved grassland site with regular grazing/moving.

Hazel Dormouse

- 4.8 Dormice were identified within The Ecology Partnership (2017) desk study along with a confirmed presence within Groom's Copse. The scrub area at the northern boundary of the site was considered suitable for dormouse, although this is very limited and separated from the wider landscape due to Water Lane.
- 4.9 The remaining habitats on the site were considered unsuitable for hazel dormouse due to the hedgerows on site have little to no understory, intensively managed and species poor providing minimal shelter. There is also limited connectivity to the wider landscape, the A280 is considered to be a barrier to movement.

Otter and water vole

- 4.10 The stream present to the north of the site is considered suitable for water vole. However, no evidence was recorded at the time of the survey. The banks of the stream offer fair habitat for burrow creation and is linked to further waterways in the surrounding area for commuting individuals.
- 4.11 The fishing lake (waterbody 7), along with the stream to the north of the site provide commuting and foraging opportunities for otter and connects the site to the wider landscape through a series of drainage networks.
- 4.12 The desk study from The Ecology Partnership (2017) identified water vole within 780m of the site in 2014. A water vole latrine and feeding station were recorded in waterbody 1 (30m north east) during the eDNA water sampling. A series of pipes connect water body 1 to the stream on site. However, this the unlikely to be impacted by the proposed development do to a proposed buffer. It is recommended a pollution prevention plan is constructed.

Mammal - Other

- 4.13 The site provides good habitat for hedgehog due to scrub, tall ruderal, hedgerows and semi-improved grassland that could provide shelter and foraging opportunities. However, no evidence of hedgehog was recorded during the walkover survey.
- 4.14 Numerous signs of rabbit activity was recorded on site, particularly to the southern and eastern boundary.

Birds

- 4.15 Scattered trees, tall ruderal, hedgerows, semi-improved grassland, and scrub on site provide nesting and foraging opportunities for birds. The tall ruderal and semi-improved grassland vegetation on site is also considered suitable for ground nesting birds. A single bird nest was identified adjacent to the eastern site boundary.
- 4.16 Red kite (*Milvus milvus*) were recorded flying over the site during the walkover survey; red kite is a WCA Schedule 1 listed species.
- 4.17 The site is within Priority Species habitat for Countryside Stewardship (CS) targeting for lapwing (*Vanellus vanellus*).
- 4.18 The stream, marshy grassland and semi-improved grassland habitats are considered suitable for wintering birds. However, under current proposals, the majority of the northern habitat is being retained and enhanced.

Reptiles

- 4.19 The tall ruderal, scrub and semi-improved grassland within the site provides good foraging, hibernation and sheltering opportunities; particularly the western field, along with the north and west is also favourable.
- 4.20 Large rubble and debris piles on site could provide further sheltering and hibernation opportunities for reptiles.
- 4.21 A large manure/compost pile on site provides egg incubation opportunities for grass snake (*Natrix helvetica*).

Amphibians

- 4.22 Seven waterbodies were identified during the desk study search within 500m of the site boundary. See Appendix B for HSI of ponds.
- 4.23 Access was not gained for waterbody 2; however previous survey by The Ecology Partnership (2017) assessed the pond to have 'poor' suitability for GCN due to the large quantities of geese impacting the water quality and water vegetation.

- 4.24 Waterbody 6 had been severely polluted by manure animal/farm waste, no macrophytes were present, it was deemed very unlikely that GCN would use this pond despite the 'below average' HSI score.
- 4.25 Waterbody 4 comprises a series of flood ditches with a larger pool of water forming in times of increased precipitation which was present at the time of the survey.
- 4.26 Habitats on site are considered suitable for GCN; the tall ruderal, marshy grassland, scrub, semi-improved grassland, and deadwood present on site provide suitable hibernation and sheltering opportunities, however the improved grassland field provides sub-optimal habitat for GCN.

Invertebrates

- 4.27 The habitats on the site are unlikely to support a diverse assemblage of invertebrates. However, areas of deadwood are present on site which provide suitable habitat for stag beetles which may be present in the local area.
- 4.28 No rare or protected invertebrate species were observed during the walkover.

Flora

- 4.29 No rare, principally important, local BAP or protected plant flora was identified during the walkover survey.
- 4.30 Schedule 9 invasive plant species such as Japanese knotweed (*Fallopia japonica*) were not identified at the site during the walkover survey. However, vegetation was fairly dense in places and therefore a thorough inspection was not possible.
- 4.31 Ragwort (*Senecio. sp*) has previously been recorded on site (The Ecology Partnership 2017). Ragwort is not a Schedule 9 invasive species, however can be deemed 'invasive' due to fast growth.

5 Evaluation, Legislation and Recommendations

5.1 Table 3 below includes a summary of all identified and potential ecological constraints to the development, including those where there is insufficient information at the time of survey to be definitive. Relevant legislation has also been given here.

Table 3: Survey evaluation, relevant legislation and recommendations

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
Designated wildlife areas - statutory	The desk study identified four SSSI's and one LNR, and a National Park within 7km of the site: • South Downs National Park (108m east); • Climping Beach SSSI (5.9km south west); • West Beach LNR (5.6km south west); • Arundel park SSSI (5.9km north west); • Arun banks SSSI (6.6km north west); and • Cissbury SSSI (6.6km north east).	For any planning application in this area, consultation between NE and the LPA may be required.
Habitats	Habitats on the site comprise: • Semi-improved grassland; • Amenity grassland; • Improved grassland/pasture; • Scattered scrub; • Stream; • Marshy grassland; • Defunct species poor hedgerow; • Dense scrub; • Tall ruderal; • Scattered trees; and • Hardstanding. 'Stream' is listed as a habitat of Principal Importance under Section 41 of NERC. The Section 41 list is used to guide decision-makers in implementing their duty under Section 40 of NERC, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.	The stream habitat on site should be retained as much as possible and enhanced for biodiversity. Due to possible impacts, a pollution prevention plan may be required.
Badger	There was no evidence of badger activity on site during the walkover survey; however, some mammal push-throughs throughout the site were present. The site was considered suitable for sett creation as well as commuting and foraging activities. Badgers and their setts are protected under the Protection of Badgers Act 1992 and also protected by the Wild Mammals (Protection) Act 1996. Protection also extends to include disturbance. Under the Protection of Badgers Act 1992, it is an	6 months prior to the commencement of construction, a badger check should be undertaken for the presence of setts. This is to assess any likely adverse impacts on active setts / or badgers using a sett for shelter or protection (if present). Setts can extend up to 20m underground from their entrance. Surveys can be undertaken all year round with the optimum period being February to April or

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	offence to intentionally or recklessly: • Kill, injure or take badgers; • Damage a badger sett or any part of it; • Destroy a badger sett; • Obstruct access to, or any entrance of a badger sett; and • Disturb a badger whilst it is occupying a badger sett.	September. If the proposed works are likely to adversely impact a sett (if present), then a development licence would be necessary from Natural England prior to commencement.
Bats	Majority of trees within the site boundary are considered to have 'negligible' to 'low' BRP although a 'moderate' tree was observed to the north of the site. Recent weather may have impacted trees on site causing some to fall and limbs break, this in turn can cause new potential roost feature (PRF) to arise. The site was considered to have 'moderate' suitability for foraging and commuting bats. All species of bat are afforded full legal protection under Schedule 5 of the WCA. They are also listed under Schedule 2 of the Habitats Regulations. Some species of bat are also listed in Section 41 of NERC Act as an SPI. Combined legislation makes it an offence: to deliberately kill, injure, capture/take a wild bat; intentionally or recklessly disturb bats, including whilst occupying a place of shelter or protection; to damage or destroy a place used by a bat for breeding or resting (does not need to be deliberate, reckless or intentional); and to intentionally or recklessly obstruct access to any place used by a bat for shelter or protection. Bats are classed as 'European Protected Species' (EPS) and mitigation will typically be undertaken under the auspices of an EPS licence from Natural England.	Currently layout proposes all trees with bat roosting potential will be retained. However, if BRP trees are to be impacted in any way by the development tree with 'moderate' BRP, The BCT Guidelines recommend a single emergence and a single re-entry survey for the trees. The optimum months for emergence and re-entry surveys are from May to August, although it is sometimes possible to survey in September if previous surveys have already been undertaken, weather permitting. Emergence surveys commence 15 minutes prior to sunset to up to two hours after sunset; re-entry surveys commence two hours prior to sunrise, to sunrise. Surveys would be undertaken using electronic bat detectors and observation aids. The number of surveyors is dependent on the proportion of potential exit/entry points of the tree for bats. 'Moderate' habitat for bats require one survey visit per month (April to October) in suitable weather conditions. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. Automated/static detectors should also be used in appropriate locations on site and left in situ for at least five consecutive nights. Lighting will need to be a

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
		consideration with respect to foraging bats but will be informed by the surveys.
Hazel dormouse	There are biological records of dormouse within 2km of the site. However, the majority of site is considered unsuitable for dormouse due to lack of suitable sheltering and feeding opportunities. The areas of scrub to the north of the site provide some suitable habitat, although limited. The hazel dormouse is afforded full legal protection under Schedule 5 of the WCA. It is also listed under Schedule 2 of the Habitat Regulations and in section 41 of NERC as a species of Principal Importance. The hazel dormouse is classed as a 'European Protected Species' and mitigation will typically be undertaken under the auspices of a licence from Natural England.	No further surveys recommended. If habitat to north, in particular the scrub areas, is to be impacted then dormouse nest checks by a licenced dormouse ecologist will be required prior to works commencing.
Water vole and otter	No evidence of water vole was recorded on site during the walkover. However, habitats on site are considered suitable for these species and the stream bank can be used for burrow creation. Water vole was identified on waterbody 1 during and eDNA water sampling (The Ecology Partnership 2017). Fishing lake (waterbody 7), along with the stream to the north of the site provide commuting and foraging opportunities for otter and connects the site to the wider landscape through a series of drainage networks <u>Legislation / Policy</u> Water vole: • Schedule 5 WCA (full protection) • Section 41 NERC • Wild Mammals (Protection) Act 1996 IUCN Red Data Book: Least Concern Otter: Otter is afforded full legal protection under Schedule 5 of the WCA. It is also listed under Schedule 2 of the Habitat Regulations and in section 41 of NERC as a species of Principal Importance. All the wild mammals protected under the Wild Mammals (Protection) Act 1996. Offences relate to any act which results in the intent to inflict unnecessary suffering. Mercy killings and killing in a swift and humane way in the course of a lawful activity are not offences under the Act.	According to current plan proposals, the stream and marshy grassland habitat will not be significantly impacted upon by the development however a bridge is proposed to be installed. Any works along the stream including bridge installment, will require a water vole and otter survey prior to works. Otter and water vole surveys can be carried out from April to September (one survey during April to June and one survey during July to September). All works within the vicinity of the water course should be carried out in line with current pollution prevention guidance.

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
Mammals - other	No evidence of hedgehogs was found during the walkover survey. The site provided good hibernation and foraging habitat for hedgehogs. Hedgehogs are listed on Schedule 6 of the WCA which makes it illegal to kill or capture wild hedgehogs, with certain methods listed. The hedgehog is also a SPI under Section 41 of the NERC. Numerous rabbit activity was recorded on site. All wild mammals are protected under the Wild Mammals (Protection) Act 1996. Offences relate to any act which results in the intent to inflict unnecessary suffering. Mercy killings and killing in a swift and humane way in the course of a lawful activity are not offences under the Act.	No further surveys recommended. It is recommended that if scrub is to be removed then scrub areas should be cut to 20cm using hand-held tools (brushcutter/trimmer) and checked for hedgehog before removal. Care should be taken when undertaking ground works on or near rabbit activity so there is no harm to the rabbits which may be present. See Section 6 for enhancements.
Birds	The following habitats have the potential to support breeding birds: • Scattered trees; • Species poor hedgerows; • Semi-improved grassland; • Tall ruderal; and • Scrub. A single bird nest was identified adjacent to the eastern boundary. Red kite (<i>Milvus milvus</i>) were recorded on site during the walkover, although a BoCC green list species; red kite are listed under Schedule 1 of the WCA. The site is within Priority Species habitat for CS targeting for lapwing. All wild birds while actively nesting are afforded legal protection under the WCA. Special protection is also afforded to birds listed on Schedule 1 of the WCA which makes it an offence to disturb these species at nest or the dependent young. Combined legislation means that all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, 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; - intentionally take or destroy the egg of any wild bird; - have in one's possession or control any wild bird (dead or alive), part of a wild bird or egg of a	A breeding bird survey in accordance with BTO guidelines is recommended. The survey consists of four survey visits between March and June (one visit per month). No vegetation clearance should take place until the further surveys are complete and mitigation is agreed.

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	wild bird; e) intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird; and f) have in one's possession or control any birds of a species listed on Schedule 4 of the Act unless registered in accordance with the Secretary of State's regulations.	
Reptiles	Habitats on site are considered suitable for reptiles. The tall ruderal, semi-improved grassland, scrub areas, deadwood, rubble/debris offer shelter and hibernation opportunities; surrounding habitat is also favourable. The manure/compost pile provides egg laying opportunities for grass snake. Reptiles are afforded protection under Schedule 5 of the WCA from deliberate injury, killing and trade. They are also listed under Section 41 of NERC as an SPI.	Further reptile surveys are recommended. Reptile surveys can be undertaken from mid-march to mid-October in 'suitable weather conditions' i.e. when the temperatures are between 9 and 18 °C with no or little rain. An initial visit would be required to lay reptile refugia (bitumen felts) in suitable habitat. These warm up in the sun and act as lures to reptiles and must be left for at least seven days to bed in. The felts would then be visited seven times on separate occasions to establish presence / likely absence of reptiles. If reptiles are found, then mitigation would likely involve trapping and translocating the reptiles to a specific designated area on the site and managed as such. The level of mitigation would depend upon the result of the survey.
Amphibians, particularly GCN	Seven waterbodies were identified within 500m of the site boundary. The site is considered suitable terrestrial habitat for GCN. GCN are present within the surrounding area. Both aquatic and terrestrial habitat is protected under wildlife legislation. GCN is afforded full legal protection under Schedule 5 of the WCA. It is also listed under Schedule 2 of the Habitats Regulations. This species is also listed under Section 41 of NERC as a species of Principal Importance. GCN are classes as a 'European Protected Species' and any necessary mitigation is typically	Further surveys will be necessary in the first instance by testing for GCN presence/absence within the four waterbodies (1, 3, 4 and 5) using the environmental DNA (eDNA) method. This requires a combined water sample to be taken from around the pond and sent to a specialist laboratory for analysis. Samples can be taken from 15th April to 30th June. A positive result will be given if GCN have occupied the pond. If the waterbodies are found to be positive for GCN eDNA, then

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	undertaken under the auspices of a licence from Natural England.	further survey work will be required. This will require 6 visits for a population estimate. Surveys will be undertaken using traps/torches between mid-March and mid-June. At least 3 of these visits must be between mid-April and mid-May. It is therefore important that the eDNA samples are taken early in the season. A European Protected Species licence from Natural England will be necessary if adverse impacts to GCN are likely in the absence of mitigation or Reasonable Avoidance Measures.
Invertebrates	The habitats on site are unlikely to support a diverse assemblage of invertebrates. However, areas of scrub can be used by a small number of invertebrates, such as butterflies.	No further surveys recommended. It is recommended that deadwood on site is kept in situ and protected during development to preserve stag beetle habitat. If this is not possible then the deadwood should be carefully moved to a suitable area nearby. See Section 6 for enhancements.

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
Flora	The habitats on site are unlikely to support any rare or protected flora. No Schedule 9 invasive plant species were identified on site. However, areas could not be fully inspected due to dense vegetation. Ragwort sp. was recorded on site (The Ecology Partnership 2017) which can be considered 'invasive'. Invasive plant species such as Japanese knotweed are listed on Schedule 9 of the WCA. Schedule 9 includes certain plants that have become established in the wild in Great Britain but which the law seeks to prevent spreading further. The WCA creates various offences, including allowing a Schedule 9 plant to grow in the wild. Negligent or reckless behaviour such as inappropriate disposal, resulting in the plant becoming established in the wild also constitutes an offence. Depositing unauthorised 'controlled waste' (such as Japanese knotweed) is also likely to be a breach of Section 33 of the Environmental Protection Act, 1990. In the recent Court of Appeal decision in the case of <i>Network Rail Infrastructure Limited v Williams and Another</i> [2018], a landowner/occupier can be liable for failing to act reasonably to remove any Japanese knotweed after becoming aware of it and where it is foreseeable that it would damage neighbouring land.	No further surveys recommended. However, care must be taken when removing dense vegetation in case invasive plant species are present. If non-native invasive species should be removed from site appropriately to prevent spreading.

6 Ecological Considerations and Enhancements

- 6.1 The proposed development is considered unlikely to be adversely detrimental to designated areas, protected species or habitats, provided the recommendations are followed in Table 3. However, a number of considerations and enhancements are recommended with respect to the overall biodiversity of the site in line with current Planning Policy.
- 6.2 A Biodiversity Net Gain (BNG) assessment may be requested by the LPA to provide a net gain of at least 10%. BNG calculations can be undertaken using Defra Metric 2.0 (2019, as amended) which involves comparing 'baseline' habitat measurements with proposed habitats, post-development.
- 6.3 Where possible, scrub and scattered trees at the boundaries of the site should be retained with a 4m buffer zone and enhanced to create corridors and shelter/foraging areas for wildlife including bats, birds, hedgehogs and small mammals.
- 6.4 The NERC Priority Habitat (stream) to the north of the site should be retained and enhanced for biodiversity.
- 6.5 The addition of bird and bat boxes will provide more nesting/roosting opportunities for these species. However, specific numbers and locations should be agreed after the further surveys are completed.
- 6.6 Landscaping should incorporate native or wildlife attracting trees, shrubs, and wildflower areas as these would likely be of benefit to a variety of wildlife including, birds, bats and invertebrates, including pollinators.
- 6.7 'Hedgehog links' (i.e. 15cm diameter gaps at the base of fences) are recommended to enable small mammals to move through the development.

7 Conclusion

- 7.1 An ecological walkover survey was undertaken at Land at south of Water Lane, Angmering, West Sussex by James Blake Associates in support of a planning application for residential dwelling units and associated infrastructure.
- 7.2 The majority of the site comprises improved grassland, semi-improved grassland, and scrub with marshy grassland, hedgerows, scattered trees, tall ruderal, hardstanding, buildings, amenity grassland and a stream.
- 7.3 Further protected species surveys are recommended prior to development for reptiles, breeding birds, GCN, bats, water vole and otter. An updated badger check should also be undertaken within 6 months of any ground works/construction activities.
- 7.4 If any mitigation or compensation measures recommended following these further surveys is carried out, and if the precautionary measures for hedgehogs, nesting birds and dormouse detailed in this report are followed, it is considered that the development is able to proceed with minimal impact on the local conservation status of any protected, principally important or rare species within the area.
- 7.5 It is also considered that with a sensitive landscape scheme, and by including some, or all, of the additional enhancements, the site could be improved for local wildlife post development.

8 References

CIEEM (Chartered Institute of Ecology and Environmental Management) (2013) Guidelines for Preliminary Ecological Appraisal. Technical Guidance Series.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, third edition. The Bat Conservation Trust, London.

Gent, A.H. and Gibson, S.D., eds. (1998) *Herpetofauna Workers' Manual*. Peterborough, Joint Nature Conservation Committee.

Harris S, Cresswell P and Jefferies D (1989) Surveying Badgers, Mammal Society.

JNCC (2010) *Handbook for Phase 1 habitat survey: a technique for environmental audit (revised reprint)* JNCC: Peterborough.

The Ecology Partnership (2017) *Land to the south of Water Lane, Angmering, West Suffolk, Preliminary Ecological Appraisal*. For Rydon Homes and Gleeson Developments.

The Ecology Partnership (2017) *Land to the south of Water Lane, Angmering, West Suffolk, Reptile Presence/Absence Survey*. For Rydon Homes and Gleeson Developments.

Web references

MAGIC: Designated area data downloaded from URL <http://www.magic.gov.uk.html>

9 Bibliography

W.J. Cresswell, J.D.S. Birks, M.Dean, M. Pacheco, W.J.Trehella, D. Wells and S. Wray (2012) UK BAP Mammals Interim Guidance for Survey Methodologies, Impacts and Mitigation. Eds. The Mammal Society, Southampton.

English Nature (2004) *Guidelines for Developers*. English Nature, Peterborough.

Gregory, R. D. Wilkinson, N. I. Noble, D. G. Robinson, J. A. Brown, A. F. Hughes, J. Proctor, D .A. Gibbons, D. W. & Galbraith, C.A. (2007) The population status of birds in the United Kingdom and Isle of Man: an analysis of conservation concern 2002-2007 *British Birds* 95: 410-450.

HMSO (1981) Wildlife and Countryside Act. HMSO, London.

HMSO (1992) Protection of Badgers Act, HMSO London.

HMSO (2000) Countryside and Rights of Way (CRoW) Act. HMSO, London.

HMSO (2006) Natural Environment and Rural Communities Act HMSO, London.

HMSO (2017) Conservation of Habitats and Species Regulations 2010 (as amended) HMSO, London.

National Planning Policy Framework (2019) ISBN: 9781409834137.

10 Appendices

Appendix A: Statutory designated wildlife sites within 7km

Site Name	Designation	Distance from Site	Description
South Downs	National Park	108m east	Various habitats make up South Downs including, chalk grassland, scrub, mixed woodland, and ancient yew forest. The carnivorous plant sundew (<i>Drosera rotundifolia</i>) Duke of Burgundy butterfly (<i>Hamearis lucina</i>), brown trout (<i>Salmo trutta</i>), skylark (<i>Alauda arvensis</i>), barn owl (<i>Tyto alba</i>) and otter and barbastelle (<i>Barbastella barbastellus</i>) have all been recorded within the national park.
Climping Beach	SSSI	5.6km south west	The site is a stretch of coast with a vegetated shingle beach, behind which is a sand dune system. The intertidal zone supports important populations of wintering birds and the numbers of wintering sanderling, in particular, are of European significance.
West Beach	LNR	5.6km south west	The West Beach LNR is part of the Climping Beach, SSSI, which has national protection. Habitats within the protection include flats, the tide line, shingle, sand dunes and the plants, birds, molluscs, reptiles and mammals which either live or feed on them.
Arundel Park	SSSI	5.9km north west	This site lies within the South Downs Area of Outstanding Natural Beauty. Arundel Park is one of the most important sites in the country for invertebrates including a number of rare and notable species. The area has a particularly diverse breeding bird community and is important for overwintering species. The site also includes examples of species-rich chalk grassland containing several plants uncommon in Sussex.
Arun Banks	SSSI	6.6km north west	The site includes an upper tidal stretch of the River Arun and on old abandoned meander loop. The cut-off meander still receives some water flow and contains a range of habitats including an extensive reed bed. The site has a rich and varied flora which includes one nationally uncommon plant. Reed warblers often breed in the tall fen.
Cissbury ring	SSSI	6.6km north east	Calcareous grassland lowland which in recent years there has been a re-establishment of grazing management to encourage the increase of herbs and wildflower numbers. Scrub management being carried out on archaeologically sensitive areas to also help maintain age structure.

Appendix B: Habitat Suitability Index results

	Waterbody 1		Waterbody 3		Waterbody 4	
	Field Score	SI	Field Score	SI	Field Score	SI
Location	A	1	A	1	A	1
Pond area m ²	1200	0.925	1700	0.85	50-100	0.1
Pond permanence	Rarely dries	1	Never dries	0.9	Sometimes dries	0.5
Water quality	Moderate	0.67	Moderate	0.67	Moderate	0.67
Shade %	0-60	1	0-60	1	0-60	1
Fowl	Minor	0.67	Major	0.01	Absent	1
Fish	Possible	0.7	Possible	0.7	Absent	1
Pond density	>12	1	9	0.9	11	0.975
Terrestrial Habitat	Moderate	0.67	Good	1	Good	1
Macrophyte cover %	86-90	0.9	16-20	0.5	36-40	0.7
HSI value	0.83		0.52		0.68	
Pond Suitability	Excellent		Below Average		Average	

	Waterbody 5		Waterbody 6		Waterbody 7	
	Field Score	SI	Field Score	SI	Field Score	SI
Location	A	1	A	1	A	1
Pond area m ²	500-700	1	50-100	0.1	1600	0.865
Pond permanence	Rarely dries	1	Sometimes dries	0.5	Never dries	0.9
Water quality	Good	1	Poor	0.33	Moderate	0.67
Shade %	0-60	1	0-60	1	0-60	1
Fowl	Minor	0.67	Absent	1	Major	0.01
Fish	Absent	1	Absent	1	Major	0
Pond density	11	0.975	11	0.975	11	0.975
Terrestrial Habitat	Good	1	Moderate	0.67	Moderate	0.67
Macrophyte cover %	26-30	0.6	<1	0.3	<1	0.3
HSI value	0.91		0.56		0.31	
Pond Suitability	Excellent		Below Average		Poor	