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Gartree 2 BADGER SURVEY



RAVEN BADGER SURVEY

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CONTENTS

1.	INTRODUCTION	1
1.1	Background	1
1.2	Objectives	1
1.3	Proposed Development	1
1.4	Legislation and Policy Framework	2
2.	METHODOLOGY	3
2.1	Desk Study	3
2.2	Badger Survey	3
2.3	Assessment of Importance of Ecological Features	4
2.4	Limitations	4
3.	RESULTS	6
3.1	Desk Study	6
3.2	Badger Survey	6
4.	DISCUSSION	11
4.1	Summary	11
4.2	Assessment of Importance of Ecological Features	12
5.	CONCLUSIONS AND RECOMMENDATIONS	13
5.1	Impacts	13
5.2	Mitigation	13
5.3	Enhancement	15
5.4	Other Species	15

LIST OF TABLES

 Table 3.1: Summary of Badger Setts Present
 9

APPENDICES

Appendix 1 Figures

Appendix 2 Relevant Legislation and Policy

Appendix 3 Site Photographs (November 2020)

Appendix 4 Site Photographs (February 2021)

1. INTRODUCTION

1.1 Background

Ramboll UK Limited ('Ramboll') was commissioned by Mace Group (the 'Client'), to carry out a badger *Meles meles* survey at the Raven development site, located at Her Majesty's Prison (HMP) Gartree, Gallow Field Road, Leicestershire, LE16 7RP (the 'site') in advance of the construction of a new prison at the site. The site is centred upon OS grid reference SP 705 886.

Ramboll previously undertook an extended Phase 1 habitat survey of the larger Ministry of Justice (MoJ) site in September 2020 and a subsequent badger survey in November 2020. Six existing badger setts were identified on the application site during these surveys and extensive badger field signs were found throughout the site and in the immediate surroundings. Several areas of the site were densely overgrown at the time of the extended Phase 1 habitat survey and remained well-vegetated in November 2020.

Following reports of additional badger setts identified on the site, an update visit was undertaken by Ramboll in February 2021.

1.2 Objectives

The content of this report is based on the findings of:

- A daytime badger survey; and
- An update daytime badger survey.

The specific objectives of this report are to:

- Update the status and determine the full extent of setts previously identified on the site;
- Identify and map the location of any new setts on and within 30m of the site;
- Identify and map the location of other badger field signs on the site;
- Assess the overall importance of the site for badgers; and
- Provide recommendations for mitigation and enhancement, taking into account the proposed development footprint.

The report is supported by the following appendices:

- Appendix 1: Figures;
- Appendix 2: Legislation and Policy Context;
- Appendix 3: Site Photographs (November 2020); and
- Appendix 4: Site Photographs (February 2021).

The structure and content of this report is based on current ecological report writing guidance (CIEEM, 2017¹).

1.3 Proposed Development

This report is required in connection with an Outline Planning Application (OPA) for the construction of a new prison at the site comprising:

- House blocks;
- Care and Support Unit (CASU);
- Entrance Hub;
- Support Building;

¹ CIEEM (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

- Central Services Hub;
- Workshops;
- Kitchen;
- Kennels; and
- Associated hard and soft landscaping, including perimeter fencing.

Current plans show the footprint of the proposed new prison immediately to the south and southwest of the existing HMP Gartree, constituting the southern portion of the wider MoJ site.

1.4 Legislation and Policy Framework

Various legislation and planning policies refer to the protection of wildlife. Badgers and their setts are afforded legal protection under the Protection of Badgers Act 1992, with further protection afforded by other legislation, including the Wildlife and Countryside Act 1981 (as amended). These are summarised in Appendix 2 but should not be regarded as a definitive legal opinion. When dealing with individual cases, the full texts of the relevant documents should be consulted, and legal advice obtained if necessary.

The Protection of Badgers Act 1992 was introduced to combat the persecution of badgers. This report identifies the location of several badger setts; therefore, in order to safeguard this species, the information contained within this report should be treated as confidential.

2. METHODOLOGY

2.1 Desk Study

A desk study was conducted in September 2020 as part of the Preliminary Ecological Appraisal (PEA) of the site. This included a search for protected species (including badger) within 2km of the site.

Leicestershire and Rutland Environmental Records Centre (LRERC) was contacted to provide details of designated sites and protected species within 2km of the site. Due to data ownership restrictions in the reproduction of the LRERC report, it is not appended to this report, but the information provided is summarised in the relevant sections. Supplementary information on the site and its surroundings was obtained from aerial imagery available from Google[™] Earth Pro and MAGIC².

No previous ecological reports relating to the site have been supplied by the client or are known to the author.

2.2 Badger Survey

The badger survey was undertaken by Jonathan Molesworth of Ramboll during a single daytime visit on 24th November 2020. The survey was carried out in dry weather, with scattered cloud and a fresh breeze, and with the daytime temperature ranging between 9°C and 11°C.

An update badger survey was undertaken by Jonathan Molesworth of Ramboll during a single daytime visit on 18th February 2021. The survey was carried out in dry weather, with 100% cloud cover, and with a daytime temperature of 8°C.

Jonathan has worked as an ecologist since 2015, holds Natural England (NE) and Natural Resources Wales (NRW) licences for great crested newt (GCN) *Triturus cristatus*, a NE licence for white-clawed crayfish *Austropotamobius pallipes*, associate membership with the Chartered Institute of Ecology and Environmental Management (CIEEM) and a first-class degree in Biological Sciences from the University of Liverpool. Jonathan has four years' experience in surveying for badgers and has had extensive experience in designing and assisting in the implementation of mitigation for this species.

The survey in November 2020 involved a thorough walkover of the site and immediate surrounds, incorporating a 30m buffer around the proposed development footprint, wherever possible, to search for badger setts, excavations and other field signs indicative of this species. This was undertaken in line with best practice guidance^{3,4}. Where present, an assessment of any sett entrances was made, taking into account the shape of the entrance, the quantity of spoil and freshness of its excavation, the presence of fresh bedding, the presence of badger hair and the presence of badger claw marks. The status (active or disused by badger) of setts was ascertained and setts were classified into the following sett types, based on published criteria^{5,6}:

• Main Sett: The continuously used, breeding and over-wintering sett for a social group of badgers. Only one main sett will exist in each social group's territory and will be relatively centrally located within the group's range.

⁴ Neal, E. & Cheeseman, C. (1996). Badgers. T & AD Poyser Ltd, London.

² Multiple-Agency Geographic Information for the Countryside (MAGIC). [online] Available at:

https://magic.defra.gov.uk/magicmap.aspx (accessed 23-11-2020)

³ Harris, S., Cresswell, P. & Jeffories, D. (1989). Surveying Badgers. Occasional Publication No. 9. The Mammal Society, London.

⁵ Andrews, R. (2013). The Classification of badgers *Meles* setts in the UK: A review and Guidance for Surveyors. In Practice, CIEEM: pp. 27 – 31.

⁶ Cresswell, P., Harris, S. & Jefferies, D.J. (1990). The history, distribution, status and habitat requirements of the badger in Britain. Nature Conservancy Council, Peterborough.

- Annex Sett: An annexe of the main sett, linked by well-used surface paths to the main sett (but not connected underground). Not continuously used.
- Subsidiary Sett: Distant from main sett. Several entrances, but with no well-used paths connecting to main sett and used only seasonally.
- Outlier Sett: Distant from the main sett. Small, with one or two entrances only. Used for short periods sporadically, with no obvious, well-used paths connecting to other setts.

Any additional badger field signs throughout the site such as badger paths/ footprints, scrapings/ snuffle holes produced during foraging behaviour, latrines/ dung pits, scratching trees and diurnal resting places were identified and mapped.

Linear features, such as hedgerows and ditches, were inspected from both sides to minimise the risk of any badger setts or field signs being overlooked.

The update badger survey in February 2021 included revisiting setts already identified throughout the site during the first survey, in addition to an inspection of new reported setts within the northeast portion of the survey area.

2.3 Assessment of Importance of Ecological Features

The importance of badgers within the zone of influence has been assessed using a scale that classifies ecological features within a defined geographic context in accordance with CIEEM guidelines (2018⁷). The classification uses recognised and published criteria (e.g. Ratcliffe, 1977.⁸; Wray *et al.* 2010.⁹) where the habitats and site were assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential value. The following geographic frame of reference has been used for the site:

- International Importance
- National Importance (England)
- Regional Importance (East Midlands)
- County Importance (within Leicestershire)
- Local Importance
- Site Importance (limited to the application site boundary)
- Negligible Importance

2.4 Limitations

The conclusions presented in this report represent Ramboll's best professional judgment based upon the information available and conditions existing as of the date of this report.

November is considered to be an optimal time of the year for undertaking a badger survey, given that vegetation has typically died back, and badger setts/ field signs are therefore less likely be overlooked. However, in November 2020 vegetation and scrub in the northeast portion of the site remained dense in places. During the update visit in February 2021, it was noted that vegetation and scrub had died back significantly since November.

Badger activity levels are liable to fluctuate seasonally and/ or in response to other environmental factors. As with any ecological study, the badger survey provides only a 'snapshot' of the conditions on the site prevailing at the time of survey. Furthermore, badgers are

⁷ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute for Ecology and Environmental Management, Winchester.

⁸ Ratcliffe, D. (1977). A Nature Conservation Review. Cambridge University Press.

⁹ Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010). Valuing Bats in Ecological Impact Assessment. In Practice, pp. 23-25.

unpredictable animals that are liable to excavate new setts or re-open disused setts in a short space of time.

All areas of the site were fully accessible at the time of the survey(s). The majority of land within a 30m buffer surrounding the proposed development footprint was also accessible, apart from an area to the north (within the existing prison fencing) and to the south (on land outside of MoJ ownership). This report does not present data on, or discuss ecological constraints posed by any ecological receptors that may be present in the un-surveyed part(s) of the site or immediate surroundings.

This report has been prepared for the client and shall not be relied upon by any third party unless that party has been granted a contractual right to rely on this report for the purpose for which it was prepared.

Ramboll is satisfied that this report represents a robust appraisal of the site for the purpose of a badger survey. If no action or development has taken place on this land within six months of the review date of this report, the findings of this survey should be reviewed by a suitably qualified ecologist and may need to be updated.

3. RESULTS

- 3.1 Desk Study
- 3.1.1 Landscape Context

The site is set in a rural location, situated approximately 1.7km northwest of the town of Market Harborough, in Leicestershire. The site is set within a plot of land under the ownership of the MoJ and an existing prison is located to the immediate north; this is HMP Gartree, a Category B prison. To the south and east of the site extends a combination of grazed pasture, tall ruderal vegetation and arable land. To the northwest are residential properties and amenity gardens associated with Welland Avenue, beyond which lies large expanses of arable land. Welland Avenue borders part of the site, to the west, and will be used for access to the new proposed prison.

3.1.2 General Site Description

The site is irregular in shape and occupies an area of approximately 20.37 hectares (ha). The site is dominated by improved grassland present across five adjacent pasture fields, some of which are subject to grazing by livestock, and delineated by ditches, scattered trees, farm tracks and hedgerows. Three disused buildings are situated in the northeast portion of the site, along with several stands of dense scrub and scattered trees.

3.1.3 LRERC Species Records

LRERC returned a total of 102 badger records of within 2km of the site. Main setts have previously been recorded approximately 315m to the east, 305m south and 860m north, respectively. The highest concentrations of setts exist to the southeast of the site, although some on the outskirts of Market Harborough may have subsequently been closed under licence to facilitate construction within the nearby Strategic Development Area.

3.2 Badger Survey

3.2.1 Badger Sett Baseline

Ten badger setts (S1 - S10) are present on the site (within the proposed development footprint), described below, illustrated in Figure 1 (Appendix 1) and summarised in Table 3.1. This includes the three setts (S1 - S3) initially identified during the extended Phase 1 habitat survey, in addition to three additional outlier setts (S4 - S6) identified during the dedicated badger survey. Four additional setts (S7 - S10) were identified during the update badger survey, and the classification and status of several of the setts previously identified in November 2020 has been changed based on new observations. Photographs from November 2020 are included in Appendix 3 and photographs from February 2021 included in Appendix 4.

It was generally noted that the levels of badger activity across the site has changed significantly between November 2020 and February 2021, with a notable increase in the northwest portion of the site and a slight reduction in activity in the southern portion of the site.

Sett 1 (S1)

S1 is a large, active main sett located within a stand of tall ruderal vegetation in the northwest corner of a large field, currently grazed by sheep, in northern half of the site.

S1 features a total 22 entrances (at least two of which open out into two separate tunnels within), facing in various directions and which span an area of approximately 40m from the southern-most entrance in the main body of the field to the northern-most entrances spread along the edge of a farm track. At least four of the entrances undermine and are situated beneath the boundary fence and farm track to the north, with anecdotal evidence indicating that

the track has previously been repaired with bricks and rubble. At the time of the survey, 19 of the sett entrances displayed signs indicating current use by badger(s), including badger hair, large spoil heaps with fresh earth removal, numerous badger paw prints and claw marks, bedding material and polished soil in the bases/ sides of the tunnels. Two entrances were disused, and one entrance had collapsed (likely due to trampling by livestock) and several collapsed tunnels were also noted. Additional signs found in the vicinity of the Sett 1 entrances included numerous very large and fresh latrines, well-worn badger paths leading between the entrances and radiating into the surrounding fields, and foraging scrapes/ snuffle holes in the grassland surrounding the sett.

There is also anecdotal evidence that S1 has existed on the site for at least 40 years (*pers. comm.*, tenant, 24/11/2020).

Sett 2 (S2)

S2 is an active, single entrance annex sett located within a dry ditch/ hedgerow approximately 10m north of the nearest entrance of S1, on the opposite side of the farm track. S2 is linked with S1 by a badger path but the foundations of the intervening farm track make it unlikely that the two setts are linked underground (although it is plausible that they may have been in the past).

The single, west-facing entrance displayed signs indicating current use by badger(s) at the time of the survey, including badger hair, a large and fresh spoil heap with badger paw prints, a badger path leading into the entrance and through the middle of the hedgerow, and several badger latrines in the near vicinity.

Several potential, former, north-facing sett entrances are located within the verge along the southern edge of the hedgerow immediately adjacent to S2; however, these are considered historic and no longer associated with any sett.

Sett 3 (S3)

S3 is an active annex sett located within dense scrub, set on a raised mound, approximately 70m east of S1 at its nearest point and linked by badger paths. S3 was disused by badger(s) in September/ November 2020 but was found to be active (with high levels of activity) in February 2021.

S3 features eight south/ southwest-facing entrances located on the edge of the mound, situated beneath young elder *Sambucus nigra* trees and spreading further to the northeast. All of the entrances displayed signs indicating current use by badger(s) in February 2021. Several rabbit *Oryctolagus cuniculus* burrows located in the vicinity of S3 in November 2020 had been reopened by badger(s) in February 2021. Signs indicating current use by badger(s) were identified in February 2021, including badger hair, badger paw prints, fresh earth removal and badger paths leading between the entrances and two very fresh latrines. Badger paths leading under the fence into this area evidenced high levels of use in February 2021, given the large amount of badger paw prints along these paths. This contrasts to findings in November 2020.

Sett 4 (S4)

S4 is a disused outlier sett located within the same field as S1, approximately 85m south of S1 at its nearest point, set on a slight west-facing gradient.

S4 features a single west-facing entrance located in a cluster of common nettle *Urtica dioica* and is heavily trampled by livestock. The single entrance of S4 is of a size and shape commensurate with that dug by badger(s) but did not display signs indicating current use by badger(s) at the time of the survey. Several rabbit burrows are also located in the vicinity of S4, spread across several metres further east up the slope (TN5).

Sett 5 (S5)

S5 is a disused outlier sett located on the boundary between a grazed pasture field and the line of poplar *Populus spp.* trees/ ditch, located centrally within the site, approximately 200m southwest of S1 at its nearest point.

S5 features two entrances situated either side of a stock fence, both of which are east-facing. The western-most entrance has been excavated beneath a large concrete slab. Neither entrance displayed signs indicating current use by badger(s) at the time of the survey; however, a small dung pit was found close to the western-most entrance. Both entrances were flooded in February 2021; this is likely to be a major factor as to why S5 is currently disused by badger(s).

Sett 6 (S6)

S6 is a disused outlier sett located within a mature and defunct hedgerow and beneath the southern site boundary fence, approximately 370m southwest of S1 at its nearest point. The single entrance of S6 is south-facing and a collapsed tunnel was found several metres north, on the site-side of the fence; therefore, this sett is considered to lie within the proposed development footprint despite the entrance itself being located just off-site. An inspection within the collapsed tunnel with a camera revealed that a tunnel continues to lead north into the field, the end of which is not visible.

Although the entrance of S6 was inaccessible, a large spoil heap was evident outside the entrance. The collapsed tunnel on the site-side of the fence was inspected and no signs indicating current use by badger(s) were identified in February 2021. This sett was, however, previously found to be active in November 2020 (badger hairs were found inside the tunnel). The collapsed tunnel in the field has become trampled by livestock since November 2020 causing damage to the tunnel below and this is considered to have contributed to this S6 becoming disused by badger(s).

Sett 7 (S7)

S7 is an active subsidiary sett which was identified in February 2021. This sett is located approximately 20m to the east of S3, situated upon the same mound (on the same aspect).

S7 features six entrances, mostly south-facing and interspersed with several rabbit burrows. One entrance comprises several gaps beneath a large concrete slab, near the crest of the slope. All entrances displayed signs indicating current use by badger(s) including badger hair, badger paw prints, polished spoil in the base and sides of the tunnels, fresh earth removal and a fresh latrine near the centre of this sett.

It is considered likely that S7 has been recently been re-opened by badger(s).

Sett 8 (S8)

S8 is an active outlier sett which was identified in February 2021. This sett is located approximately 8m to the east of S7, situated upon the same mound (on the same aspect) but is not considered to be connected underground.

S8 features a single south-facing entrance which displayed signs indicating current use by badger(s) including badger paw prints, polished spoil in the base and sides of the tunnels and a badger path leading beneath the fence (immediately south) and towards the sett entrance. This sett is also surrounded by several rabbit burrows.

It is considered likely that S8 was formerly a rabbit burrow that has been recently been opened up by badger(s).

Sett 9 (S9)

S9 is an active subsidiary sett which was identified in February 2021. This sett is located approximately 16m to the east of S8, situated in the corner of the mound of scrub, in the area between an elder and a willow tree.

S9 features five entrances facing various directions (several set into the mound and the others on level ground), all of which displayed signs indicating current use by badger(s) including badger paw prints, polished spoil in the base and sides of the tunnels, fresh earth removal (with recently-excavated debris, such as bricks, in the spoil), badger paths leading between the entrances and a fresh badger latrine in the vicinity of the sett. A number of rabbit burrows (with rabbit droppings evident) are also spread around the peripheries of S9.

It is considered likely that S9 has been recently been re-opened by badger(s).

Sett 10 (S10)

S10 is an active subsidiary sett which was identified in February 2021. This sett is located approximately 35m to the north of S9, situated in the southeast corner of a second plot of scrub, set on a mound.

S10 features three entrances facing various directions (several set into the mound and the others on level ground), all of which displayed signs indicating current use by badger(s) including badger paw prints, polished spoil in the base and sides of the tunnels, fresh earth removal (with recently-excavated debris, such as bricks, in the spoil), badger paths leading between the entrances and a fresh badger latrine at the sett. One hole was identified which was deemed most likely an aborted excavation attempt. A number of rabbit burrows (with rabbit droppings identified) are also spread around the vicinity of S9.

It is considered likely that S9 has been recently been re-opened by badger(s).

Sett No.	Central Grid Reference	Sett Type	No. Entrances	Status
S1	SP 70557 88858	Main sett	22	Active
S2	SP 70571 88877	Annex sett	1	Active
S3	SP 70635 88819	Annex sett	8	Active
S4	SP 70511 88766	Outlier sett	1	Disused
S5	SP 70335 88537	Outlier sett	2	Disused
S6	SP 70288 88550	Outlier sett	1	Disused
S7	SP 70653 88819	Subsidiary sett	6	Active
S8	SP 70664 88819	Outlier sett	1	Active
S9	SP 70676 88828	Subsidiary sett	5	Active
S10	SP 70673 88864	Subsidiary sett	3	Active

Table 3.1: Summary of Badger Setts Present (as of February 2021)

3.2.2 Other Badger Field Signs

Numerous badger field signs were identified throughout the site, described below and illustrated in Figure 2 (Appendix 1).

An exposed drainage pipe in the north of the site, situated in a field directly south of the existing prison and which leads below ground into a dry ditch within the nearby hedgerow (TN1), was previously identified as a badger path during the extended Phase 1 habitat survey. No signs

indicating recent use by badger(s) were, however, found within this pipe at the time of the dedicated badger survey.

Numerous badger paths were identified throughout the site, with notable examples including:

- A well-worn path covered with badger paw prints which leads along a mature and defunct hedgerow in the north of the site and continues off-site to the northwest (TN2), before continuing along the farm track towards S1/ S2 where it branches off on both sides of the farm track (TN3).
- Several paths which radiate out to the south and east of S1.
- A path which leads beneath the line of poplar trees, adjacent to a ditch, in the central portion of the site.
- A path which leads under the fence bounding the public footpath along the southwest site boundary and continues northeast towards the pond in the middle of the field where it then peters out.
- A long path which follows much of the southern and eastern site boundary, branching off below the boundary fence at several points (leading into the adjacent arable fields).

Other field signs such as foraging signs, badger paw prints and latrines were also noted throughout the site, with notable examples including:

- Foraging along Welland Avenue to the southwest of the proposed development footprint (along which access for the new prison will be gained; TN4), along with several latrines in the verge.
- Extensive foraging in the grassland surrounding S1.
- Foraging signs and latrines in field margins the southern portion of the site.
- 3.2.3 Other Observations

Several rabbit warrens are located throughout the site, including in and around S3 and S4 (TN5), and just beyond the eastern site boundary (TN6).

Several brown hares *Lepus europaeus* were spotted on the site during the survey, most notably along the eastern site margin.

Additional observations were made in February 2021, as detailed below:

- A recently excavated hole was identified on the northern aspect of the vegetated mound, approximately 18m north of S7, at SP 70657 88838 (TN8). Although the entrance is fairly large with a large amount of freshly excavated earth, an inspection inside revealed that the tunnel narrows and becomes a size and shape more typical of rabbit. Furthermore, no evidence of badger(s) was displayed at the entrance; therefore, it is classified as a rabbit burrow.
- There are five holes along the hedgerow bounding the site to the south, immediately to the east of S6, spanning between SP 70367 88527 and SP 70363 88528 (TN9). The eastern-most hole, situated approximately 3m south of the site boundary (north-facing), is of a size and shape typical of a rabbit burrow. The remaining entrances, situated beneath the fence-line and which are south-facing, were inspected and no field signs indicative of badger(s) were identified within the entrances themselves. Furthermore, a rabbit was spooked and exited from one of the entrances during the survey. Badger paw prints and badger hairs were, however, found along a badger path beneath the fence in the vicinity of these rabbit holes, indicating a badger activity in this area.

4. DISCUSSION

4.1 Summary

In summary, ten badger setts are present on the site; S1 (active main sett), S2 (active annex sett), S3 (active annex sett), S4 (disused outlier sett), S5 (disused outlier sett), S6 (active outlier sett), S7 (active subsidiary sett), S8 (active outlier sett), S9 (active subsidiary sett) and S10 (active subsidiary sett).

The extent of badger activity observed throughout the site between September 2020 and February 2021 is indicative of a large social group present at the site.

The level of activity observed at S1 has not changed significantly between September 2020and February 2021, with activity levels at this sett remaining consistently high. Given that S1 has remained continuously occupied by badgers and with high levels of activity consistently observed during visits at several times of the year (in September, November and February), and based upon the large number of entrances and spoil heaps, well-worn paths leading between the sett entrances, presence of bedding material and numerous large and fresh latrines, this sett is considered with a high degree of certainty to be a main sett.

All other setts (S2 to S10) are located between 10m and 370m of S1. S2 to S10, in the context of mitigation and compensation, can be regarded as 'non-main setts'.

Overall levels of badger activity across the site have changed significantly throughout the three survey visits undertaken by Ramboll (between September 2020 and February 2021):

- Areas beyond 100m of S1 evidenced lower levels of badger activity in November 2020 than
 previously observed in September 2020, while latrine density and foraging activity in areas
 immediately surrounding S1 were observed to be higher. Whilst they do not hibernate,
 badgers may enter a period of torpor over the winter when they become less active and may
 have decreased ranges, foraging in closer proximity to their setts.
- S3 became active at some point between November 2020 and February 2021, with new entrances excavated or disused entrances/ rabbit holes re-opened by badger(s). Levels of badger activity in the area around this sett were noted to have increased significantly. Additional setts (S7 S10) identified in February 2021 are considered most likely to have been disused setts or rabbit warrens which have been re-opened by badger(s) at some point between November 2020 and February 2021 (or potentially setts which were active but had low levels of badger activity in autumn 2020 and have since seen a significant increase in badger activity in early 2021). This is evidenced by fresh earth removal at these additional setts (and with several entrances which appear to have been recently excavated) and a significant increase in the activity noted along badger paths in this area of the site (large number of fresh paw prints and fresh latrines around S7 S10).

These differences in observations between late 2020 and early 2021 could potentially be attributed to seasonal fluctuations in badger activity and behaviour, coupled with the assumed large number of badgers which occupy and pass through the site. Badger cubs are typically born between mid-January and mid-March and during this time, it is possible that badgers occupying breeding setts (particularly younger individuals, born during the previous year) may be pushed out of these setts and forced to find or excavate new setts throughout the wider environment. This could potentially be a contributing factor that may explain the differences in the status of badgers on the site between September/ November 2020 and February 2021.

BADGER SURVEY

4.2 Assessment of Importance of Ecological Features

In accordance with CIEEM guidance, the site is considered to be of Local Importance for badger(s).

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Impacts

S1 – S10 are all situated within the proposed development footprint. In the absence of mitigation and based on the current status of badgers and their setts on the site, the proposed development would result in the destruction and/ or damage of seven active badger setts, the disturbance of badgers using those setts and potentially the injuring/ killing of badgers occupying those setts.

Given the extensive use of the whole site by foraging and commuting badgers, it is considered that there is a high risk of impacting upon foraging/ commuting badgers (such as badgers becoming trapped in excavations) during the construction phase of the development.

5.2 Mitigation

5.2.1 Pre-Commencement Check

A pre-commencement walkover by a suitably-experience ecologist would be required to update the status of badger setts on the site immediately prior to the implementation of the mitigation strategy. This will involve an inspection of S1 to S10 and a search for any potential new setts. Depending the on the findings of this walkover it may then be necessary to undertake further monitoring should sett closure be required.

Particular attention should also be paid to existing rabbit burrows/ warrens identified throughout the site, notably at SP 70367 88527 to SP 70363 88528, and at SP 70657 88838. Given the high degree of badger activity around these areas and the presence of nearby badger setts, these holes are vulnerable to being opened up by badger(s) during a short time period.

5.2.2 Sett Retention

The favoured mitigation option would be to re-design the development such that all active setts (S1 – S3 and S7 – S10) can be retained with a minimum 30m safe stand-off area around each sett. Safe stand-off areas should be created under the supervision of an Ecological Clerk of Works (ECoW) and be demarked using suitable fencing, raised 300mm off the ground to allow badger passage underneath.

If S4, S5 and S6 remain disused, these setts may be destroyed, under the direct supervision of an ecologist.

Regular checks by an ecologist would be required throughout the construction period to check the condition of stand-off fencing and that the fencing remains an appropriate distance from retained setts.

It is understood that, due to the proposed footprint of the new development and the current extent of badger setts on the site, sett retention may be unfeasible. If it is deemed that this strategy has become unworkable, unfeasible or otherwise insufficient in protecting badgers and their setts at any time during the development, works should immediately halt where they might cause a breach in the legislation and a new strategy be designed and implemented.

5.2.3 Sett Closure

If the development cannot be re-designed in a way that allows the retention of active setts, it will be necessary to close S1, S2, S3, S7, S8, S9 and S10 permanently under a badger development licence from NE. A licence can be applied for once planning permission is granted. Badger licences are valid only between July and November, inclusive.

Sett closure will require the installation of one-way gates upon all entrances of all active setts to be closed. Badger gate design, installation/ supervision of installation and monitoring will be undertaken by the licenced ecologist/ accredited agent in conjunction with Natural England

Technical Advice Note TIN025¹⁰. In addition to the gates it is proposed that badger proof weld mesh is installed around the setts to prevent badgers trying to dig back into the setts.

Following the completion of monitoring (as specified in Section 5.2.3, below), the gates and weld mesh should be left *in situ* due to the potential for badgers trying to dig back in; removing the gates/ mesh and destroying the sett mechanically may provide an opportunity for badgers to dig back in. It is recommended that gates and weld mesh are removed immediately prior to the start of construction works in that area of the site.

If S4, S5 and S6 remain disused, these setts may be destroyed, under the direct supervision of an ecologist.

5.2.4 Monitoring

The one-way gates installed upon S1, S2, S3, S7, S8, S9 and S10 will be monitored every three days after installation, for evidence of badger activity. The monitoring period will include the positioning of a wildlife camera trap and/ or sticks at each of the gate entrances for 21-days to record badgers leaving the setts.

Once 21 days of monitoring have been undertaken, with no sign of badger activity, the gates will be locked until the setts can be mechanically destroyed using an excavator. Once the gates have been closed and locked, the licenced ecologist/ accredited agent will undertake a check once a week prior to the setts being mechanically destroyed, to ensure that the gates remain locked and badgers have not excavated new entrances.

Badgers can potentially establish new setts, re-open disused setts overnight and expand larger rabbit warrens (and this appears to have occurred at the site, to date, therefore the risk of this is considered likely to be high). Regular checks (we recommend monthly) by an ECoW are recommended throughout the remainder of the construction period. If previously disused setts become active or new setts are excavated at any time before or during construction, a suitable mitigation strategy should be implemented.

5.2.5 Compensation

If S1 is closed under licence, the provision of an artificial badger sett will be required to compensate for the loss of a main sett. The artificial sett should be created at least six months (but ideally 12 months) prior to the closure of the natural sett and the natural sett should only be closed when the artificial sett displays signs indicating its use by badger(s). It should be sited in a suitable location (far enough away from the new development to avoid disturbance but at a distance which is easily commutable from badgers from S1) and be constructed using adequate chambers and tunnels which replicate as much as possible the bulk of the natural sett it replaces. Potential impacts upon neighbouring land should also be explored. The exact location and specifications of the artificial sett would need to be discussed and agreed with the client and landowner.

Despite being 'non-main setts', the closure of S2, S3, S7, S8, S9 and S10 may require additional artificial setts to be created, given the significant impact of closing a large number of setts would have on the badger population. This would therefore be discussed in Natural England.

Due to the large size of the main sett (S1) and evidence suggesting it is long established, badgers are likely to have a high affinity for this sett and therefore it is considered unlikely to be a straightforward sett closure. Additional measures will be required to encourage badgers to use the artificial sett and a longer than the standard 21-day closure period is anticipated for the main sett.

¹⁰ Natural England (2011). Technical Advice Note (2nd ed) (TIN025); Using one-way gates on badger sett entrances. Natural England, Bristol.

5.2.6 Other Provisions

To avoid impacts upon badgers foraging and commuting through the site during construction, avoidance measures should be followed. These measures will form part of an ecological management plan or Construction Environmental Management Plan (CEMP) and shall include (but are not limited to) the following:

- All work should be undertaken during daylight hours and no artificial lighting should be used.
- Excavation work and heavy machinery should be kept well away from where it could result in damage to an active badger sett or disturbance to any badger occupying a sett.
- Fires and chemicals should not be used within 30m of any active sett.
- Access between setts and foraging/ watering areas should be maintained or new ones provided.
- Badger paths should not be blocked at any time.
- Any trenches should be covered at the end of each working day, or include a means of escape for any animal falling in.
- Any temporarily exposed open pipe system should be capped in such a way as to prevent badgers gaining access, as may happen when contractors are off site.
- The creation of features which could be by badgers to excavate setts should be avoided. Temporary soil heaps arising from construction works should be sited upon hardstanding, left uncompacted and not allowed to grass over.
- Any dangers within the work site to badgers will be identified and reported to the ECoW.
- No dogs should be taken onto the site by any of the workforce.

5.3 Enhancement

In order to comply with planning policy^{11,12}, and as a general enhancement for badgers across the wider MoJ site, additional biodiversity enhancement measures should be provided. Enhancements could include (but are not limited to) the following:

- The planting of new, fruit and nut-bearing trees throughout the MoJ land to provide a future food source for badgers.
- Implementation of traffic calming measures (such as speed bumps) along Welland Avenue to take account of increased vehicular movement along this road to access the new prison to allow safe passage of commuting badgers.
- Creation and retention of short-sward grassland areas (such as in the western portion of the larger MoJ site) to provide a future foraging resource for badgers.
- 5.4 Other Species

Incidental sightings of brown hare were made during the badger survey(s), both in November 2020 and in February 2021. As this species is present on the site, suitable alternative habitat, or habitat enhancements, should be provided if a significant area of brown hare habitat is removed by the development. This could include areas of new grassland with scrub margins and depressions in the ground in which hares can hide. Brown hare surveys are not considered necessary based on the current proposals, given that sufficient suitable habitat to sustain this species is likely to remain in the surrounding area.

¹¹ Department for Communities and Local Government (2019). National Planning Policy Framework (NPPF). London. HMSO. ¹² Defra (20100). Natural Environment White Paper. The natural choice: securing the value of nature. [online] Available at: https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature

BADGER SURVEY

APPENDIX 1 FIGURES



	Legend	k		
		Proposed Developn Footprint	nent	
	•	Target Notes		
		Badger Paths		
		Sett 1		
		Sett 2		
		Sett 3		
		Sett 4		
		Sett 5		
		Sett 6		
		Sett 7		
		Sett 8		
		Sett 9		
		Sett 10		
16	Badger I	Field Signs		
1	0	Foraging		
11	•	Hair		
6	0	Latrine		
Sector 1	•	Paw Prints		
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ET SET S	Figure	1: Badger Survey	,	
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e GIS User ommunity	RAMBOLL			



Target Note	Description
TN1	Underground pipe which leads from the field and into a hedgerow/ dry ditch, previously identified as a badger path in September 2020 but with no indications of badger use in November 2020
TN2	Badger path extending along hedgerow contains a very large number of badger paw prints, suggesting regular use
TN3	Large numbers of badger paw prints are evident along the farm track
TN4	Badger foraging signs were found along a significant stretch of the verge of Welland Avenue
TN5	A rabbit warren featuring several holes is present immediately surrounding Sett 4 (S4)
TN6	A rabbit warren is present in a vegetated soil mound located adjacent to the access track
TN7	Extensive badger foraging was noted throughout the grassland areas surrounding Sett 1 (S1)
TN8	Recently excavated hole at SP 70657 88838, typical of rabbit and with evidence of badger(s); however, this is vulnerable to occupation by badger(s) and as such, should be monitored
TN9	Five holes along the hedgerow/ fence spanning between SP 70367 88527 and SP 70363 88528, currently in use by rabbit and with no field signs indicative of badger(s) identified at the entrances at the time of the survey; however, these are vulnerable to occupation by badger(s) and as such, should be monitored

Title:	Target Notes	Client:	Mace Group
Site:	Raven	Date:	December 2020

APPENDIX 2 RELEVANT LEGISLATION AND POLICY Ecological features are protected under various United Kingdom (UK) and European legislative instruments. These are described below. European legislation is not included as it is incorporated in UK legislation by domestic provisions.

The Conservation of Habitats and Species (EU Exit) Regulations, 2019 (as amended)

The Habitats Directive (Council Directive 92/43/EEC)¹³ came into force in 1992 and provides for the creation of a network of protected wildlife areas across the European Union, known as 'Natura 2000'. The Natura 2000 network consists of Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive (Council Directive 79/409/EEC)¹⁴. These sites are part of a range of measures aimed at conserving important or threatened habitats and species.

The Conservation of Habitats and Species (EU Exit) Regulations 2019 (as amended)¹⁵ commonly known as 'the Habitats Regulations' transposes the Habitats Directive into national law and set out the provisions for the protection and management of species and habitats of European importance, including Natura 2000 sites. The 2019 bill consolidated all previous versions of the regulations and subsequent amendments since initial transposition, bringing them all under the single heading, and made a number of minor amendments. It extends to England and Wales, and to a limited extent Scotland and Northern Ireland. In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats & c.) Regulations 1994. The Conservation (Natural Habitats Directive in relation to Northern Ireland) 1995 (as amended) transposes the Habitats Directive in relation to Northern Ireland.

In addition to providing for the designation and protection of Natura 2000 sites, the Habitats Regulations provide strict protection for plant and animal species as European Protected Species. Derogations from prohibitions are transposed into the Habitats Regulations by way of a licensing regime that allows an otherwise unlawful act to be carried out lawfully for specified reasons and providing certain conditions are met. Under the Habitats Regulations, competent authorities have a general duty, in the exercise of any of their functions, to have regard to the Habitats Directive and Wild Birds Directive including in the granting of consents or authorisations. They may not authorise a plan or project that may adversely affect the integrity of a European site, with certain exceptions (considerations of overriding public interest).

The Countryside and Rights of Way Act 2000

The Countryside and Rights of Way Act 2000¹⁶ primarily extends to England and Wales. It provides a new statutory right of access to the countryside and modernises the rights of way system, bringing into force stronger protection for both wildlife and countryside.

The Act is divided into five distinct sections, Part III is of relevance to ecology:

Part III - Nature Conservation and Wildlife Protection: The Act details a number of measures to promote and enhance wildlife conservation. These measures include improving protection for Sites of Special Scientific Interest (SSSIs) and increasing penalties for deliberate damage to SSSIs. Furthermore, the Act affords statutory protection to Ramsar Sites which are wetlands designated under the International Convention on Wetlands¹⁷.

¹³ European Commission (1992). Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. European Commission, Brussels.

¹⁴ European Commission (1979). Council Directive 79/409/EEC on the conservation of wild birds, European Commission, Brussels.

¹⁵ Secretary of State (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations. Her Majesty's Stationery Office (HMSO).

 $^{^{\}rm 16}$ Secretary of State (2000). The Countryside and Rights of Way Act. HMSO.

¹⁷ United Nations Educational, Scientific and Cultural Organization (UNESCO) (1971). Convention on Wetlands of International Importance especially as Waterfowl Habitat, as amended in 1982 and 1987. Ramsar, Iran Published in Paris, 1994.

Wildlife and Countryside Act 1981, as Amended in Quinquennial Review and by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006

The Wildlife and Countryside Act 1981¹⁸ forms the basis of much of the statutory wildlife protection in the UK. Part I deals with the protection of plants, birds and other animals and Part II deals with the designation of SSSIs.

This Act covers the following broad areas:

- Wildlife listing endangered or rare species in need of protection and creating offences for killing, disturbing or injuring such species. Additionally, the disturbance of any nesting bird during breeding season is also noted as an offence, with further protection for species listed on Schedule 1. Measures for preventing the establishment of non-native plant and animal species as listed on Schedule 9 are also provided;
- Nature Conservation protecting those Sites which are National Nature Reserves (NNR) and SSSI;
- Public Rights of Way placing a duty on the local authority (normally the County Council) to maintain a definitive map of footpaths and rights of way. It also requires that landowners ensure that footpaths and rights of way are continually accessible; and
- Miscellaneous General Provisions.

The Act is enforced by Local Authorities.

Natural Environment and Rural Communities (NERC) Act 2006

Under the NERC Act 2006¹⁹ Section 40, public authorities must show regard for conserving biodiversity in all their actions. Public authorities should consider how wildlife or land may be affected in all the decisions that they make. The commitment to the biodiversity duty must be measured by public authorities.

NERC Act 2006 Section 41 requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England.

Protection of Badgers Act 1992

The Protection of Badgers Act 1992²⁰ consolidated previous legislation relating specifically to badgers and protects both badgers and their setts. Under the Act, it is an offence to:

• Wilfully kill, injure or take, or attempt to kill, injure or take, a badger;

Possess a dead badger or any part or derivative of a badger;

- Cruelly ill-treat a badger;
- Dig for a badger;
- Damage a badger sett or any part of it;
- Destroy a badger sett;
- Obstruct access to, or any entrance of, a badger sett;
- Cause a dog to enter a badger sett; or
- Disturb a badger when it is occupying a badger sett.

¹⁸ Secretary of State (1981). Wildlife and Countryside Act. HMSO.

¹⁹ Natural Environment and Rural Communities Act (2006). HMSO.

²⁰ Secretary of State (1992). Protection of Badgers Act 1992. HMSO.

Biodiversity Action Plans

In 1994, Government produced the UK Biodiversity Action Plan (BAP)²¹, a national strategy for the conservation of biodiversity. This led to the creation of the UK Biodiversity Steering Group, which has listed 1,150 Species Action Plans (SAPs) and 65Habitat Action Plans (HAPs). Regional and District/Borough BAPs apply the UK BAP at a local level.

From July 2012, the UK Post-2010 Biodiversity Framework²² succeeds the UK BAP and Conserving Biodiversity - the UK Approach. This is as a result of a change in strategic thinking following the publication of the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011 - 2020 and its 20 'Aichi targets', at Nagoya, Japan in October 2010, and the launch of the new EU Biodiversity Strategy (EUBS) in May 2011.

The UK Post-2010 Biodiversity Framework constitutes the UK's response to these new 'Aichi' strategic goals and associated targets. The Framework recognises that most work which was previously carried out under the UK BAP is now focussed on the individual countries of the United Kingdom and Northern Ireland, and delivered through each countries' own strategies.

Following the publication of the new Framework, the UK BAP partnership no longer operates. However, many of the tools and resources originally developed under the UK BAP remain of use. The UK list of priority species has been used to help draw up statutory lists of priorities in England, Scotland, Wales and Northern Ireland. For England, this is in line with the NERC Act 2006 Section 41.

Biodiversity in the Planning Process

Administrative and policy guidance on the application of some of these statutory obligations is provided through relevant government policy guidance and advice. In England, this includes National Planning Policy Framework 2012, National Planning Practice Guidance, Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System, Biodiversity 2020 and Natural Environment White Paper The natural choice: securing the value of nature.

National Planning Policy Framework, 2019

The National Planning Policy Framework (NPPF)²³ adopted in 2019 sets out the Government's planning policies for England and how these are expected to be applied. The NPPF contains the following statements which are of relevance (not an exhaustive list, but including those of highest relevance):

- Section 15, paragraph 170 states that the planning system should contribute to and enhance the natural and local environment by: "minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures";
- Section 15, paragraph 174 states that planning applications should: "promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity";
- Section 15, paragraph 174 states that: *"To protect and enhance biodiversity and geodiversity, plans should: identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and*

²¹ Her Majesty's Stationery Office, 1994. Biodiversity: The UK Action Plan. London.

²² JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. UK Post-2010 Biodiversity Framework. July 2012. jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf

²³ Department for Communities and Local Government, 2019. National Planning Policy Framework (NPPF). London. HMSO.

locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation"; and

• Section 15, paragraph 175 states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles: *"if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused"*. It also states that planning permission should be refused for: *"development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees)... unless there are wholly exceptional reasons and a suitable compensation strategy exists"*.

Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.

This circular²⁴ provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the national planning policy in the National Planning Policy Framework and the Planning Practice Guidance.

Natural Environment White Paper. The natural choice: securing the value of nature

The Natural Environment White Paper²⁵ outlines the government's vision for the natural environment over the next 50 years, shifting the emphasis to an integrated landscape-scale approach. It describes the actions that will be taken to deliver that goal.

Biodiversity 2020

The Biodiversity 2020²⁶ strategy for England builds on the Natural Environment White Paper and provides a comprehensive picture of how England is implementing its international and EU commitments. It sets out the strategic direction for biodiversity policy on land (including rivers and lakes) and at sea.

The mission for this strategy is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.

It is anticipated that this will be delivered through:

- a more integrated large-scale approach to conservation on land and at sea;
- putting people at the heart of biodiversity policy;
- reducing environmental pressures; and
- improving knowledge.

Local Planning Policy

Leicestershire and Rutland Biodiversity Action Plan

This Action Plan was modelled on the national UK Action Plan but concentrated on habitats and species of local conservation concern. The plan has been updated three times since, most

²⁴ Office of the Deputy Prime Minister (2005). Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System. Available at: https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005

²⁵ Defra (2011). Natural Environment White Paper. The natural choice: securing the value of nature. Available at:

https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature

²⁶ Defra, 2011. Biodiversity 2020. Available at: https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-forengland-s-wildlife-and-ecosystem-services

recently in in 2016. The plan is now called Space for Wildlife: Leicester, Leicestershire and Rutland Biodiversity Action Plan (LLRBAP) 2016 – 2026.

The Leicester, Leicestershire and Rutland Biodiversity Action Plan includes 16 Species Action Plans and 20 Priority BAP Habitats, listed in the table below:

LLRBAP Habitats	Leicestershire Species Action Plans
Broadleaved woodland	Barn Owl
Calcareous grassland	Bats
Eutrophic standing water	Black Hairstreak butterfly
Field margins	Black Poplar
Heath-grassland	Dingy and Grizzled Skipper butterflies
Hedgerows	Dormouse
Lowland wood-pasture and parkland	Nightingale
Mesotrophic lakes	Otter
Neutral grassland	Purple Small-reed
Reedbed	Redstart
Wet woodland	Sand Martin
Rivers (in preparation)	Violet Helleborine
Fast-flowing streams	Water Vole
Floodplain wetland	White-clawed Crayfish
Mature trees	Wood Vetch
Roadside verges	Swifts, Swallows and House Martins
Rocks and built structures	
Sphagnum ponds	
Springs and flushes	
Urban habitats	

APPENDIX 3 SITE PHOTOGRAPHS (NOVEMBER 2020)





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Photo 12. Badger path crossing a field in the western portion of the site

Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	December 2020

APPENDIX 4 SITE PHOTOGRAPHS (FEBRUARY 2021)





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	February 2021





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	February 2021





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	February 2021





Title:	Badger Survey – Photographic Log	Client:	Mace Group
Site:	Raven	Date:	February 2021





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Site:	Raven	Date:	February 2021