MOTT MACDONALD

Hodder WTW AMP 6 Renovation Project

Bat Survey Report

26 September 2019

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Bat Survey Report

26 September 2019

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
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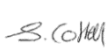
B	26.09.19	S.Cottell	P Renshaw	P.Wyeth	First Issue
					

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Information class: Standard

Contents

Tables

Executive Summary

Mott MacDonald Bentley was appointed by United Utilities (UU) to undertake a Preliminary Ecological Appraisal (PEA) of the Hodder Site, which is located approximately 2km north east of Slaidburn in the Forest of Bowland (National Grid Reference SD 71885 54414).

Following recommendations in the PEA further bat surveys were required on the following buildings due their potential to support bat roosts (indicated below as low, medium, high or confirmed):

- Building 1 (low);
- Building 2 (confirmed roost);
- Building 3 (high)
- Building 4 (low);
- Building 6 (high);
- Building 10 (high); and
- An activity survey of the Site to understand how the bats are using the area.

Surveys were undertaken in line with the Bat Conservation Trust Guidelines (Collins, 2016). The results within the site are:

Building 1, 4 and 10 had no roosting bats present.

Building 2/3 had a peak count of 851 soprano pipistrelle *Pipistrellus pygmaeus* emerge and is a known maternity roost.

Building 6 had a peak count of 12 soprano pipistrelle emerge and comprises males (based on static hand netting) and is therefore classed as a day roost.

There was low to moderate activity around the site, the majority being of common and soprano pipistrelles. The majority of bats leaving the maternity roost flew directly to the River Hodder. The bats within Building 6 flew west to the woodland and likely then onto the River Hodder.

Mitigation which will be required as part of the Scheme includes:

- No works should be undertaken within a minimum of 30m from Building 2 that has the maternity roost or Building 6 with the day/satellite roost. If this occurs further liaison with an Ecologist will be required. This requirement does not include vehicle movements or other construction activities which would be similar or less disturbance from the normal operational activities of the water treatment works.
- The demolition of the existing filters will ideally be undertaken between October and March. If the works need to occur outside of this timeframe an Ecologist should be consulted with the methodology and timings of the works.
- No lighting should be used overnight. If it is required for health and safety within the compound it will need to be directional into the compound and must only be directed onto hardstanding. No wooded areas should be lighted. No lighting must occur between Building 2 and the River Hodder and Building 6 and the woodland. The current proposed works does not have any works occurring in this location.
- Planting must occur in as close proximity as possible to the woodland to be removed so as not to lose foraging resource for bats.

1 Introduction

1.1 Background

Mott MacDonald Bentley was appointed by United Utilities (UU) to undertake a Preliminary Ecological Appraisal (PEA) of the Hodder Site, which is located approximately 2km north east of Slaidburn in the Forest of Bowland (National Grid Reference SD 71885 54414).

This ecological appraisal identified buildings with both known and also potential bat roost sites. The PEA recommended that further bat surveys were required on:

- Building 1 (low);
- Building 2 (confirmed roost);
- Building 3 (high)
- Building 4 (low);
- Building 6 (high);
- Building 10 (high); and
- An activity survey of the Site to understand how the bats are using the area.

Locations of the buildings and their original bat roosting potential can be found in Appendix A.

1.2 The Development

The proposed development comprises increasing the capacity of Stocks Reservoir by raising the level of the overflow weir by 300mm which will give a top water level of 180.87m above ordnance datum (mAOD). This will be carried out either by using pre-cast coping units or in-situ concrete construction. This will be confirmed during detail design. Whilst carrying out the works the reservoir will need to be drawn down to approximately 177.5mAOD, however the works will be carried out in summer months when water levels are usually relatively low. The works will take approximately 6-7 weeks to complete.

Additionally, works will occur around the Hodder Water Treatment Works (WTW) over two to three years including:

- Replacement of existing Bells first stage pressure filters with a new filtration process. This will be a rapid gravity filter system with eight tanks at 85m^2 area per tank along with associated pipework and housing. New clean backwash tanks will also be constructed along with two dirty wash-water storage tanks. These works will be constructed in an area of existing trees which will need to be cleared.
- Works to the Lime Dosing process include providing flushing points on the dosing lines up and downstream of the pre-coagulation pumps, amending the arrangement and control system of the existing pumps and replacing the pre-manganese contactor dosing pumps.

1.3 Aims and Objectives

The aim of this report is to provide the methodology and findings from emergence surveys undertaken and the activity survey of the Hodder Site, along with recommendations for any mitigation required to address potential impacts.

The objectives are to:

- Identify any bat roosts within buildings with species, number and type of roost;
- Identify any important corridors for foraging and commuting;
- Identify any important feeding resources for bats;
- Identify any rare bat species or large numbers using the area for foraging and commuting;
- Assess the level of use and species that use the area for foraging and commuting; and
- Assess the level of potential impacts to bats resulting from the works.

1.3.1 Legislation

All bat species and their roosts are fully protected under the Conservation of Habitat and Species Regulations 2017 (as amended) and also the Wildlife and Countryside Act 1981 (as amended). In summary, it is an offence to intentionally or deliberately kill, injure, disturb or capture any bats or damage, destroy or obstruct access to any structure used for breeding or resting by them.

Seven species are also listed on Section 41 of the NERC Act 2006 and Brandt's *Myotis brandtii*, Daubenton's *Myotis daubentonii*, whiskered *Myotis mystacinus*, Natterer;s *Myotis nattereri*, noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus* and brown long-eared *Plecotus auritus* are listed on the Lancashire Biodiversity Action Plan (BAP).

1.3.2 Quality Assurance

Lead surveyors of each survey team are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and two surveyors hold a Level 2 bat licence (Licenced surveyors: 2015-15158-CLS-CLS, 2018-37316-CLS-CLS).

2 Methodology

2.1 Roost Surveys

Surveys were undertaken in line with the Bat Conservation Trust (BCT) guidelines (Collins et al., 2016). Emergence surveys started 30 -15 minutes prior to sunset until 90 minutes after sunset. Emergence surveys on Building 2 and 3 started earlier due to the early time that bats were recorded leaving. Dawn re-entry surveys started 90 minutes prior to sunrise until sunrise. All surveyors were equipped with Elekon Batlogger M detectors and had night vision cameras (Pulsar Helion XQ38). The maximum number of passes for each species for one surveyor is presented within the results section. Dates and any limitations associated with each location are detailed within Table 1 below.

Table 1: Roost Surveys

Location	Date	Survey Type	Limitations
Building 1	8th July 2019	Dusk	Light rain fell at the start of the survey but stopped around sunset.
Building 2/3	18th /19th June 2019	Dusk/dawn	On the dawn survey on the 19th June light rain fell throughout the survey but it is not thought to affect the results.
	23rd July 2019	Dusk	
	12th August 2019	Dusk	
Building 4	1st July 2019	Dusk	
	5th July 2019	Dawn	
Building 6	9th July 2019	Dusk	
	6th August 2018	Dawn	
	13th August 2019	Dusk	
Building 10	29th July 2019	Dusk	
	6th August 2019	Dawn	
	14th August 2019	Dusk	

Source: Mott MacDonald, 2019

2.2 Manned Bat Activity Surveys

Manned bat activity survey methodologies were undertaken in accordance with the BCT Guidelines (Collins et al., 2016) along a transect around the Hodder Site.

Surveys involved two Ecologists who walked predetermined transect routes in order to observe, listen for and record bats in flight away from their roosts using hand-held Batlogger M detectors. Stoppage points were pre-determined from maps where potential habitat suitable for bats was identified and were equally spaced over the survey route. Additionally, all transects started at the large maternity roost in Building 2 in order to provide information enabling an understanding of the directions that bats were going after leaving the roost. Surveyors stopped in each location for 5 minutes. Following analysis of the results each stoppage point will be given a category based on the number of passes within the 5 minutes. These will be categorised as follows:

- None – no passes
- Low – 1 to 10 passes
- Moderate – 11 to 25 passes
- High – 26+ passes

A map showing the transect stopping points can be found in Appendix B with levels of activity per survey. In between stopping points surveyors walked at a moderate pace and did not stop when bats were heard and recorded any observations.

Dusk surveys began at sunset until 2 hours after sunset. No dawn activity surveys occurred as the dusk surveys allowed the surveyors to watch the bats leaving the roost before walking a transect around the Site to understand how they were using the area. The first survey in June also began 30 minutes prior to sunset and stayed at Point 1 until 10 minutes after sunset. Only those bats recorded in the last 5 minutes at Point 1 are detailed in the results section to ensure that no bias occurs for the number of passes. This additional time was due to it being the first survey of the roost and to understand the flight paths from the roost itself. The third survey in August reversed the transect points. Dates and any limitations associated with the surveys are identified in Table 2 below.

Table 2: Activity Surveys

Location	Date	Survey Type	Limitations
Hodder	17th June 2019	Dusk	N/A
	16th July 2019	Dusk	
	19th August 2019	Dusk	

Source: Mott MacDonald, 2019

2.3 Analysis

Analysis of calls will be undertaken using BatExplorer software. For Building 2/3 due to the large number of calls which are predominantly *Pipistrellus* auto-analyse software, BatClassify, was used. All calls which were not deemed to be *Pipistrellus* were analysed as normal using BatExplorer. Any call which is between 49 and 51 kHz and deemed to be pipistrelle will be recorded as *Pipistrellus* species due to the overlap of common and soprano pipistrelle *Pipistrellus pygmaeus*.

One bat pass was defined as one track on the Batloggers. The Batlogger detectors are set up so that if there is at least a one second gap between a call a new track is started and therefore can be deemed to be a new pass. However, at Building 2/3 due to the number of bats present there are multiple bats per track and therefore a number of passes column has not been included within the results section as the number of calls does not adequately reflect the number of passes.

3 Results

3.1 Roosting Surveys

3.1.1 Building 1

Six surveyors positioned themselves around Building 1, with one person at each corner and due to the length of the building, one in each of the south-east and north-west aspects.

No bats were recorded emerging from Building 1 and bat activity was generally low within the area with the majority of recordings due to bats foraging on the River Hodder behind surveyors on the south-east aspect. There are large security lights located on the south face of Building 9 which illuminated part of Building 1.

Table 3: Building 1 Survey Data and Results

Date	Temperature (°C)	Wind	Cloud cover	Sunset	Species recorded	First time recorded	Last time recorded	Maximum Number of passes	Comments
8th July 2019	18	Low	100%	21:40	Common pipistrelle	22:58	22:58	8	Tawny owl landed on the building briefly. Most foraging was recorded on the River Hodder.
					Soprano pipistrelle	21:51	23:05	119	
					Noctule	22:35	22:35	1	
					Myotis	22:38	22:50	2	

Source: Mott MacDonald, 2019

3.1.2 Building 2/3

Five surveyors positioned themselves around Building 2/3 on the first survey, with three surveyors thereafter.

A large number of soprano pipistrelle *Pipistrellus pygmaeus* were recorded emerging from predominantly the southern aspect of Building 2 on the first and second survey with smaller numbers of emergences on both the west and north. On the third survey this behaviour changed and the majority emerged from the northern aspect. A map detailing the points of entry/exit is provided in Appendix A.

During a survey of Building 6 on the 9th July 2019 a baby pipistrelle bat was recorded on the southern wall of Building 2 and a large number of droppings was recorded during each survey (Appendix C). Additionally, static hand netting occurred on the 23rd July by two Level 2 Bat Licence Ecologists (Licenced surveyors: 2015-15158-CLS-CLS, 2018-37316-CLS-CLS) where two male soprano pipistrelle juveniles were caught (weight was 3.5g). Additionally one adult soprano pipistrelle female (weighting 7g) was caught with nipples exposed and evidence of lactation in 2019, therefore Building 2 is classed as a maternity roost. The roost from the recording and the bat in hand were all identified as soprano pipistrelle, it cannot be discounted that some common pipistrelle are also present within the roost. Common pipistrelle were recorded around sunset during each survey and due to the sheer number of bats leaving the roost individual track numbers cannot be allocated to specific bats leaving.

An inspection by torch with a red filter prior to the emergence surveys identified bats under the barge board. On the 18th June 2019 four bats were recorded on the south side and one on the north. On the 23rd July 2019 20 bats were recorded on the north side and 30 bats on the southern side. On the 12th August no bats were recorded on the south side and approximately 50 bats were recorded on the north.

During the second survey a number of smaller bats were observed leaving the roost and bats were observed exhibiting behaviour characteristic of a maternity roost (ie. leaving and immediately returning to the roost - to encourage young to leave).

The maximum number of passes has not been included below due to the large volume of calls and as the Batlogger M detectors requires a one second gap to start a new track, and often activity was constant, often multiple bats were recorded leaving the roost within the same track.

Table 4: Building 2/3 Survey Data and Results

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Comments
18th /19th June 2019	19	Low	100%	21:41 / 4:35	Common pipistrelle	20:59 / 2:57	23:10 / 4:45	7 soprano pipistrelle emerged on north face. 490 soprano pipistrelle emerged from the south and at least 23 re-entered during the survey.
					Soprano pipistrelle	20:53 / 2:57	23:11 / 4:50	
					Pipistrellus species	21:26	22:10	
23rd July 2019	28	None	4%	21:24	Common pipistrelle	21:01	22:54	72 soprano pipistrelle emerged from the north and western face. 779 soprano pipistrelle emerged from the southern face.
					Soprano pipistrelle	21:22	22:55	
					Pipistrellus species	20:45	22:02	
12th August 2019	14	Low	30%	20:44	Common pipistrelle	21:10	22:44	13 soprano pipistrelle emerged on the south face. 428 soprano pipistrelle emerged from the north face.
					Soprano pipistrelle	20:43	22:44	

Source: Mott MacDonald, 2019

3.1.3 Building 4

Two surveyors positioned themselves around Building 4 on opposite corner so both surveyors covered two faces.

A possible emergence was recorded during the first survey so a subsequent re-entry was undertaken which recorded no bats using the building. Additionally, an external survey was undertaken on the 9th July and where the possible emergence occurred no suitable feature

could be identified. No other field signs of bats were observed such as droppings or staining. Therefore, it is considered that Building 4 is not a roost.

Table 5: Building 4 Survey Data and Results

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Number of passes	Comments
1st July 2019	17	None	0%	21:44	Common pipistrelle	21:44	23:14	102	Possible emergence from Apex on western face. Survey recorded soprano pipistrelle emerging from Building 2.
					Soprano pipistrelle	21:42	23:14	575	
5th July 2019	16	Low	80%	4:45	Soprano pipistrelle	3:10	4:33	234	Survey recorded soprano pipistrelle returning to Building 2.

Source: Mott MacDonald, 2019

3.1.4 Building 6

Two surveyors positioned themselves around Building 6 with one on the south-east corner and one on the north-west corner.

Prior to the survey droppings were noted on the south of building on the ground and window sill. An inspection by torch recorded eight bats on the south-east aspect and two on the north-western corner under barge boards on the 9th July 2019. During the survey on the 13th August static hand netting was used to ascertain the sex of bat using the roost to determine the type of roost. Two bats were caught, both soprano pipistrelle and both adult males both weighing 5g. Therefore, Building 6 is classified as a day roost.

Table 6: Building 6 Survey Data and Results

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Number of passes	Comments
9th July 2019	17	None	100%	21:39	Common pipistrelle	22:03	22:42	4	10 soprano pipistrelle bats emerged in-line with those recorded by torch.
					Soprano pipistrelle	21:40	22:43	22	
					Myotis species	22:20	22:45	4	
6th August 2018	16	Low	100% at beginning, 10% at end	5:30	Common pipistrelle	3:57	5:24	11	12 soprano pipistrelle's re-entered the building. Two on the NW face and 10 on the south face. *Myotis* and soprano pipistrelle recorded foraging on the woodland
					Soprano pipistrelle	3:57	5:22	150	
					Myotis species	5:01	5:18	8	

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Number of passes	Comments
									edge to the SW.
13th August 2019	19	Low	70%		Common pipistrelle	4:01	22:01	7	Eight soprano pipistrelle's were recorded emerging from the south of the building and one on the west.
					Soprano pipistrelle	3:57	22:02	16	

Source: Mott MacDonald, 2019

3.1.5 Building 10

Two surveyors positioned themselves around Building 10 on opposite corners.

No bats were recorded emerging on the dusk survey on the 9th July 2019 with some activity occurring over the embankment and the River Hodder.

Table 7: Building 10 Survey Data and Results

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Number of passes	Comments
29th July 2019	18	Low	100%	21:13	Common pipistrelle	21:18	22:36	52	
					Soprano pipistrelle	21:39	22:42	3	
					Myotis	22:04	22:04	1	
6th August 2018	16	Low	100% at beginning, 10% at end	5:30	Common pipistrelle	3:59	5:05	11	
					Soprano pipistrelle	3:59	5:13	25	
14th August 2019	15	Low	40%	20:41	Common pipistrelle	20:57	21:35	6	
					Soprano pipistrelle	20:58	21:39	15	

Source: Mott MacDonald, 2019

3.2 Activity Surveys

Three dusk activity surveys were undertaken on the Hodder Site (transect locations are within Appendix B) and the results are presented below in Table 8. The majority of activity was recorded adjacent to Building 2/3 which is the known maternity roost. Additionally, bats were recorded up to moderate levels foraging around the Site including the woodland which will be removed. A total of four species were recorded using the site for commuting and foraging which includes common pipistrelle, soprano pipistrelle, *Myotis* species and noctule. Although *Pipistrellus* species is also recorded these are either social calls or were between 49 and 51 khz and therefore a species could not be determined.

Table 8: Hodder activity survey data and results

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Transect stop number	Number of passes
17th June 2019	16	Low	10%	21:41	Common pipistrelle	21:41	23:30	1	6
								2	4
								3	2
								8-9	3
								9	4
								10	4
					Soprano pipistrelle	21:41	23:21	1	42
								2	5
								2-3	9
								3	15
								6	1
								9	8
					Pipistrellus species	21:41	22:28	1	8
								2	1
								7	1
								9	1
								10	2
16th July 2019	22	None	0%	21:32	Common pipistrelle	21:36	23:40	2	4
								2-3	3
								3	5
								4	20
								6	23
								9	23
								11	1
					Soprano pipistrelle	21:31	23:41	2	33
								6	1
								7	16
								7-8	1
								8	10
								9	46
								10	11
								11	1
					Pipistrellus species	21:31	23:27	2	8
								3	9
								6	1
								7	1
								9	3
								10	1
					Noctule	21:32	22:21	2	2
								4	2
					Myotis species	22:52	22:52	7-8	`1
19th August 2019	14	Low	20%	20:30	Common pipistrelle	20:50	22:26	10	1
								8	3
								7	5
								6	2
								5	21
								3	29
								2	12
								1	1
					Soprano pipistrelle	20:49	22:28	10	2

Date	Temperature (°C)	Wind	Cloud cover	Sunset/ sunrise	Species recorded	First time recorded	Last time recorded	Transect stop number	Number of passes
								9	10
								8	6
								7	5
								5	8
								3	1
								3-2	4
								2	55
								1	24
					Pipistrellus species	21:05	22:29	8	2
								5	9
								3	2
								2	1
								1	8
					Noctule	20:52	20:52	9	1
					Myotis species	21:30	22:18	3	9
								2	3

Source: Mott MacDonald, 2019

4 Conclusions

4.1 Roosting bats

Building 1, 4 and 10 had no roosting bats present.

Building 2/3 had a peak count of 851 soprano pipistrelle emerge and is a confirmed maternity roost. There is likely to be some common pipistrelle but due to the number of bats emerging and the possibility of soprano pipistrelles offsetting their calls, this was not possible to confirm.

Building 6 had a peak count of 12 soprano pipistrelle emerge and is a confirmed day roost of males.

4.2 Bat Activity

There was low to moderate activity around the Site, the majority being of common and soprano pipistrelles. The majority of bats leaving the maternity roost flew directly to the River Hodder. The bats within Building 6 flew west to the woodland edge and likely the onto the River Hodder and some flew north along the woodland edge.

Low to moderate levels of activity were recorded around the area of trees to be removed therefore this is not deemed to be a key foraging area but is used by bats. Due to the location of the woodland to the west and south this is not deemed to be a commuting corridor as the two other woodlands have closer proximity and allow commuting across the site and around the reservoir.

4.3 Potential impacts

Based on analysis of information from surveys undertaken to date, the works as currently planned have the potential to impact bats in the following ways:

- Disturbing bats occupying a large maternity and day roost;
- Interference to flight paths for bats emerging from roosts and flying to foraging areas, or returning to roosts from foraging areas; and
- Loss of foraging resource.

4.4 Mitigation

In order to avoid impacts the following mitigation will need to be implemented:

- No works should be undertaken within a minimum of 30m from Building 2 that contains the maternity roost or Building 6 with the day roost. If this occurs further liaison with an Ecologist will be required. This requirement does not include vehicle movements or other construction activities which would be similar or less disturbance from the normal operational activities of the water treatment works.
- The demolition of the existing filters will ideally be undertaken between October and March. If the works need to occur outside of this timeframe an Ecologist should be consulted with the methodology and timings of the works.
- No lighting should be used overnight. If it is required for health and safety within the compound it will need to be directional into the compound and must only be directed onto hardstanding. No wooded areas should be lighted. No lighting must occur between Building

2 and the River Hodder and Building 6 and the woodland. The current proposed works does not have any works occurring in this location.

- Planting must occur in as close proximity as possible to the woodland to be removed so as not to lose foraging resource for bats.

5 References

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

Mott MacDonald (2019) *Hodder WTW Amp 6 Renovation Project, Preliminary Ecological Appraisal*, 30 September 2019. Document reference:

A. Bat Roosts

Location Map

Key to Symbols

- Day roost, Soprano pipistrelle
- Maternity roost, Soprano pipistrelle

Building Potential

- Confirmed
- High
- Low
- Negligible

Notes

Please put all sources that require licence here. Remember OS licence number for any non open source OS data.

Rev	Date	Drawn	Description	Ch'k'd	App'd
01	25/09/2019	SC	For Information	PR	NS

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United Utilities

Title

Hodder
Bat Roosts

Drawn	SC		Check	PR	
Drawn	SC		Approved	NS	
Scale at A3	Status		Rev	Security	
1:1,750	INF		01	STD	

Drawing Number
80040117-01-MMB-HOD-97-RP-I-0004-BATROOST

0 20 40 80 120 160 Meters

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B. Bat Activity Stopping Points and Levels of Activity

Location Map

Key to Symbols

- High
- Moderate
- Low
- None

Notes

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Rev	Date	Drawn	Description	Ch'k'd	App'd
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United Utilities

Title

Hodder
Bat Activity Transect Stopping Points and Level of Activity
17th June 2019

Drawn	SC		Check	PR	
Drawn	SC		Approved	NS	

Scale at A3	Status	Rev	Security
1:1,750	INF	01	STD

0 20 40 80 120 160 Meters

Drawing Number
80040117-01-MMB-HOD-97-RP-I-0004-BATTRANSECT

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Location Map

Key to Symbols

- High
- Moderate
- Low
- None

Notes

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Rev	Date	Drawn	Description	Ch'k'd	App'd
01	25/09/2019	SC	For Information	PR	NS

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Title

Hodder
Bat Activity Transect Stopping Points and Level of Activity
16th July 2019

Drawn	SC		Check	PR	
Drawn	SC		Approved	NS	
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Drawing Number
80040117-01-MMB-HOD-97-RP-I-0004-BATTRANSECT

0 20 40 80 120 160 Meters

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Location Map

Key to Symbols

- High
- Moderate
- Low
- None

Notes

Please put all sources that require licence here. Remember OS licence number for any non open source OS data.

Rev	Date	Drawn	Description	Ch'k'd	App'd
01	25/09/2019	SC	For Information	PR	NS

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Client

United Utilities

Title

Hodder
Bat Activity Transect Stopping Points and Level of Activity
19th August 2019

Drawn	SC		Check	PR	
Drawn	SC		Approved	NS	

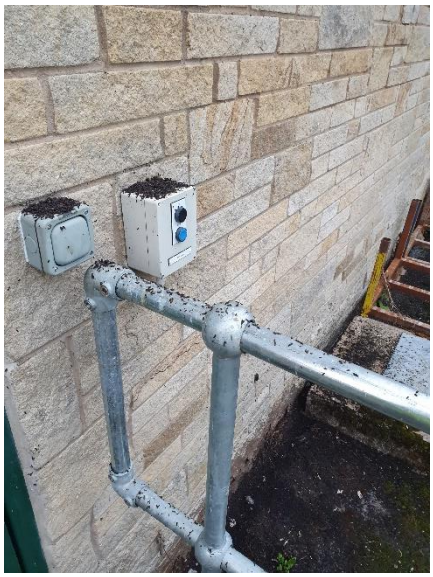
Scale at A3	Status	Rev	Security
1:1,750	INF	01	STD

Drawing Number
80040117-01-MMB-HOD-97-RP-I-0004-BATTRANSECT

0 20 40 80 120 160 Meters

C:\Users\cot58394\Mott MacDonald\EVT General Team Site - Northern Ecology Team\Steph GIS random\Hodder GIS\Hodder bat transect MXD.mxd

C. Photographs

Description	Photograph
Bat droppings outside of Building 6 on the southern face on the 9th July 2019.	
Large number of bat droppings on the south face of Building 2 on the 9th July 2019.	 

Description	Photograph
Baby pipistrelle bat on the south face of Building 2 on the 9th July 2019.	
Baby male soprano pipistrelle static hand netted on the 23rd July 2019 from Building 2.	
Male soprano pipistrelle (confirmed wing variation of soprano pipistrelle in red) static hand netted from Building 6 on the 5th August 2019.	

Source: Mott MacDonald, 2019