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Moredale Childrens Home, 18 Livingston Drive, Liverpool, L17 4LR
National Grid Reference: SJ 37211 87273

Inspection & Assessment in Relation to Bats

Prepared for:

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Summary

A planning application regarding Moredale Children's Home, 18 Livingston Drive, Liverpool, L17 4LR proposes to demolish the existing buildings and re-develop the site, therefore The Tyrer Partnership, was commissioned to undertake a daytime assessment of the buildings in relation to bats, which was conducted during May 2016.

Two separate buildings are evident, one large two storey building (B1) to which several loft spaces feature and one smaller building (B2) which also contains a loft space; the internal inspection revealed all of the loft spaces are dark and draught free. Although several were to significant dimensions due to their cluttered nature none are deemed to be compatible in relation to the niche requirements of loft dwelling bats, such as the Brown long-eared (*Plecotus auritus*) as they do not offer a sufficient level of openness to allow free flight. Underfelt is present beneath all roof tiles; when such insulating materials are in place and providing exterior access is available, typically under roof tiles, then roosting opportunity for crevice dwelling bats, such as the Pipistrelle (*Pipistrellus*) is increase whereby they often roost between the two materials. Recently deposited droppings, identified to be that of the Pipistrelle bat, were located within one loft space of B1.

During the external inspection ingress opportunities for bats were located at the roof where tiles are raised and damaged due to vandalism. Soffit boards are present to most elevations and in places are not flush to the wall; as a result gaps now exist that can provide viable access and in turn roosting opportunities for crevice dwelling bats – notably Pipistrelle.

The buildings are concluded to possess moderate potential for crevice dwelling bats as well as evidence of minor bat use. The habitat immediate to the building is more than capable of meeting the foraging requirements of species such as Common pipistrelle; roost opportunities identified at the buildings combined with the quality of the immediate habitat and confirmation of bat use will instigate recommendations for dusk/dawn surveys.

The report will therefore recommend that dusk/dawn surveys are undertaken to establish how bats are using the building/s. These surveys will need to be conducted and suitably spaced apart during the active season of bats, i.e. between May – September but the optimum time being May-August. It should be noted that where bat(s) or their roost/place of rest/shelter will be affected by the proposed works, then to allow work at the site to legally commence, an application for European Protected Species Mitigation Licence (EPSML) will be required and a licence granted.

Following the completion of the recommended dusk/dawn surveys during August/September 2016, bat emergence was not conclusively confirmed but it was highly suspected that in context with the opportunities, which are available to bats, a single Common Pipistrelle bat emerged from one building just out of view from surveyor positions. Due to the presence of bat droppings and the probable emergence then to allow work at the site to legally commence, an application for European Protected Species Mitigation Licence (EPSML) will be required and subsequently granted.

Owing to the roost potential that was identified in combination with the favourable habitat and evidence of bat use a 2km data search sourced from Merseyside Bio Bank resulted in a total of six bat species although none were recorded at the actual site.

Table of Contents

1. Introduction and Reasons for Survey.....	
2. Bat Legislation.....	
3. Bat species in Merseyside.....	
4. Survey Methodology	
5. Constraints	
6. Daytime Results.....	
7. Daytime Conclusions.....	
8. Daytime Recommendations & Implications.....	
9. Dusk Survey Results.....	
10. Dusk Survey Conclusions & Recommendations	
11. Indicative Mitigation	
APPENDIX I - Site Photographs	
APPENDIX II – Bat Roost Suggestions	
APPENDIX III – Data Search	

1.0 Introduction & Reason for Survey

- 1.1 A planning application regarding Moredale Children's Home, 18 Livingston Drive, Liverpool, L17 4LR (Figure 1) proposes to demolish the existing buildings and re-develop the site; therefore The Tyrer Partnership was commissioned by Mersey Design Group Ltd to undertake a daytime assessment of the buildings in relation to bats, which was conducted during May 2016.



Figure 1: Location plan illustrating site extent

- 1.2 The aim of the inspection was to initially ascertain if either of the two buildings are of value to bats; if they were found to be suitable for bats, signs of use were located or the results of the survey were inconclusive then more detailed surveys would be recommended i.e. dusk/dawn emergence/re-entry surveys. These surveys will need to be conducted and suitably spaced apart during the active season of bats, i.e. between May – September but the optimum time being May-August. If bat(s) or their roost/place of rest/shelter will be subsequently affected by the work then a European Protected Species Mitigation Licence will be required to legally proceed with the development.

- 1.3 The optimum time to investigate buildings for evidence of a bat roost is May – August, however that is not to say they cannot be inspected and assessed outside of that time and frequently the results can be conclusive, which can save time and expense for Planning Applicants but it should be borne in mind that equally the inspection can be inconclusive.

2.0 Bat Legislation

- 2.1 All British bats and their **roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended). When dealing with cases where a European Protected Species (all UK bats) may be affected, a planning authority is a competent authority within the meaning of the Regulation 7 of the 2010 Regulations and therefore has a statutory duty to have due regard to the provisions of the Regulations in the exercise of its functions.
- 2.2 The National Planning Policy Framework (NPPF) has replaced the existing Planning Policy Guidelines. (PPG's) In relation to wildlife PPG 9 was one of the documents to which Planning Authorities referred to, particularly where a specially protected species is or may be present and will be affected by a development for which a Planning application seeks consent. The aims of the NPPF in relation to species and habitats are that it places a clear responsibility on Local Planning Authorities to conserve and enhance biodiversity and to encourage on the consideration that should be given to Protected Species where they may be affected by development. The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation.

This is supported by a guide to good practice entitled 'Planning for Biodiversity and Geological Conservation: Building in Biodiversity' in which paragraphs 5.34 and 5.35 identify that species such as bats are highly dependant upon built structures for survival and that roosts can be easily incorporated into existing and new developments/conversions to benefit these species.

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

If significant harm 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

2.3 Use of Buildings by Bats

- a) Summer breeding roost.
- b) Hibernation.
- c) Transitional or temporary roost.

Roost selection is often closely correlated to suitable foraging habitat within a reasonable commuting distance from the roost and different sites are used depending upon insect densities and abundance, climatic conditions can also affect their ability to successfully forage. All British bats are insectivorous.

** The term roost is generically referred to as a place that bat/s use for the any of the above reasons, however it should be noted that under the Conservation of Habitats & Species Regulations 2010 (Regulation 41) the term roost is not used but refers to “a *breeding site or resting place of such an animal*” and is afforded legal protection. The roost, breeding site or resting place of bats, which ever terminology is used is legally protected whether or not bats are in occupation.

3.0 Bat Species in Merseyside

- 3.1 Up to nine bat species have been recorded in Merseyside most of which use built structures, notably occupied residential properties for roosting. The most frequently encountered species is the Pipistrelle bat; its abundant status in Merseyside is reflected throughout the UK. All British bats and their roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended). When dealing with cases where a European Protected Species (all UK bats) may be affected, a planning authority is a competent authority within the meaning of the Regulation 7 of the 2010 Regulations and therefore has a statutory duty to have due regard to the provisions of the Regulations in the exercise of its functions.

4.0 Survey Methodology

- 4.1 The daytime survey was conducted on the 2nd May 2016 when the buildings were inspected for potential places that may be of value to bats and if evidence of use was present. The external elevations were investigated from ground floor level with close focussing binoculars for places that are frequently used by bats as roosts or ingress points providing access into roost chambers. The buildings contain loft spaces and as such were investigated with the aid of high power torchlight for signs of bat use.
- 4.2 The survey was conducted by Ms K. Swift MSc Conservation Management, an experienced ecologist and bat surveyor, who holds a Class 2 Natural England Bat Licence (22801-CLS). The results, conclusions, and recommendations have been assessed by Mr Irwin, director of The Tyrer Partnership and his assessment concurs with that of Ms Swift.
- 4.3 The results, conclusions and recommendations are based on a number of factors i.e.
- Practical experience of surveyor
 - Knowledge of bat species relevant to the site location and geographical distribution
 - Nature of the immediate and surrounding habitat in relation to foraging opportunities
 - Condition of the buildings
 - Presence/absence of a loft space
 - Presence/absence of roost/nesting potential
 - Value of roost/nesting potential – if present
- 4.4 During the survey the surrounding habitat was evaluated in relation to bats as very often roost selection is closely correlated with the surrounding habitat.
- 4.5 Owing to the roost potential that was identified in combination with the favourable habitat and evidence of bat use a 2km data search sourced from Merseyside Bio Bank.

5.0 Constraints

- 5.1 The daytime survey was conducted within the active season of bats, and at a time when young bats are independent and maternity roosts are highly active; this falls within the optimum period to undertake such surveys. In addition, no access constraints arose during the building assessment; furthermore at the time of dusk/dawn surveys weather conditions were favourable.
- 5.2 Taking into consideration the above it is deemed that there were no survey constraints that would prevent the gathering of information on which to base conclusions and recommendations.

6.0 Daytime Results

- 6.1 18 Livingston Drive is located within the southern reaches of Liverpool, approximately 4km south from the city centre; it is a tree lined drive leading off Aigburth Drive just north of Aigburth.
- 6.2 Within the largely urbanised area favourable habitat for bats is readily available to all compass points of the surveyed buildings by way of mature residential gardens along with well-established public parks all of which will provide a semi-natural resource for foraging/commuting bats. Sefton Park is located less than 300 metres east at which 5 bat species have been recorded (Source, Tyrer Partnership) along with several other established amenity areas such as Princes Park just over 900 metres north, Otterspool Park just over 1 kilometre south and Wavertree Park just under two kilometres north east. The grounds of St Charles RC Church feature mature broadleaved woodland cover at less than 130 metres south of the site, further on in the same direction are the Liverpool Festival gardens at 800 metres, which feature prolific broadleaved trees, water body and glades.
- 6.3 The 2km data search sourced from Merseyside Bio Bank resulted in a total of six bat species although none were recorded at the actual site and the main distribution of those species by and large concurs with the locations identified in 6.5. (See Appendix III Data Search)
- 6.4 The habitat as previously described can be considered to be of high value for the species for which the survey was undertaken i.e. bats. Where such habitat is present close built structures then the percentage use of those structures, by bats increases, given that roost opportunities are available and vice versa.



Location of 18 Livingston Drive and the surrounding habitat

- 6.4 18 Livingston Drive comprises of two buildings; (Figure 2) B1 is a two storey structure that has been unoccupied for 7 years; it is brick built with a pitched tiled purlin and rafter design roof. Within the building 5 separate loft spaces are present and were fully investigated during which time it was noted that roofing underfelt and insulation feature in all. The presence of underfelt or equivalent roof insulation, providing exterior access is available, will increase roosting opportunities for crevice dwelling bats whereby they often roost between the two materials.
- 6.5 All loft spaces are 2 metres in height with a minimum length of 10 metres long by 8 metres although high levels of clutter are notable by the way of pipe work and conduits associated with electrical wiring. Taking the latter into consideration it is considered that all loft spaces are incompatible in relation to the niche requirements of loft dwelling bats, such as the Brown long-eared (*Plecotus auritus*), which is a species that favours large undisturbed loft spaces that allow free flight and with crevices to seek shelter. During the search of the lofts no evidence was found that would indicate recent or historic use by loft dwelling bats. Within one loft space a total of five droppings were found at the gable elevation wall, which were identified to be typically Pipistrelle species and from their condition it was established that they have been recently deposited to an approximated time of one month before the survey date.
- 6.6 The second building B2 is entirely separate from the first, it pre-dates B1 and as such has not been used for over 20 years; the condition of the building is reflective of the lack of use. One large loft space is present under the mono-pitched tile covered roof, which is extremely confined due to the presence of large water tanks and heating ducts/ventilation systems. The restrictive nature of the loft is incompatible in relation to the niche requirements of loft dwelling bats for the reasons outlined in 6.5. Underfelt is visible beneath the roof tiles; however insulation is absent; the presence of underfelt or equivalent roof insulation can provide a roosting opportunity for crevice dwelling bats for the reasons outlined in 6.5. Within this loft, where access was attainable, a historic bat dropping typical of Pipistrelle species was located and estimated to be over 6 months old.



Figure 2

- 6.7 During the external inspection of B1 ingress opportunities for bats were located at the roof where in a number of locations tiles are raised and damaged due to vandalism. Soffit boards are present to most elevations and in places are not flush to the wall; as a result gaps now exist that can provide viable access and in turn roosting opportunities for crevice dwelling bats – notably Pipistrelle.
- 6.8 At B2 the roof is largely tight fitting however small gaps exist at the fascia/barge boards with the exception of the south elevation where the building is enveloped in Ivy.

7.0 Daytime Conclusions

- 7.1 From the survey results it can be concluded that although the surrounding habitat could support loft dwelling bats for foraging/commuting the building would not meet the roosting requirements of such species. Based upon these survey findings it is currently unlikely that the proposed works will impact upon species such as the Brown long-eared.
- 7.2 The buildings are concluded to possess moderate potential for crevice dwelling bats as well as evidence of minor bat use. The habitat immediate to the building is more than capable of meeting the foraging requirements of species such as Common pipistrelle; roost opportunities identified at the buildings combined with the quality of the immediate habitat and confirmation of bat use will instigate recommendations for dusk/dawn surveys.

8.0 Daytime Recommendations & Implications

- 8.1 It is recommended that in order to establish how bat(s) are using the buildings dusk emergence or/and dawn surveys should be undertaken. These surveys will need to be conducted and suitably spaced apart during the active season of bats, i.e. between May – September but the optimum time being May-August. One dusk survey and a separate dawn survey is generally accepted as being a reasonable level of survey effort where moderate potential and/or minor evidence of use has been identified, but need to be spaced between those months.

(See Figure 3): **Extract from Bat Conservation Bat Surveys: Good Practice Guidelines 2016)

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).		
Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

Figure 3

** The guidelines do not aim to either override or replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of survey carried out or using alternative methods) are often appropriate.

The guidelines should be interpreted and adapted on a case-by-case basis according to site-specific factors and the professional judgement of an experienced ecologist. Where examples are used in the guidelines, they are descriptive rather than prescriptive. (Good Practice Guidelines 2016 3rd edition). Based on the aforementioned the survey protocol will be determined using the collective and long standing experience of the Tyrer Partnership.

- 8.2 It should be noted that where bat/s or their roost/place of rest/shelter will be affected by the proposed works, in this case the buildings at 18 Livingstone Drive, then to allow work at the site to legally commence, an application for European Protected Species Mitigation Licence (EPSML) will be required. Notwithstanding the granting of a licence works that would affect a roost cannot take place if a maternity colony is in occupation. It should also be noted that before an EPSML can be applied for all Planning issues including Consent and any pre-commencement Planning Conditions relative to bats should be resolved.
- 8.3 Natural England provides information and guidance about EPSML and the following extract is included in that guidance:-

If you intend to apply for a licence for development you are advised to seek the guidance of a consultant ecologist. Natural England's view is that:-

- A licence is needed if the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably likely to result in an offence under the Conservation of Habitats & Species Regulations 2010 (as amended).
- If the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably unlikely to result in an offence being committed then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If European protected species are found, cease the work until you have assessed whether you can proceed without committing an offence.
- A licence should be applied for if offences are unavoidable and the work should not be re-started until a licence is obtained.
- The application should be completed by the developer and a consultant ecologist. The ecologist will need to be able to demonstrate to the satisfaction of Natural England that they have the relevant skills and knowledge of the species concerned.

NB: Were more detailed bat surveys are recommended, following an initial investigation, then Local Authorities on the advice of their ecological advisors may not determine the application until such time that all relevant information is gathered, i.e. by conducting dusk/dawn surveys. The advice that is provided by the ecological advisors is also in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2010 (as amended). Therefore it would be prudent to make enquiries to the relevant departmental Planning Officer before submitting a Planning Application that includes an ecological survey report that recommends more detailed surveys.

9.0 Dusk Survey Results

- 9.1 A dusk emergence survey was undertaken on the 3rd August and a dawn re-entry survey on the 9th of September 2016 by a combination of six experienced surveyors, although only four of which were deployed at any one time; four of the six surveyors are registered to use a Natural England Class 2 bat survey licence, the remaining two have extensive experience relative to the undertaking of such surveys. The survey on the 3rd August was lead by Mrs K Wilding (CLS-14227) along with Mr J Thomson (CLS-14226), Mr S. Irwin (CLS- 13604) and Mr J. Barnes. The dawn survey conducted on the 9th of September was carried out by Mrs K Wilding (CLS-14227), Mr S. Irwin (CLS- 13604) Miss K. Swift (CLS- 22801) and Mrs J. Taylor.

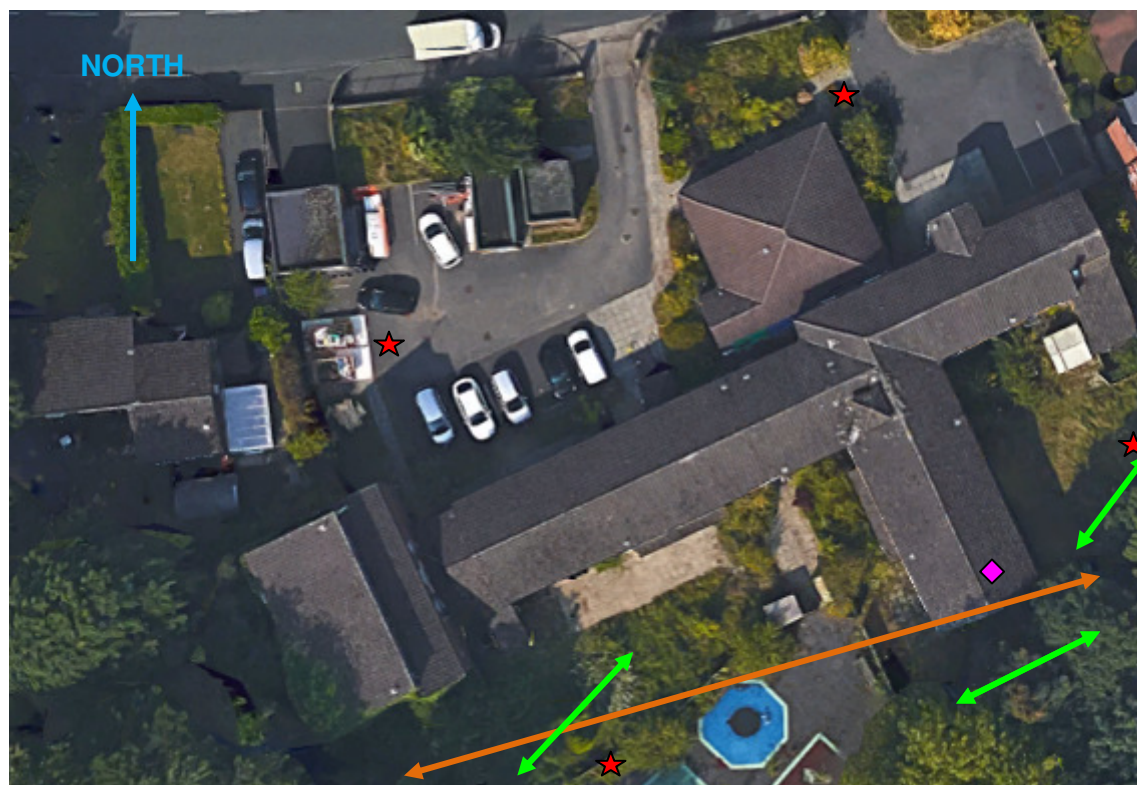
The number of surveys and surveyors were adequate relative to the roost potential that was identified i.e. moderate potential and/or minor evidence of use.

Surveyors were located in positions which enabled unrestricted views of the previously identified roost potential. The surveys were aided with Anabat electronic bat detectors, which enable the locating of bats and record the high frequency calls that are emitted by bats; echolocation calls were then analysed with computer software to verify field observations.

Moredale Childrens Home, 18 Livingston Drive, Liverpool, L17 4LR
Inspection & Assessment in Relation to Bats

Times of Survey	Date	Weather Conditions
Dusk survey 1945 – 2110	3 rd August 2016	Sunset: 2003: Dry, light breeze, 100% cloud cover Start temp: 17°C End temp: 17°C
Dawn survey 0500 – 0635	9 th September 2016	Sunrise: 0634: Dry, light air, clear sky Start temp: 16° C End temp: 16° C

Survey	Date	Results
Dusk survey	3 rd August 2016	<p>2124 hrs: One Common Pipistrelle bat highly suspected of emerging from the roof of B1</p> <p>2125 hrs: Three Common Pipistrelle bats commuted across the rear of the site from an easterly direction</p> <p>General but sporadic foraging activity x 1-3 Common Pipistrelle bats around the site during the survey.</p>
Dawn survey	9 th September 2016	<p>No re-entry into the building during survey.</p> <p>0517 & 0526 hrs: Singular Common pipistrelle bats recorded commuting over the site to an easterly direction</p> <p>0529 hrs: 3 Common Pipistrelle bats foraging around the site, all three commuted offsite to an easterly direction</p> <p>0548 hrs: Common Pipistrelle bat commuted from east to west over the site.</p> <p>General but sporadic foraging activity x 1-3 Common Pipistrelle bats around the site during the survey.</p>



- ★ Location of surveyors during dusk/dawn observations
- ◆ Approximate emergence of Common Pipistrelle bat during dusk survey
- ↔ Foraging activity during survey observation periods
- ↔ Commuting activity during the survey observation period

10.0 Dusk Conclusions & Recommendations

- 10.1 From the 2016 dusk/dawn survey results it can be concluded that 18 Livingston Drive is used as a day roost by an individual/small numbers of Common Pipistrelle bat furthermore it is evident that an additional roost, which may comprise of a maternity is located to the south east of the site and the bat/s using 18 Livingstone Road may have connections to it. Notwithstanding the low numbers present, the presence and destruction of a bat roost/s will need to be addressed from both a conservation and legal perspective along with appropriate mitigation; advice on this should be sought from the ecologist. A European Protected Species Mitigation Licence (EPSML) will be required to legally destroy a place that is used for rest or shelter (roost) by bats; however before a licence can be applied for all planning issues need to be resolved.

In order that the LPA can implement its obligations under the Habitat & Species Regulations 2010 (as amended) appropriate and proportionate mitigation will need to accompany the planning application which will demonstrate that the “*favourable conservation*” of the species concerned can be maintained.

11.0 Indicative Mitigation

- 11.1 From the evidence gained during the dusk observations, the use of the building by bats is considered to be of low level conservation value (Natural England: Mitigation Guidelines 2004) and the proposed mitigation is proportionate to that use. However; if at anytime that assessment is revised to a higher level then the mitigation will also be accordingly revised.
- 11.2 At the time of report writing the final proposals for the site are unknown therefore the following procedures and indicative mitigation are designed to allow the Local Planning Authority in association with their ecological adviser to determine a Planning Application where a European Protected Species has been identified and will be affected by the work for which the Planning Application seeks consent. In addition, Local Planning Authorities in accordance with the obligations placed upon them by way of their duties under the Conservation of Habitats & Species Regulations 2010 (as amended) have to take into consideration the presence of a European Protected species before determination of an application where it/they have been identified.
- 11.3 The LPA need to consider the mitigation in relation to the potential success of a Natural England Mitigation licence application and/or if in their opinion the mitigation is considered as being appropriate, or if it is over and above what is required; if they determine that the mitigation is appropriate then a Planning Condition should be attached requiring the mitigation to be installed. If the LPA consider that the mitigation is over what is necessary but require “enhancement” as part of Local Biodiversity Policies this should be included in the terms of Consent. The acting bat ecologist deems the mitigation as appropriate and not over and above what is required.
- 11.4 Notwithstanding that Planning Consent is granted it does not absolve the applicant, site owner, developer or any other party involved with the work from ensuring that an application is made for a Natural England Mitigation licence to legally undertake work that will affect bat/s or their roost/place of shelter. If work is undertaken without a licence and bat/s or their roost/s is/are affected then a breach of current wildlife legislation will occur for which penalties are high.
- 11.5 Under Regulation 53(1) and 56(3) (a) of the Conservation of Habitats & Species Regulations 2010,(as amended) a licence is required prior to disturbing bats or destroying any place that is used by bats as a breeding site or resting place. The licence is issued by the EPS Licensing Team of Natural England.

Summary of Indicative Mitigation & Procedures

- Prior to any work being undertaken the presence/absence bats will be established by a bat licensed ecologist undertaking a detailed investigation of features which have/may be used by bats, which will include endoscopic examinations wherever opportunities for bats exist.
- To ensure that bats are not left without a roost while the demolition work and construction of the new building takes place, one 2F bat box will erected on a tree within the site boundary (suitable tree to be established by the ecologist). The box will be indefinitely retained during and after the work schedule and will also act as a receptor if bat/s have to be captured during the pre-demolition inspection.

- No foraging habitat to the rear of the site to be lost as a result of the proposals, neither will the new roosts be at any further distance from those foraging places. The demolition of the buildings is an essential part of the owner's plans for the site but it is acknowledged that the presence of bats needs to be addressed from both a legal and conservation perspective. The mitigation proposals are seen to be the most productive way forward that will retain and enhance opportunities for the crevice dwelling Pipistrelle bat.
- The ecologist will supervise careful dismantling of all places identified as offering roost potential where exclusion is unlikely to be successful and cannot be relied upon with strategies for safely removing bat/s.
- Work undertaken when bats are not likely to be in hibernation i.e. from November-march inclusive unless it can be conclusively established by a bat ecologist that hibernating bats are absent.
- Ecologist to undertake induction on possible bat presence, Mitigation License to be kept on site for the duration of the work
- External lighting where proposed is to be directed away from bat roost access points, flight paths and foraging areas such as the tree lines identified to the south of building where foraging was recorded.
- Mitigation subject to the approval of Natural England
- Roost provision will be dedicated for bats and permanent.

Work undertaken by the Ecologist

Capture/Exclusion: Once an EPSML is in place the contractor will provide a safe means of access to allow the ecologist to investigate all roost potential for bat presence within the building.

Due to the number of bat roost potential locations exclusion may be unproductive but will be implemented if deemed viable; the ecologist will supervise careful and controlled removal of bat roost areas at B1 & B2 in particular the roof tiles and soffit boards at B1. In the event of bat/s being present it/they will be removed; placed in secure box with soft tissue and immediately transferred into the bat box that will have been previously erected on tree to the rear of the site.

Once it has been established by the ecologist that bat/s are absent the demolition will continue to completion. In the unlikely event that bats are found outside of supervision time then the work will immediately cease and the ecologist contacted for further advice; contractors are not touch, handle bats or cause them to move in any way.

New Roost Creation: Roost provision will be incorporated within the new building/s once designs are known but for indicative purposes the roost suggestions are shown in Appendix II will be incorporated and their locations determined by the ecologist.

**APPENDIX I –
Site Photographs**



Appendix II

Roost Suggestions



The integrated bat box can be installed to a gable elevation, it is a large, solid construction of insulating concrete with an internal roost space, which can be incorporated into the fabric of a building as it is built or renovated. A variety of facings can be fitted to suit any existing brick, and it is suitable for crevice dwelling species. The box is made to match the existing brickwork of the building



Gap of 15mm deep x 100mm long created in existing ridge tiles in two locations.
Bitumen underfelt as opposed to a breathable membrane installed over ridge beam in example shown below



Appendix III

Data Search