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**Walker Fan House, Ruabon, Wrexham, LL14 6DP
(National Grid Reference: SJ 29364 43344)**

**Inspection & Assessment in Relation to Bats & Breeding Birds Including Dusk
Survey Results**

Prepared for:

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Summary

A planning application regarding the Walker Fan House, related buildings and adjacent land, proposes the redevelopment of the site. The Tyrer Partnership, therefore, undertook an assessment of the buildings and site in relation to bats and breeding birds during June 2017.

The surveyed properties broadly comprise of five buildings in the form of a bungalow, garage, portable cabin, shed and the Walker Fan House. Alongside buildings are areas of hardstanding and woodland, the latter dominating the west of the site. The bungalow is currently unoccupied and most built structures are in a deteriorating state.

Within the site boundary the built structures have been numbered 1 – 5 for clarity; two of the structures have loft compartments (Buildings 1 and 2), however B2 could not be accessed for assessment in regards to its suitability for loft dwelling species, though the immediate / surrounding habitat is favourable for this species specific foraging requirements. The loft contained within B1 was assessed and was of truss construct and highly cluttered internally, thus, is not ideal for loft-dwelling species of bat such as the Brown Long-Eared (*Plecotus auritus*) which prefer darkened lofts that allow free flight. Additionally, access into Buildings 3 and 5 was not attainable to assess their suitability internally for roosting bats. No recent or historic evidence of bat use of any of the buildings was observed, though this is not to say that development would not impact upon loft-dwelling species.

Ingress opportunities were observed within Buildings 1, 2 and 5, notably the ridge tiles, roof slates, wall plate and soffit within Building 2 and missing bricks throughout the exterior of Building 5; the quality of the immediate habitat will instigate recommendations for dusk/dawn surveys to be undertaken at these properties prior to the development or any other work being undertaken at them; the buildings are classified as offering high bat roost potential. According to current BCT guidelines, this warrants two dusk and one dawn survey in relation to bats at these buildings prior to demolition to determine the presence/absence of bats within these structures.

Buildings 3 and 4 do not offer bat roost potential and thus future plans in respect to these structures will have no impact upon loft or crevice dwelling bat species and no further surveys are recommended.

Trees on site were inspected at a time where foliage is largely present which is the sub-optimal time to assess for bat roost potential as foliage, when present, can impede a surveyors view. Though no bat roost potential was located in trees on site, it is recommended that trees be assessed at a time where foliage is largely present. Additional to tree inspection, it is recommended that bat transect surveys be undertaken at the Walker Fan House site to determine use of the trees/scrub on site by bat species present in the vicinity.

There are no current implications in relation to Schedule 1 specially protected bird species, and no evidence to suggest the recent presence of Barn Owl was located; during the site survey. Although no recent or historic bird's nests were located, there are abundant areas that could act as a nesting platform to birds in the form of scrub and trees. It is thus recommended that provisions be made for nesting birds in any new proposed development (See Appendix II).

As per the recommendations contained within the report three dusk emergence surveys were subsequently undertaken on the 26th July, 09th and 24th August 2017. The surveys identified no bats emerging from the buildings surveyed, however, foraging and commuting was recorded by six bat species during the dusk surveys i.e. Common Pipistrelle, Soprano Pipistrelle, Noctule, Brown Long-Eared, Daubentons and Natterers bats. It is evident the site contains valuable foraging and commuting potential for the identified species therefore; it is recommended that any significant clearance operations proposed on site should not be undertaken before bat activity surveys. In addition to this, if the Walker Fan House itself (B5) is to be affected by any proposed works, it is recommended that additional bat emergence/re-entry surveys be undertaken beforehand.

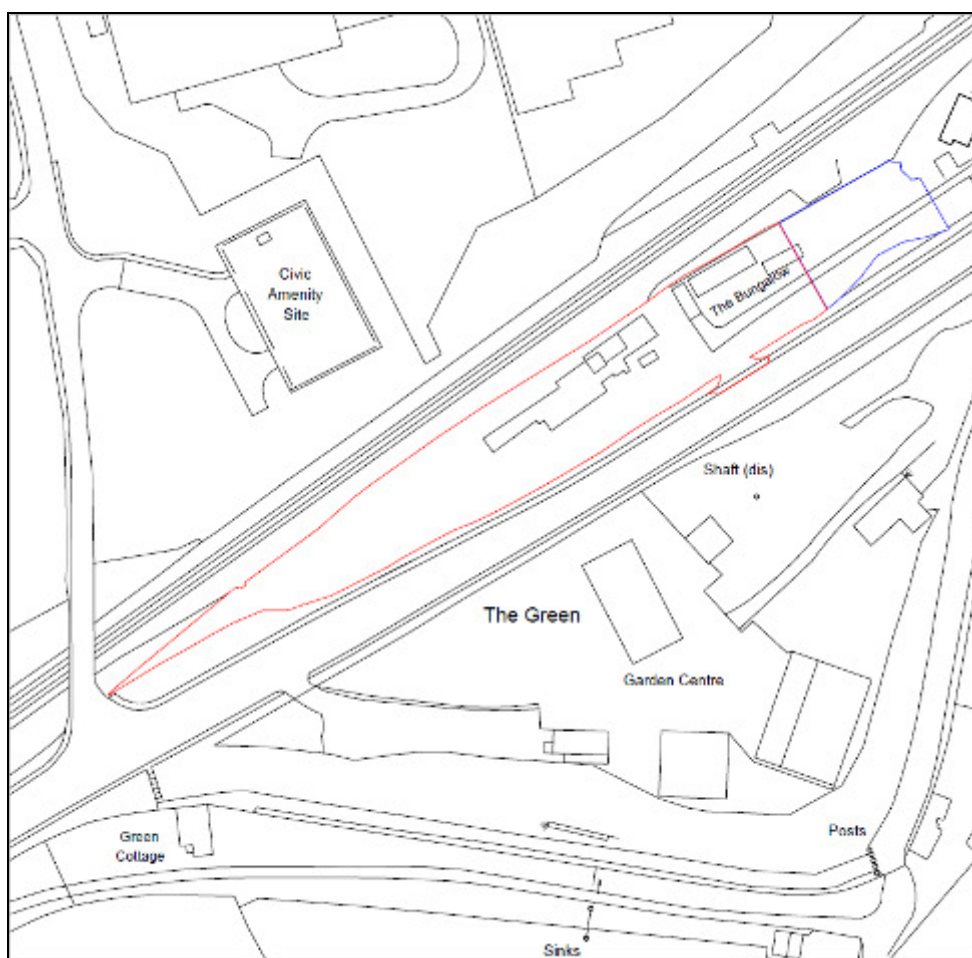
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Appendix I – Site Photographs

1.0 Introduction & Reason for Survey

- 1.1 As part of a proposed planning application at Walker Fan House, Ruabon, an inspection and assessment was undertaken in relation to bats and breeding birds; Blueprint Architectural Services Ltd, on behalf of the site owner, commissioned the inspection and report. It is understood that proposals involve the re development of the site. As part of the Local Authority's Planning Policies ecological surveys are generally required, particularly where a specially protected species is or may be present and could be affected by the proposals for which the Application seeks consent.



Existing site plan

- 1.2 The aim of the inspection was to initially ascertain if the buildings and trees on site are of value to bats or breeding birds; if it/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 during the main active season of bats which is 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 would be required to legally proceed with the development.

- 1.3 The optimum time to investigate any structure 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 Protected Species

- 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 *Planning Policy Wales* (PPW) (2002) sets out the land use planning policies of the Welsh Government (WG). It is supplemented by a series of Technical Advice Notes (TANs). Procedural advice is given in National Assembly for Wales / Welsh Office circulars. PPW, Ministerial Interim Planning Policy Statements (MIPPS), the TANs and circulars together comprise national planning policy to which local planning authorities in Wales must have regard in the preparation of development plans.
- 2.3 Detailed advice on the preparation of unitary development plans (UDPs) is contained in *Unitary Development Plans Wales*, 2001. Detailed advice on the preparation of Local Development Plans (LDPs) under the Planning and Compulsory Purchase Act 2004 is given in *Local Development Plans Wales*, 2005.
- 2.4 Technical Advice Note (TAN 5 2009) provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation.

This guidance note should be read in conjunction with *Planning Policy Wales* (2002), in particular with Chapter 5 *Conserving and Improving the Natural Heritage and Coast* which sets out the Assembly Government's objectives for the natural heritage and the land use planning policies which support these.

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

- 2.5 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.

- 2.6 All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended). Birds listed on Schedule 1 e.g. barn owls are afforded a greater level of protection. Where nesting birds are present then work should be timed outside of the nesting season (March – August) so as to avoid disturbance.
- 2.7 Barn Owl (*Tyto alba*) are specially protected as a Schedule 1 Part 1 species under the 1981 Wildlife & Countryside Act (as amended), which gives protection to barn owls at all times. The main points in relation to nest sites are: “It is offence to intentionally or recklessly disturb them at or near a nest containing eggs or young. Intentionally damage or destroy a barn owl nest whilst in use or being prepared for use. It is also an offence to intentionally or recklessly disturb dependant young of a wild barn owl.”
- 2.8 Barn Owls are essentially a bird of the open countryside, particularly where rough grassland exists, which supports their main prey by way of small mammals and successful breeding is heavily dependant upon 1) a secluded nest site and 2) a plentiful supply of prey being available. It is possible that loss of an occupied nest site can have an adverse affect even if other alternative sites were made available.

Thus where possible it is always preferable to retain an occupied site and not take the approach of providing an alternative in a different location.

3.0 Protected Species in Wrexham

- 3.1 Up to ten bat species have been recorded in Wrexham County, most of which use built structures, notably occupied residential properties for roosting. The most frequently encountered species is the Pipistrelle bat (*Pipistrellus pipistrellus*) and its abundant status in Wrexham is reflected throughout the UK.
- 3.2 Barn Owls are regularly recorded within more rural areas of Wrexham where an agricultural matrix that includes suitable bank sides of drainage ditches or rough pasture that will provide habitat for their main prey i.e. small mammals; however they are constantly under threat from loss of habitat and nest sites, which is a situation that is mirrored throughout most of the UK.

4.0 Survey Methodology

4.1 BCT Survey Good Practice Survey Guidelines state:

The guidance should be interpreted and adapted on a case-by-case basis, according to the expert judgement of those involved. There is no substitute for knowledge and experience in survey planning, methodology and interpretation of findings, and these guidelines are intended to support these. Where examples are given they are descriptive rather than prescriptive.

4.2 The daytime survey was conducted on the 01st June 2017 when the buildings at the Walker Fan House study area were inspected for potential places that may be of value to bats and if evidence of use was present. Upper floors are absent within all buildings, however, a loft space is present within the residential dwelling and garage (B1, B2). The loft within the garage (B2) could not be investigated due to access restrictions. All external elevations were investigated from ground floor level, with the aid of close focussing binoculars for places that are frequently used by bats as roosts or as access into roost chambers.

4.3 The survey was conducted by Mr J. Styles BSc Ecology, a highly experienced botanist with a FISC level 5, ecologist and acting as accredited agent of Mr S. Irwin an experienced bat surveyor who holds a Natural Resources Wales bat disturbance licence 73156:OTH:CSAB:2016. The results, conclusions, and recommendations have been assessed by Mr Irwin, director of The Tyrer Partnership and his assessment concurs with that of Mr Styles.

4.4 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 range

Nature of the immediate and surrounding habitat in relation to foraging opportunities

Condition of the structure

Presence/absence of roost potential/value of roost potential – if present

4.5 During the survey the surrounding habitat was evaluated in relation to bats as very often roost selection is closely correlated with the surrounding habitat.

4.6 Trees located within the development area were inspected at a time when tree foliage is largely present, which can be a sub-optimum time to identify bat roost potential as foliage, when present can impede the surveyors view. They were assessed from ground level using binoculars for features that are frequently utilised by bats as roosts or the presence of ingress points such as natural/woodpecker holes splits of fissures that may provide access into further cavities within the tree/s.

Criteria for roost assessment are based upon the following determinant which is based upon the Bat Conservation Trust 'Bat Surveys: Good Practice Guidelines' (2016):

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Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.		
Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

- 4.7 The inspection for birds was conducted in tandem with the investigation for bats; external elevations and the interior of the buildings were inspected for signs indicative of nesting birds such as nests, or accumulations of nesting materials and droppings. The overall potential of the site including the surrounding habitat to meet the basic requirements of nesting birds was also assessed during the site visit.

5.0 Constraints

- 5.1 The daytime survey was conducted within the breeding season of birds at a time when migrating birds which commonly rely upon such buildings such as Swallows will be present at nesting sites. The inspection was also undertaken within the active season of bats that will have returned to summer roost sites following the hibernation period; this falls within the optimum period to undertake such surveys. Trees located within the development area were inspected at a time when tree foliage is largely present, which can be a sub optimum time to identify bat roost potential.
- 5.2 Access restrictions in gaining access into Buildings 2, 3 and 5 arose and a full internal inspection in relation to bats could thus not be obtained from these buildings.
- 5.3 Taking into consideration the above it is considered that there were survey constraints but not sufficiently significant that would prevent the gathering of information on which to base conclusions and recommendations.

6.0 Results

- 6.1 Walker Fan House, the adjacent buildings and surrounding land, which are the subject of the current planning application, are located to the south-west of Wrexham town centre in Ruabon – a small village in rural Wales; it is located just off Park Road and reached via private access road. Walker Fan House itself was originally constructed in 1902 and was built for the purpose of ventilating the now demolished colliery and a large portion of the site is brownfield land succeeded by trees and scrub in the place of the former colliery.
- 6.2 The buildings stand within their own grounds and the immediate habitat consists of a large area of countryside consisting of open arable and pasture fields with hedgerow, scattered woodlands and tree lines with some development nearby in the form of roads, residential housing and a trailer park.

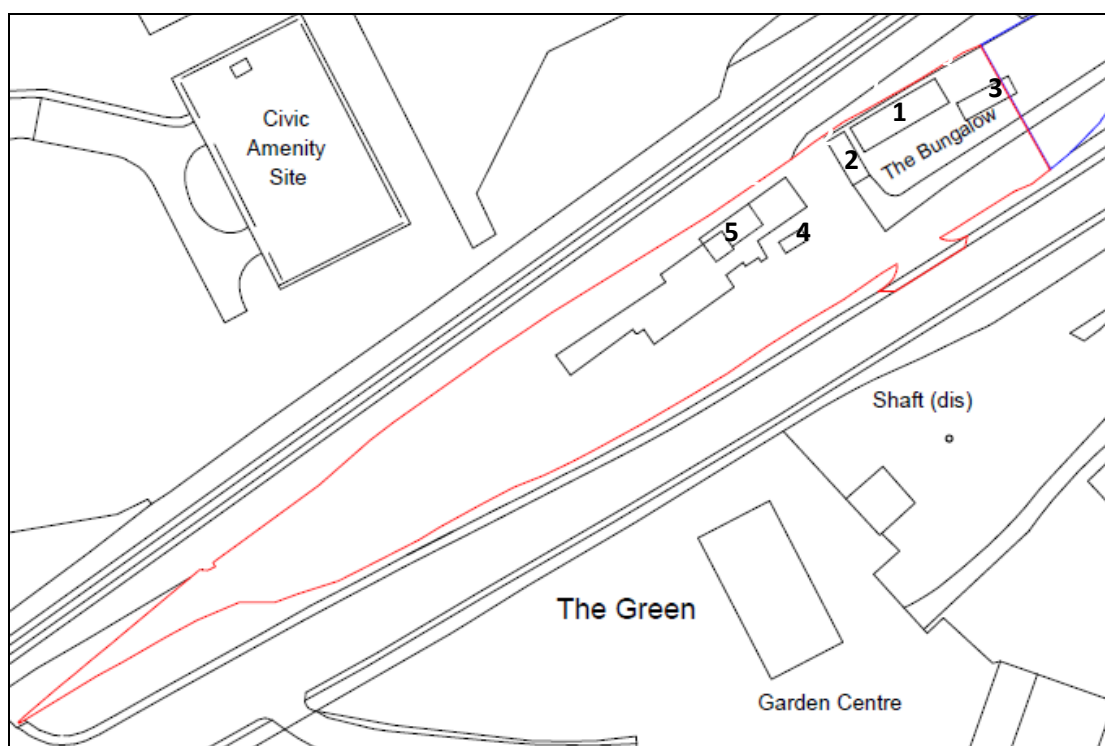


Approximate location of Walker Fan House and associated land within the immediate habitat

- 6.3 The extending habitat continues in similarity with the immediate and further favourable environs comprise of linear tree lines, unnamed brooks and streams, and the River Dee situated approximately 1.3 kilometres away from the site. These in turn provide a favourable network of commuting and foraging corridors for bats. All of the aforementioned features highly favourable habitat for the species for which the survey was undertaken.

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- 6.4 The surveyed properties broadly comprise of a residential dwelling (B1), garage (B2), portable cabin (B3), shed (B4) and fan house (B5). All buildings are currently unoccupied at present and are largely redundant of any former purpose. During the inspection only the residential property and garage contain loft spaces, however, these could not be accessed and thus, not assessed in relation to their suitability for typical loft dwelling bats, i.e. Long-eared bat (*Auritus*) or Horseshoe (*Rhinolophus*). These are species that generally favour large, unrestricted, dark and undisturbed lofts/upper floors that allow free flight. Despite the immediate and extending habitat being considered to meet the specific foraging requirements of these species no recent or historic evidence was observed during the inspection.
- 6.5 Within the site boundary the structures have been numbered for clarity and their description and suitability for roosting bats can be located within Table 1.



Locations of buildings 1- 5 within the Walker Fan House site

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Table 1:

Building	Description / Findings	Potential
B1	A bungalow that is currently unoccupied, in a deteriorating condition and is currently redundant from any previous function. B1 contains a loft compartment of approximate dimensions 6 metres x 18 metres by 2 metres in height that is highly cluttered with trusses. The structure is single storey and of brick construction with concrete panelling and a slate pitched roof. Internal inspection revealed that underfelt was lacking and a lime and mortar finish was present beneath roof slates. Roof lining such as bitumen underfelt is absent beneath the roof slates; where present, such materials can provide opportunities for crevice dwelling species whereby they roost between the two materials providing external access is available. The roof is of truss construct and the loft space of a cluttered nature (see Appendix I) thus, it is considered as being unsuitable for the roosting requirements of loft-dwelling bat species such as the Brown Long-Eared which is a species that favours large, darkened, non-draughty loft spaces that allow free flight. Furthermore, no recent or historic evidence of use was observed during the inspection. External inspection revealed ingress points to the east, south and west of the property. These were in the form of gaps at wall plate level, loose/lifted/missing tiles, within cement panelling to the front elevation, at roof verges and at the ridge tiles. No obvious evidence of bats in the form of droppings or prey remains for example, was seen during the external assessment.	Potential: Breeding potential for loft dwelling bat species low. High potential for crevice dwelling bat species.
B2	Single storey brick built structure with cement render finish and slate pitched roof of approximate dimensions 9 metres by 4 metres by 3 metres in height. Previously used as a garage; internal inspection of the structure was not possible due to access restrictions, although it was apparent that a loft space is present in the structure. Presence of underfelt is thus unknown and no evidence of bats was obtained during the external assessment. Externally, typical ingress points favoured by bats are located; gaps at front and rear roof verges, under soffits to both east and west side elevations, missing/lifted/loose slates and gaps in a broken window to the rear of the garage.	Potential: Potential low for loft dwelling bat species. High potential for crevice dwelling bat species.
B3	Portable cabin of corrugated metal construct throughout of approximate dimensions 9 metres by 3 metres by 3 metres in height. Internal inspection was not possible; however a loft space will be absent. No ingress opportunities were located on the structure and there was thus no potential for crevice or loft-dwelling species of bat.	Potential: Absent for loft or crevice dwelling bat species.

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B4	Open shed of corrugated metal construct throughout of approximate dimensions 3.5 metres by 3 metres by 2.5 metres in height. The structure is redundant of any former purpose and has no potential for loft or crevice-dwelling bats throughout.	Potential: Absent for loft or crevice dwelling bat species.
B5	Walker Fan House is a large building of brick construction with a flat roof element built originally in 1902. The building covers a large area of approximate dimensions 29 metres by 9 metres by 20 metres in height. The building itself is in a severely deteriorating condition and internal assessment could not be safely obtained although it was apparent a loft compartment is absent. External assessment revealed numerous opportunities for crevice-dwelling bats in the form of missing brickwork to eastern, southern and western aspects. Though brickwork was missing to the rear (northern) aspect, dense vegetation covered the building and entry by bats is unlikely to this aspect.	Potential: Breeding potential negligible for loft dwelling bat species. High potential for crevice dwelling bat species. Potential for hibernating bats in wall crevices

Bat roost potential within the trees at the Walker Fan House site was not found to be present at the time of the survey. Notwithstanding this, trees were inspected at a time when foliage is present and the surveyors view can be impeded by foliage of where potential may exist. Additional to potential, trees will provide important foraging and commuting features that can be anticipated as being used by bats.

Breeding birds

The presence of Schedule 1 species such as Barn Owl (*Tyto alba*) is considered to be possible within the vicinity, as the immediate environs would offer hunting habitat; however, no recent or historic signs of use such as discarded pellets or faecal splashing is observed around any of the buildings on the day of the survey, and the structures are generally not considered suitable in terms of supporting this species for breeding purposes.

Potential for more common bird species is present within the structures and on the land encompassing the site. Trees and scrub also provide a viable nesting platform for breeding birds, though no recent or historic bird nests were observed on the day of the survey.

7.0 Incidental Observations

- 7.1 Though a large portion of the area is brownfield where tree and scrub has succeeded the place of the old colliery, to the south-western boundary of the site (approximate dimensions 90 metres x 20 metres) included several plant species indicative of ancient woodland. These included Wood Millet (*Milium effusum*), False Brome (*Brachypodium sylvaticum*) and Dog's Mercury (*Mercurialis perennis*). Within the connecting landscape are large ancient woodlands following the River Dee and its tributaries and it is likely that this characteristic assemblage is remnant from previous development occurring around and on site.

- 7.2 Ancient woodland is any woodland that has existed continuously since the end of the Last Glacial Maximum (LGM) and is an irreplaceable habitat. To reflect this, irreplaceable habitats (including ancient woodlands), according to the National Policy Planning Framework (NPPF) must be considered in planning applications and should not be destroyed '*unless the need for, and benefits of, the development in that location clearly outweigh the loss;*'
- 7.3 Within the eastern site boundary and along the access road into the site is a large area of Japanese Knotweed (*Fallopia japonica*). Japanese Knotweed is listed within Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) as an invasive species and it is an offence to spread any species listed here. Additionally, it is a legal obligation that contaminated spoil taken off site must be treated as controlled waste and disposed of at a landfill site authorised to take such waste.

8.0 Daytime Conclusions & Implications

- 8.1 From the survey results it can be concluded that the loft space of B1 and B2 is of low suitability to meet the requirements of loft-dwelling species of bat given the small/cramped nature of both loft cavities. Notwithstanding the largely unsuitable nature of B1 and B2 for loft-dwelling bat species such as the Brown Long-Eared bat (*Plecotus auritus*), the immediate / surrounding habitat is favourable for this species specific foraging requirements. No recent or historic evidence of use is observed.
- 8.2 Ingress opportunities were observed within Buildings 1, 2 and 5, notably the ridge tiles, roof slates, missing bricks, wall plate, roof verge and under soffits; the quality of the immediate habitat in combination with the identified roost potential will instigate dusk/dawn surveys on those buildings affected by the proposed development (B1 and B2) and B1, B2 and B5 are all classified as offering high bat roost potential. Buildings 3 and 4 do not offer bat roost potential and thus future plans in respect to these structures will have no impact upon loft or crevice dwelling bat species and no further surveys are recommended.
- 8.3 In relation to trees on site, despite no bat roost potential being located, trees were assessed at a time where foliage is largely present which is a sub-optimal timing to assess for bat roost potential. Trees on site are likely to act as a valuable corridor for foraging and commuting bats.
- 8.4 It is understood The Walker fan house will not be affected by the current development, however, should this change at any time dusk/dawn surveys will be required.
- 8.5 There are no current implications in relation to Schedule 1 specially protected bird species, and no evidence to suggest the recent presence of Barn Owl was located; however, the site offers numerous opportunities in the form of scrub, trees and ingress into buildings to provide a nesting platform for breeding birds.

9.0 Daytime Survey Recommendations

- 9.1 As Buildings 1, 2 and 5 at the Walker Fan House site have been identified as offering high bat roost potential, it is recommended that in order to establish if and if so how they are using the building/s, dusk emergence or/and dawn surveys should be undertaken. The surveys will need to be conducted during the active season of bats i.e. between May – September and spaced at least two weeks apart between those months as bats, particularly Pipistrelle bats often alternate between roosts and do not necessarily use one roost over their active season.

(See Extract from Bat Conservation Bat Surveys: Good Practice Guidelines 2016 3rd edition below).

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

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

- 9.2 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 should be applied for via Natural Resources Wales. 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.
- 9.3 It is recommended that site clearance operations and demolition should be timed outside of the breeding season of birds (March - August) so as to avoid potential damage to an occupied nest and subsequently committing an offence. It is further recommended that provision for breeding birds be incorporated into any new proposed development (see appendix two).
- 9.4 The overall nature of the site to all aspects is considered to be of high quality for the foraging and commuting requirements of bats – notably tree and shrub. Installation of lighting as part of any future development, that exceeds current levels, may have a negative impact upon foraging/commuting bats, particularly if increased light spillage occurs in areas of that are currently free from illumination which includes the parameters of the site boundary.

If inappropriate and ill designed lighting is implemented then there is likely to be an adverse impact upon bats; see extract below from Bat Conservation Lighting Guidelines.

Type of lamp (light source)

The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier.

Predicting where the light cone and light spill will occur

There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels

The light should be as low as guidelines permit. If lighting is not needed, don't light.

- 9.5 It is recommended that the Japanese Knotweed (*F. japonica*) to the eastern site boundary and along the access road be treated by a licensed contractor before any prior site works commence to avoid spreading the species. Failure to comply with the legislation could result in a fine of up to £5000.
- 9.6 Given the timing of the initial survey and the presence of foliage on trees, it is recommended that trees be inspected for bat roost potential at a time where foliage is largely absent to conclusively confirm the presence/absence of bat roost potential within trees on site.
- 9.7 Given the amount of shrub/scrub and trees at the site, quality of habitat and size of the site, the site is deemed of low habitat suitability for bats which instigates three transect surveys across the site between the months of April-October to determine species and numbers of bats using the site and how bats use the site. See BCT guidelines extract below (Figure 1).

Table 8.3 Guidelines on the number of bat activity surveys recommended to achieve a reasonable survey effort in relation to habitat suitability.			
Survey type	Low suitability habitat for bats^a	Moderate suitability habitat for bats	High suitability habitat for bats
Transect/spot count/timed search surveys	One survey visit ^b per season (spring – April/May, summer – June/July/August, autumn – September/October) ^c in appropriate weather conditions for bats Further surveys may be required if these survey visits reveal higher levels of bat activity than predicted by habitat alone	One survey visit ^b per month (April to October) ^c in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.	Up to two survey visits ^b per month (April to October) ^c in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.

Figure 1: BCT extract

10.0 Dusk Survey Results

The timing of the dusk surveys is within the main active period and breeding season of bats when maternity colonies are formed and bats are in a highly active and social stage.

The three dusk emergence surveys were undertaken on the 26th July, 09th and 24th August 2017 by Mrs K Wilding, a highly experienced surveyor and long-term holder of a Natural England Class 2 License and accredited agent on a Natural Resources Wales Bat License (51880:OTH:CSAB:2014)), Mr J Styles, accredited bat surveyor currently working for The Tyrer Partnership, Mr J Barnes and Mr M Mulholland, experienced bat surveyors currently in training with The Tyrer Partnership.

The number of surveys and surveyors were adequate relative to the roost potential that was identified i.e. "High".

Surveyors were located in positions that allowed unrestricted views of the roost potential that was identified during the diurnal survey. The surveys were aided with Anabat electronic bat detectors that enable the continuous location and recording of the high frequency calls that are emitted by bats; echolocation calls were then analysed with computer software to verify field observations. The tables below contain the conditions during and results of the three surveys.

When considering the survey protocol the decisions about whether dusk or dawn surveys are chosen are based on the extensive experience of the Tyrer Partnership, the nature of the building and species that can be anticipated as being present either at the property or in the locality and how complex a building is it relative to observations.

In this case the building is a very simple construction and presents no problems for dusk observations, if a building is complex or observations were restricted or species that are difficult to detect at dusk are suspected then dawn surveys would be conducted. At this property there is no evidence to suggest the presence of such species.

It should also be noted that at dawn temperatures are usually lower than at dusk as a result bat activity can, in some locations, be less frequent.

Where singular/small numbers of bats are present and there are no survey constraints then dawn surveys are of no more value than dusk surveys; singular bats can and do return to a roost before dawn and as a result a dawn survey would not record them anyway.

Dawn surveys are more productive when "back tracking" bat to a roost from foraging grounds

It is also our opinion that undertaking additional surveys either dusk or dawn will not add any information to that which has previously been gathered at the property and we base that opinion on over 35 years of bat surveying

Whilst the Tyrer Partnership is fully aware of the guidelines they are as they state – guidelines.

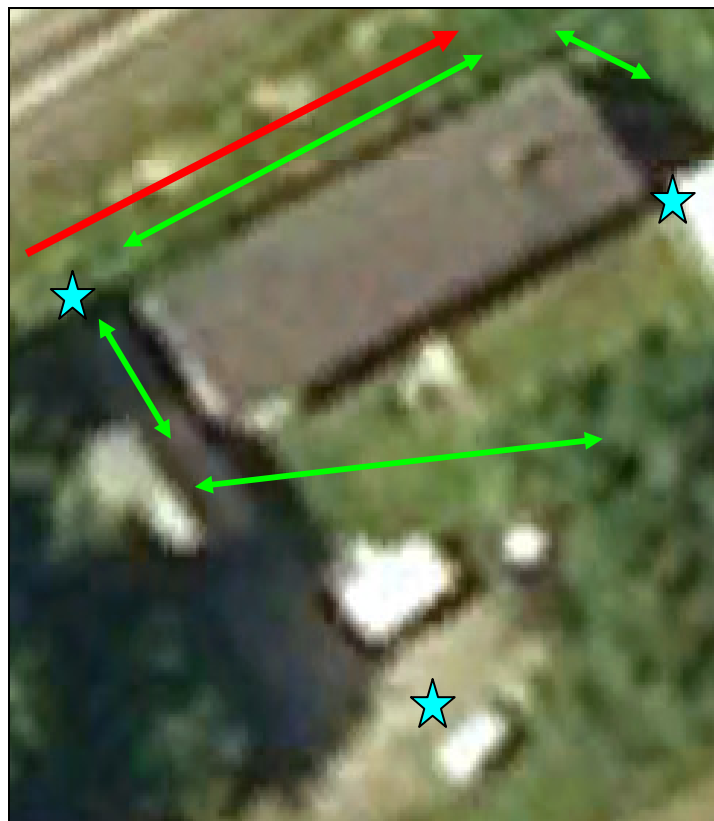
Walker Fan House, Ruabon, Wrexham, LL14 6DP
Inspection and Assessment in Relation to Bats & Breeding Birds

Survey Type	Date	Weather Conditions
Dusk survey	26 th July 2017	Sunset: 2117: Wet with light drizzle at 2155 hours, gentle breeze, 100% cloud cover Start temp: 16 °C End temp: 14 °C
Dusk survey	09 th August 2017	Sunset: 2051: Dry, calm, 15% cloud cover Start temp: 18 °C End temp: 16 °C
Dusk survey	24 th August 2017	Sunset: 2020: Dry, calm, 100% cloud cover Start temp: 16 °C End temp: 15 °C

Dusk Survey	Time	Activity
26 th July 2017	2105 - 2220	Summary: Bat emergence absent from the buildings during the observation period. 2208 hrs: One Common Pipistrelle commuted from the north-west to the north-east General activity comprised of a maximum of one Common Pipistrelle bat foraging around the site very sporadically throughout the duration of the survey.
9 th August 2017	2032 - 2150	Summary: Bat emergence absent from the buildings during the observation period. 2112 hrs: One Common Pipistrelle bat commuted onto site – no visual. General activity comprised of a maximum of one Common Pipistrelle bat commuting onto site. Foraging activity was nil.
24 th August 2017	2000 - 2145	Summary: Bat emergence absent from the buildings during the observation period. 2048 hrs: Brown Long-Eared bat commuted onto site from the north-west and continues to forage around the site for the duration of the survey.

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		2049 – 2053 hrs: Daubentons bat foraging on site to the rear of B1 along railway line/site boundary. 2058 hrs: Natterers bat commuting across railway line to the rear of B1 2109 hrs: Noctule commuted across site 2117 hrs: Soprano Pipistrelle foraged briefly on site around B1 and B2. 2118 hrs: Common Pipistrelle similarly commuted onto site and foraged sporadically around the buildings. General activity comprised of a maximum of 9 bats commuting and foraging on site frequently and included: Common Pipistrelle, Soprano Pipistrelle, Daubentons, Natterers, Noctule and Brown Long-Eared bat.
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Surveyor positions and recorded bat activity during dusk observations

- | | |
|---|---|
|  | Location of surveyors during dusk observations |
|  | Common Pipistrelle bats - commuting direction boundary |
|  | Foraging activity by Common Pipistrelle bats during surveys |

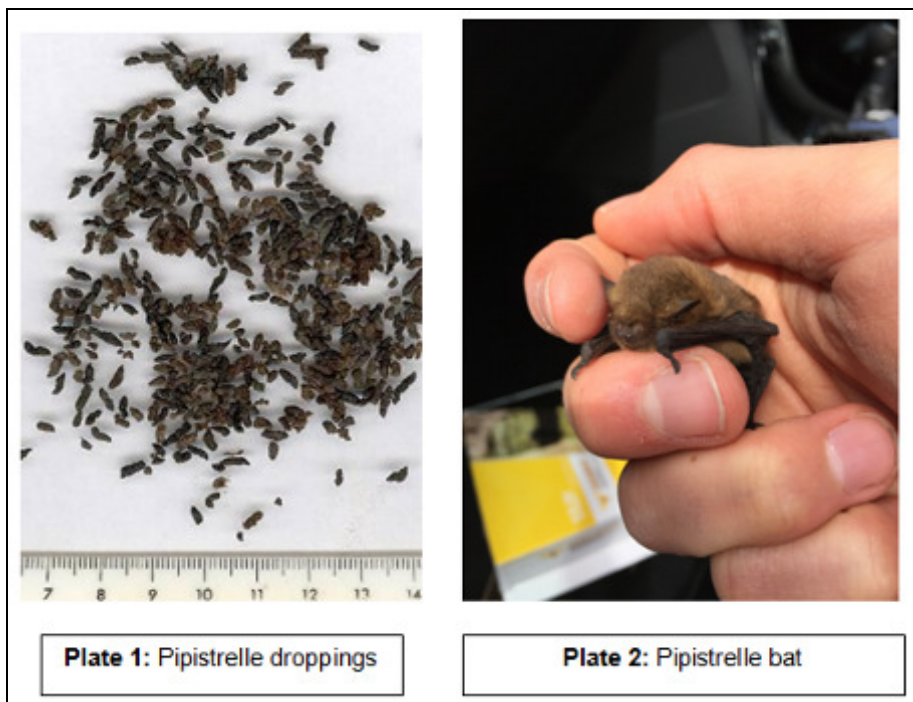
11.0 Dusk Survey Conclusions / Recommendations

- 11.1 From the 2017 dusk survey results it can be concluded that whilst using best practice survey methodology no bat emergence at the buildings B1 or B2 at the Walker Fan House site was identified; foraging/commuting activity was recorded within the vicinity of the buildings featuring Common Pipistrelle, Soprano Pipistrelle, Brown Long-Eared, Noctule, Natterers and Daubentons bats.
- 11.2 The results of the dusk surveys have revealed the presence of six bat species foraging/commuting within the grounds of the Walker Fan House site, thus it is recommended that any significant clearance operations on site should be followed up with bat transect surveys. In addition to this, the Walker Fan House itself (B5) was noted to possess high roost potential and offers potential as a hibernation roost and thus, any works affecting B5 must be addressed with additional bat emergence/re-entry surveys.
- 11.3 Three dusk emergence surveys were completed in accordance with the recommendations of the daytime survey. Whilst no bat emergence was recorded during the dusk surveys it is possible that subsequent to the survey bats could use those features identified during the daytime survey as providing roosting potential.

All contractors should be aware of the possible presence of bats at any time during the removal of roof slates, ridge tiles, or lead flashing. The following information should be included in all site inductions:-

As a precaution, roof slates, ridge tiles, soffit, fascia and barge boards should be removed in a controlled and careful method *i.e.* vertically lifted and not laterally removed. The underside of the ridge tiles and the top of the ridge beam should be checked for actual bat/s or evidence of bat use. (See Plates 1 & 2) Once roof slates have been removed the exposed wall cavity, if present, should be investigated for actual bat/s or evidence of bat use.

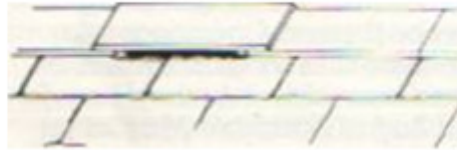
In the event that bat/s or evidence of bat use is/ are found it/ they should be left in-situ and afforded shelter whilst ensuring that bat/s can exit the location. As a legal requirement contractors should not touch or handle bats or cause them to move in any way. All work should then immediately cease and the bat ecologist contacted for further advice. Where bat/s or their roost/ place of rest/ shelter would be affected a European Protected Species Mitigation Licence (EPSML) would be required before the works can legally re-commence.



Notwithstanding bat/s absence it is recommended that provision for bats is incorporated into the development at the Walker Fan House site suggestions for this purpose are shown below and will help to meet the LPA criteria in respect to Local Biodiversity Policies.



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



Access in ridge tiles; the top of the ridge beam should not be covered with a breathable membrane to avoid the sharp claws of bats becoming entangled in the fine fibres; a traditional section of bitumastic underfelt could however be used over the ridge beam



1FQ Bat Roost - designed specifically to be fitted on the external wall of a house, barn or other building. The shape and design make it equally attractive to bats as a roost. It requires no maintenance or cleaning and its tough construction will ensure that it helps bats for decades.

Appendix I – Site Photographs



Bungalow (B1) front elevation showing missing tiles/loose/lifted slates



B1 showing gaps at wall plate level and in cement panelling



Lime and mortar finish beneath roof slates of B1



Truss roof construct of B1



Garage (B2) showing loose/lifted tiles and missing ridge tiles with gaps at wall plate level



Gaps in the roof verge within B2



Gaps in soffit of B2



Portable cabin (B3) – no bat roost potential



Corrugated metal shed (B4) – no roost potential



Walker Fan House building (B5) – potential to south, east and western aspects in the form of brick work crevices & hibernation potential



Interior of B5 – could not be accessed due to safety reasons



Ingress into areas of B5 via cracks and crevices within brickwork & hibernation potential



Abundant areas of scrub on site – nesting platform for birds