

East Lancashire Paper Mill, Radcliffe

Bat Activity Survey Report

784-B038963

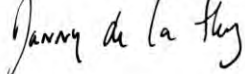
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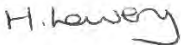
October 2023

Prepared on Behalf of Tetra Tech Limited.

Document Control

Document:	Bat Activity Survey Report
Project:	East Lancashire Paper Mill
Client:	Homes & Communities Agency
Job Number:	784-B038963
File Origin:	Z:\Projects\784-B038963 - East Lancs Paper Mill\60 Project Output\61 Work in Progress\Bat\

Revision:	1	Status:	Final
Date:	December 2022		
Prepared by: Ashleigh Toomey Graduate Ecologist 		Checked by: Gareth Parry Senior Ecologist 	Approved by: Danny de la Hey Principal Ecologist 
Description of revision: V1			

Revision:	2	Status:	Final
Date:	27/10/23		
Prepared by: Harriet Lowery Consultant Ecologist 		Checked by: N/A	Approved By: N/A
Description of revision: Update to include latest layout revision – no changes to recommendations			

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EXECUTIVE SUMMARY

Contents	Summary
Site Location	The site is located at East Lancashire Paper Mill, Radcliffe (approximately 4.8km south of Bury in Greater Manchester, National Grid Reference: SD 79296 07445).
Proposals	The proposals are for a residential development, providing up to 400 homes which may potentially include a new secondary school and associated works including relocation of cricket pitch, including a pavillion, provision of open space and sports facilities and demolition of existing building and structures.
Existing Site Information	List of previous reports: • WYG (2016) East Lancashire Paper Mill, Bury: Extended Phase 1 Habitat Survey Report • WYG (2017) East Lancashire Paper Mill, Radcliffe: Bat Activity Survey Report • WYG (2018) East Lancashire Paper Mill, East End: Ecological Appraisal The Ecological Appraisal (WYG, 2018) recorded the following suitable habitats with potential to support bats in the eastern section: • Site has moderate potential for foraging and commuting bats.
Scope of this Survey(s)	The scope of the bat activity surveys is to provide an assessment of the species assemblage of foraging and commuting bats within the site and the temporal and spatial distribution of bats across the site. An assessment of the effects of the proposed development of the site relating to bat species and make recommendations for mitigation and enhancement where necessary and / or possible.
Results	Five species of bat were recorded using the habitats across the site. During the walked transects common pipistrelle and Daubenton's bat were recorded. Common pipistrelle, <i>Myotis sp.</i> and Nathusius' pipistrelle were recorded during the automated surveys. The reservoir and willow scrub were used as foraging / commuting routes. The site was found to be at District, local or parish level for foraging and commuting bats based on the Wray <i>et al.</i> (2010) method.
Limitations	Giant hogweed <i>Heracleum mantegazzianum</i> was identified on site. This is not a limitation to the survey but is highlighted for health and safety purposes.
Recommendations	Measures to avoid and mitigate the potential effects of the development upon foraging and commuting bats include: <u>Required:</u> • Lighting strategy; and • Replacement planting. <u>Recommended:</u>

	• The landscaping scheme will be designed to provide shelter, foraging opportunities and connected dark corridors within and through the site; • Waterbodies including ponds and a reservoir are recommended to be retained within the proposals or replaced if proposed to be lost; and • The woodland strips will be retained within the proposals and should be enhanced to improve their value as a foraging resource.
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GLOSSARY

BCT	Bat Conservation Trust
BRM	Breathing Roofing Membranes
CIEEM	Chartered Institute of Ecology & Environmental Management
CSZ	Core Sustenance Zone
CSZ	Core Sustenance Zones
DEFRA	Department for the Environment, Food and Rural Affairs
EcIA	Ecological Impact Assessment
EPS	European Protected Species
EPSL	European Protected Species Licence
EPSML's	European Protected Species Mitigation Licence
GMEU	Greater Manchester Ecology Unit
GMRC	Greater Manchester Record Centre
Habitats Regulations	Conservation of Habitats and Species Regulations 2017 (as amended)
IUCN	International Union for Conservation of Nature
MAGIC	DEFRA's Multi-Agency Geographic Information for the Countryside
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
MRM	Modern Roofing Membranes
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
PRA	Preliminary Roost Assessment
SAC	Special Area of Conservation
SSSI	Site(s) of Special Scientific Interest

1.0 INTRODUCTION

1.1 BACKGROUND

Tetra Tech was commissioned by Morris Homes in September 2022 to undertake bat activity surveys to inform the proposed development at East Lancashire Paper Mill (hereafter referred to as 'the site').

These surveys were recommended following the results of an Extended Phase 1 Habitat Survey completed WYG (now Tetra Tech) in 2016 (WYG, 2016) which determined that the site was considered to have moderate suitability for foraging and commuting bats. Bat activity surveys were recommended based on:

- The occurrence of bat records in the local area, including 160 records within 2 km of the site, more than 60 of which denote the presence of roosts;
- The presence of suitable foraging and commuting habitat both within the site and in the surrounding landscape (broad-leaved semi-natural woodland, marshy grassland, dense scrub, swamp and the River Irwell); and
- Potential direct and indirect impacts to some of these habitats as a result of the development proposals.

This report has been prepared by Graduate Ecologist Ashleigh Toomey BSc (Hons) and the conditions pertinent to it are provided in Appendix A.

1.2 SITE LOCATION

The 'site' is located in the small town of Radcliffe (approximately 4.8km south of Bury) in Greater Manchester. The central Ordnance Survey Grid Reference of the site is SD 79296 07445 (Figure 1).

The site is approximately 18.9 hectares and comprises habitats such as hardstanding, scrub, standing water, amenity grassland, introduced shrub, mature trees, bare ground and buildings.

In the wider area there are large expanses of woodland located in Springwater Park (approximately 0.75km east of the site). Between Springwater Park and the east of the site there is mainly scrub, marsh and grassland habitat. The River Irwell borders the southwest of the site and hydrologically connects Springwater Park to the site. There is also woodland along the south of the river corridor, approximately 0.5km south of the site. Immediately north and west of the site is the urbanised area of Radcliffe.

1.3 DEVELOPMENT PROPOSALS

The proposal comprises residential development of up to 400 homes, soft landscaping, access roads, potentially a new secondary school, and associated works including relocation of cricket pitch, including a pavillion, provision of open space and sports facilities and demolition of existing building and structures.

Refer to Appendix D for proposed plans (Drawing Ref: PL0-P4 A).

1.4 PURPOSE OF THE REPORT

The purpose of the Bat Activity Survey Report is to discharge the following condition of the S73 decision notice issued by Bury Council on 25/10/21 (planning application PP-10451148):

Condition 15 'Any application for reserved matters approval relating to the area for the proposed relocation of the cricket club facility (as defined in the informatives) shall include Bat Activity Surveys of this area. The survey shall include appropriate mitigation measures and the approved scheme shall be implemented in accordance with the programme approved as part of the Bat Activity Survey'.

The bat activity surveys include the following objectives:

- Identify species assemblage on site, including the presence of common, rarer or rarest species of bat;
- Categorise the value of the site for bats (as per Wray, et al 2010);
- Understand the spatial and temporal distribution of bat activity across the site; and
- An assessment of the effects of the proposed development of the site relating to bat species and recommendations for mitigation and enhancement where necessary and / or possible.

Note that scientific names are provided at the first mention of each species and common names are then used throughout the rest of the report for ease of reading. Relevant legislation and planning policy are included in Appendix B.

2.0 METHODOLOGY

2.1 DESK STUDY

2.1.1 Previous Reports

Previous reports relevant to the site that have been reviewed for this report include:

- WYG (2016) East Lancashire Paper Mill, Bury: Extended Phase 1 Habitat Survey Report
- WYG (2017) East Lancashire Paper Mill, Ratcliffe: Bat Activity Survey Report
- WYG (2018) East Lancashire Paper Mill, East End: Ecological Appraisal

2.1.2 Local Ecological Records Centre

Information was requested from the Greater Manchester Ecology Unit (GMEU; Local Biodiversity Records Centre for Greater Manchester) for information on any nature conservation designations that include bats as a reason for designation and bat records within 2 km of the site.

2.1.3 MAGIC Website

A search of data using DEFRA's MAGIC website was undertaken to identify EPSLs granted in the local area (2 km).

2.2 WALKED TRANSECTS

Walked transect surveys consist of a pair of surveyors walking a fixed route around a site at a constant pace and recording all seen and heard bat activity for a period of two hours. Each survey commenced at sunset and concluded two hours afterward. The surveyors noted bat activity using both visual observation and audio bat detectors (Elekon Batlogger Ms) to identify foraging and / or commuting behaviour. Surveyors recorded the time and a description of any bat activity. Where bats could be seen, the patterns and directions of the bats' flight were also recorded.

The transect route for each survey is shown in Figure 2. The direction in which the transect was walked was alternated between surveys in order to record activity around the site at different times. The recorded data was then analysed using Bat Explorer (version 2.1.10.1) to confirm the species recorded on site.

The surveys were undertaken on the evenings of 25th August 2022, 15th September 2022 and 13th October 2022, and on the morning of 26th August 2022. The activity surveys were conducted during optimal weather conditions (i.e. not during heavy rain, low temperatures, or strong winds). The metadata for each survey is detailed in Table 1.

Table 1: Survey Dates and Weather Conditions

Survey No.	Date	Time		Air Temperature (°C)		Wind Speed	Cloud Cover (%)	Precipitation (%)
		Start	End	Initial	Final			
1	25/08/22	20:16	22:16	18	11	0	10	0
2	26/08/22	04:06	06:06	11	13	0	95	0
3	15/09/22	19:24	21:32	13	9	1	25	0
4	13/10/22	18:16	20:16	16	10	1	20	0

The surveys were conducted by the following Tetra Tech personnel:

25th August 2022

- Tetra Tech Consultant Ecologist Katrina Caine
- Tetra Tech Field Ecologist Helen Starmer Allen

26th August 2022

- Tetra Tech Project Ecologist Jade Armstrong (NE Class 1 bat survey licence number 2018-37885-CLS-CLS)
- Tetra Tech Consultant Ecologist Katrina Caine

15th September 2022

- Tetra Tech Assistant Ecologist Danny Burrows
- Tetra Tech Field Ecologist Claire McNeil

13th October 2022

- Tetra Tech Assistant Ecologist Danny Burrows
- Tetra Tech Assistant Ecologist Carlos DoladoHollyman

The surveyors noted bat activity, using both visual observation and audio bat detectors to identify foraging and / or commuting behaviour. Surveyors recorded the time and a description of any activity. Additionally, where bats could be seen, the patterns and directions of the bats' flight were also recorded.

Surveyors were all qualified ecologists and experienced at conducting bat surveys. All surveys were completed using an Elekon Batlogger M (full spectrum detectors) and were walked along a set transect (wherever possible) at a steady pace. The direction in which the transect was walked was changed between surveys in order to record activity around the site at different times. The recorded data was analysed using Bat Explorer software (Version 2.1.10.1) to confirm the species' present onsite. The recordings and the field notes were used to help build a picture of bat use across the site and to identify areas of relatively higher use.

The transect route for each survey is shown in Figure 2.

Heat Map

The spatial analyst extension was used within ArcGIS to analyse Batlogger point bat data. An activity heat map was produced to highlight the density of the bat data, visually using the colour spectrum of green for low and red for high, but also statistically using quantitative outputs calculated by the kernel density spatial analysis tool.

2.3 AUTOMATED STATIC MONITORING

As is stipulated in the guidance (Collins, 2016), each transect survey should be complemented by an automatic detector survey. The automatic detectors are deployed on site and left for five consecutive nights in suitable weather conditions to record any bat activity occurring between dusk and dawn, before being collected again.

Two Anabat Swift detectors were deployed on site and set to record in zero crossing file format, positioned at approximately 1.5m height. One was deployed in the south-west and one in the north-east (See Figure 2 for locations). The south-western static detector was situated within an area of regenerating willow scrub which borders the River Irwell to the south, facing outward in a south-westerly direction. The second static detector was also deployed within regenerating willow scrub, located in the north-east of the site, near to the largest standing body of water, facing north-east.

Static 1 (southern static) was placed on a tree central to the western boundary, with the surrounding habitat consisting of a large area of regenerating willow scrub and the River Irwell to the south.

Static 2 (northern static) was placed on metal fencing adjacent to a large body of water, with surrounding habitat consisting of said large body of water and two additional smaller bodies of water, marsh / marshy grassland, neutral grassland and a strip of broad-leaved woodland.

Details of relevant foraging and commuting habitat in each chosen static location is provided in Table 2 (see Figure 2 for static detector locations) along with the nearest roost location (based on desk study data) and justification for choosing that location.

Table 2: Relevant Habitat Information for Each Static Location

Static Location Grid Reference	Phase 1 habitat in location	Linear features within 50m	Justification	Nearest Known Roost Location
Static 1 (Southern Static) – SD 79173 07367	Regenerating willow scrub	A small strip of broad-leaved woodland to the east; areas of regenerating willow scrub; two small sections of neutral grassland to the west and east; marsh / marshy grassland to the north and standing water to the north and south.	Location of static detectors was based on the habitats with the highest probability of bat use.	A bat roost known to contain pipistrelle sp. is known to be 0.9km east of the site; recorded in 2013.
Static 2 (Northern Static) – SD 79425 07502	Regenerating willow scrub	A large area of regenerating willow scrub and the river Irwell to the south.		

The data collected by the detectors was analysed using Analook W software (Version 1.0.2.0) sound analysis software to determine the species present and relative amount of activity throughout each of the five nights. The metadata for the automated detector deployments are detailed in Table 3. The weather data is collated from online historic weather information presented by Time and Date.

Table 3: Monitoring Dates and Weather Conditions

Monitoring Month	Dates	Average air Temperature (°C)		Average Wind Speed	Average Precipitation (%)
		Initial	Final		
Summer	25/08/22	20	10	<i>Slight breeze</i>	0
	26/08/22	19	13	<i>Slight breeze</i>	0
	27/08/22	19	9	<i>Slight breeze</i>	0

Monitoring Month	Dates	Average air Temperature (°C)		Average Wind Speed	Average Precipitation (%)
		Initial	Final		
	28/08/22	17	15	<i>Slight breeze</i>	0
	29/08/22	17	8	<i>Slight breeze</i>	0
Autumn	21/10/22	15	12	<i>Slight breeze</i>	0
	22/10/22	16	11	<i>Moderate</i>	0
	23/10/22	15	11	<i>Slight breeze</i>	0
	24/10/22	13	8	<i>Moderate</i>	0
	25/10/22	15	15	<i>Breeze</i>	0

Calls were subsequently analysed using Analook software (Version 1.0.2.0). Russ (2012) was used to assist with the call analysis. Data is presented as an activity index of bat passes per night (total number of passes in one night) (Appendix C).

2.4 LIMITATIONS

The survey effort (i.e. number of walked transects and length of static monitoring) is in line with current guidance (Collins, 2016) and surveys were undertaken each month. Therefore, there are no limitations associated with seasonality or survey effort associated with the transect or static monitoring.

The walked transect surveys were undertaken in suitable weather conditions with temperatures over 10°C at sunset and no precipitation and was in line with Collins (2016), therefore weather is not considered a limitation for the transect surveys. Static monitoring was undertaken in generally suitable weather conditions. The temperatures in the August and October deployment of the automated detectors were within range set out in Collins (2016) except for two nights in August and one night in October where temperatures fell below 10°C. The low temperatures mean that bat activity may have been lower on these nights than would otherwise have been expected, but this does not lead to a reduction in the results accuracy.

The static detectors did not record any data between the 13th and 20th October due to a malfunction, however they were reset and put back on site on the 21st October, recording data from the 21st – 25th October. As data was still recorded within the autumn period, this is not considered to have effected the results and as such is not a limiting factor.

Due to areas of giant hogweed *Heracleum mantegazzianum*, some areas of the planned transect route were inaccessible as it posed a health and safety risk. However, the transect route was followed as close as possible within 5-10m during surveys and as such is not a limiting factor and will not affect the conclusions of the surveys.

Bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor-quality recordings (e.g. brief and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g. *Myotis*, *Myotis* / *Plecotus* and *Nyctalus* / *Eptesicus*) (Russ, 2012). Where call parameters are inconclusive the species has been labelled as 'unknown'. This ensures the dataset is interpreted accurately and transparently. Please note that for transects, the Batloggers record 'calls' (single echolocation pulses) whereas for statics, we report 'passes'

– i.e. a sequence of 3 or more echolocation calls (which is automated when recording with the Anabat Express and analysing data in the AnabatW software). This means that the static and transect data are not directly comparable.

Notwithstanding the limitations highlighted above, the survey effort applied is considered sufficient to meet the aims of the survey and this report, in accordance with the guidelines.

The details of this report will remain valid for a period of **two years** from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

3.0 VALUING BAT POPULATIONS IN A WIDER ECOLOGICAL CONTEXT

The assessment of the value of the bat population on site was based on the method proposed by Wray *et al.* (2010). Using this method bat activity, species and number was used to assign a relative ecological value. The value to the species was partly based upon how well used a habitat is and also upon how rare the bat species is. In the case of commuting routes or foraging areas the number of roosts nearby is also a factor. Once the value of the bat population was calculated, robust mitigation for any impact on the bats was determined.

British bat species have been subdivided into groups, dependant on how common they are: common, rarer and rarest. These have been further subdivided based upon the location surveyed. Table 4 presents the rarity categorisation of bats in England (Wray *et al.*, 2010).

Table 4: Categorising bats by distribution and rarity in England (scientific names not given)

Country: England		
Rarest	Rarer	Common
Greater horseshoe Bechstein's Alcathoe Greater mouse-eared Barbastelle Grey long-eared	Lesser horseshoe Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' pipistrelle Serotine	Common pipistrelle Soprano pipistrelle Brown long-eared

To calculate the score for either commuting routes or foraging areas the numerical values from each column below are added together. These are detailed in Table 5 and 6.

Table 5: Valuing commuting routes

Species	Number of bats	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
-	-	Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well grown hedgerows, and moderate field sizes (3)
-	-	Large number of roosts or close to a Site of Special Scientific Interest (SSSI) (5)	Well grown and well connected hedgerows, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within a Special Area of Conservation (SAC) for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

Table 6: Valuing foraging areas

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
-	-	Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches less intensive arable and/or small towns and villages (3)
-	-	Large number of roosts or close to an SSSI (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within an SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

Finally, for commuting routes and foraging areas, the ecological value of the site is based upon the scoring system shown in Table 7.

Table 7: Scoring system for valuing commuting and foraging bats

Geographic frame of reference	Score
International	>50
National	41-50
Regional	31-40
County	21-30
District, local or parish	11-20
Not important	1-10

4.0 RESULTS

4.1 DESK STUDY

4.1.1 Previous Survey Results

An Ecological Appraisal undertaken in August 2018 (WYG, 2018) determined that the site provided suitable habitat for commuting and foraging bats (broad-leaved semi-natural woodland, marshy grassland, dense scrub, swamp and the River Irwell). The site was assessed as providing 'moderate suitability' for commuting and foraging bats.

WYG's 2017 Bat Survey report recorded no evidence of bat roosting in the buildings on the main part of the ELPM site (WYG, 2017). Though five species of bat during the emergence/re-entry and activity surveys were recorded, these being common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, Daubenton's bat *Myotis daubentonii*, brown long-eared *Plecotus auritus* and noctule *Nyctalus noctula*. The WYG bat activity transects identified that bat activity was highest in the east of the main site, with the reservoir providing foraging for Daubenton's bat. Lower levels of bat activity were recorded over areas of willow and bramble scrub (WYG, 2017).

4.1.2 Local Records Centre

GMRC returned recent bat records for 12 species within a 2km radius of the site boundary, as shown in Table 8. This data includes roosts, foraging and commuting behaviours, Anabat recordings, release of injured bats and other casualties. Of these, 94 records of roosts were returned. These comprised one record of 3 unidentified bat species *Chiroptera* sp., 75 unidentified pipistrelle species *Pipistrellus* sp. and 16 common pipistrelle *Pipistrellus pipistrellus*.

Table 8: Bat records within 2km radius of the site boundary

Species	Latin Name	Number of records	Latest recorded year
Bat sp.	<i>Chiroptera</i> sp.	10	2014
Myotis sp.	<i>Myotis</i> sp.	24	2017
Brandt's bat	<i>Myotis brandtii</i>	1	2018
Brown long eared	<i>Plecotus auritus</i>	4	2020
Daubenton's bat	<i>Myotis Daubentonii</i>	12	2020
Pipistrelle sp.	<i>Pipistrellus</i> sp.	175	2020
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	11	2020
Whiskered/Brandt's bat	<i>Myotis mystacinus</i> / <i>Myotis brandtii</i>	1	2020
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	245	2021
Lesser Noctule	<i>Nyctalus leisleri</i>	1	2021
Nathusius pipistrelle	<i>Pipistrellus nathusii</i>	3	2021
Noctule bat	<i>Nyctalus noctula</i>	44	2021

The site lies within the Core Sustainance Zones (CSZ) for the above bat species. A CSZ is defined as "the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost" (Collins, 2016).

There are no designated or undesignated sites related to bats within 2km.

4.1.3 MAGIC

MAGIC returned 2 EPMSLs granted for bats within a 2km radius of the site boundary, as shown in Table 9. MAGIC was resourced on 27th October 2022.

Table 9: Bat EPMSLs within 2km radius of the site boundary

Reference	Distance and Direction	Species*	Licensable Actions
2015-15221-EPS-BDX	0.2km northwest	Common pipistrelle	Damage and destruction of a breeding and resting place
2018-37079-EPS-MIT	1.6km west	Common pipistrelle	Destruction of a resting place

4.2 WALKED TRANSECTS

Species Assemblage

The activity transects revealed at least two species of bat active across the site;

- Daubenton's bat
- Common pipistrelle

Spatial Distribution of Bat Activity

Table 10 summarises the results of the walked transect surveys and describes the spatial distribution of bat activity. The results should be read in conjunction with Figures 3a, 3b, 4 and 5 which illustrate the locations of bat records and show a 'heat map' of activity. Please note that the transect data does not distinguish between individual or multiple bats but where multiple bats were observed interacting this is highlighted qualitatively.

Table 10: Bat activity recorded on transect surveys

Date	Type	Relevant Figures	Species Recorded	Spatial Distribution of Activity
25/08/22 (Summer)	Dusk	Figure 3a	Daubenton's bat and common pipistrelle	A total of 21 observations were recorded during visit 1. Activity was generally concentrated in the south-western part of the site, along the edge of the woodland and scrub habitats on the north bank of the River Irwell. There was also activity associated with the scrub on the south-eastern boundary and on the western boundary of the reservoir. Common pipistrelle was the most frequently recorded species with a total of 20 calls per night recorded. Activity was more widespread compared to the one

Date	Type	Relevant Figures	Species Recorded	Spatial Distribution of Activity
				Daubenton's bat recorded which was located in the south-western scrub habitat.
26/08/22 (Summer)	Dawn	Figure 3b	Daubenton's bat and common pipistrelle	A total of eight observations were recorded during visit 2. There were fewer observations on the dawn visit, these were in the south-east of the site north of the woodland, on the edge of scrub on the southern boundary, at a bend on the River Irwell and on the northern boundary of the reservoir. Common pipistrelle was the most frequently recorded species with a total of seven calls recorded. Foraging activity was spread out over the site but was mostly recorded in the south and south-west. Only one Daubenton's bat was recorded this night near the north-west of the reservoir on site.
15/09/22 (Autumn)	Dusk	Figure 4	Common pipistrelle	A total of nine observations of common pipistrelle recorded during the September visit. No other species were recorded. These observations were associated with the woodland on the south-eastern boundary of the site and north of the reservoir.
13/10/22 (Autumn)	Dusk	Figure 5	Common pipistrelle	A total of eight observations were recorded during visit 4. Only common pipistrelle was recorded this night. Common pipistrelle was the only species recorded during visit 4, with a total of eight calls recorded. Activity was concentrated to the east of the study area, with majority of passes near the shore of the reservoir on site. There were three passes recorded south-east of the buildings on the western boundary of the site.

4.3 AUTOMATED STATIC MONITORING

The static locations can be seen on Figure 2.

The species recorded on static 1 consisted of common pipistrelle (100%).

The species recorded on static 2 predominantly consisted of common pipistrelle (98.4%). Less commonly recorded species included *Myotis sp* (1.2%) and Nathusius' pipistrelle *Pipistrellus nathusii* (0.4%).

The highest bat activity was recorded in October on the northern static, the recordings were dominated by common pipistrelle with a relatively small number of nathusius pipistrelle recorded. The level of activity decreased in the following days in the October survey, and gradually increased towards the fourth and fifth day.

Detailed results of the automated activity surveys are shown in Appendix C.

Table 11: Summary of overall bat activity between August and October by static location.

Month	Bat Activity Levels (bat passes per night)	Static Location	
		1 - South	2 – North
August	Maximum	72	560
	Mean	42	326
	Median	35	275
October	Maximum	112	796
	Mean	36	331
	Median	16	239

Bat Activity Distribution in Summer

Bat activity saw common pipistrelle being the primarily recorded species across both the north and south static. The north static was also the highest level of activity on site.

Bat Activity Distribution in Autumn

Bat activity saw common pipistrelle being the most frequently recorded species across both the north and south static. The north static had the most diverse species assemblage with recordings of *Myotis sp.* and Nathusius pipistrelle being recorded. Whereas the south only had recordings of common pipistrelle. The north static was also the highest level of activity.

Temporal Patterns

The north static (static 2) saw a higher number of common pipistrelles passes per night recorded during August, with October having four less passes in total over the five days of recording. The north static had more passes of common pipistrelle compared to the south static.

The south static (static 1) saw a higher number of common pipistrelle passes per night in August compared to October. Additionally, common pipistrelle was the only bat species recorded on the south static.

The north static recorded *Myotis sp.* in October, with no passes being recorded in August or at all on the south static.

Additionally, the north static recorded Nathusius' pipistrelle in October, with no passes being recorded in August or at all on the south static.

5.0 DISCUSSION

5.1 SPECIES ASSEMBLAGE

The following species were recorded within the study area, which have been categorised by distribution and rarity (Wray et al., 2010):

Common (Populations over 100,000 in England)

- Common pipistrelle

Rarer (Populations between 10,000 - 100,000 in England)

- Myotis species (including Daubenton's, Natterer's *Myotis nattereri* and whiskered *Myotis mystacinus* / Brandt's *Myotis brandtii* / Alcaethoe *Myotis alcaethoe*)
- Nathusius pipistrelle

There is also a 'Rarest' category, however no bats recorded on the site fall within this category.

Species presence at each monitoring location is summarised in Table 12 below.

Table 12: Table to show species (or species group) present at each static location.

Bat Species	Species at Static Location	
	1	2
Common pipistrelle	Yes (Y)	Y
<i>Myotis sp.</i>	No (N)	Y
Nathusius pipistrelle	N	Y

The majority of bat calls and activity was recorded around the reservoir to the east of the site, which is surrounded by willow scrub and has broadleaved woodland and another small waterbody adjacent. In addition, the north static recorded the highest level of species diversity as *Myotis sp.* and Nathusius' pipistrelle were recorded compared with the results from the south static which only recorded common pipistrelle.

The bat species assemblage recorded on site comprised of predominantly common and widespread species well recorded within the Manchester area; and rarer species (*Myotis sp.* and Nathusius' pipistrelle) were also recorded but the overall percentage was much lower. Common pipistrelle were the most frequently recorded species.

5.2 POTENTIAL IMPACT OF THE DEVELOPMENT ON BATS

5.2.1 Valuation of Bat Population using the site

The site was found to be of value at a District, local or parish level for foraging and commuting bats based on the Wray *et al.* (2010) method. This assessment is based on the following valuations:

Commuting Routes

A commuting route of rarer species comprising of individual bats of bats with a moderate number nearby in a landscape of complexity of linear features scored $5+5+4+5=19$, indicating a commuting route of district, local or parish level. The complexity of linear features was assessed as '5' as the River Irwell is present to the south of the site and creates connectivity to other valuable areas such as Springwater Park.

Foraging Areas

Individuals of rarer species foraging in an area with a moderate number of roosts nearby within a habitat of isolated woodland patches less intensive arable and/or small towns and villages scored $5+5+4+3=17$, indicating a foraging area of district, local or parish level.

5.2.2 Habitat loss

The proposed development will result in a loss of foraging and commuting habitat, most notably for common pipistrelle which were observed using habitats in the west, south and east of the site, particularly the woodland in the west of the site and south and west of the reservoir see Figures 3a, 3b – 5.

The extent of the proposals are unlikely to have a significant effect on the viability of bat roosts if present within the local area, however in the absence of mitigation the proposals are likely to result in a negative impact upon commuting and foraging bats.

In the absence of mitigation, the proposals are likely to result in a negative impact upon the core sustenance zone (CSZ) of commuting and foraging bats within the site. A CSZ, as applied to bats, refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost (BCT, 2020). Data from the static monitoring showed that common pipistrelle were the most frequently recorded species within the site accounting for 99% of the bat calls recorded. BCT (2020) states that the primary habitat for common pipistrelle foraging is woodland, which is noted as a habitat to the north; willow scrub habitat is situated within 50m of static 1 and willow scrub and broadleaved woodland habitat is situated within 50m of static 2. It is proposed that the willow scrub and broadleaved woodland habitats will be lost as a result of the development, which has the potential to impact the foraging capacity of common pipistrelle within the local area. Woodland and grassland habitats, however, are common within the wider area connected by the River Irwell and River Roch (within 2km of the common pipistrelle CSZ radius) suggesting the loss of scrub and woodland habitat within the site to have minimal impacts on local foraging due to the abundance of wider habitat.

In summary adverse impacts to the habitats of most value located within the site boundary are anticipated to be minimal, with habitats considered to be a core sustenance zone being retained and / or within the wider 2km CSZ radius for common pipistrelle.

The rarest species recorded on site was the Nathusius' pipistrelle. The suitable habitat for Nathusius' pipistrelle present on site, including the River Irwell and reservoir are to be retained in the proposed plans. The impact on Nathusius' pipistrelle is expected to be low as the site only has the capacity to support a low number of individual commuting and foraging bats. Nathusius' pipistrelles are classed by the IUCN Red List of Threatened Species as 'Near Threatened' within Great Britain, although are classed as 'Least Concern' on a global scale (Mathews and Harrower, 2020). Roosts are typically located near large freshwater lakes, and other foraging sites include rivers, canals and waterlogged areas, as well as woodland edges according to BCT (2020).

Because of their rarity in the UK, it has been recommended that enhancement efforts for Nathusius' pipistrelles are focused on hedgerows and other linear habitat features with the aim of improving connectivity between roosts and foraging sites (Zeale *et al.*, 2012). Additionally, Daubenton's bat are strongly associated with riparian habitats with large areas of woodland nearby (BCT, 2020). However, as the percentage of Daubenton's bat on site was relatively low, it is likely that the River Irwell acts as a corridor for connecting routes.

There are two patches of woodland approximately in the north-east of site which are to be removed as part of the site proposal. These habitats could support a Nathusius' pipistrelles and other species recorded on site such as Daubenton's bat. However, one section of woodland has not been assessed for suitability for roosting bats as access was restricted (Tetra Tech, 2022) (refer to Figure 2). Therefore, it is imperative that this section of woodland is assessed before any works begin.

5.2.3 Artificial lighting

The residential development will involve the installation of new lighting, which can illuminate bats in flight and make them more vulnerable to being predated. In addition, increased lighting could also affect prey distribution, which would also affect the distribution of bats in the area. Lighting a commuting or foraging route may also have an impact upon the integrity of a nearby bat roost, even if the roost itself is not directly affected. Light sensitive species such as *Myotis* species were recorded on site, therefore a sensitive lighting strategy is required to ensure that the boundary habitats on site remain as a dark corridor in order to maintain these as commuting corridors for bats, discussed in Section 6.1.1 below.

6.0 MITIGATION AND ENHANCEMENT MEASURES

6.1 MITIGATION

The following measures are recommended to help mitigate for the predicted impacts of the development proposals:

- Lighting scheme;
- Replacement planting;
- Landscaping design; and
- Noise disturbance.

6.1.1 Lighting Scheme

Sensitive lighting is recommended around the reservoir, the southwest woodland strip and southeast woodland strip to maintain these features as foraging and commuting resources.

A wildlife sensitive lighting scheme should be designed in consultation with a suitably experienced ecologist to make sure that important commuting routes and foraging areas remain undisturbed during the construction and operational phases of the development. Where lighting is necessary, the following measures should be considered to reduce adverse effects:

- Consideration of hood design, lamp height, and angle, to reduce light spill particularly avoiding illuminating retained foraging and commuting habitat on the site such as woodland, the river corridor, tree lines, and hedgerows;
- Use of less ultra violet (UV) light emitting bulbs, such as metal halide or high pressure sodium; and
- Minimising hours of lighting to those absolutely necessary for security and safety purposes, where possible lighting should avoid key periods of bat activity (i.e. sunset and sunrise). Consider how new technologies can be used to control lighting levels (e.g. dimming lights at certain times).

Further technical details are given in the BCT and the institute of Lighting Engineers' *Bats and lighting in the UK* (2009) and *Artificial lighting and Wildlife: Interim Guidance: Recommendations to help minimise the impact of artificial lighting* (BCT, 2014). Both publications are available at http://www.bats.org.uk/pages/bats_and_lighting.html.

6.1.2 Replacement Planting

Hedgerow and tree planting is recommended to replace and mitigate for any loss of willow scrub and amenity grassland margins in the northeast of the site.

New structured planting (hedges or trees) should extend the woodland strip along the eastern boundary as a linear feature and strengthen connectivity across the site, connecting to the reservoir. New planting along the southern boundary of the site will improve connectivity from the River Irwell to the reservoir and improve foraging and commuting habitat within the site. Refer to figure 6 for recommended planting.

It is recommended that hedges are managed as tall (at least 2.5m high), wide, continuous features acting as green corridors linking the most valuable habitats across the site (waterbodies, woodland edges and tree lines). Native species are recommended to be used, such as hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* with fruit-producing species such as bramble *Rubus fruticosus*, rose *Rosa* sp. and ivy *Hedera* sp.

6.1.3 Landscaping Design

A diverse collection of native planting should be incorporated into the landscaping design within the proposed development site. Structurally diverse vegetation and the inclusion of native evening-blooming plants will attract insects which in turn will help to enhance the site for foraging bats. Landscaping designs within the site, should incorporate areas of woodland and scrub planting which will benefit foraging and commuting bats.

6.1.4 Noise Disturbance

Tolerance to noise will (almost certainly) differ between species and behaviours (roosting, hibernating, foraging, commuting). The impacts of noise will be known once the bat roost surveys have been completed in 2023. However, to reduce disturbance it is recommended that avoidance measures such as no night-time working is implemented during works. Other avoidance measures can include carrying out site noise-generating activities away from identified roosts, reducing the noise at source, protecting identified roosts, and compensating for lack of access to resources (depending on if noise has resulted in roost abandonment).

6.2 ENHANCEMENT MEASURES

Whilst enhancement is not a legal requirement, it is encouraged on site as it helps to meet the government and local authority objectives for planning to protect and enhance biodiversity, in accordance with the National Planning and Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2021) and the Greater Manchester Biodiversity Action Plan.

Landscaping Design

The landscaping scheme will be designed to provide shelter, foraging opportunities and connected dark corridors within and through the site. Ponds are recommended to be retained within the proposals or replaced if proposed to be lost. The following measures should be considered when creating ponds and enhancing existing ponds:

- Location of ponds within 40m of landscape features (e.g. woodland and hedges);
- Retain trees and shrubs around the pond margins to provide shade and shelter;
- Ponds should be as large as possible (50m² or more) to benefit a range of bat species;
- Create pond complexes (shallow and deep areas of water); and
- Include shallow margins with diverse aquatic vegetation.

The woodland strips will be retained within the proposals and should be enhanced to improve their value as a foraging resource. These woodlands could be enhanced by the following management practices:

- New tree planting (e.g. Oak *Quercus* sp., ash *Fraxinus* sp. and beech *Fagus* sp.) to improve diversity and structure;
- Retaining deadwood (or log piles where public perception is a consideration);
- Restoring streams and creating ponds and wetland areas;
- Maintaining sunny glades maximise insect abundance and create eco-passages; and
- Planting of species such as ivy and honeysuckle *Lonicera* sp. in the understorey.

Bat Boxes and Tubes

To enhance opportunities for roosting bats in the area, bat boxes or tubes can be installed on to existing trees or new buildings within the site. Enhancement measures will be confirmed when the 2023 bat surveys are complete which should be incorporated into the final landscaping plan.

7.0 SUMMARY

The woodland, willow scrub, reservoir and River Irwell across the site are used as foraging / commuting routes for up to five species of bats. The site was found to be at district, local or parish level for foraging and commuting bats based on the Wray *et al.* (2010) method. The development proposals will result in the loss of foraging / commuting habitat for bats, and associated disturbance due to increased lighting. To mitigate for these impacts:

- A sensitive lighting scheme should be designed;
- Trees and hedgerows should be retained or replaced; and
- Landscaping design should include native species which will benefit bats and maintain habitat connectivity.

Further enhancement measures that will benefit the bat species using the site and help to meet the government objectives for planning to protect and enhance biodiversity should also be included within the design of the development proposals.

8.0 REFERENCES

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Please note that the legislation which is relevant to this report is not included in the list above, but details are included in Appendix B below.

FIGURES

Figure 1 – Site Location Plan

Figure 2 – Walked Transect Route and Static Detector Locations

Figure 3a – August Dusk Transect 25/08/22

Figure 3b - August Dawn Transect 26/08/22

Figure 4 – September Transect 15/09/22

Figure 5 – October Transect 13/10/22

Figure 6 – Mitigation Planting



Site Location Plan

East Lancashire Paper Mill

Morris Homes

Legend

Site boundary



Notes:

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Checked by: KC
Office: Southampton

Figure No. 1
Revision No. A
21 October 2022

0 50 100 150 200 Meters
Scale 1:5,000 @A3

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Walked Transect Route & Static Detector Locations

East Lancashire Paper Mill



Morris Homes

Legend

- Site boundary
- Transect route
- Static detector location

Notes:

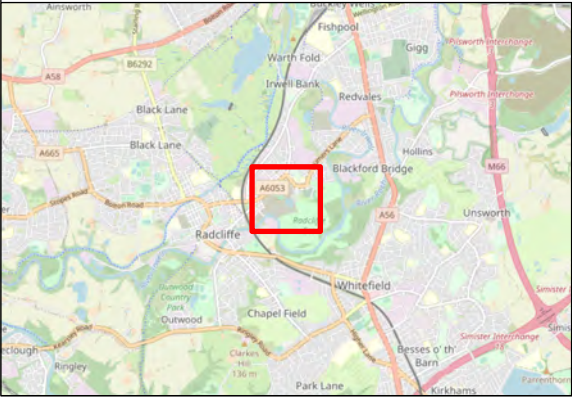
Drawn by: ROSIE.DURHAM
Checked by: AT
Office: Southampton

Figure No. 2
Revision No. A
05 December 2022

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August Dusk Transect - Heat Map

25/08/2022

East Lancashire Paper Mill



Morris Homes

Legend

Site boundary

Expected Calls (10m²)

1 - 25

25 - 100

100 - 200

200 - 300

300 - 400

Transect route

Static detector location

Notes:

Drawn by: ella.christie

Checked by: PP

Office: Southampton

Figure No. 3a

Revision No. A

25 November 2022

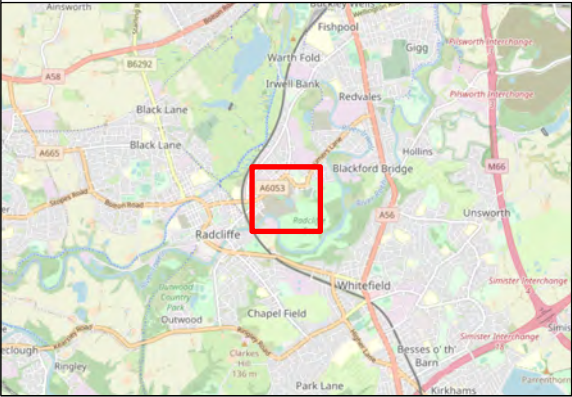
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August Dawn Transect - Heat Map

26/08/2022

East Lancashire Paper Mill



Morris Homes

Legend

Site boundary

Expected Calls (10m²)

0 - 1

1 - 3

3 - 6

6 - 9

9 - 15

Transect route

Static detector location

Notes:

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Office: Southampton

Figure No. 3b

Revision No. A

25 November 2022

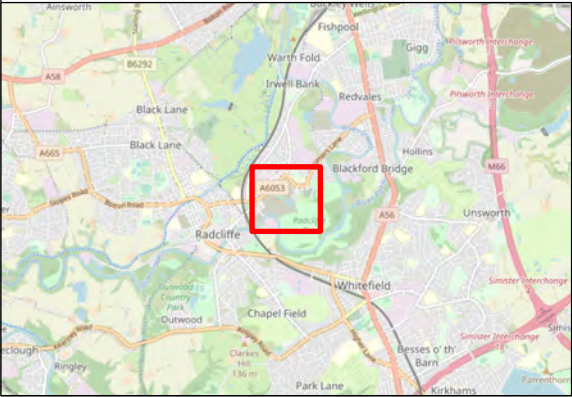
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September Transect - Heat Map

15/09/2022

East Lancashire Paper Mill



Morris Homes

Legend

- Site boundary
- Expected Calls (10m²)
 - 0 - 1
 - 1 - 15
 - 15 - 50
 - 50 - 150
 - 150 - 250
 - 250 - 343
- Transect route
- Static detector location

Notes:

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Office: Southampton

Figure No. 4
Revision No. A
25 November 2022

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October Transect - Heat Map

13/10/2022
East Lancashire Paper Mill



Morris Homes

Legend

- Site boundary
- Expected Calls (10m²)
 - 1 - 20
 - 21 - 60
 - 61 - 100
 - 101 - 140
 - 141 - 200
- Transect route
- Static detector location

Notes:

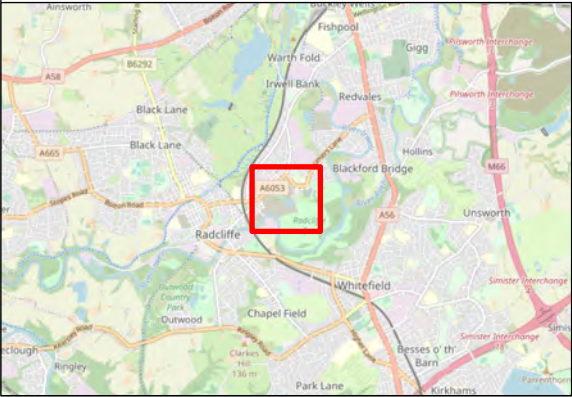
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Office: Southampton

Figure No. 5
Revision No. A
25 November 2022

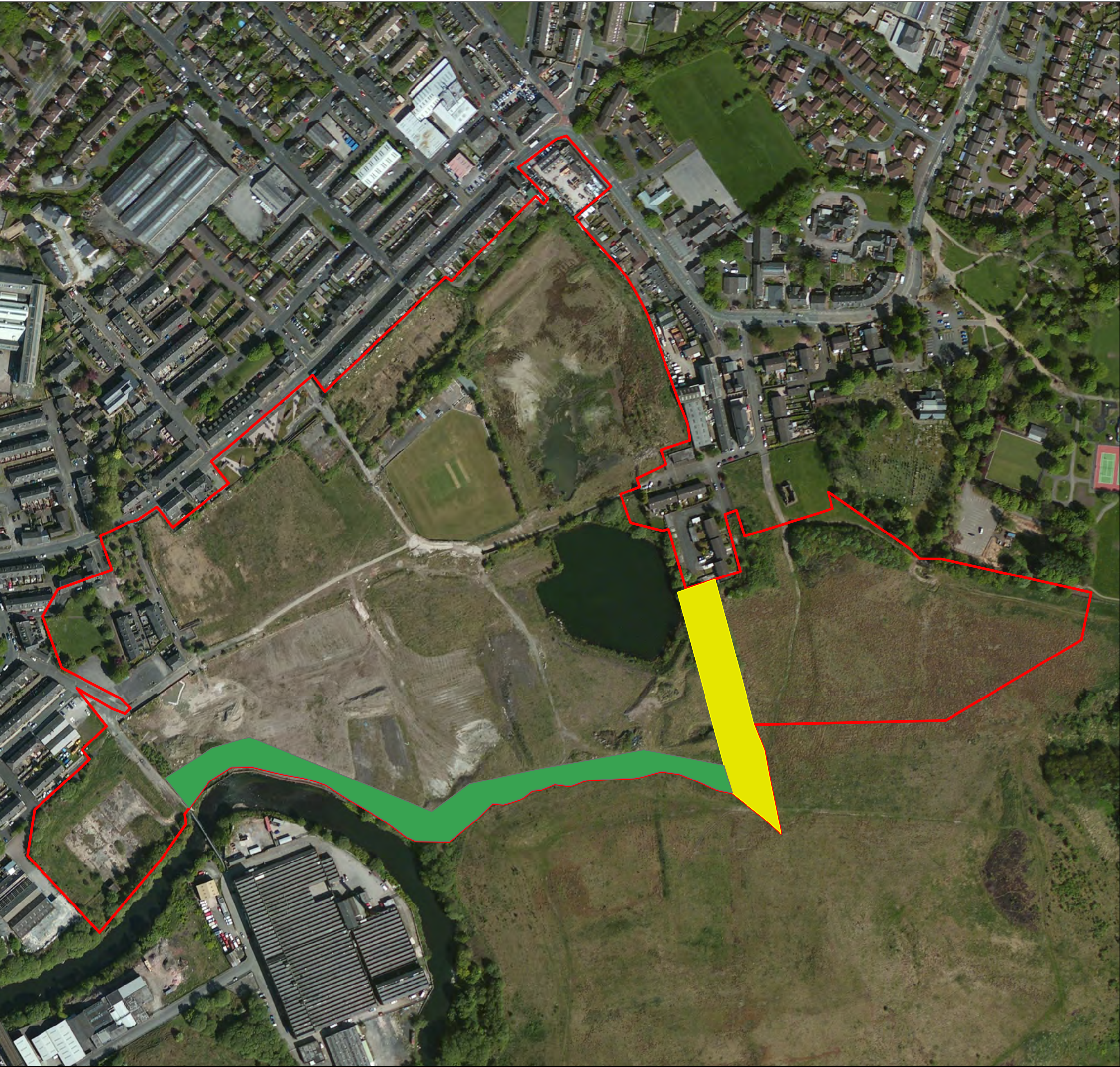
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Mitigation Planting

East Lancashire Paper Mill

Morris Homes



Legend

- Site boundary
- New planting
- Structured planting (hedges or trees)

Notes:

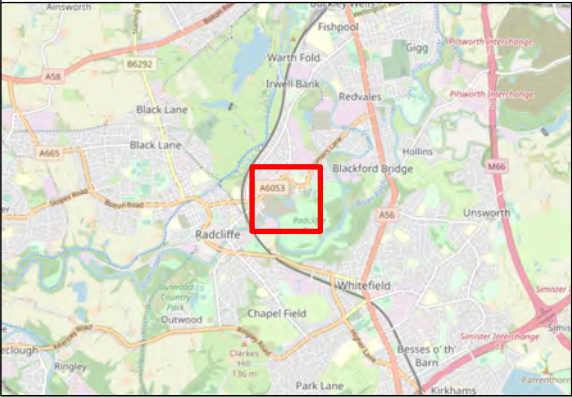
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Checked by: AT
Office: Southampton

Figure No. 6
Revision No. A
01 December 2022

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APPENDIX A – REPORT CONDITIONS

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The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The “shelf life” of the Report will be determined by a number of factors including; its original purpose, the Client’s instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.

APPENDIX B – LEGISLATION AND RELEVANT PLANNING POLICY

All British bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (HMSO, 1981) and under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) as EPS (HMSO, 2017). Furthermore, the Countryside and Rights of Way Act 2000 (Schedule 12, Paragraph 5) (HMSO, 2000) has amended Section 9 of the 1981 Act. They are, therefore, fully protected under Section 9 of the 1981 Act and under Regulation 41 of the Conservation of Habitats and Species Regulations 2017 (as amended) which transposes the Habitats Directive into UK law.

This makes it an offence to:

- Deliberately capture, injure or kill any bat;
- Deliberately disturb bats, in particular where it is likely to:
 - o Impair their ability to breed or reproduce, or to rear or nurture their young;
 - o Impair their ability to hibernate or migrate; or
 - o Affect significantly the local distribution or abundance of bats.
- Intentionally or recklessly damage, destroy or obstruct the access to the place of shelter or protection; and
- Damage or destroy a bats breeding site or resting place.

Where development will result in damage to suitable habitat where the species is known to be present, or risk harming or significantly disturbing bats, an EPSML is likely to be required from NE to allow the development to proceed.

Bats are also afforded more general protection in England (and Wales) within the Natural Environment and Rural Communities Act (NERC Act) 2006. This imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, “to have due regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity” [Section 40 (1)]. It notes that “conserving biodiversity includes restoring or enhancing a population or habitat” [Section 40 (3)]. Consequently, attention should be given to dealing with the modification or development of an area if aspects of it are deemed important to bats, such as roosts, flight corridors and foraging areas.

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with NE) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.

Seven species of bat are listed under Section 41 of the NERC Act 2006; soprano pipistrelle, brown long-eared bat, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat, barbastelle *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii* and noctule.

REVISED NATIONAL PLANNING POLICY FRAMEWORK

A revised NPPF was issued on 20th July 2021 (Ministry of Housing Communities and Local Government, 2021) and currently supplements government Circular 06/2005, *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System* (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 174 of the NPPF also states that:

‘Planning policies and decisions should contribute to and enhance the natural environment by:

- a) *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*

- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

The conservation and enhancement of wildlife is also specifically reference re: development within the National Parks or the Broads.

Paragraph 180 then goes on to confirm that:

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

Regarding EclA's and HRA's – any sites identified, or required, as compensatory measures for adverse effects on any National Site Networks sites/habitats site should also be given the same level as protection as the pSPA's and cSAC's themselves. In addition, when an application is being determined, Paragraph 182 clarifies that:

“The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”

Paragraph 185 is also relevant as;

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the

natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

THE GREATER MANCHESTER LOCAL PLAN

The Greater Manchester Local Plan collates various planning policy documents which consider a wide range of important planning issues such as housing, employment, retail, the environment, and transport. The Local Plan plays a crucial role in prioritising and shaping development in Greater Manchester up until 2037.

Greater Manchester Local Plan 2019 to 2037 Adopted on 20 th July 2021	
Policy N1 Design	Retention of significant biodiversity, landscaping features, and creation of new biodiversity areas that take into account relevant local information and evidence.
Policy N2 Climate Change	Climate change is a key theme throughout the plan. The main aims include de-carbonising the city region through new and existing developments; the delivery of renewable and low carbon energy schemes; mitigation for environmental challenges, including climate change; water based measures to adapt and reduce the impacts of climate change; and measures to help achieve a circular and zero-waste economy.
Policy N4 Strategic Green Infrastructure	The protection and enhancement of key strategic green infrastructure, informed by a suite of policies to protect and enhance network green infrastructure. This includes protecting and enhancing sites of ecological value.
Policy N5 River Valleys and Waterways	New developments must be designed to ensure river corridors and their associated habitats are integrated within development, enhanced wherever possible, are sustainably managed long term and opportunities to address the Water Framework Directive failures are considered.

THE GREATER MANCHESTER BIODIVERSITY ACTION PLAN

The Greater Manchester Biodiversity Action Plan aims to *'promote the conservation, protection and enhancement of biological diversity in Greater Manchester for current and future generations'*. All bat species are considered to be of conservation importance in Greater Manchester. Objectives for bats in Greater Manchester are to:

- Determine the current distribution of bats in Greater Manchester;
- Maintain the distribution and range of bat populations and habitats in Greater Manchester and prevent further losses and fragmentation; and
- Increase the distribution and abundance of bats and suitable habitats in Greater Manchester without reducing the area of other valuable habitats and species.

APPENDIX C – DETAILED RESULTS OF THE AUTOMATED STATIC MONITORING

South Static Automated Bat Detector Survey Results from August 2022

Date	Species	Number of passes
25 th August 2022	C pip	35
26 th August 2022	C pip	72
27 th August 2022	C pip	31
28 th August 2022	C pip	42
29 th August 2022	C pip	30

South Static Automated Bat Detector Survey Results from October 2022

Date	Species	Number of passes
21 st October 2022	C pip	16
22 nd October 2022	C pip	9
23 rd October 2022	C pip	29
24 th October 2022	C pip	112
25 th October 2022	C pip	13

North Static Automated Bat Detector Survey Results from August 2022

Date	Species	Number of passes
25 th August 2022	C pip	164
26 th August 2022	C pip	418
27 th August 2022	C pip	275
28 th August 2022	C pip	560
29 th August 2022	C pip	214

North Static Automated Bat Detector Survey Results from October 2022

Date	Species	Number of passes
21 st October 2022	C pip	789
	N pip	7
22 nd October 2022	C pip	306
	Myotis sp	23
23 rd October 2022	C pip	12
24 th October 2022	C pip	76
25 th October 2022	C pip	444

APPENDIX D – PROPOSED DEVELOPMENT PLANS: PL0-P4 A



- LEGEND**
- BIN STORE
 - AFFORDABLE UNITS
 - GRAY TO GREEN CORRIDOR
 - EASEMENT
 - EASEMENT
 - HUTCHINSONS GOIT
 - Proposed dwelling
 - Proposed dwelling to be built opposite hand
 - Proposed brick built garage
 - Proposed garage space
 - Common areas of shared drives in contrasting material or kerb edgings to delineate shared drive area
 - Proposed 1.8m high feather edge boarded timber screen fence
 - Proposed 1.8m high feather edge boarded timber screen fence with P.C.C. posts & gravel boards
 - Proposed 1.8m highV0.44m square brick piers at 2.0m ctrs with 0.65m high brick dwarf wallfeather edged bordered infill panels
 - Proposed 0.45m high timber post & rail divisional fence
 - Proposed 1.2m high metal railings
 - Proposed 0.45m high timber "V"-rail fence
 - Existing hedge to be retained
 - Existing hedge to be removed
 - Existing tree to be retained
 - Existing tree to be removed

EAST LANCS PAPER MILL				
SCHEDULE OF ACCOMMODATION				
AFFORDABLE				
NAME	DESCRIPTION	SIZE (sqft)	Units	TOTAL (sqft)
GRASSHOPPER	4 BED HOUSEHETTE + PARKING	504	16	8064
WINDSORHIRE	3 BED HOUSEHETTE + PARKING	463	22	11186
ARTISTIQUE	3 BED HOUSEHETTE + PARKING	405	18	9090
BLAXTON SP	3 BED HEWS + PARKING	561	1	561
BLAXTON	3 BED HEWS + PARKING	565	32	30016
BRANLEY	3 BED HEWS + PARKING	586	4	2344
CLAREBURY	3 BED HEWS + PARKING	586	6	3516
		Total	100	74929
PRIVATE APARTMENTS				
NAME	DESCRIPTION	SIZE (sqft)	Units	TOTAL (sqft)
ABBEY	2 BED APARTMENT + PARKING	738	21	15408
WINDSORHIRE	2 BED APARTMENT + PARKING	711	18	12798
CLAREBURY	2 BED FLY OVER APT + PARKING	685	9	6165
WINDSORHIRE	2 BED FLYOVER APT + PARKING	703	9	6327
		Total	55	39698
PRIVATE HOUSING - HEWS + SEMIS				
NAME	DESCRIPTION	SIZE (sqft)	Units	TOTAL (sqft)
CAMBERLEY	2 BED HEWS + PARKING	793	12	9516
BARWELL	2 BED S/A HEWS + PARKING	770	1	770
CLAREBURY	3 BED SEMI DET + SINGLE GARAGE	894	18	16092
CLAREBURY	3 BED SEMI DET + SINGLE GARAGE	934	15	14010
CLAREBURY	3 BED SEMI DET + SINGLE GARAGE	1140	4	4560
THORNTON	3 BED SEMI DET + SINGLE GARAGE	992	3	2976
THORNTON	3 BED SEMI DET + SINGLE GARAGE	1168	17	13856
CLAREBURY	3 BED SEMI DET + SINGLE GARAGE	967	12	11604
CLAREBURY	3 BED HEWS + PARKING	934	11	10274
LYONS	3 BED 3 ST S/A HEWS + GARAGE	1111	16	17776
CLAREBURY	3 BED 3 ST S/A HEWS + GARAGE	1138	2	2276
CLAREBURY	3 BED SEMI DET + GARAGE	978	12	11736
		Total	118	116092
PRIVATE HOUSING - DETACHED - 3 BEDS				
NAME	DESCRIPTION	SIZE (sqft)	Units	TOTAL (sqft)
COTSWOLD / RYDALE	3 BED DET + DET SINGLE GARAGE	947	7	6929
CLAREBURY	3 BED DET + DET SINGLE GARAGE	1017	10	10170
CLAREBURY	3 BED DET + DET SINGLE GARAGE	1056	10	10560
CLAREBURY	3 BED DET + DET SINGLE GARAGE	1176	7	8232
		Total	35	34891
PRIVATE HOUSING - DETACHED - 4 BEDS				
NAME	DESCRIPTION	SIZE (sqft)	Units	TOTAL (sqft)
BLAXTON / BRANLEY	4 BED DET + DET SINGLE GARAGE	1170	14	16380
BLAXTON	4 BED DET + DET SINGLE GARAGE	1180	3	3540
BLAXTON	4 BED DET + DET SINGLE GARAGE	1118	22	24596
CLAREBURY	4 BED DET + DET SINGLE GARAGE	1136	16	21376
BRANLEY	4 BED DET + DET SINGLE GARAGE	1407	18	25326
		Total	73	88038
		Total	408	373779

A LAYOUT AMENDED FOLLOWING SLIGHT REPLAN

REV DESCRIPTION

07.06.23

CW

INT

 Morris Homes (North) Limited
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Wilmslow
Cheshire SK9 5NW
Tel: (01625) 544 444
Fax: (0845) 833 1845

Job Title
**EAST LANCS PAPER MILL
RADCLIFFE**

Dep Title
PLANNING LAYOUT

Date
14.03.23

Drawn

Checked

Scale
1:1000 @ A0

Design
PL0-P4

Rev
A