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Technical Appendix 8.3: Bat Survey Report

Department: ERM
Project: Springfield Solar and BESS
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INDEX

1. INTRODUCTION

1.1.1.1 This Technical Appendix (TA) describes the methods and results of bat surveys undertaken to obtain baseline information in connection with the proposed ground-mounted solar Photovoltaic (PV) system and Battery Energy Storage System (BESS) (the Proposed Development). The following terminology is used throughout this TA:

- The Site: all land within the proposed red line boundary as shown on **Figure 8.3.1, Appendix A**;
- The Proposed Development: the proposed solar PV farm and BESS, inclusive of all necessary infrastructure. The Development layout is shown on **Figure 8.3.2, Appendix A**; and
- Bat Survey Area (BSA): the land within which bats could be affected by the Proposed Development, and where bat surveys were undertaken. The BSA is shown on **Figure 8.3.3, Appendix A**.

1.2 The Proposed Development

1.2.1.1 The Proposed Development will occupy an area of approximately 184 hectares (ha), with the layout shown in Figure 8.1.2, Appendix A. A full, detailed information on the Proposed Development is found in Chapter 3: Development Description of the Environmental Impact Assessment Report (EIAR).

1.3 Site Description

1.3.1.1 The Site is centred on grid coordinates National Grid Reference (NGR) 74514 71531. At the closest points, the Site boundary is approximately 50 metres (m) north of Oldhamstocks, and 7.8 kilometres (km) southeast of Dunbar.

1.3.1.2 A full description of the Site and its surroundings can be found in Chapter 2: Site Design and Evolution of this EIAR.

1.4 Purpose of Report

1.4.1.1 Bat surveys were undertaken to collect detailed information regarding the occurrence and distribution of bats within the Site and its surrounds, to provide an accurate baseline on which to base an Ecological Impact Assessment (EcIA). The purpose of this report is to detail the methods and results of the bat surveys.

1.4.1.2 Information relating to Protected Species (PS) is detailed within **Volume 3 Technical Appendix 8.2: Protected Species Survey (PSS) Report**[1].

[1] Environmental Resources Management (ERM) (2025). *Springfield Farm Solar PV and BESS: TA8.2 Protected Species Appendix*. ERM, Glasgow, Scotland, UK

2. METHODOLOGY

2.1 Daytime Bat Walkover

2.1.1.1 A daytime bat walkover (DBW) was completed in accordance with Bat Conservation Trust (BCT) guidelines[2] on 22 May 2024 during daylight hours by ERM Senior Ecologist David Milburn MCIEEM AECW Mem.RES. David was accompanied by Consultant Ecologist Anna Domaradzka.

2.1.1.2 The aim of the DBW was to determine the suitability of the Site for bats, and to assess whether further surveys were necessary.

2.1.1.3 In accordance with latest guidance 2, ecologists walked the Site, and a buffer of 50 m, where accessible (the BSA), and identified and recorded habitats that were suitable for bats to commute, forage or swarm at or in. Furthermore, any structures, trees, or other features, which may be affected by the Proposed Development were identified and recorded. Where suitability for bats was identified BCT Guidelines were used as a basis to evaluate the Site, and any features, for their suitability to support roosting bats, as per Tables 4.1 and 4.2 within the BCT guidance[2].

2.2 Nighttime Bat Walkover

2.2.1.1 Following the DBW, the BSA was assessed as being of moderate suitability for foraging and commuting bats. BCT Guidelines[2] state that sites with moderate suitability require one Nighttime Bat Walkover (NBW) per season, in each of the three seasons when bats are active (Spring – April / May, summer – June / July/ August, autumn – September / October).

2.2.1.2 NBW surveys in the form of transects were undertaken in May, July and September 2024 to record bat activity across the Site. Transect routes were consistent in each location for all three surveys however, the start point varied to sample different areas in each location at different times. The transect, and the starting points of each survey are shown on **Figure 8.3.4, Appendix A**.

2.2.1.3 NBW started at sunset and lasted for between 2-3 hours. Transects were walked at a slow, consistent pace by surveyors, and point counts were undertaken at multiple stopping points, pausing for five minutes at each one.

2.2.1.4 Surveyors recorded bat activity with a Batlogger M handheld bat detector and recordings were analysed using BatExplorer software. In addition to the digital recordings, information about bat registrations was recorded, including if possible:

- Time of bat registration;
- Direction of flight;
- Bat behaviour e.g., foraging;

[2] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed.). The Bat Conservation Trust, London.

- Environmental variables, including cloud cover, wind strength, precipitation and air temperature were recorded at the start and the end of the survey; and
- Surveyor and equipment details.

2.2.1.5 Survey details including timings, weather conditions, surveyors, and equipment used during the surveys is shown in **Table 2.1** and **Table 2.2** below.

TABLE 2.1 NBW SURVEYS DATES, TIMINGS AND WEATHER CONDITIONS

SURVEY DATE AND PERIOD	TIMINGS			WEATHER							
				TEMPERATURE (ºC)		WIND STRENGTH (BEAUFORT)		CLOUD (OKTAS)		*RAIN	
	START	SUNSET	END	START	END	START	END	START	END	START	END
20/05/2024 Dusk	21:25	21:25	23:40	11	9	0	0	0	0	0	0
23/07/2024 Dusk	21:34	21:34	23:55	14	12	0	0	8	8	0	0
09/09/2024 Dusk	19:49	19:49	21:51	12	12	3	3	2	0	0	0

*Rain 0 = None, 1 = Drizzle, 2 = Light showers, 3 = Heavy showers, 4 = Heavy Rain.

TABLE 2.2 SURVEYOR AND EQUIPMENT DETAILS

DATE	SURVEYOR NAMES	EQUIPMENT USED
20/05/2024	David Milburn & Anna Domaradzka	Batlogger M
22/07/2024	David Milburn & Shelley Wilson	Batlogger M
09/09/2024	David Milburn & Jennifer Bonner	Batlogger M

2.3 Remote (Static) Monitoring

2.3.1.1 Following the DBW surveys the Site was classified as moderate suitability for foraging and commuting bats, therefore in accordance with BCT guidelines2, remote static monitoring surveys were required using at least one full spectrum static bat detector collecting five nights of data per month, during the time in which bats are active (April to September inclusive). In this instance five Anabat Ranger and / or Anabat Swift bat detectors were deployed at five fixed locations, (see **Figure 8.3.3, Appendix A**).

2.3.1.2 Each night of remote monitoring included two separate dates as surveys are carried out throughout the night from dusk on one day to dawn the next. To assist with interpreting the data, each survey night is identified by the date on which the remote monitoring survey began, as detailed in **Table 2.3**.

TABLE 2.3 REMOTE MONITORING DATES AND LOCATION

SURVERY MONTH	STATIC LOCATION	SURVEY DATE RANGE	NO. OF SURVEY NIGHTS
May	A	23/05/2024 – 25/05/2024	5
	B	23/05/2024 – 25/05/2024	5
	C	23/05/2024 – 25/05/2024	5
	D	23/05/2024 – 28/05/2024	5
	E	23/05/2024 – 28/05/2024	5
July	A	22/07/2024 – 27/07/2024	5
	B	22/07/2024 – 27/07/2024	5
	C	22/07/2024 – 25/07/2024	5
	D	22/07/2024 – 27/07/2024	5
	E	23/05/2024 – 25/05/2024	5
August	A	20/08/2024 – 25/08/2024	5
	B	20/08/2024 – 25/08/2024	5
	C	20/08/2024 – 23/08/2024	5
	D	20/08/2024 – 24/08/2024	5
	E	20/08/2024 – 25/08/2024	5
September	A	09/09/2024 – 11/09/2024	5
	B	09/09/2024 – 14/09/2024	5
	C	09/09/2024 – 11/09/2024	5
	D	09/09/2024 – 10/09/2024	5
	E	09/09/2024 – 14/09/2024	5
October	A	09/10/2024 – 14/10/2024	5
	B	09/10/2024 – 14/10/2024	5
	C	09/10/2024 – 14/10/2024	5

SURVERY MONTH	STATIC LOCATION	SURVEY DATE RANGE	NO. OF SURVEY NIGHTS
	D	09/10/2024 – 14/10/2024	5
	E	09/10/2024 – 14/10/2024	5

2.4 Bat Call Analysis

2.4.1.1 Ultrasonic recordings captured during the NBW and static surveys were subject to detailed analysis using BatExplorer audio software, using bat call identification guidance[3].

2.4.1.2 Remote monitoring data was adjusted to account for the varying lengths of time between sunset and sunrise across surveys. A Bat Activity Index (BAI) was calculated for each taxon by dividing by number of recorded Anabat files from each sample night by the number of hours between sunrise and sunset per night. The mean value was then calculated for each location, survey, and taxon to represent BAI as the mean number of bat passes per hour for each sample night.

2.4.1.3 The BAI presents the data as an activity level, rather than total number of bat passes, as it is difficult to differentiate between a single bat passing several times or several bats passing separately. In addition, BAI removes most of the temporal bias introduced by variation in survey length.

2.5 Equipment Calibration

2.5.1.1 In line with BCT Guidance, all detectors were subject to routine maintenance and testing. Detectors used for remote monitoring are routinely calibrated using appropriate equipment and software by the equipment supplier.

2.6 Limitations

2.6.1.1 The Nighttime Bat Walkover included some walking on public roads, including past two properties within Oldhamstocks Mains. Land access was not agreed with the landowners of properties at Oldhamstocks Mains and ecological data was not allowed to be collected within the area denoted by the hatched lines on **Figure 8.3.3, Appendix A**. Although the transect route involved walking past these properties no flight lines were recorded within this area. However, there were stopping points close to Oldhamstocks Mains, where bat data could be collected and the area denoted by the hatched area is a small fraction of the total transect walked, and as such knowledge on how bats are using the Site could still be understood, as such this is not considered a considerable limitation.

2.6.1.2 The BSA was classified as holding moderate potential for foraging and commuting bats, and as such in accordance with BCT guidelines[2] statics should be deployed once per month for a period of five nights between April and October. Due to an issue getting new static bat detectors from the supplier, static bat detectors were not received until the date of

[3] Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing, Exeter, UK.

deployment, 23 May 2024, which meant that no data was collected in April. Furthermore, no static data was collected in June due to an issue with the detectors. This means that no static data was collected in April and in June. However, data was collected in May, and July – October, this means that data was collected during each of the seasons in which bats are active (Spring, Summer and Autumn), and as such bat activity within the Site during each season was collected and temporal comparisons within the data could be made. This means a robust data set was collected, and as such this is not considered a considerable limitation.

2.6.1.3 During remote (static) monitoring, a number of Anabat detectors experienced a malfunction. This effected May/ June (locations A, B and C), July (C and E), August (C and D), September (A, C and D) and October (B). These malfunctions resulted in a total loss of 412.13 survey hours which resulted in 30.6% of survey hours lost. This would be considered a significant limitation to the static monitoring survey results as a substantial percentage of data loss may lead to potential inaccuracies in the final results.

2.6.1.4 Each bat species differs in its likelihood of detectability, repetition, and call intensity. For example, bats with calls at low frequency and or high amplitude such as noctule (*Nyctalus noctula*) can be detected over greater distances, whereas species such as brown long-eared bat (*Plecotus auritus*) that use low amplitude calls, or horseshoe (*Rhinolophus*) bats that use high frequency calls are more difficult to detect. Some bats from the same genus often have calls which overlap, or calls which vary dependent on behaviour undertaken, and so species identification is therefore applied with a level of confidence. Additionally, there is also some variation in the sensitivity of different models of bat detectors to different calls. These variations have been considered and do not form a considerable limitation.

3. BASELINE SURVEY RESULTS

3.1 Daytime Bat Walkover

3.1.1 Habitat Assessment

3.1.1.1 The BSA is situated within an agricultural setting, with habitats dominated by a mixture of grazing pasture, (mostly grazed by sheep with some cattle), and arable fields. The grazing pasture within the BSA has a sward height of less than 20 centimeters (cm), with few, if any, flowering plants. Arable fields are either recently ploughed or contain a monoculture of crop growing within the field. These habitats are unlikely to contain a large amount of invertebrate prey for bats and lack any form of features for roosting. In isolation these habitats are of negligible suitability for foraging, roosting and commuting bats.

3.1.1.2 However, fields are mostly delineated by hedgerows. These hedgerows provide high-quality habitat that have the potential to be used as flight paths by bats. Furthermore, the Site contains areas of woodland which align minor roads, one of which also aligns a minor watercourse. These habitats all have the potential to be used by foraging and commuting bats. In addition, there are several areas of unnamed long-established woodland in addition to two areas of unnamed ancient woodland, which lie adjacent to the Site. The hedgerows within the Site provide connectivity between the Site and the differing areas of woodland within the wider BSA and beyond. It is therefore likely that bats use the Site for foraging and commuting.

3.1.1.3 With the above in mind, the Site was of moderate suitability for foraging and commuting bats.

3.1.1.4 The trees and woodland within the BSA are classified as FAR (Further Assessment Required) and therefore have some potential for roosting bats, though tree climbing surveys with endoscoping would be required to ascertain if any trees contain bat roosts.

3.2 Nighttime Bat Walkover

3.2.1.1 The NBW surveys recorded common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and *Nyctalus spp*. The most abundant species recorded was soprano pipistrelle (262 passes), common pipistrelle has a total of 162 bat passes, both these species were recorded in every season. However, *Nyctalus sp*. was only recorded four times, three times in July and once in September.

3.2.1.2 The first survey in May recorded the least bat activity with 132 bat passes recorded. This increased in July (161 bat passes), with activity reducing again slightly in September (135 bat passes). Activity is typically highest in summer as this is the time young bats begin to fly, and so the number of bats foraging is likely to increase.

3.2.1.3 Activity was highest in the vicinity of the woodland areas which aligned the minor road, this was the case during all surveys, and though the highest number of bats recorded at any one time was two (this occurred in each season), bat calls were highest, and almost constant when walking close to the woodland which aligns the minor road.

3.3 Remote Bat (Static) Monitoring

3.3.1.1 A total of 11,712 bat passes were recorded over a total of 934.37 survey hours across the Bat Survey Season, giving a 'total mean BAI' (across the Survey Season by location as well as the mean across each of the SSLs by Survey Season) of 12.535 passes per hour (pph). The remote monitoring surveys recorded six species / species groups of bats: Nathusius' pipistrelle (*Pipistrellus nathusii*), brown long-eared bat (Plecotus auritus), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), *Myotis spp*., *Nyctalus spp*. A table presenting the number of bat registrations per taxon per location and percentage total of activity recorded per month is available in **Table 3.1** and **Table 3.2**.

TABLE 3.1 NUMBER OF BAT REGISTRATIONS PER TAXON

MONITORING SEASON	LOCATION	MYOTIS SPP.	COMMON PIPISTRELLE	SOPRANO PIPISTRELLE	NATHUSIUS PIPISTRELLE	BROWN LONG-EARED BAT	NYCTALUS SPP.
May	A	0	0	0	0	0	0
	B	0	0	0	0	0	0
	C	3	369	430	0	0	0
	D	75	1,048	852	0	0	62
	E	8	820	372	0	0	38
Mean per species		**17**	**1,119**	**331**	**0**	**0**	**20**
July	A	35	179	318	0	0	26
	B	24	3,183	476	0	0	12
	C	1	64	174	0	0	5
	D	18	230	510	0	0	5
	E	0	0	0	0	0	0
Mean per species		**16**	**731**	**296**	**0**	**0**	**48**
August	A	4	81	79	0	0	2
	B	8	12	26	0	0	2
	C	0	0	11	0	0	0
	D	1	25	7	0	0	0

MONITORING SEASON	LOCATION	MYOTIS SPP.	COMMON PIPISTRELLE	SOPRANO PIPISTRELLE	NATHUSIUS PIPISTRELLE	BROWN LONG-EARED BAT	NYCTALUS SPP.
	E	43	21	32	0	0	5
Mean per species		**11**	**28**	**31**	**0**	**0**	**2**
September	A	0	9	16	0	0	0
	B	30	871	116	2	6	0
	C	0	0	0	0	0	2
	D	0	0	4	0	0	0
	E	194	97	227	0	1	7
Mean per species		**45**	**195**	**73**	**0**	**1**	**2**
October	A	1	1	5	0	0	0
	B	0	0	0	0	0	0
	C	0	0	0	0	0	0
	D	0	410	3	0	0	0
	E	12	1	1	0	0	0
Mean per species		**3**	**82**	**2**	**0**	**0**	**0**

TABLE 3.2 PERCENTAGE OF TOTAL RECORDED ACTIVITY PER MONTH

MONITORING PERIOD	MYOTIS SPP.	COMMON PIPISTRELLE	SOPRANO PIPISTRELLE	NATHUSIUS' PIPISTRELLE	BROWN LONG-EARED	NYCTALUS SPP.
May	2.11%	54.87%	40.57%	0.00%	0.00%	2.45%
July	1.48%	69.51%	28.10%	0.00%	0.00%	0.91%
August	15.60%	38.72%	43.18%	0.00%	0.00%	2.51%
September	14.16%	61.76%	22.95%	0.13%	0.44%	0.57%

MONITORING PERIOD	MYOTIS SPP.	COMMON PIPISTRELLE	SOPRANO PIPISTRELLE	NATHUSIUS' PIPISTRELLE	BROWN LONG-EARED	NYCTALUS SPP.
October	3.00%	94.93%	2.07%	0.00%	0.00%	0.00%
Percentage of total calls	3.90%	63.36%	31.24%	0.02%	0.06%	1.42%

3.3.1.2 Of the total activity recorded, the majority (63.36%) was attributed to common pipistrelle, with a further 31.24% attributed to Soprano pipistrelle. The third highest percentage registration belonged to *Myotis* species at 3.90%; with the remaining activity being split between *Nyctalus spp*. (1.42%), brown long-eared bat (0.06%) and Nathusius' pipistrelle (0.02%).

3.3.1.3 To account for the variation in the number of monitoring nights completed per month, and the varying length of time between sunset and sunrise between surveys a BAI was calculated. The BAI represents the mean number of passes per hour for each taxon, shown in **Table 3.3**.

TABLE 3.3 BAI PER TAXON AND MONITORING PERIOD

MONITORING SEASON	LOCATION	MYOTIS SPP.	COMMON PIPISTRELLE	SOPRANO PIPISTRELLE	NATHUSIUS PIPISTRELLE	BROWN LONG-EARED BAT	NYCTALUS SPP.
May	A	0.00	0.00	0.00	0.00	0.00	0.00
	B	0.00	0.00	0.00	0.00	0.00	0.00
	C	0.07	9.13	10.64	0.00	0.00	0.00
	D	1.86	25.94	21.09	0.00	0.00	1.53
	E	0.20	20.30	9.21	0.00	0.00	0.94
Mean BAI per species		**0.426**	**11.074**	**8.188**	**0.00**	**0.00**	**0.494**
July	A	0.78	4.01	7.13	0.00	0.00	0.58
	B	0.54	71.37	10.67	0.00	0.00	0.27
	C	0.02	1.43	3.90	0.00	0.00	0.11

MONITORING SEASON	LOCATION	MYOTIS SPP.	COMMON PIPISTRELLE	SOPRANO PIPISTRELLE	NATHUSIUS PIPISTRELLE	BROWN LONG-EARED BAT	NYCTALUS SPP.
	D	0.40	5.16	11.43	0.00	0.00	0.11
	E	0.00	0.00	0.00	0.00	0.00	0.00
Mean BAI per species		**0.348**	**16.394**	**6.626**	**0.00**	**0.00**	**0.214**
August	A	0.08	1.55	1.52	0.00	0.00	0.04
	B	0.15	0.23	0.50	0.00	0.00	0.04
	C	0.00	0.00	0.21	0.00	0.00	0.00
	D	0.02	0.48	0.13	0.00	0.00	0.00
	E	0.83	0.40	0.61	0.00	0.00	0.10
Mean BAI per species		**0.252**	**0.532**	**0.594**	**0.00**	**0.00**	**0.036**
September	A	0.00	0.15	0.27	0.00	0.00	0.00
	B	0.50	14.43	1.92	0.03	0.10	0.00
	C	0.00	0.00	0.00	0.00	0.00	0.03
	D	0.00	0.00	0.07	0.00	0.00	0.00
	E	3.21	1.61	3.76	0.00	0.00	0.12
Mean BAI per species		**0.742**	**16.19**	**1.204**	**0.006**	**0.02**	**0.03**
October	A	0.01	0.07	0.00	0.00	0.00	0.00
	B	0.00	0.00	0.00	0.00	0.00	0.00
	C	0.00	0.00	0.00	0.00	0.00	0.00
	D	5.71	0.04	0.00	0.00	0.00	0.00
	E	0.01	0.01	0.00	0.00	0.00	0.00
Mean BAI per species		**1.146**	**0.024**	**0.00**	**0.00**	**0.00**	**0.00**

3.3.1.4 With the exception of common pipistrelle and soprano pipistrelle, the activity for each of the taxa was recorded at low intensities during each survey. BAI varied normally between surveys for all species. Common pipistrelle displayed the largest level of BAI variation between surveys (range 0.01- 71.37). Location B had the highest BAI and species richness out of the five static detector locations with a total of 17.705 pph and five bat species recorded. Location D had the second highest BAI (12.068) followed by Location B (6.977) and Location C (3.932). Location A had the lowest mean of bat activity (BAI of 2.807) amongst the five static detector locations with all bat taxon registered at this location having the lowest average BAI. Common pipistrelle had the highest mean BAI at Location B with a BAI of 15.098 pph and the lowest BAI with a mean of 1.156 at Location A over the monitoring period. Soprano pipistrelle had the highest mean BAI (5.110 pph) at Location D and the lowest average bat activity levels at Location A. *Myotis spp*. had exhibited the highest activity (BAI of 0.954) at Location E, indicating this area within the BSA is of significant importance to *Myotis spp*. Location D is of ecological importance to *Nyctalus spp*., as it recorded its highest BAI of 0.249.

3.3.1.5 There was some variation in bat activity between the monitoring period, though this varied between species. Common pipistrelle, soprano pipistrelle and *Nyctalus spp*. all had their highest levels of activity in May while *Myotis spp*. exhibited highest activity levels in September. Brown long-eared bat and Nathusius' pipistrelle; however, had the lowest activity throughout the monitoring season, with activity in September exclusively. Soprano pipistrelle and Myotis spp. were least active during October while common pipistrelle and *Nyctalus spp*. exhibited lower activity levels in August. This information is shown visually in **Chart 3.1** and **Chart 3.2**.

CHART 3.1 BAI AT EACH STATIC SURVEY LOCATION

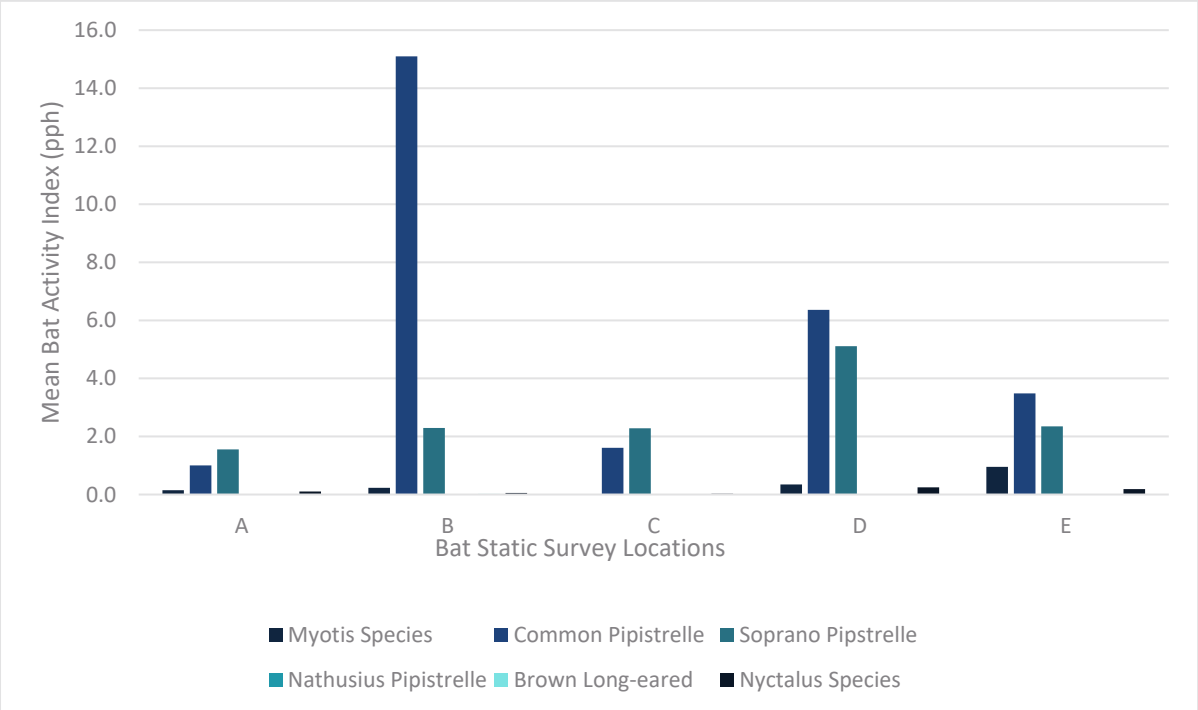
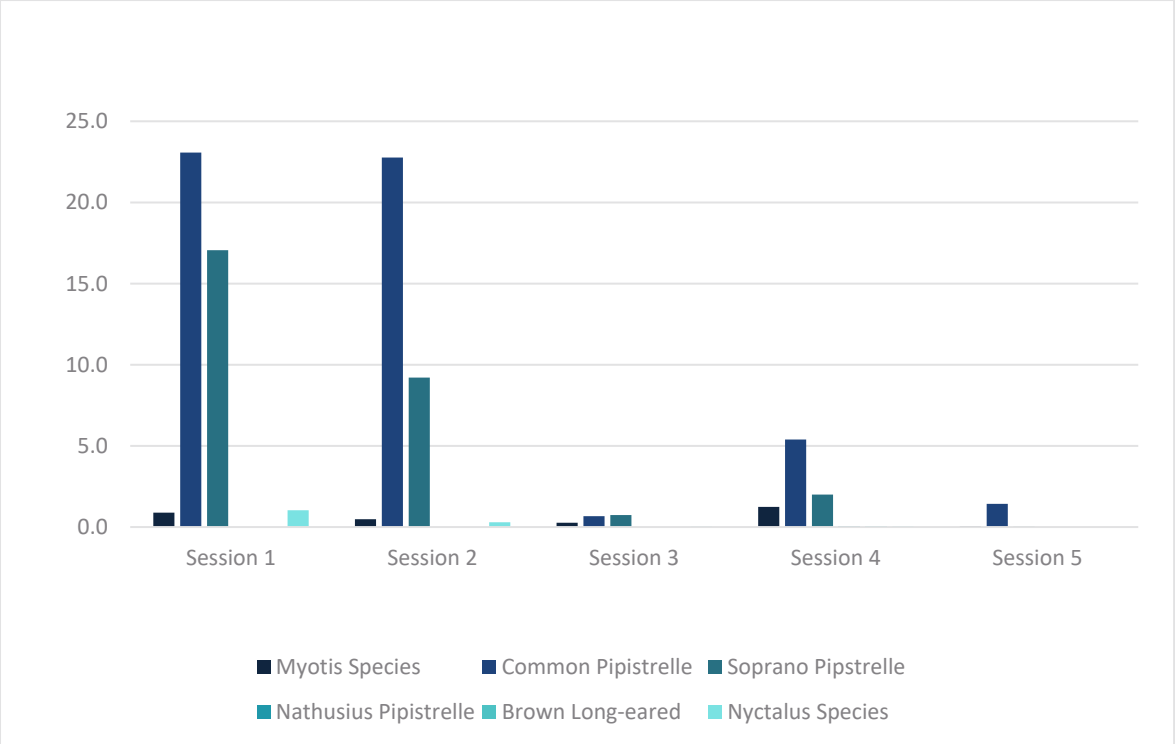


CHART 3.2 MEAN BAI FOR EACH SPECIES AT EACH SEASON



4. SUMMARY

4.1.1.1 Bat Activity Surveys confirmed the presence of common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, *Nyctalus spp*. within the Site, with common and soprano pipistrelle, both common and widespread species in Scotland, making up the majority of species present.

4.1.1.2 Bat activity varied throughout the monitoring period and differed between species, with common pipistrelle showing the highest variation. Location B had the highest average BAI and highest species richness recorded, indicating it an area of significant importance for bats. Location D had the second highest BAI (12.068) followed by Location B (6.977) and Location C (3.932). Location A had the lowest levels of bat activity (BAI of 2.807) indicating this area within the BSA is less favourable for bats. Common pipistrelle, soprano pipistrelle, and *Nyctalus spp*. exhibited peak activity in May, while *Myotis spp*. showed highest activity in September. Brown long-eared bat and Nathusius' pipistrelle had the lowest activity throughout the season, with activity limited to September. Soprano pipistrelle and Myotis spp. were least active in October, while common pipistrelle and *Nyctalus spp*. showed reduced activity in August.

4.1.1.3 Mitigation measures are necessary to prevent any adverse impact on bats from the Proposed Development. The recommended mitigation measures and details of further required surveys are outlined in the recommendations section below.

5. RECOMMENDATIONS

5.1.1.1 Roost surveys confirmed the presence of habitats within the BSA suitable to support roosting bats. If any trees are to be removed, pruned or disturbed because of the Proposed Development, particularly those identified as FAR and having bat roost suitability, then further surveys to determine the presence of roosting bats will be required. To mitigate potential impacts of the Proposed Development, it is recommended to avoid development of areas in Locations B and D as these are highly suitable for bats. Implementation of dark corridors in these locations within the Site will assist in mitigating the impacts of the Proposed Development on bats.

5.1.1.2 Further information relating to mitigation measures is detailed within **Volume 1 Chapter 8 Ecology and Nature Conservation**.

APPENDIX A FIGURES

Site Boundary

0 100 200 300 400 500
Meters

N

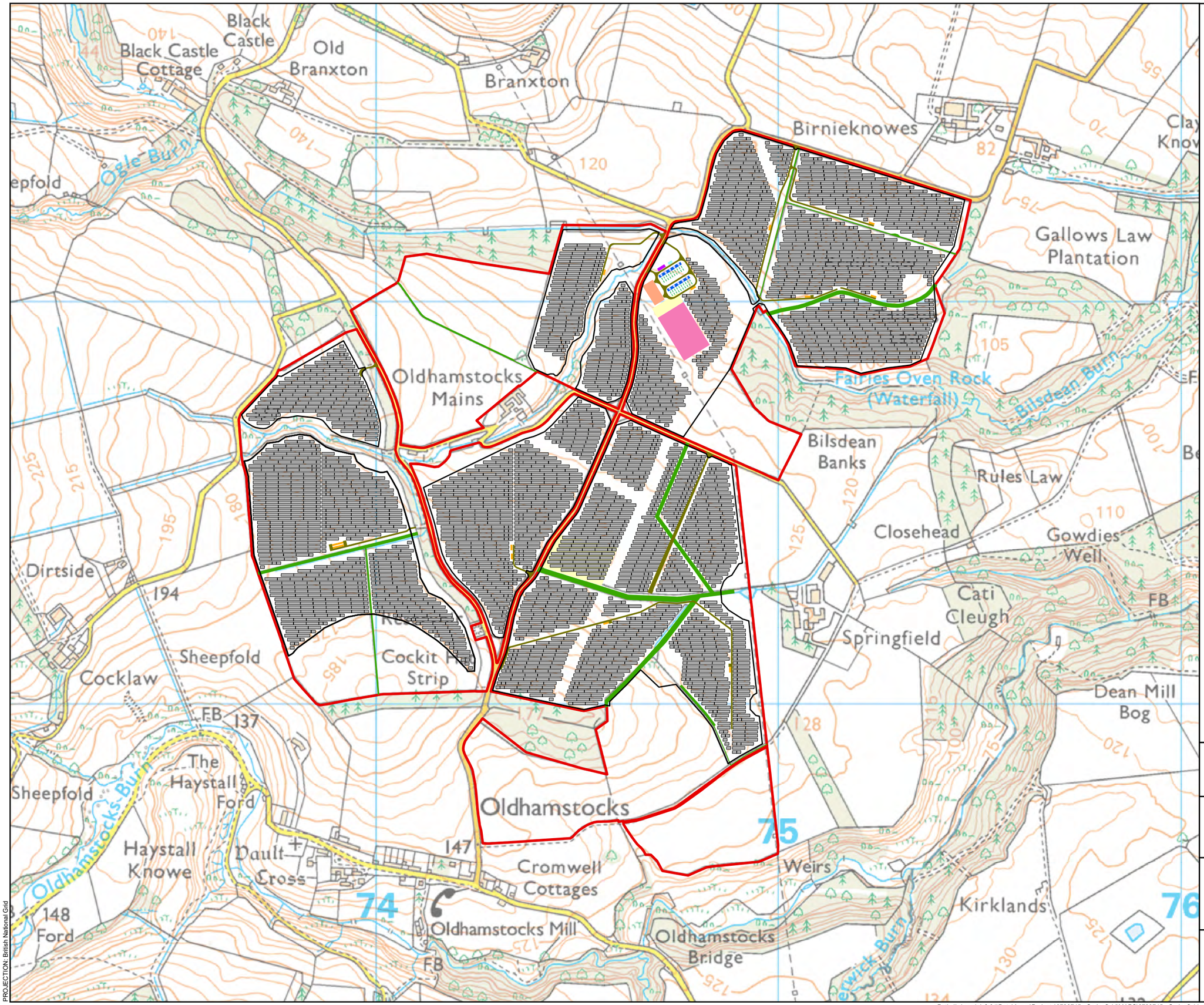
SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: RW
PROJECT: 0733745	CHECKED: JB
DATE: 13/05/2025	APPROVED: RO

Springfield Solar Farm and BESS
Protected Species Survey Report
Figure 8.3.1
Site Location Plan

ERM voltalia

PROJECTION: British National Grid

Path: \\UKSPRDGISFS01\Data\Arcus\Projects\0733745 - Springfield\MAPS\0733745 - Springfield - EIA Figures.aprx\0733745 - Springfield - Bat TA - Figure 8.3.1 - Site Location Plan - A01



- Site Boundary

Proposed Site Layout

- BESS
- Temporary Construction Compound
- OM Building
- TSO Substation
- Customer Substation
- PV Module
- Transformers
- Hedgerow
- Internal Access Track
- Power Conversion
- Storage Container
- Tesla Megapack
- Fence

0 100 200 300 400 500 Meters

N

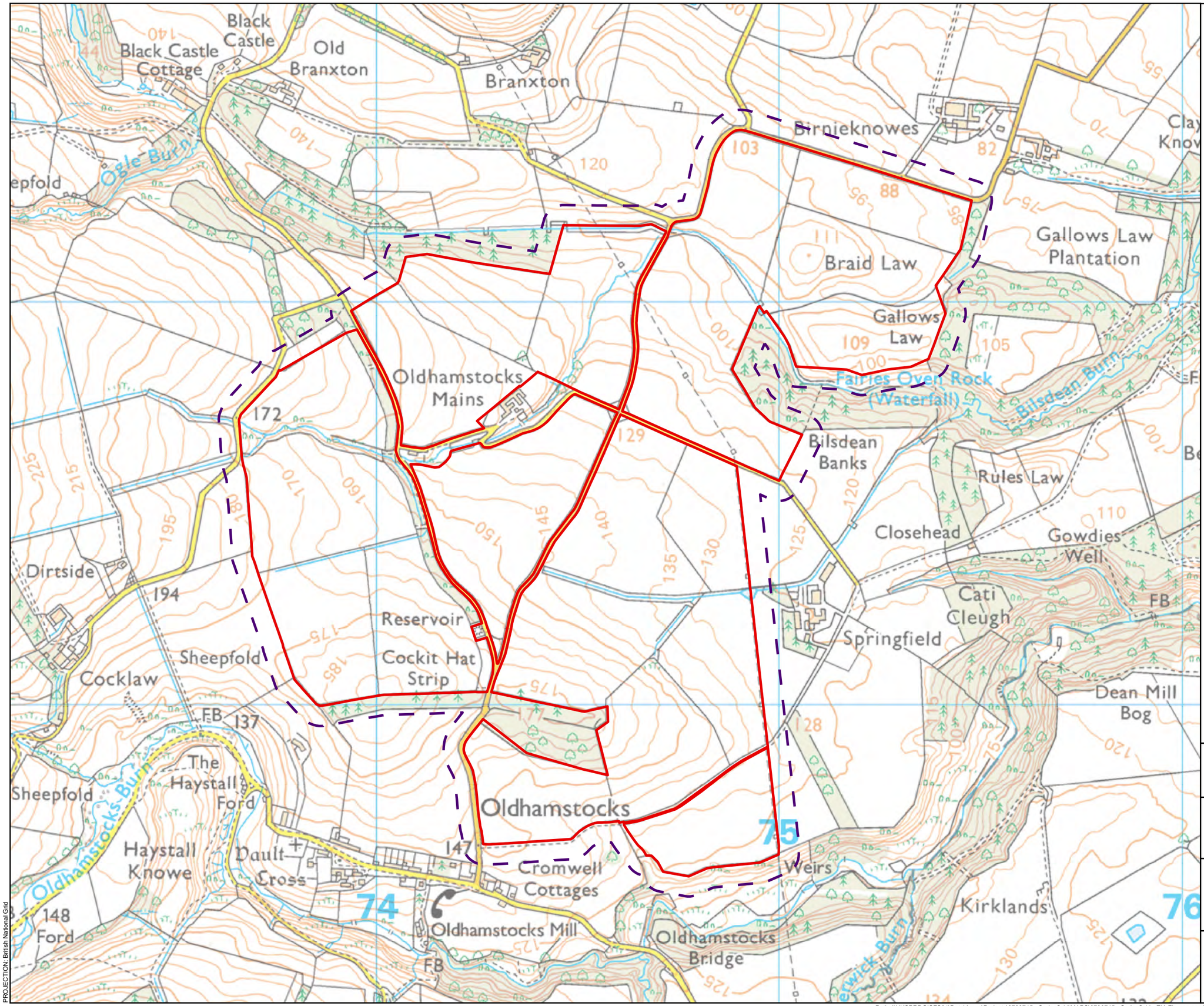
SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0733745	CHECKED: JB
DATE: 5/30/2025	APPROVED: RO

Springfield Solar Farm and BESS
Protected Species Survey Report
Figure 8.3.2
Development Plan

ERM voltalia

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0733745 - Springfield\MAPS\0733745 - Springfield - EIA Figures.aprx\0733745 - Springfield - Bat TA - Figure 8.3.2 - Development Plan - A01



Site Boundary

Bat Survey Area (50m)

0 100 200 300 400 500 Meters

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0733745	CHECKED: JB
DATE: 13/05/2025	APPROVED: RO

Springfield Solar Farm and BESS
Protected Species Survey Report
Figure 8.3.3
Daytime Bat Walkover Survey Area Plan

ERM voltalia

PROJECTION: British National Grid

Path: \\UKSPRDGISFS01\Data\Arcus\Projects\0733745 - Springfield\MAPS\0733745 - Springfield - EIA Figures.aprx\0733745 - Springfield - Bat TA - Figure 8.3.3 - Datetime Bat Walkover Survey Area - A01

Site Boundary
Bat Survey Area (50m)
Static Detector Location
Bat Transect Route
Bat Transect Data Collection

0 100 200 300 400
Meters

N

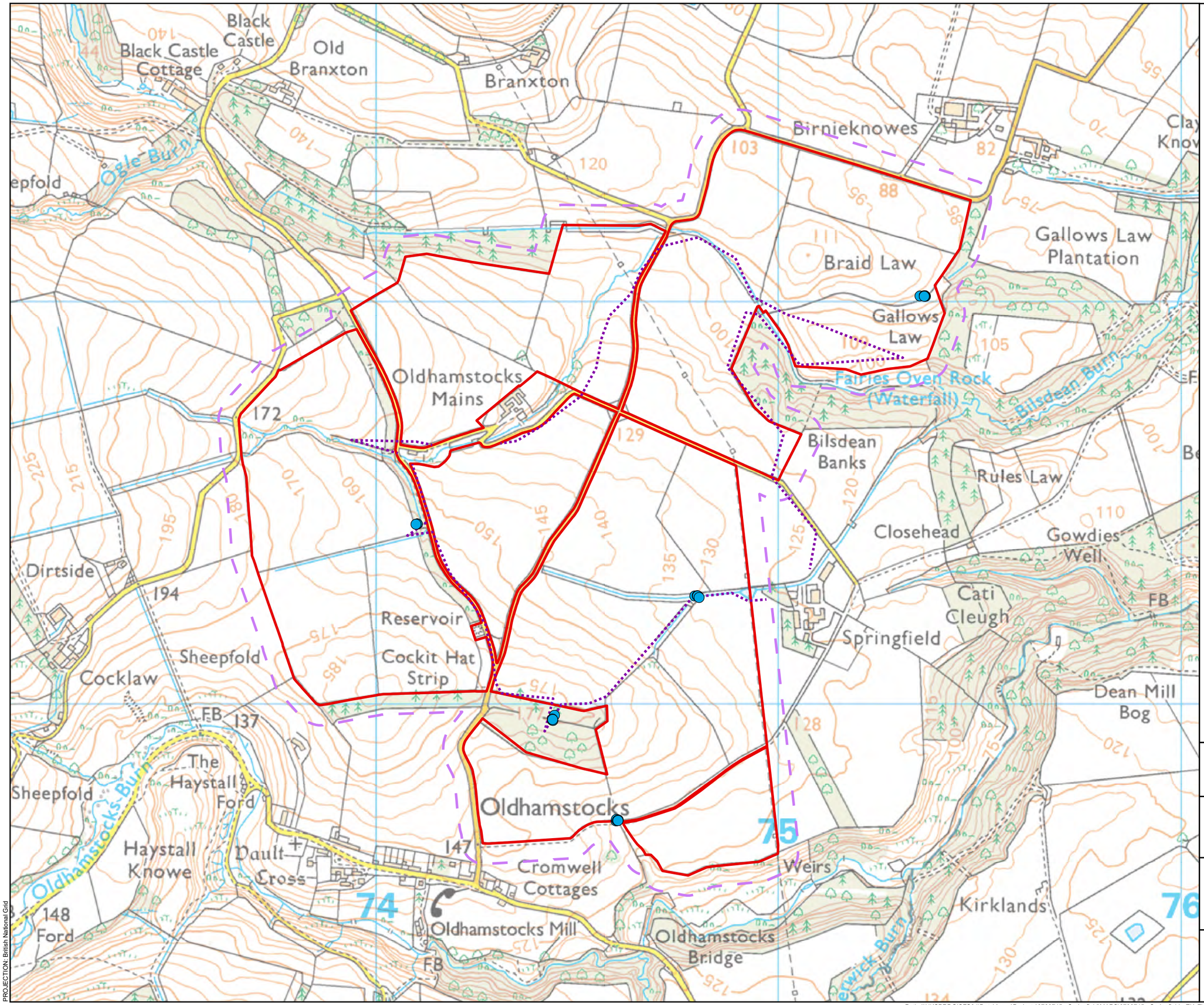
SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0733745	CHECKED: JB
DATE: 01/04/2025	APPROVED: RO

Springfield Solar Farm and BESS
Protected Species TA
Figure 8.3.4
Nighttime Bat Walkover Survey Area

ERM voltalia

PROJECTION: British National Grid

Path: \\UKSPRDGISFS01\Data\Arcus\Projects\0733745 - Springfield\MAPS\0733745 - Springfield - EIA Figures.aprx\0733745 - Springfield - Bat TA - Figure 8.3.4 - Nighttime Bat Walkover Survey Area - A01



Options Area
Bat Survey Area (50m)
Static Detector Locations
Bat Transect Route

0 100 200 300 400 500
Meters

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0733745	CHECKED: JB
DATE: 13/05/2025	APPROVED: RO

Springfield Solar Farm and BESS
Protected Species Survey Report
Figure 8.3.5
Static Detector Locations

ERM voltalia

PROJECTION: British National Grid

Path: \\UKSPRDGISFS01\Data\Arcus\Projects\0733745 - Springfield\MAPS\0733745 - Springfield - EIA Figures.aprx\0733745 - Springfield - Bat TA - Figure 8.3.5 - Static Detector Locations - A01