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Wylfa Associated Development Sites

Horizon Nuclear Power (Wylfa) Limited

Terrestrial ecology surveys at proposed MEEG site

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Wylfa Associated Development Sites

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Contents

Executive Summary

Jacobs UK Ltd (Jacobs) has been commissioned by Horizon Nuclear Power (Wylfa) Limited (Horizon) to undertake a preliminary ecological survey of the proposed Mobile Emergency Equipment Garage (MEEG) site. An extended phase 1 habitat survey and bat roost potential surveys were undertaken in June 2016.

The following habitats were noted to be present within the proposed site boundary during the Phase 1 habitat survey:

- hard standing;
- scattered trees – coniferous; and
- tall ruderal vegetation – Himalayan balsam (*Impatiens glandulifera*)

The following habitats were noted to be present in the immediate surrounds:

- marsh/marshy grassland (species poor);
- species poor semi-improved neutral grassland;
- hedgerow – species poor;
- tall ruderal vegetation;
- rock exposure (rocky outcrop with tall ruderal vegetation and scrub); and
- running water (stream).

There is the potential for the following species or species groups to be present within the site boundary and its' surrounds:

- amphibians;
- reptiles;
- breeding birds;
- bats;
- otter (*Lutra lutra*); and,
- water vole (*Arvicola amphibius*).

Five buildings were present within the proposed site boundary (M1, M2, M4, M5 and M6). External inspections, to determine bat roost potential, were carried out on all of the buildings, and two buildings just outside of the proposed site boundary (M3 & TN2). Internal inspections were also carried out on M1, M2 and M5.

Buildings M1, M2 and M5 were considered to be of low potential for roosting bats, therefore one exit/re-entry survey was carried out on these buildings. Dawn re-entry surveys were carried out on M1 and M2 while a dusk emergence survey was undertaken on M5. No bats were recorded emerging from or re-entering the buildings.

1. Introduction

Jacobs UK Ltd (Jacobs) has been commissioned by Horizon Nuclear Power (Wylfa) Limited (Horizon) to undertake a preliminary ecological survey of the Mobile Emergency Equipment Garage (MEEG) site under consideration for the Wylfa Newydd Project.

1.1 Study Aims and Objectives

The purpose of this report is to provide a factual account of the findings of the preliminary ecological survey of the proposed MEEG site in Llanfaethlu, which included an extended Phase 1 habitat survey and bat surveys of the buildings on the proposed site. The broad objective of this work was to identify any potential ecological constraints for the future development of this proposed site.

The specific aims of the surveys undertaken were to:

- identify the broad habitats present within the site boundary and surrounding land holding (the wider area was surveyed as part of the A5025 Highway Improvements);
- identify evidence of any protected species and habitats that may support protected species within the survey area;
- assess the potential of the buildings within the proposed site boundary for bat roost potential; and
- undertake bat roost emergence and dawn re-entry surveys on these buildings to determine any roost present.

2. Methodology

2.1 Phase 1 Habitat Survey

A survey of the land holding including the area within the proposed site boundary was undertaken on 21 June 2016 by experienced Jacobs's ecologists in accordance with the published methodology (Joint Nature Conservation Committee, 2010). Broad habitat types and the potential for the presence of protected species were recorded. Target notes were used to provide supplementary information on areas of interest, for example, dominant plant species and current land management. The habitats and target notes were mapped onto paper plans then digitised using Arc GIS software.

2.2 Bats

2.2.1 Initial external bat building inspection

A visual assessment of all buildings within the MEEG proposed site boundary was undertaken on 2 June 2016 to assess their potential to support roosting bats. The results from these surveys informed the need for evening emergence survey and dawn re-entry survey.

The exterior of buildings were examined using binoculars and a high-powered torch to record all field signs that could indicate use by roosting bats, in accordance with methodologies set out in the Bat Conservation Trust's 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Collins, 2016). Field signs indicative of high potential for the presence of roosting bats include occasional droppings on walls and scratch marks, urine or oil stains, and a lack of cobwebs around a potential access point. If accumulations of droppings were identified under potential access points, these buildings were determined to be definite roosts.

In addition to searching for actual field signs, buildings were assessed for their potential to support roosting bats on account of their structural features and their geographic location. Structural features that influence the suitability of a building to support roosting bats include the presence of a roof void, gaps beneath barge boards, gaps under lead flashing, gaps within masonry, loose tiles, dereliction, complexity of any roof void, and daytime light levels in roof void etc. The suitability of habitat surrounding the structure was also recorded, i.e. whether the structure was in a semi-rural area, parkland location or close to an area of woodland that might offer foraging opportunities, or whether it was close to a significant linear feature (e.g. watercourse, mature hedgerow, wooded lane) that bats might use to aid navigation when commuting.

Taking account of the field signs, structural features and geographical factors, buildings were assigned a level of roost potential based upon professional judgement according to the characteristics set out in Table 2.1.

Table 2.1 Potential roosting habitat descriptions (Collins, 2016)

Roost Potential	Qualifying Characteristics
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e. unlikely to be suitable for maternity or hibernation).
Negligible	Negligible habitat features on site likely to be used by bats.

2.2.2 Internal bat building inspection

Any buildings identified in the initial external inspection as having possible suitable bat roosting potential were revisited on 21 June 2016. The inside of the building was inspected by two experienced ecologists and in accordance with methodologies set out in the Bat Conservation Trust's 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Collins, 2016) using binoculars and a high-powered torch to record all field signs that could indicate use by roosting bats. Field signs indicative of high potential for the presence of roosting bats include occasional droppings on walls and scratch marks, urine or oil stains, and a lack of cobwebs around a potential access point. If any accumulations of droppings were identified, these buildings were determined to be definite roosts.

In addition to searching for actual field signs, buildings were assessed for their potential to support roosting bats on account of their structural features. Structural features that influence the suitability of a building to support roosting bats include the presence of a roof void, gaps beneath barge boards, gaps under lead flashing, gaps within masonry, loose tiles, dereliction, complexity of any roof void, and daytime light levels in roof void etc.

Taking the internal features into account the previously assigned roost level was reconsidered according to the characteristics set out in Table 2.1.

2.2.3 Bat buildings dusk emergence/dawn re-entry surveys

Manual bat emergence/re-entry surveys were carried out on buildings identified as having potential to support roosting bats. The surveys were undertaken by five experienced ecologists in accordance with methodologies set out in the Bat Conservation Trust's 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Collins, 2016). Surveyors were equipped with Stagg Electronic Duet bat detectors and Anabat Express recorders and stationed outside potential roost entrances to identify and count any bats emerging from or returning to the roost. All surveys were carried out in appropriate weather conditions with dusk temperatures in excess of 10°C and avoiding periods of heavy rain or strong wind.

The emergence surveys commenced 15 minutes before sunset and continued until one and a half to two hours after dusk to allow for the possible presence of late emerging species such as brown long-eared bat (*Plecotus auritus*) or Natterer's bat (*Myotis nattereri*). Dawn re-entry surveys were carried out one and a half to two hours prior to sunrise and continued until 15 minutes after sunrise.

Sonograms produced by the Anabat Express units were analysed using Analook software and bat species were identified based on defined parameters (Russ, 2012). These data were used to support identifications made in the field.

The number of manual emergence/re-entry surveys carried out on each building was dependant on the roost suitability category allocated to the buildings after the internal and external surveys as discussed in Section 2.2.1 and Section 2.2.2. The recommended minimum number of survey visits for emergence/re-entry surveys is shown in Table 2.2 below.

Table 2.2 : Recommended minimum number of survey visits for presence/absence to give confidence in negative results for structures (Collins, 2016)

Roost Suitability	Minimum recommended surveys
Low	One survey visit. One dusk emergence or dawn re-entry survey.
Moderate	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.
High	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.

2.3 Limitations

2.3.1 Extended Phase 1 habitat survey

This report presents flora and fauna found on the date of the site surveys. 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.

It should be borne in mind that the behaviour of animals can be unpredictable and may not conform to standard patterns recorded in scientific literature. Therefore, this report cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats, or that they will not occur in locations or habitats that appear unsuitable.

2.3.2 Bat evening emergence and dawn re-entry surveys

Due to the highly mobile nature of bats and the frequency at which some bat species change roosting site, it is difficult to conclude with certainty the absence of a bat roost.

The use of Anabats facilitates accurate identification of bat species. However, care should be taken when analysing the resulting sonogram as a single individual bat can be recorded multiple times, making it difficult to establish the number of individuals present during a survey.

3. Results

3.1 Phase 1 Habitat Survey

3.1.1 Habitats

The broad habitats types and target notes recorded are displayed in Figure 1. Target Note (TN) descriptions and a species list are provided in Appendix A.

The habitats noted within the proposed site boundary were:

- hard standing: Buildings and hard standing with scattered stands of ephemeral vegetation (target note 1)
- scattered trees – coniferous: a line of conifers on the northern boundary.
- tall ruderal vegetation (Himalayan balsam): Himalayan balsam recorded at the edge of the hard standing on the southern boundary (figure 1).

The area surrounding the site boundary included the following broad habitat types:

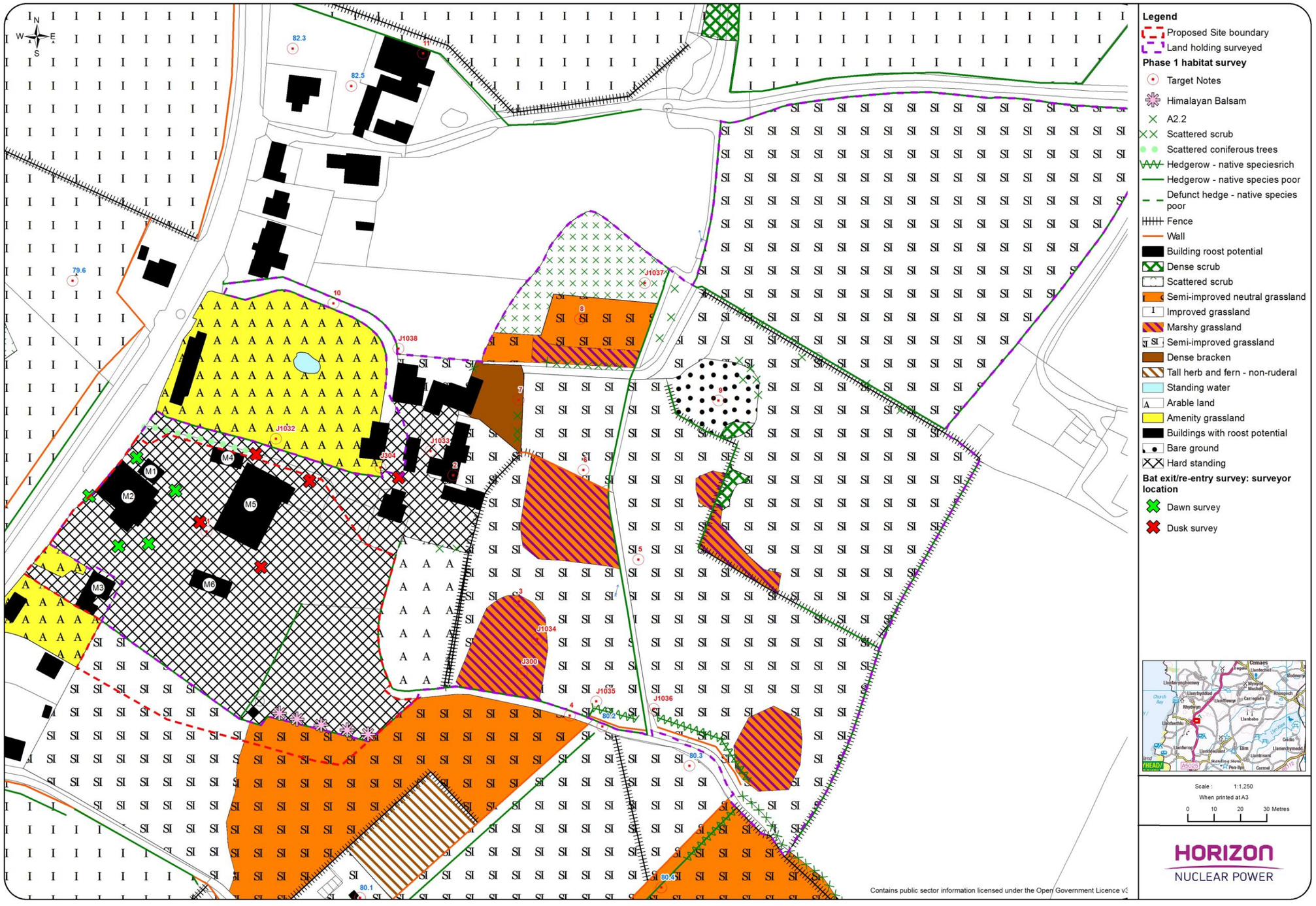
- species poor marsh/marshy grassland
- species poor semi- improved neutral grassland;
- species poor hedgerow
- tall ruderal vegetation;
- rock exposure (rocky outcrop with tall ruderal vegetation and scrub); and,
- running water (stream).

3.1.2 Species

No direct evidence of any species was recorded, however the habitats on the site and immediate surrounds had potential to support the following groups/ species:

- amphibians;
- reptiles;
- breeding birds;
- bats;
- otter; and,
- water vole.

Figure 1: Phase 1 Habitat and Bat Roost Surveys



3.2 Bats

3.2.1 Preliminary bat building inspections

The results of the preliminary building inspections are summarised in **Table 3.1**. Appendix C includes the detailed results of all of the surveys associated with the buildings at the MEEG site.

Table 3.1: Building inspection results summary

Building number	Survey dates	Description	Potential for roosting bats	Roost potential
M1	2 June 2016	External: Small pebble dashed building with corrugated iron roof in generally good condition. Some windows smashed but boarded up. On the southern side are garage doors with shiplap wood around them.	Some small gaps (very few) where plastic has come away from facia. Gaps into building due to missing boards	Low
	21 June 2016	Internal: Brick/block built room with large windows and ceiling at front of building. A swallow nest was present suggesting potential access points for bats although no signs were observed. Stored items of furniture were covered in bird droppings but no bat droppings were found.		Low
M2	2 June 2016	External: Large garage with corrugated metal sheeting and roof. The old shop area is also in good condition.	Space between the sheets and the facia.	Low
	21 June 2016	Internal: Steel framed building with pitched steel sheet roof and steel walls with concreted floors. Completely open inside with limited/low bat roosting potential. Upstairs office rooms contained no access or roosting opportunities for bats and no evidence for bats.		Low
M3	2 June 2016	Old bungalow residence with tiled roof and adjacent flat roofed building. Limited external inspection as no access.	Potential for roosting opportunity	Moderate
M4	2 June 2016	Porta-cabin in good condition, currently in use.	None	Negligible
M5	2 June 2016	External: Large garage in generally good condition with asbestos side panels to the east.	Roosting opportunity within side panels	Low
	21 June 2016	Internal: Steel frame building with asbestos cladding panels and extension to east with flat sheet roof. Main building is very open with limited roosting opportunities and in frequent use by mechanics. Building extension has low roost potential.		Low
M6	2 June 2016	Breeze-block building of fairly new construction. Cracks in wall and space between wall and facia boards. Large spaces between blocks in places. Houses oil, tank and petrol pump. Corrugated iron roof	Limited roosting opportunity	Negligible
Target Note 2	2 June 2016	Group of old stone farm buildings. In various stages of disrepair, but likely to offer bat roosting potential. These buildings are not within the proposed site boundary, but were adjacent and within the land holding.	Offers good roosting potential	Moderate

3.2.2 Bat buildings re-entry/emergence surveys

Buildings M1, M2 and M5 were considered to have low potential for roosting bats based on the external and internal inspections (Table 2.1). One re-entry/emergence survey was carried out on each building as a result. Surveyor locations during each survey can be seen in Figure 1.

Buildings M3 and M7 had moderate potential for bats but were not subject to exit/emergence counts as they were outwith the site boundary and this level of information was not required as part of this survey work.

No bats were recorded emerging from or re-entering any of the buildings surveyed within the proposed site boundary. Noctule (*Nyctalus noctula*) and common pipistrelle (*Pipistrellus pipistrellus*) were recorded in the area of building M1/M2 during the dawn re-entry survey, and a brown long-eared bat was recorded, but not seen, in the vicinity of the group of buildings to the north east of the proposed side boundary.

Results of the bat building emergence and re-entry surveys are summarised in Table 3.2. Full survey meta-data and results can be found in Appendix C.

Table 3.2: Bat re-entry/emergence surveys results summary

Bat building number	Survey date	Survey type	Bats seen emerging/ re-entering?	General bat activity	Bat roost present?
M1	23 July 2016	Dawn re-entry	None	Yes Noctule Common pipistrelle	Unlikely
M2	23 July 2016	Dawn re-entry	None	Yes Noctule Common pipistrelle	Unlikely
M5	23 July 2016	Dusk emergence	None	Yes Brown long-eared	Unlikely

4. Conclusions

The surveys were completed over a number of visits to record the broad habitat types , potential for protected species, and the likelihood of the buildings to contain bat roosts.

The area within the proposed site boundary was predominantly hard standing with a number of buildings associated with a vehicle repair business. Himalayan balsam was recorded along the southern boundary. Some of the buildings had features that indicated they have low bat roosting potential. Emergence/Re-entry surveys were completed and no evidence of bats using the buildings to roost was recorded.

5. References

Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed.). London: Bat Conservation Trust.

Joint Nature Conservation Committee. (2010). *Handbook for Phase 1 Habitat Survey.* Peterborough: Joint Nature Conservation Committee.

Russ, J. (2012). *British Bat Calls: A Guide to Species Identification.* Pelagic Publishing.

Stace, C. (2010). *Field Flora of the British Isles.* Cambridge: Cambridge University Press.

Appendix A. Phase 1 Habitat Survey Target Notes

Table 5.1: Target Notes for Phase 1 Habitat Survey

TN number	Target note description	Protected species potential
1	Buildings and hard standing with scattered stands of ephemeral vegetation. Species comprise occasional stands of creeping bent (*Agrostis stolonifera*), common ragwort (*Senecio jacobaea*), red campion (*Silene dioica*), ribwort plantain (*Plantago lanceolate*), soft brome (*Bromus hordeaceus*), Yorkshire-fog (*Holcus lanatus*), hedge bindweed (*Calystegia sepium*), red valerian (*Centranthus ruber*), common cudweed (*Filago vulgaris*), Himalayan balsam , cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*) and hedge mustard (*Sisymbrium officinale*).	Reptiles, bats (in buildings)
2	A range of buildings in different states of repair, including a modern house and a dilapidated stone buildings, all fairly high bat roost potential, with ivy cover on most.	Reptiles, bats
3	Mosaic of species-poor marshy grassland – crested dog's-tail (*Cynosurus cristatus*), perennial rye-grass *(Lolium perenne*), rough meadow-grass (*Poa trivialis*), soft rush (*Juncus effuses*), creeping buttercup (*Ranunculus repens*), creeping thistle (*Cirsium arvense*), marsh thistle (*Cirsium palustre*), marsh bedstraw (*Galium palustre*) and creeping bent.	Reptiles, amphibians
4	Leggy / overgrown hedgerow on a raised earth bank with species including hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinose*), bramble (*Rubus fruticosus agg*.), grey willow (*Salix cinerea*), elder (*Sambucus nigra*), foxglove (*Digitalis purpurea*), gorse (*Ulex europaeus*), hemlock water-dropwort (*Oenanthe crocata*), male fern (*Dryopteris filix-mas*). Located along a shaded watercourse, potential for water vole (*Arvicola amphibious*) and otter (*Lutra lutra*). Semi-mature sycamore (*Acer pseudoplatanus*) noted with no bat potential.	Water vole, otter
5	Flowing stream 1.5m width with rocky substrate runs along field margin. Dense vegetation obscuring view, potential for otter and water vole.	Water vole, otter
6	Reptile potential at field boundaries – hibernacula include stone piles and embankments.	Reptiles
7	Tall ruderal vegetation along edge of corrugated iron building. Species comprise soft rush, creeping thistle, spear thistle (*Cirsium vulgare*), nettle (*Urtica dioica*) and bramble.	Reptiles
8	Species-poor semi-improved neutral grassland (sheep grazed). Species comprise frequent stands of sweet vernal grass (*Anthoxanthum odoratum*), common bent and Yorkshire-fog, with occasional jointed rush (*Juncus articulates),* soft rush, yarrow (*Achillea millefolium*), marsh thistle, common mouse-ear (*Cerastium fontanum*), cat's-ear (*Hypochaeris radicata*), white clover (*Trifolium repens*), meadow buttercup (*Ranunculus acris*), locally abundant greater bird's-foot-trefoil (*Lotus pedunculatus*), and rare examples of common sorrel (*Rumex acetosa*), oval sedge (*Carex ovalis*) and field wood-rush (*Luzula campestris*).	Reptiles, amphibians
9	Rocky outcrop with tall ruderal and scrub. Offers potential for supporting reptiles and amphibians. Species comprise sheep sorrel (*Rumex acetosella*), perennial rye-grass, gorse and alder (*Alnus glutinosa*).	Reptiles, amphibians

TN number	Target note description	Protected species potential
10	Row of conifers along track, negligible bat potential.	n/a
11	Green lane flanked by rows of trees and a wall. Scrub and hedgerow species comprise elder, sycamore blackthorn and bramble. Associated species comprised ivy (*Hedera helix*), butterfly-bush (*Buddleja davidii*), common nettle, Russian vine (*Fallopia baldschuanica*), bracken (*Pteridium aquilinum*), variegated yellow archangel (*Lamiastrum galeobdolon subsp. argentatum*), cow parsley (Anthriscus sylvestris), navelwort (*Umbilicus rupestris*), hedge bindweed, red campion and foxglove.	Reptiles, amphibians

Appendix B. Phase 1 Habitat Survey Species list

Scientific name (as (Stace, 2010))	Common name	DAFOR (within land holding surveyed)
Acer pseudoplatanus	Sycamore	O
Achillea millefolium	Yarrow	O
Agrostis capillaris	Common bent	F
Agrostis stolonifera	Creeping bent	O
Alnus glutinosa	Alder	R
Anthoxanthum odoratum	Sweet vernal-grass	F
Anthriscus sylvestris	Cow parsley	O
Arrhenatherum elatius	False oat-grass	O
Bromus hordeaceus	Soft-brome	O
Buddleja davidii	Butterfly-bush	R
Calystegia sepium	Hedge bindweed	R
Carex ovalis	Oval sedge	R
Centranthus ruber	Red valerian	O
Cerastium fontanum	Common mouse-ear	O
Cirsium arvense	Creeping thistle	O
Cirsium palustre	Marsh thistle	O
Cirsium vulgare	Spear thistle	O
Crataegus monogyna	Hawthorn	O
Cynosurus cristatus	Crested dog's-tail	O
Dactylis glomerata	Cock's-foot	O
Digitalis purpurea	Foxglove	O
Dryopteris filix-mas	Male-fern	R
Fallopia baldschuanica	Russian-vine	R / LA
Filago vulgaris	Common cudweed	O
Galium palustre	Marsh-bedstraw	R / LA
Hedera helix	Common ivy	O
Holcus lanatus	Yorkshire-fog	F
Hypochaeris radicata	Cat's-ear	O
Impatiens glandulifera	Himalayan balsam	R / LO
Juncus articulatus	Jointed rush	R / LA
Juncus effusus	Soft-rush	O
Lamiastrum galeobdolon subsp. argentatum	Variegated yellow archangel	R
Lolium perenne	Perennial rye-grass	O
Lotus pedunculatus	Greater bird's-foot-trefoil	LA
Luzula campestris	Field wood-rush	R
Oenanthe crocata	Hemlock water-dropwort	R / LA
Plantago lanceolata	Ribwort plantain	O
Poa trivialis	Rough meadow-grass	O
Prunus spinosa	Blackthorn	O
Pteridium aquilinum	Bracken	O
Ranunculus acris	Meadow buttercup	O

Scientific name (as (Stace, 2010))	Common name	DAFOR (within land holding surveyed)
Ranunculus repens	Creeping buttercup	O
Rubus fruticosus agg.	Bramble	O
Rumex acetosa	Common sorrel	R
Rumex acetosella	Sheep's sorrel	R
Salix cinerea	Grey willow	R
Sambucus nigra	Elder	O
Senecio jacobaea	Common ragwort	R
Silene dioica	Red campion	O
Sisymbrium officinale	Hedge mustard	R
Trifolium repens	White clover	O
Ulex europaeus	Gorse	R / LA
Umbilicus rupestris	Navelwort	R / LA
Urtica dioica	Common nettle	O

Appendix C. Raw survey data

C.1 Initial external bat building inspection results summary

Building number	Survey date	Description	Potential for roosting bats	Photo of building	Roost potential	Further survey carried out
M1	2 June 2016	Small pebble dashed building with corrugated iron roof in generally good condition. Some windows smashed but boarded up. On the southern side are garage doors with shiplap wood around them.	Some small gaps (very few) where plastic has come away from facia. Gaps into building due to missing boards	 	Low	• Internal inspection • Emergence/re-entry survey

Building number	Survey date	Description	Potential for roosting bats	Photo of building	Roost potential	Further survey carried out
M2	2 June 2016	Large garage with corrugated metal sheeting and roof. The old shop area is also in good condition.	Space between the sheets and the facia.	  	Low	• Internal inspection • Emergence/re-entry survey

Building number	Survey date	Description	Potential for roosting bats	Photo of building	Roost potential	Further survey carried out
M3	2 June 2016	Old bungalow residence with tiled roof and adjacent flat roofed building. Limited external inspection as no access.	Potential for roosting opportunity in tiled roof		Moderate	No further survey as not within proposed site boundary.
M4	2 June 2016	Porta-cabin in good condition, currently in use.	None		Negligible	No further survey
M5	2 June 2016	Large garage in generally good condition with asbestos side panels to the east.	Roosting opportunity under panels		Low	• Internal inspection • Emergence/re-entry survey

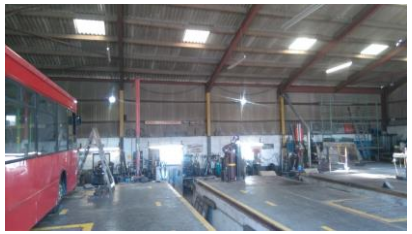
Building number	Survey date	Description	Potential for roosting bats	Photo of building	Roost potential	Further survey carried out
M6	2 June 2016	Breeze-block building of fairly new construction. Cracks in wall and space between wall and facia boards. Large spaces between blocks in places. Houses oil, tank and petrol pump. Corrugated iron roof	Limited roosting opportunity		Negligible	No further survey
Target note 2	2 June 2016	Group of old stone farm buildings. In various stages of disrepair, but likely to offer bat roosting potential. These buildings are not within the proposed works area, but were adjacent and within the land holding.	Offers good roosting potential	  	Moderate	No further survey as not within proposed site boundary.

Building number	Survey date	Description	Potential for roosting bats	Photo of building	Roost potential	Further survey carried out
				  		

C.2 Internal bat building inspection results summary

Building number	Survey date	Description	Photos	Roost potential	Further survey recommended?
M1	21 June 2016	Brick/block built room with large windows and ceiling at front of building. A swallow nest was present suggesting potential access points for bats although no signs were observed. Stored items of furniture were covered in bird droppings. No bat droppings were recorded.	 	Low	One emergence/re-entry survey
M2	21 June 2016	Steel framed building with pitched steel sheet roof and steel walls with concreted floors. Completely open inside with limited/low bat roosting potential. Upstairs office rooms contained no access or roosting opportunities for bats and no evidence for bats. Everywhere was inspected with a cluelite.		Low	One emergence/re-entry survey

Building number	Survey date	Description	Photos	Roost potential	Further survey recommended?
			   		

Building number	Survey date	Description	Photos	Roost potential	Further survey recommended?
					
M5	21 June 2016	Steel frame building with asbestos cladding panels and extension to east with flat sheet roof. Main building is very open with limited roosting opportunities and in frequent use by mechanics. Building extension has low roost potential.	  	Low	One emergence/re-entry survey

C.3 Emergence/re-entry manual bat survey metadata

Date	Building number	Survey type	Sunrise/ sunset time	Temperature start (°C)	Temperature end (°C)	Cloud cover (%)	Rain	Wind	Insect activity	Surveyors
23/06/2016	M1/M2	Dawn re-entry	04.50	11	10	0	None	1 – light air	Low	SH, RL, SB, AD, GH
23/06/2016	M5	Dusk emergence	21.50	12	12	70	None	4 – moderate breeze	Low	SH, RL, SB, AD, GH

C.4 Emergence/re-entry manual bat survey results

Date	Building number	Survey type	Time	Species	Number	Notes
23/06/2016	M1/M2	Dawn re-entry	03.29	Noctule	1	Pass
			03.45	Noctule	1	Pass
			03.49	Noctule	1	Pass
			03.49	Common pipistrelle	1	Pass
			03.50	Noctule	1	Pass
23/06/2016	M5	Dusk emergence	22.48	Brown long-eared	1	Pass