Phase 2 Ecological Surveys of Phase 5, Smart Sytems, Yatton

Client	Smart Systems
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NATURAL SOLUTIONS

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Non-technical Summary

Background

In April 2017, Crossman Associates was commissioned by Smart Systems to undertake Phase 2 protected species surveys of an area of land at Smart Systems, Yatton, North Somerset. The site consists of a former arable field partly bounded by hedgerows / ditches. Site proposals involve the redevelopment of the site to make way for an extension of the Smart Systems factory. The survey follows a Phase 1 survey carried out by Avon Wildlife Trust, which recommended further assessment for reptiles, bats and great crested newts.

Methods

The survey work included a reptile survey, automated bat monitoring and great crested newt eDNA assessment. All work followed current best practice guidance.

All survey work was undertaken by Alex Crossman MCIEEM and Fairbrass Knowles, both experienced ecologists.

Results

The majority of the site consists of a former arable field which has been partly cleared of vegetation to make way for the new extension. A continuous water-filled ditch and species poor hedgerow forms the boundaries; both of these features are continuous beyond the site and link into the wider ditch and hedgerow network that surrounds the site. An approximately 5 m wide band of unmanaged vegetation forms a continuous band around the inner base of the hedgerow.

Reptile surveys confirm the presence of a small population of grass snakes inhabiting the boundary hedgerows / ditches and the band of unmanaged vegetation.

Recommendations

It is recommended that the following be undertaken as part of the proposals:

- Maintain and protect boundary hedgerow and drainage ditches
- Sensitive removal of vegetation in relation to birds and reptiles
- Maintain and enhance retained areas of habitat for reptiles and protect the areas with a permanent 900 mm high metal beam barrier

Contents

1. Background

1.1. In March 2017, Crossman Associates was commissioned by Smart Systems to undertake a reptile and bat assessment of an of a proposed development site related to the extension (Phase 5) of the Smart Systems factory at Arnolds Way, Yatton. The site is centered on Ordnance Survey Grid Reference ST 4139 6607 (refer to Figure 1, Appendix I).

1.2. The assessments were recommended within an earlier extended Phase 1 survey conducted by Avon Wildlife Trust who have identified on site habitats as having suitability for common reptiles and boundary hedgerows and ditches are considered suitable for foraging and commuting bats. The presence of wet ditches provides potential breeding locations for great crested newt *Triturus cristatus*.

1.3. Since the extended Phase 1 survey was undertaken, the site has been subject to a soil strip covering the proposed footprint of the factory extension.

1.4. The objectives of the survey were to:

- Assess the likely presence or absence of the above species
- Identify any legislative or planning policy constraints relevant to the site
- Determine the need for further surveys, compensation or mitigation

Site Description

1.5. The site consists of a square field covering an area of approximately 1 hectare. The field is bounded by species poor hedgerows and drainage ditches along its northern eastern and western sides, both these features are continuous beyond the site and link into the wider ditch and hedgerow network that surrounds the site. The field, which was last used to grow an arable crop, has recently been

cleared in preparation for the development. Hedgerows, ditches and a 5 m wide headland made up of continuous and unmanaged band of grassland / scrub have all been maintained along the base of the boundary hedgerow. The habitats on site are shown in Figure 2, Appendix I.

1.6. The wider landscape to the north, south and west consist of a predominantly agricultural landscape dominated by a network of small fields of both grazed and arable divided by networks of managed and unmanaged hedgerows, rhynes and ditches. The town of Yatton lies to the east of the site.

1.7. There are no significant areas of woodland in proximity to the site.

1.8. Watercourses are present on site and consist of wet ditches that run around the northern, eastern and western boundary hedgerows. Further water courses occur frequently within close proximity to the site; these largely comprise a complex of interconnecting rhynes and ditches that run parallel with hedgerow networks as well as intersecting fields within the agricultural landscape, bankside and emergent vegetation includes common reed *Phragmites autralis.*

Proposals

1.9. The site is subject to development, which includes the extension of an existing factory complex. Specifically, Phase 5 of the factory complex will be extended to the west and will occupy a former arable field, which has been subject to vegetation clearance and a soil strip to accommodate the footprint of the new building. Boundary features including hedgerows and ditches will be retained and protected. The building will be used for storage, will be used during office hours and will not require any external lighting.

1.1. The site proposals will include ecological enhancements including the establishment of areas of naturalistic habitat around the northern, eastern and western sides of the site. In total these areas will amount to an approximately 10 m wide band of grassland that will occupy the northern, eastern and western

hedgerow bases and will be managed for wildlife. These areas will be protected by a permanent 900 mm high steel beam barrier.

2. Methodology

Desktop Study

2.1. A review has been made of previous ecological assessment made during earlier planning proposals for the Smart Systems development. Previous bat survey data has been reviewed to identify what species have historically recorded on the wider site and environs.

National Planning Policy and Legislation

2.2. National Planning Policy and legislation has been reviewed for policies and laws that relate to nature conservation relevant to the site.

Field Survey

Reptile survey

2.3. In May 2017, a total of 32 reptile artificial refuges were laid out within suitable habitat across the site approximately 7 m apart. These were allowed to establish for approximately 2 weeks. Seven site visits were subsequently made during May to check the refuges for signs of reptile presence (in accordance with Gent and Gibson 2003). The reptile survey also follows guidance set out within The Reptile Habitat Management Handbook (2010), Froglife advice sheet number 10 'Reptile Survey (1999) and advice notes / guidelines produced by Herpetufauna Groups of Britain and Ireland (HGBI) 1998.

2.4. Artificial refuges consisted of short lengths of bituminous type 1F felt cut to short lengths, each measuring approximately 1 m x 1 m.

2.5. For each site visit the site was systematically walked to check for reptile presence. Refuges were checked during optimum weather conditions between 12:30 and 18:30 during periods of cloud with sunny spells and little-no wind. Temperatures for each visit did not fall below 9°C and did not exceed 21°C.

2.6. Figure 2 within Appendix I provides a habitat map and shows the distribution of the artificial refugia within the site.

Great crested newt

2.7. To detect whether great crested newts are making use of the water filled ditches an environmental DNA (eDNA) analysis was carried out. The test works by detecting minute traces of great crested DNA in water samples collected from the ditches on site and sent to Surescreen Scientifics for analysis.

Bats

Automated Activity Surveys

2.8. An Anabat Express automated bat detector was placed in the three hedgerows bounding the site; the device was set to record for one week in each hedgerow, to the south-west, north-west and north-east of the site.

2.9. The data was later analysed using Analook and Kaleidescope computer software and bat activity and passes tallied.

3. Results

Desktop Study

Bats

3.1. A review of an Ecological Impact Assessment produced by Landmark Practice in 2012 identified the following species using the wider site;

- Common pipistrelle *Pipistrellus pipistrellus*
- Soporano pipistrelle *Pipistrellus pygmaeus*
- *Myotis sp*
- Noctule *Nyctalus noctula*
- Nathusius pipistrelle *Pipistrellus nathusii*
- Serotine *Eptesicus serotinus*
- Leisler's *Nyctalus leislerii*
- Long-eared *Plecotus sp*.
- Greater horseshoe *Rhinolophus ferrumequinum*
- Lesser horseshoe *Rhinolophus hipposideros*

Great crested newts

3.2. As part of the planning applications for previous phases of the Smart Systems factory, detailed and extensive surveys have been carried out for great crested newt *Triturus cristatus* (The Landmark Practice, 2012). Surveys were carried out between mid-March and mid-June 2012 and included three methods; torch light

searches, egg searches and netting. The surveys revealed no evidence for this species and concluded that great crested newts were absent from surrounding water-filled ditches, which adjoin those on site, and the balancing pond that lies 200m south-east of the site. This species is therefore likely to be absent.

Legislation

Reptiles

3.3. Reptiles are partially protected under the Wildlife and Countryside Act (1981) as Amended, which makes it an offence to intentionally or recklessly destroy or injure a reptile.

Bats and great crested newts

3.4. Conservation of Habitats & Species Regulations 2010 (as amended) - Regulation 9 requires local authorities to take account of the presence of European Protected Species at development sites. If they are present and affected by the development proposals, the Local Planning Authority must establish whether "the three tests" have been met, prior to determining the application.

3.5. The three tests that must be satisfied are:

- That the development is "in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment".
- That there is "no satisfactory alternative"
- That the derogation is "not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range

Planning policy

3.6. The planning policy framework (NPPF) contains sections of relevance to nature conservation that include:

- Paragraph 165: planning policy and decision should be based on up-to-date information about the natural environment.
- Paragraph 118: when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles;
    - If significant harm resulting from development cannot be avoided (through relocating on alternative sites with less harmful impact), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused
    - Proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest feature is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSI's
    - Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted
    - Opportunities to incorporate biodiversity in and around developments should be encouraged
    - Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including

ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss

Field Survey

Reptile Survey

3.7. The table below details the findings of the reptile survey results. The only species recorded was grass snake *Natrix natrix*. A peak count of 3 was recorded on one occasion, while 2 grass snakes were recorded on three occasions.

Table 1: reptile survey results

Visit	Date	Weather Conditions	Stage and location	Total
1	08/05/2017	18^0C Cloud 10% Dry/ Sunny Wind 0/1	2 x adults Northern end of site	2
2	12/05/2017	17^0C Cloud 60% Dry / Overcast Wind 0/1	1 x sub-adult Northern side of site 1 x adult Eastern side of site	2

3	13/05/2017	18^0C Cloud 0% Dry / Sunny Wind 0/1	0	0
4	14/05/2017	18^0C Cloud 10% Dry / Sunny Wind 0/1	1 x sub-adult Western side of site 1 x juvenile Eastern side	2
5	15/05/2017	16^0C Cloud 70% Showers Wind 0/1	1 x adult Western side of site	1
6	19/05/2017	15^0C Cloud 45% Showers / Sunny intervals Wind 0/1	1 x adult Western end of site	1
7	26/05/2017	18^0C	2 x adult Western end	3

		Cloud 10% Sunny Wind 0/1	of site 1 x juvenile North end of site	

Bat survey

Automated Bat Activity Survey

3.8. Automated bat activity surveys were conducted in May 2017.

3.9. The bat activity is summarised within the following table, which compares the bat activity index (BAI) between the species. BAI is a measure of bat activity per unit time and is calculated using the following equation; BAI = bat passes / unit time (hours).

3.10. The table shows the BAI (and the number of passes in brackets) for each survey location (A, B and C).

Table 2; BAI (and bat passes) for automated activity surveys

Date range	5/5/2017 – 12/5/2017	12/5/2017 – 19/5/2017	19/5/2017 – 27/5/2017
Cumulative recording time (hrs)	64	64	64
Location	Western hedgerow	Northern hedgerow	Eastern hedgerow
Common pipistrelle	1.4 (89)	1.8 (115)	5.0 (350)
Soprano pipistrelle	4.7 (301)	0.7 (45)	1.0 (62)
Myotis sp.	<0.1 (2)	0 (0)	<0.1 (2)

Serotine	0 (0)	0 (0)	0.3 (16)
Noctule	<0.1 (4)	0 (0)	<0.1 (1)
Lesser horseshoe	0 (0)	0.1 (10)	<0.1 (4)

3.11. The automated survey recorded 6 different species; common pipistrelle, soprano pipistrelle, *Myotis sp.*, serotine, noctule and lesser horseshoe.

3.12. Common pipistrelle and soprano pipistrelle were recorded frequently at all position. Other species were recorded less frequently or rarely.

3.13. A *Myotis sp.* bat, which could not be identified to species level was also recorded.

Great crested newts

3.14. The eDNA test of adjacent ditches was negative.

Evaluation

Reptiles

3.15. The only reptile species present is grass snake *Natrix natrix* and is distributed throughout the 5 m band of vegetation which forms a continuous strip of poorly managed grassland / bramble scrub along the base of the northern, eastern and western perimeter hedgerow / drainage ditches. On site habitats provide a mosaic of habitats considered to be near optimal for grass snakes, and include open areas of poorly managed grassland with occasional bramble scrub, (offering secluded basking locations), while hedgerows, banks and water filled ditches provide cover, hunting and hibernation opportunities. In addition, hedgerows and water filled ditches are continuous and widespread beyond the site, offering further suitable habitat as well as facilitating the movement of grass snakes between the site and the wider landscape.

3.16. The number of grass snakes and age pattern would indicate that a viable breeding population is present on site. The snakes recorded are representative of what is likely to be a larger grass snake population which utilises the site and surrounding habitats.

Great Crested Newts

3.17. Previous survey data has not identified this species on site or in adjacent areas and the eDNA test of the ditch adjacent to the site was negative.

Bats

3.18. The boundary hedgerows are functioning as a commuting corridor for 6 species of bat and 10 species have been historically recorded using the wider site; the reduced number of species in this part of the site is likely to be due to lower structural diversity in this area, with managed hedgerow, adjacent arable farmland but no mature trees.

3.19. Hedgerows provide linear features that allow bats to orientate and move through the countryside and also attract invertebrates, thus provide a foraging resource for bats. The hedgerows that bound the site connect to an extensive and diverse network of hedgerows in the wider countryside, which provide bats with additional/alternative commuting and foraging routes.

3.20. The footprint of the proposed Phase 5 extension has already been cleared of vegetation and is currently occupied by compacted scalpings, which does not offer suitable habitat for bats.

4. Recommendations

4.1. The paragraphs below should be followed to ensure that the proposed work does not adversely affect wildlife. The recommendations will also take into account relevant local/national policy and legislation.

4.2. The proposed development area is currently agricultural in nature and generally has low intrinsic ecological value, which is only increased by boundary features that will be retained and protected (see below). The new development involves the extension of an industrial complex, with associated infrastructure including increases in lighting, increases in road traffic and increased noise and pollution levels. To improve habitats and to offset the change of use, opportunities exist to enhance the sites ecological potential. The National Planning Policy Framework (2012) states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying a number of principles; one of which includes encouraging opportunities to incorporate biodiversity in and around developments.

Species Recommendations

Reptiles

4.3. The Phase 5 proposals will not require the removal of any additional areas of vegetation; the footprint of the development has been established and will be occupying what was an agricultural field used to grow arable crops. Areas of habitat where grass snakes have been identified will not be directly impacted by the development. These areas are the northern-eastern, south-western and north-western hedgerows and associated wet ditch and the 5 m band of vegetation that runs along the base of all lengths of hedgerow. This vegetation will be protected during the course of works as described in the Landscape Recommendations below.

Bats

4.4. All hedgerows and remaining vegetation will be maintained and protected as described in the Landscape Recommendations below and additional planting will enhance the value of the site for bats.

4.5. The new extension is for storage and will not have an windows or external lights, so there will be no increase in external lighting associated with the works. The development will take place during normal working hours, so lighting associated with the development works will not impeded upon the bat activity periods.

Landscape Recommendations

4.6. During the development, this area of retained boundary vegetation will be protected by the installation of temporary Heras fencing which should remain in situ until the development is complete. This area should not be used as an area to store machinery, plant, building materials, fuel bowsers or any other equipment associated with the construction.

4.7. New landscape proposals will see an expansion of areas of naturalistic habitat and the 5 m band of unmanaged vegetation along the three hedgerow bases will be expanded to approximately 10 m. This area will be maintained as a wildlife area and will be subject to low levels of maintenance; Figure 3 within Appendix I provides an overview of the completed development and shows the areas that are planned as wildlife areas.

4.8. On completion of the development, it is recommended that a 900 mm high metal beam barrier is used to protect the wildlife area from the main site. The barrier will prevent the accidental accessing of the site by vehicles or for the area to become an impromptu storage area.

Wildflower meadows

4.9. It is recommended that the wildlife area is maintained as a wildflower meadow with areas of scattered bramble scrub allowed to develop along the hedgerow bases forming an ecotone.

4.10. The meadow will require low levels of maintenance, which to avoid harming reptiles should be carried out during the winter months. The grassed areas will require cutting over the winter period and the cuttings should be raked and stacked into habitat piles on site. Areas of scrub should not be allowed to overwhelm the site and periodic cutting will be necessary in order to maintain the grassland scrub mosaic.

Hedges

4.11. Management of the hedge will involve cutting on a two to three year cycle, which will ensure that the trees growing within the hedge remain thick and bushy and produce a good crop of berries and nuts during the autumn; these nuts and berries are relied on by a multitude of species, particularly birds and rodents. Most trees and shrub flowers are produced on one year old wood so annual cutting removes this wood and thus any chance of the tree or shrub producing the flowers that are necessary to produce these resources.

4.12. The timing and rotation of cutting is therefore important; try to avoid cutting all the hedgerows in one year as this will ensure that there will always be suitable habitat on the site. Cutting should never take place between the months of March through to September to avoid the bird nesting season. The most favourable time to carry out the cut is January or February.

Summary

- Cut hedges every two to three years
- Cut hedges on a rotational cycle so as to always have suitable habitat on the site

- Tractor mounted flails will cut 3 year old wood up to 40 mm thick. Specialised flails will cut up to 100mm
- Never cut hedges between the months of March through to September

Ditches

4.13. The boundary ditches will be protected through the course of works by the installation of a temporary protective fence, which will comprise of Heras panels. The fence will remain in situ throughout the course of works.

4.14. Due to the proximity of the works to the local drainage ditch network, it is essential that works follow current industry best practice to avoid pollution or contamination incidents.

4.15. Regular maintenance of the rhyne and drainage ditches; including the periodic removal of overgrowth of aquatic vegetation, the removal of excessive silt build up and the creation of more open and less shaded stretches by cutting excessive overgrowth of hedgerow species.

5. Limitations

5.1. This report records wildlife found during the survey and anecdotal evidence of sightings. It does not record any plants or animals that may appear at other times of the year and were therefore not evident at the time of visit.

5.2. This report represents a preliminary assessment only. Recommendations and conclusions are subject to change should further findings significantly differ from those collected from the survey efforts to date.

5.3. The advice contained in this report relate primarily to factual survey results and general guidance only. On all legal matters you are advised to take legal advice.

6. References

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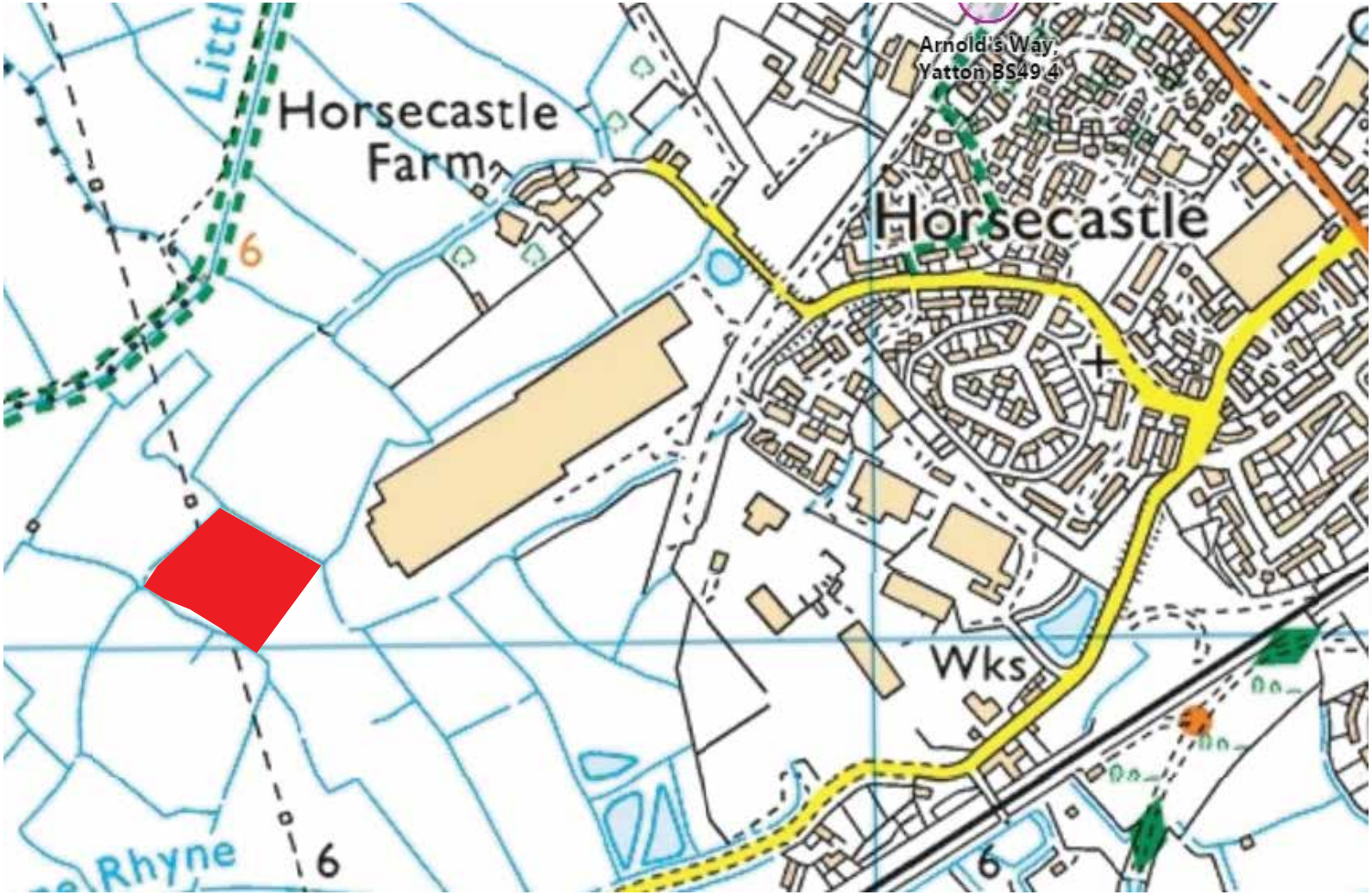
Appendix I – Site Figures



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Site location

* Please note that Ordnance Survey mapping does not show the current layout of the factory complex, which extends to the west and south of what is shown.

Client	Smart Systems Ltd
Title	Location map
Site	Phase 5
Figure	1
Date	26 May 2017
Scale	Indicative

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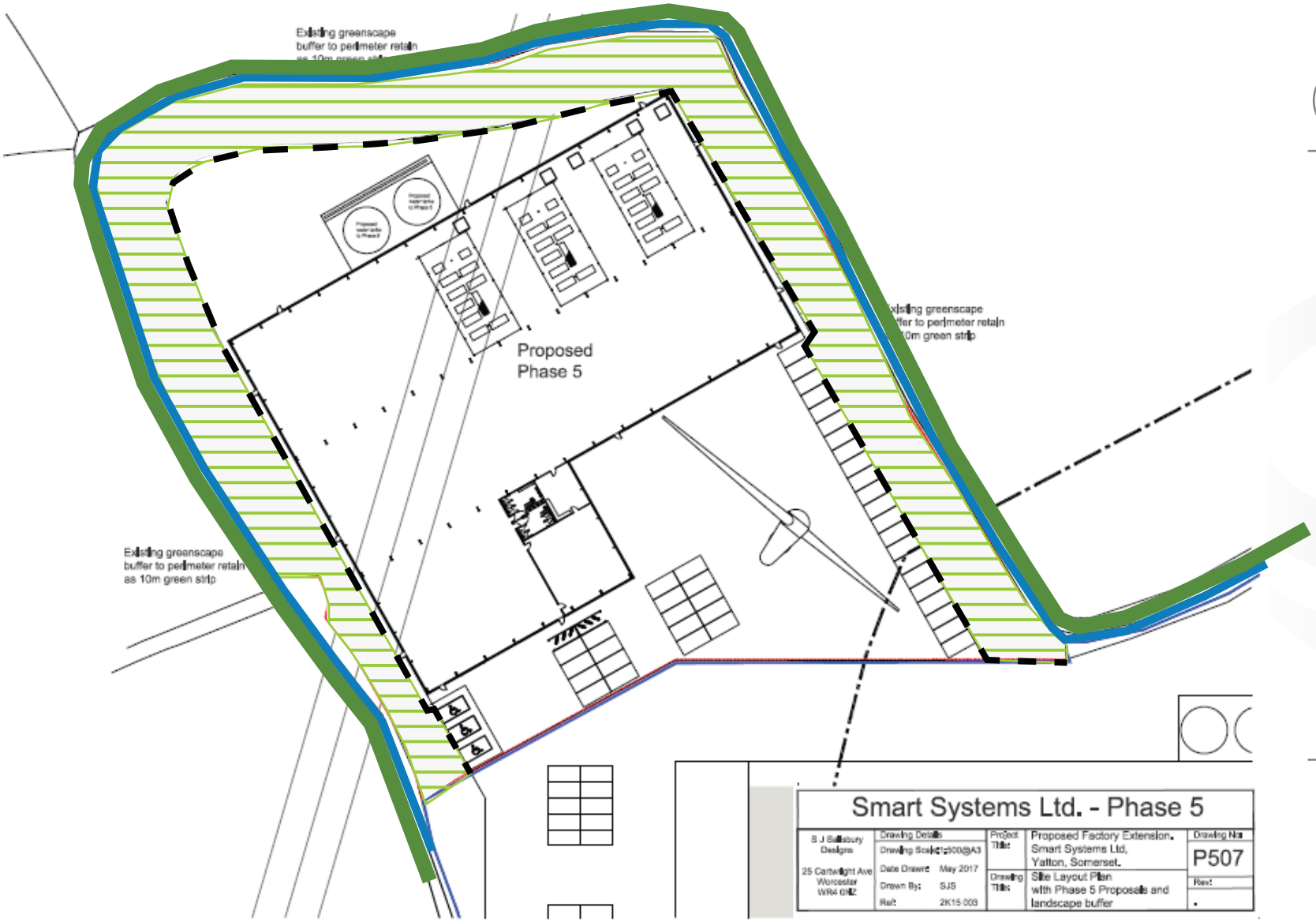
- Site Boundary
- Hedgerows
- Water filled ditches
- Scrub and grassland
- Bare ground
- Reptile matt location
- eDNA sample area
- Position of static bat detectors

Client	Smart Systems Ltd
Title	Proteced species surveys
Site	Phase 5
Figure	2
Date	19 May 2017
Scale	Indicative



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- Site Boundary
- Retained hedgerows
- Retained water filled ditches
- Retained and enhanced wildlife ares
- 900 mm metal beam barrier

Client	Smart Systems Ltd
Title	Reptile Mitigation
Site	Phase 5
Figure	3
Date	19 May 2017
Scale	Indicative

Appendix II– Site Photographs

Photographs 1- 3

Photograph 1:

Detail illustrating 5 m un-managed band of vegetation running along the base of all three hedgerows

Photograph 2:

Bare ground which is the dominant habitat on site

Photograph 3:

Grass snake found during a survey visit

Photograph 4

Photograph 4:

Water filled typical throughout the site